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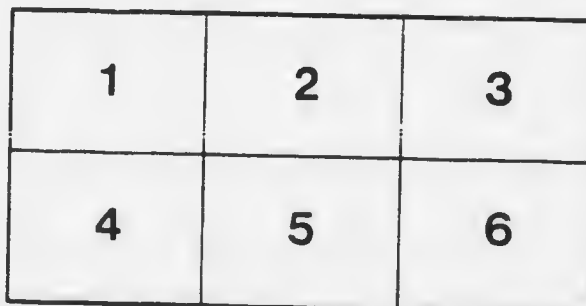
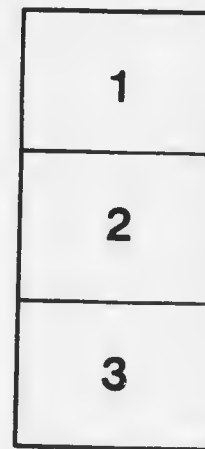
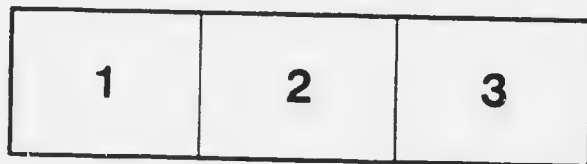
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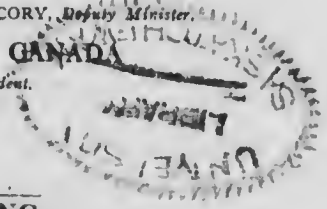
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GEODETTIC SURVEY OF CANADA

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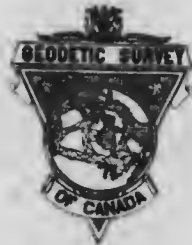


PRECISE LEVELLING

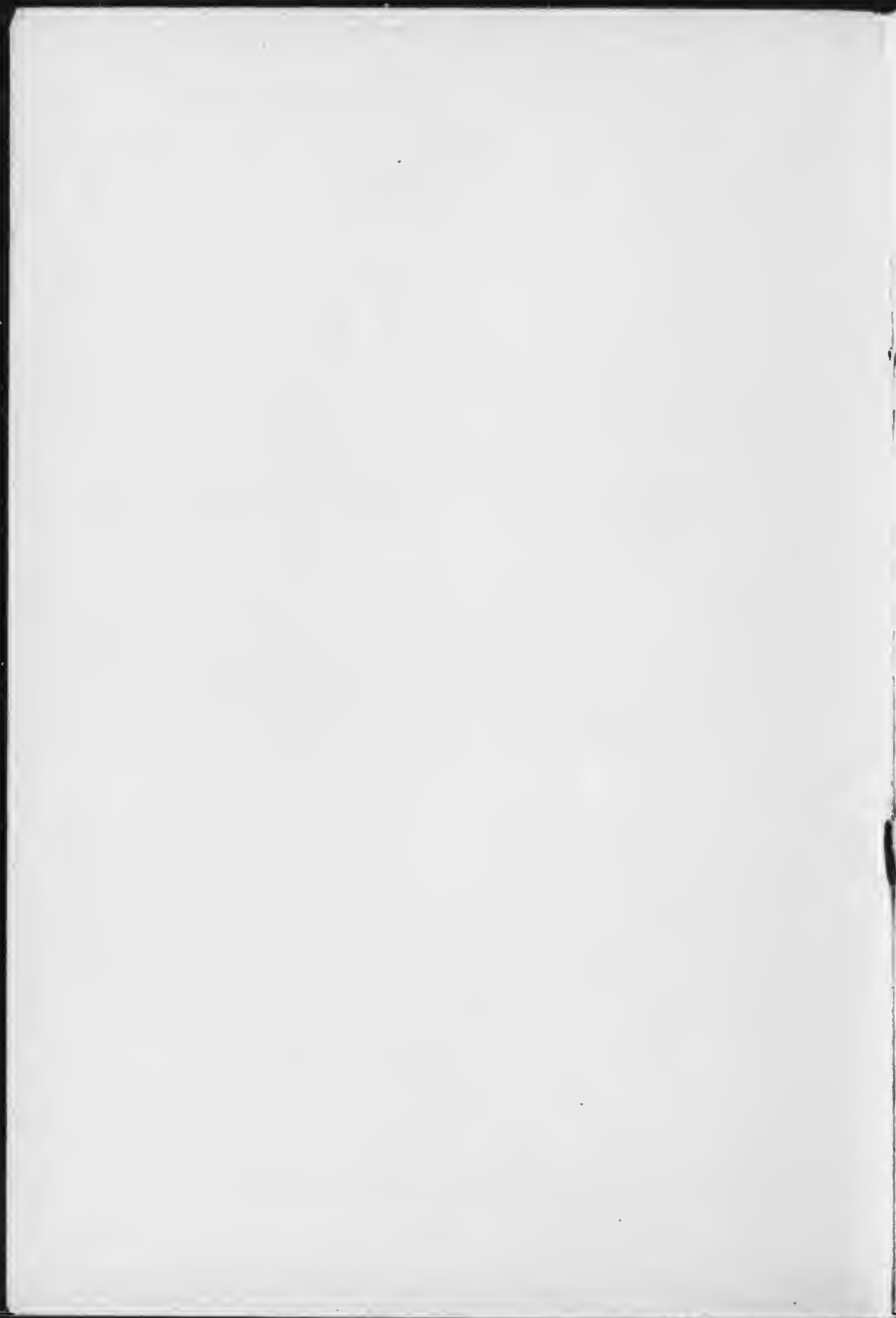
CERTAIN LINES IN QUEBEC, ONTARIO and BRITISH COLUMBIA

WITH AN INDEX MAP SHOWING ALL
WORK PREVIOUSLY PUBLISHED

PUBLICATION No. 1



OTTAWA
J. DE LABROQUERIE TACHÉ
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1918



DEPARTMENT OF THE INTERIOR, CANADA

HON. ARTHUR MEIGHEN, *Minister*, W. W. CORY, *Deputy Minister*

GEODETIC SURVEY OF CANADA

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F. B. REID Supervisor of Levelling

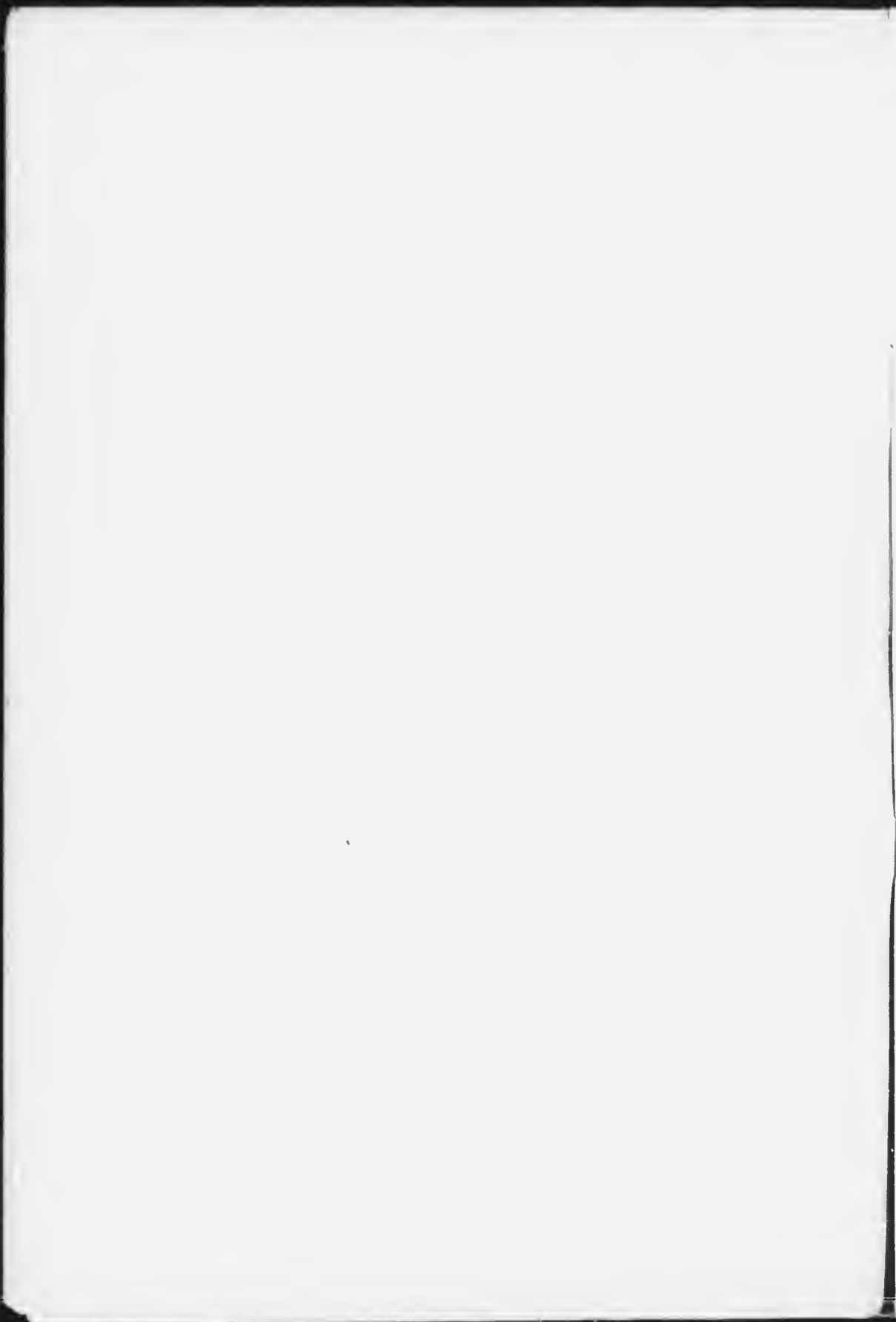
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INTRODUCTION

This publication on Precise Levelling is the first one issued by the Geodetic Survey of Canada as a separate branch of the Department of the Interior. Precise levelling results previously issued to the public are contained in six "Publications of the Dominion Observatory", as follows:—

Vol. I, No. 2, issued 1912*	Vol. II, No. 1, issued 1915
Vol. I, No. 3, " 1913	Vol. III, No. 6, " 1916
Vol. I, No. 8, " 1914	Vol. III, No. 8, " 1917

The present publication is arranged in the same general form as the previous ones, with the results of the levelling set forth in three tables. The index and map included herein are complete for all the work previously published, as well as that in the present publication; the index indicates in which publication descriptions and elevations of bench-marks published before this may be found.

Table I indicates the routes followed between terminal points and gives complete descriptions of all bench-marks established along these routes.

Table II shows in the first two columns the numbers of the bench-marks; in the third and fourth columns the approximate distance (in miles) between bench-marks, and from the initial bench-mark of the line; the fifth and sixth columns (headed "Discrepancy") give the difference (in feet) between the forward levelling and the backward levelling for each section between bench-marks and the accumulated difference from the initial bench-mark. The seventh column gives the elevations of the bench-marks shown in the second column; for convenience, these bench-marks are repeated (in the eighth column) in order that the number of any bench-mark and its elevation may be in adjoining columns. In this table are shown also the elevations determined by the Geodetic Survey of Canada for certain bench-marks established by other surveys and connected with the former.

Table III shows the elevations at railway stations and at crossings of intersecting railways; also on the bridges over rivers and lakes and the more important streams. Rail elevations were in all cases taken on top of the rail, in front of the telegraph office at telegraph stations and opposite the shelter or platform at flag-stations.

The results are given for the following lines:—

1. Rouse Point, N.Y. to Sherbrooke, Que.
2. Ste. Rosalie Junction to Farnham, Que.
3. Chaudière to Richmond, Que.
4. Loop line around Montreal, Que.
5. Brantford to Luan Crossing, Ont.
6. Guelph Junction to Palmerston, Ont.
7. Fergus to Melville, Ont.
8. Port Dalhousie and Port Colborne, Ont.
9. Franz to Port Arthur, Ont.
10. Jasper, Alta., to Loos, B.C.
11. Abbotsford to Resplendent, B.C.
12. Revelstoke to Kamloops, B.C.

Line 1 was started from the United States Coast and Geodetic Survey bench-mark in the Chapman Block, Rouse Point, N.Y.; levels were carried via St. Lambert, Ste. Rosalie Junction and Richmond, being closed at Sherbrooke on

*Levelling in Yukon territory only.

the original Rouse Point-Sherbrooke line—carried via St. Johns, Farnham and Magog (see 1917 publication, line *c*). The closing error of the circuit formed by the two lines from Rouse Point to Sherbrooke is 0.279 foot—the difference between the two elevations for the junction bench-mark at Sherbrooke. Line 2 divides this circuit into two smaller ones, the closing errors being respectively 0.104 foot and 0.175 foot. Line 3 was started from the St. Anselme-Levis line (1916 publication) and terminated at Richmond, with a small closing error, on line 1.

Line 4 branches from line 1 at St. Lambert and after crossing the Victoria bridge over the St. Lawrence river forms a complete loop around the main portion of the city of Montreal, closing upon itself at bench-mark DLXXXIV, at the Point St. Charles end of the Victoria bridge. Nineteen bench-marks were established along the course of the line and in addition several bench-marks of the Public Works Department of Canada were tied in; tables I and II in this publication give descriptions and elevations of all bench-marks, those originally established by the Public Works Department being designated by Roman numerals. The route taken by the loop line from bench-mark DLXXXIV was as follows: the tracks of the Grand Trunk railway were followed through Point St. Charles and St. Henri to the crossing of Atwater avenue; Atwater avenue was then followed to the subway under the Canadian Pacific railway's Montreal-Smiths Falls line; a spur line was run from this point to Dominion Square while the main line of levels was continued along the Canadian Pacific railway through Montreal West, Côte-des-Neiges and Mile End to the Place Viger station; the streets along the water front were then followed till the line closed upon itself at the above mentioned bench-mark. The closing error of 0.07 foot has been distributed equally around the loop at the rate of 0.004 foot per mile—the distance being $21\frac{1}{2}$ miles.

The 1913 publication gave results for a large circuit of levelling in western Ontario extending through Toronto, Brantford, London, Palmerston and Owen Sound. Lines 5, 6 and 7 given herewith, split this circuit into four small ones, all having fairly small closures. Line 5 was started from the main Toronto-Windsor line near Brantford, line 6 is a branch from line 5 and line 7 a branch from line 6, each being terminated at a point on the circumference of the large circuit. Under line 8 are included two short branch lines from the Hamilton-Bridgeburg line (1913 publication), namely: St. Catharines to Port Dalhousie and Welland Junction to Port Colborne; these were run primarily for the purpose of forming a connection between the Geodetic Survey levels in the Niagara peninsula and the levels established by the Hydrographic Survey, Department of the Naval Service, by means of water transfers across the great lakes. The elevation of the Hydrographic Survey's bench-mark at Port Dalhousie, derived by water transfers between the years 1911 and 1914 from the automatic gauge at Tibbets Point, N.Y., is 250.421, and the elevation of their bench-mark at Port Colborne, derived by water transfers between the same years from automatic gauges at Buffalo and Cleveland, is 584.688; the elevations obtained by the line of precise levels of the Geodetic Survey of Canada from Rouse Point, via Toronto and Hamilton, are 249.812 and 583.994 respectively. This means that the difference between the Port Dalhousie and Port Colborne bench-marks of the Hydrographic Survey, as established by precise levelling, is 334.182 feet.

Line 9 is a continuation of the line from Steelton to Franz which was published last year; at Port Arthur it closes upon the line from Stephen, Minn., thus forming the first connection by precise levelling through Canada between the United States Coast and Geodetic Survey bench-marks at Rouse Point, N.Y., and Stephen, Minn. At Port Arthur this line is connected with a bench-mark of the Hydrographic Survey; the elevation of this, derived by water transfers between the years 1907 and 1914 from Marquette, Mich., is 616.151; the elevation obtained by the line of precise levels of the Geodetic Survey of Canada

from Rouse Point is 614-456. To recapitulate, connections have now been made between water-transfer bench-marks and the precise level system of the Geodetic Survey of Canada at the following points on the great lakes: Kingston, Brighton, Toronto and Port Dalhousie on lake Ontario; Port Colborne on lake Erie, Goderich on lake Huron, Michipicoten and Port Arthur on lake Superior.

Line 10 is a continuation of the Saskatoon-Wainwright-Edmonton-Jasper line (1915-16-17 publications). Line 11 was started at Abbotsford, B.C., from the levels previously run along the Great Northern railway from Vancouver (1916 publication). By means of this line the mean sea level datum established at Vancouver by the Tidal and Current Survey is extended inland to Resplendent—only a short distance from the Yellowhead pass—and a junction made with levels from Stephen, Minn. It is to be observed that the difference shown at the junction point—refer to Table II—is only 0.049 foot. Line 12 completes the Calgary-Field-Revelstoke line (1916 and 1917 publications) and establishes another junction with the Stephen levels—namely at Kamloops, B.C. The closure at this point, 1.094 feet, is not so satisfactory as at Resplendent. This may be in a large measure due to the closing error of slightly over one foot in the twelve hundred mile circuit in Saskatchewan and Alberta—refer to the introduction to the 1916 publication.

As in previous publications all elevations are instrumental and have had no adjustments applied to them, with the single exception of the loop line around the city of Montreal where the small closing error was distributed proportionately to the distance in order to avoid confusion to engineering organizations using the bench-marks.

The standard bench-mark adopted consists of a copper bolt, three-quarters of an inch in diameter and four inches long, stamped on the end with the letters "G.S.C., B.M." (Geodetic Survey of Canada, Bench-mark). The bolt is sunk horizontally in rock or masonry so that only the circular end is visible; the number of the bench-mark is stamped on this end as well as the letters mentioned above, and a horizontal chisel line is cut, upon which the elevation is taken. At certain points concrete bench-mark piers have been built; these project from six inches to one foot above the ground and extend below the frost line; in all piers built previous to 1917 the copper bolt upon which the elevation was taken was placed horizontally in a side of the pier, about nine inches below the top. In 1917 a new design was adopted, the bolt being placed vertically in the top of the pier. The description indicates in each case the position of the bolt.

TABLE I

BENCH-MARKS BETWEEN ROUSE POINT, N.Y., AND SHERBROOKE, QUE.,
VIA NAPIERVILLE JUNCTION RAILWAY TO DELSON AND
GRAND TRUNK RAILWAY THROUGH ST.
LAMBERT AND RICHMOND TO
SHERBROOKE.

Elevations on page 52.

Note.—These descriptions are written with the assumption that the railway runs in a northerly direction from Rouse Point to St. Lambert, thence easterly to Richmond and thence southerly to Sherbrooke.

- ⊕ United States Coast and Geodetic Survey bench-mark in Chapman Block, Rouse Point.
- 581-B In north face—5 inches above concrete base—of international boundary monument No. 647, 66 feet west of Grand Trunk railway track, 1 mile north of Rouse Point and on south line of roadway along boundary.
- 582-B In north end of east face of concrete coping on east end of pipe culvert under Napierville Junction railway, 2 miles south of Lacolle and 100 feet south of mile post 3 from international boundary.
- 583-B In east end of north face of concrete retaining wall behind south abutment of subway under Napierville Junction railway, 400 feet south of Lacolle station.
- 584-B In northwest face of southwest wing wall of concrete culvert under King Edward highway, 2 miles north of Lacolle and 500 feet northeast of crossing of Napierville Junction railway.
- 585-B In east end of north face of south concrete abutment of open culvert under Napierville Junction railway, 4½ miles north of Lacolle and 345 feet north of mile post 9 from international boundary.
- 586-B In west end of south face—10 inches below top—of concrete retaining wall behind south abutment of Napierville Junction railway bridge, 400 feet north of Napierville station.
- 587-B In second course of stonework below water-table course, in north face of pilaster at northeast corner of Napierville Roman Catholic church.
- 588-B In east end of south face of north concrete abutment of open culvert under Napierville Junction railway, 3¼ miles north of Napierville and at mileage 15.7 from international boundary.
- 589-B In south end of west face—30 inches below top—of southwest concrete retaining wall of plate-girder bridge on Napierville Junction railway, 900 feet south of St. Edouard station.
- 590-B In east end of north face of south concrete abutment of open culvert under Napierville Junction railway, 450 feet south of La Tortue flag-station.
- 591-B In south end of east face—9 inches below coping—of east concrete face-wall of pipe culvert under Napierville Junction railway, ¾ mile north of La Tortue flag-station and midway between two farm crossings about 500 feet apart.
- 592-B In north face of southeast concrete retaining wall—5 feet below bridge seat—of plate-girder bridge on Napierville Junction railway, 1¼ miles south of Delson and at mileage 26.15 from international boundary.
- 593-B In side of concrete bench-mark pier, 3 feet east of west line of Napierville Junction railway right of way, 60 feet north of a private crossing and 1,250 feet southeast of Canadian Pacific station at Delson. This is beside the easterly track of the loop at Delson, i.e., the track which connects with the Canadian Pacific railway.
- 594-B In north end of west face of east abutment of square concrete culvert under Canadian Pacific railway, immediately west of diamond crossing of Grand Trunk railway at Delson.
- 595-B In east face of flat boulder beside ditch, 12 feet east of west line of Grand Trunk railway right of way, 3 miles north of Delson, 60 feet north of a farm crossing and 1,869 feet north of mile post 16 from Montreal.
- 596-B In second altar-step below top, in northeast face of northeast retaining wall of plate-girder bridge on Grand Trunk railway, 1¼ miles north of Laprairie and 340 feet south of mile post 13 from Montreal.
- 597-B In top course of stonework, in west face of north abutment of large open culvert under Grand Trunk railway, 1¼ miles south of St. Lambert and 0.6 mile south of diamond crossing of Montreal and Southern Counties (electric) railway.

- 597-B-2 In third course of stone work below water table course, in east face of pilaster at east end of front (or south) wall of St. Lambert post office.
- 598-B In south face of concrete extension of top course of stonework in west abutment of open culvert under Grand Trunk railway in Southwark yard, 1 mile east of St. Lambert and 1,000 feet east of a highway crossing.
- 599-B In north end of west face of stone retaining wall behind east abutment of open culvert under Grand Trunk railway, 1 mile west of St. Hubert and 320 feet west of "Yard Limit" post at east end of Southwark yard.
- 600-B In water table course of stonework, in east face of buttress at east end of front (or south) wall of Roman Catholic church, St. Hubert.
- 601-B In north end of west face of stone retaining wall behind east abutment of plate-girder bridge on Grand Trunk railway, 1½ miles west of St. Bruno and immediately east of a highway crossing.
- 602-B In west end of south face of concrete coping on south end of stone culvert under Grand Trunk railway, immediately west of St. Bruno station.
- 603-B In first course of stonework below coping, in west end of north face of square stone culvert under Grand Trunk railway, 1 mile west of St. Bazile, 700 feet east of a highway crossing and 550 feet east of mile post 16 from Montreal.
- 604-B In side (or east) wall of Roman Catholic church at St. Bazile, 7 feet 8 inches below sill of first window from front of building.
- 605-B In south end of west face of stone retaining wall behind east abutment of open culvert under Grand Trunk railway, 1 mile east of St. Bazile and at mileage 18.25 from Montreal.
- 606-B In south end of west face—14 inches below top—of concrete retaining wall behind east abutment of Grand Trunk railway bridge over Richelieu river, immediately east of Beloeil.
- 607-B In water-table course of stonework, in west wall—5 feet from northwest corner—of Grand Trunk station house at St. Hilaire.
- 608-B In east end of north face—20 inches below coping—of square concrete culvert under Grand Trunk railway, at the east line of a highway crossing, 2¼ miles east of St. Hilaire East and at mileage 25.15 from Montreal.
- 609-B In north end of east face of concrete retaining wall behind west abutment—18 inches above bridge seat—of plate-girder bridge on Grand Trunk railway, ¼ mile west of Ste. Madeleine.
- 610-B In east face—2 feet below top—of north face wall of square concrete culvert under Grand Trunk railway, at a diagonal highway crossing, 2¼ miles west of St. Hyacinthe and at mileage 33.2 from Montreal.
- 611-B In second course of stonework below brickwork, in west end of front (or north) wall of Grand Trunk station house at St. Hyacinthe.
- 612-B In fourth course of stonework below brickwork, in south end of front (or east) wall of St. Hyacinthe registry office, on west side of du Palais street.
- 613-B In first course of stonework above concrete sidewalk, in north wall of clock tower of St. Hyacinthe post office, immediately west of main doorway.
- 614-B In east face-wall of concrete tile culvert under Canadian Pacific railway immediately south of diamond crossing of Grand Trunk railway at Ste. Rosalie Junction.
- 624-B In side of concrete bench-mark pier, 23 feet south of north line of Grand Trunk railway right of way, 2 miles east of Ste. Rosalie Junction, 80 feet west of a rail-stand and 1,820 feet west of mile post 40 from Montreal.
- 625-B In second course of stonework below bridge seat, in north end of west face of east abutment of plate-girder bridge on Grand Trunk railway, 700 feet west of Britannia Mills station.
- 626-B In second course of stonework below brickwork, in front (or southwest) wall of registry office at St. Liboire, 11 feet 3 inches from west corner of building.
- 627-B In second course of stonework below top, in southwest face of southwest wing wall of Grand Trunk railway bridge over Black river at Upton.
- 628-B In water-table course of stonework, in south end of side (or west) wall of Roman Catholic church at Upton.
- 629-B In second course of stonework below seat of I-beams, in northeast face of northeast wing wall of open culvert under Grand Trunk railway, 2¼ miles west of Actonvale and at mileage 51.6 from Montreal.
- 630-B In first course of stonework below water-table course, in east end of south wall of clock tower of Actonvale post office.

- 631-B In top course of stonework, in north face of northeast wing wall of stone arch culvert under Grand Trunk railway, 2 miles east of Actonville and at mileage 56.3 from Montreal.
- 632-B In first course of stonework above bridge seat, in north end of west face of retaining wall behind east abutment of plate-girder bridge over Moose river, 2½ miles west of Danby and at mileage 59.8 from Montreal.
- 633-B In west face of coping on south end of small stone culvert under Grand Trunk railway, ¼ mile east of Danby.
- 634-B In east end of north face of north concrete face-wall of pipe culvert under Grand Trunk railway, 1 mile west of South Durham and at mileage 65.2 from Montreal.
- 635-B In first course of stonework below cap-stone, in south face—immediately above southwest wing wall—of stone arch culvert under Grand Trunk railway, ¼ mile east of South Durham.
- 636-B In third course of stonework below bridge seat, in south end of east face of west abutment of plate-girder bridge on Grand Trunk railway, ¼ mile east of Lisgar.
- 637-B In east face of coping on south end of small stone culvert under Grand Trunk railway, ¼ mile east of Gore.
- 638-B In second course of stonework above bridge seat, in north end of east face of retaining wall behind west abutment of Grand Trunk railway bridge over St. Francis river, 1½ miles northwest of Richmond.
- 639-B In west wall (facing main line) of Grand Trunk station house at Richmond. The bench-mark is in concrete foundation of dining room bay window.
- 640-B In sixth course of stonework below brickwork, in west end of south wall of Richmond post office.
- 641-B In third course of stonework below seat of 1-benches, in west face of south abutment of open culvert under Grand Trunk railway, 2½ miles south of Richmond and at mileage 78.7 from Montreal.
- 642-B In east side of long curved rock cut on Grand Trunk railway—near south end of cut—330 feet north of an old stone culvert, 800 feet north of north switch of Morse passing-track and at mileage 81.4 from Montreal.
- 643-B In first course of stonework below bridge seat, in west face of north abutment of plate-girder bridge on Grand Trunk railway, 2½ miles north of Windsor Mills and at mileage 84.1 from Montreal.
- 644-B In first course below brickwork, in west face of corner stone at northwest corner of a brick business block in the town of Windsor Mills, at the southeast corner of Richmond and St. George streets.
- 645-B In third course of stonework above bridge seat, in west end of north face of retaining wall behind south abutment of plate girder bridge over Wataapikaw river, ¼ mile south of Windsor Mills station.
- 646-B In top course of stonework in west end of south face of retaining wall behind north abutment of small plate girder bridge on Grand Trunk railway, 0.4 mile north of Titus flag-station and at mileage 89.9 from Montreal.
- 647-B In second course of stonework below top, in north end of west face of northwest retaining wall of Grand Trunk railway bridge over St. Francis river, 1½ miles north of Bromptonville.
- 648-B In second course of stonework below water-table course, in north end of east wall of vestry (at northeast corner) of Roman Catholic church, Bromptonville.
- 649-B In west end of north face of concrete retaining wall behind south abutment of plate-girder bridge on Grand Trunk railway, 2 miles south of Bromptonville and at mileage 96.6 from Montreal.
- 650-B In side of concrete bench-mark pier, 10 feet east of west line of Grand Trunk railway right of way, 2,000 feet north of a stone arch culvert and 575 feet south of mile post 99 from Montreal—about 2 miles north of Sherbrooke.
- 3 In second course of stonework below top, in west end of south face of retaining wall behind north abutment of Grand Trunk railway bridge over Magog river at Sherbrooke, 2,000 feet north of the station.

BENCH-MARKS BETWEEN STE. ROSALIE JUNCTION AND FARNHAM, QUE., VIA
CANADIAN PACIFIC RAILWAY.

Elevations on page 53.

- 615-B In concrete foundation of Canadian Pacific water-tank at St. Hyacinthe. The bench-mark is 1 foot below woodwork, in the side which faces the track.
- 616-B In west face-wall of concrete tile culvert under Canadian Pacific railway, 2½ miles south of St. Hyacinthe and at mileage 22.2 from Farnham.

- 617-B In north end of west face of west concrete face-wall of tile culvert under Canadian Pacific railway, at mileage 19.2 from Farnham.
- 618-B In east face—10 inches below top—of concrete retaining wall behind north abutment of Canadian Pacific railway bridge over Black river, $\frac{1}{4}$ mile south of St. Pie.
- 619-B In west face-wall of concrete tile culvert under Canadian Pacific railway at mileage 13.7 from Farnham.
- 620-B In east face—1 foot below top—of concrete footing of semaphore beside Canadian Pacific railway track, at second telegraph pole north of mile post 11 from Farnham. This is the second (or distant) semaphore south of diamond crossing of Montreal and Southern Counties (electric) railway at Abbottsford.
- 621-B In east face-wall of concrete tile culvert under Canadian Pacific railway, 2 miles north of Carrobert and at mileage 7.5 from Farnham.
- 622-B In south end of east face of east concrete face-wall of tile culvert under Canadian Pacific railway, 500 feet south of Carrobert station.
- 623-B In side of concrete bench-mark pier, 6 feet east of west line of Canadian Pacific railway right of way, 250 feet south of a whistle post for north bound trains and 630 feet south of a culvert at mileage 1.4 north of Farnham.
- 62 In top course of stonework, in east end of front (or south) wall of Canadian Pacific station house at Farnham.

BENCH-MARKS BETWEEN CHAUDIERE AND RICHMOND, QUE., VIA GRAND TRUNK RAILWAY.

Elevations on page 34.

- 651-B In side of concrete bench-mark pier, 7 feet west of east line of Grand Trunk railway right of way, $2\frac{1}{2}$ miles south of Chaudière, 560 feet south of culvert at mileage 161.5, and 500 feet north of culvert at mileage 161.3 from Montreal.
- 652-B In north face of rock exposure, 8 feet east of west line of Grand Trunk railway right of way, 680 feet north of a stone culvert, $\frac{1}{2}$ mile south of Craig Road and 570 feet north of mile post 157 from Montreal.
- 653-B In second course of stonework below bridge seat, in west end of south face of north abutment of plate-girder bridge on Grand Trunk railway, $\frac{1}{2}$ mile north of St. Agapit and at second telegraph pole south of mile post 153 from Montreal.
- 654-B In west end of north face of south concrete abutment of small culvert under Grand Trunk railway, 1,300 feet south of overhead (highway) bridge at St. Agapit.
- 655-B In water-table course of stonework, in side (or south) wall of Roman Catholic church at St. Agpit 3 feet from rear of main section of building.
- 656-B In east face of flat gray boulder—7 feet by 7 feet—lying exactly on west line of Grand Trunk railway right of way, 3 miles north of Dosquet and 1,630 feet south of mile post 147 from Montreal.
- 657-B In first course of stonework below bridge-seat, in west end of north face of south abutment of plate-girder bridge on Grand Trunk railway, $\frac{1}{2}$ mile south of Dosquet.
- 658-B In second course of stonework below cap-stone, in north face of southwest retaining wall of plate-girder bridge on Grand Trunk railway, $3\frac{1}{2}$ miles south of Dosquet and at mileage 140.3 from Montreal.
- 659-B In north face of large rounded boulder, 20 feet west of east line of Grand Trunk railway right of way, $1\frac{1}{2}$ miles north of Lyster and at mileage 137.3 from Montreal.
- 660-B In west end of north face of concrete retaining wall behind south abutment—4 feet 9 inches above bridge seat—of Grand Trunk railway bridge over Bécancour river at Lyster.
- 661-B In west face of exposed rock surface, 3 feet west of east line of Grand Trunk railway right of way, 20 feet south of a concrete tile culvert, 700 feet south of a diagonal highway crossing and between second and third telegraph poles south of mile post 133 from Montreal.
- 662-B In top course of stonework, in west face of northwest wing wall of stone arch culvert under Grand Trunk railway, 1,100 feet south of Ste. Julie station.
- 663-B In west face of exposed rock surface, 10 feet west of east line of Grand Trunk railway right of way, 400 feet south of mile post 128 from Montreal and between fourteenth and fifteenth telegraph poles north of a highway crossing.
- 664-B In second course of stonework above bridge seat, in west end of north face of retaining wall behind south abutment of plate-girder bridge on Grand Trunk railway, $2\frac{1}{2}$ miles north of Plessisville and at mileage 125.7 from Montreal.

- 665-B In east end of north face of concrete retaining wall behind south abutment—18 inches above bridge seat—of plate-girder bridge on Grand Trunk railway, $\frac{1}{4}$ mile south of Plessisville.
- 666-B In first course of stonework below water-table course, in west wall of Plessisville Roman Catholic Roman church, 3 feet 6 inches from front (or north) wall of building.
- 667-B In side of concrete bench-mark pier, 6 feet east of west line of Grand Trunk railway right of way, 100 feet north of a small culvert, $1\frac{1}{4}$ miles north of Princeville and 400 feet north of mile post 119 from Montreal.
- 668-B In third course of stonework below water-table course, in rear (or south) wall of Princeville Roman Catholic church, 9 feet east of centre line of building.
- 669-B In fourth course of stonework below top, in west face of retaining wall behind north abutment of plate-girder bridge on Grand Trunk railway, 3 miles south of Princeville and at mileage 114.3 from Montreal.
- 670-B In second course of stonework below brickwork, in north end of west wall (facing Grand Trunk station) of Victoriaville post office.
- 671-B In third course of stonework below water-table course, in side (or south) wall of Victoriaville Roman Catholic church, in second stone west of first basement window from front of building.
- 672-B In fourth course of stonework below top, in west face of retaining wall behind south abutment of Grand Trunk railway bridge over Nicolet river, $\frac{1}{4}$ mile south of Victoriaville station.
- 673-B In north end of west face—21 inches below top—of square concrete culvert under Grand Trunk railway, 3 miles north of Warwick and at mileage 103.3 from Montreal.
- 674-B In first course of stonework above concrete walk, in west end of south wall of south transept of Warwick Roman Catholic church.
- 675-B In first course of stonework above bridge seat, in west end of north face of retaining wall behind south abutment of truss bridge on Grand Trunk railway, $\frac{1}{4}$ mile south of Warwick.
- 676-B In second altar-step below top, in southeast face of southeast wing wall of small plate girder bridge on Grand Trunk railway, 3 miles north of Kingsley and at mileage 95.4 from Montreal.
- 677-B In north end of west face—15 inches below top—of west concrete face-wall of pipe culvert under Grand Trunk railway, $\frac{1}{4}$ mile north of Kingsley and at sixth telegraphic pole south of mile post 93 from Montreal.
- 678-B In third course of stonework above bridge seat, in east end of north face of retaining wall behind south abutment of Grand Trunk railway bridge over southwest branch of Nicolet river, $1\frac{1}{4}$ miles north of Danville and at mileage 89.9 from Montreal.
- 679-B In first course of stonework below coping, in north end of east face of stone arch culvert under Grand Trunk railway, 1,000 feet south of Danville station.
- 680-B In first course of stonework below cap-stone, in east face of south abutment of open culvert under Grand Trunk railway, 2 $\frac{1}{4}$ miles south of Danville and at mileage 85.6 from Montreal. This is the farther south of two culverts about 700 feet apart.
- 681-B In first course of stonework below seat of I-beams, in southwest face of northwest wing wall of open culvert under Grand Trunk railway, 700 feet south of St. Cyr station.
- 682-B In second course of stonework below top, in west end of south face of north abutment of stone and concrete culvert under Grand Trunk railway, $3\frac{1}{4}$ miles northeast of Richmond and 90 feet north of mile post 80 from Montreal.
- 683-B In side of concrete bench-mark pier, 5 feet north of south line of Grand Trunk railway right of way, 330 feet east of mile post 78 from Montreal and 65 feet east of a whistle-post for trains bound toward Lévis—about $1\frac{1}{4}$ miles east of Richmond.
- 689-B In Grand Trunk station-house at Richmond—see line from Rouse Point to Sherbrooke.

BENCH-MARKS ON LOOP LINE AROUND CITY OF MONTREAL

*Elevations on page 35.***Note.—For description of route followed in running this line see introduction.**

DLXXXVI In first course of stonework above bridge seat, in north end of east face of retaining wall behind west abutment of Victoria avenue subway under Grand Trunk railway, immediately east of St. Lambert station.

- DLXXXV In south face of stone wall separating Grand Trunk railway track from public roadway, at St. Lambert end of Victoria bridge over St. Lawrence river. The bench-mark is at east end of wall, 9 inches above bridge floor and 5 feet east of most easterly steel arch carrying power wires.
- DLXXXIV In south face of stone wall separating Grand Trunk railway track from electric railway track, at Point St. Charles end of Victoria bridge over St. Lawrence river. The bench-mark is 18 feet east of west end of wall and directly beneath second steel arch (carrying power wires) from west end of bridge.
- DLXXXIII In second course of stonework above bridge seat, in west end of north face of retaining wall behind south abutment of Grand Trunk railway swing bridge over Laclune canal, between Point St. Charles and St. Henri.
- DCCCXLVI In second course of stonework above sidewalk, in front (or south) wall of Ste. Cunégonde Roman Catholic church, 15 feet from southeast corner of building. This church is at the corner of St. James and Vinet streets, Montreal.
- 807 In ninth course of stonework below bridge seat, in south end of east face of west abutment of Atwater avenue sub-way under Canadian Pacific railway, 1 mile west of Windsor street station.
- 808 In north (or Osborne street) wall of Canadian Pacific railway's Windsor street station. The bench-mark is 27 inches above concrete sidewalk and 26 feet west of west line of Stanley street.
- 809 In first course of stonework below water-table course, in semicircular wall of westerly (or Cathedral street) transept of St. James Roman Catholic cathedral, Dominion Square. The bench-mark is 22 feet from west wall of vestibule of small entrance at north side of transept.
- 810 In front (or south) wall—15 inches below brickwork and 3 feet 6 inches from southeast corner—of Canadian Pacific station-house, Westmount.
- 811 In third course of stonework below top, in north face of east abutment of private subway under Canadian Pacific railway, 1 mile east of Montreal West station, and 1,800 feet east of mile post 4 from Montreal—Windsor street.
- 812 In side (or north) foundation wall of Montreal West town hall, 2 feet below brickwork and 24 feet from front wall of building.
- 813 In northwest face of northeast concrete retaining wall—17 feet below bridge seat—of railway subway under Montreal-Smiths Falls line of Canadian Pacific railway, $\frac{1}{2}$ mile west of Montreal West station.
- 814 In face of southeast retaining wall of square concrete culvert under Canadian Pacific railway 650 feet southwest of St. Luc Junction station—on cutoff from St. Luc Junction to Montreal-Smith's Falls line.
- 815 In fourth course of stonework below brickwork, in north end of front (or west) wall of Roman Catholic school at Côte-des-Neiges—100 yards south of Canadian Pacific railway.
- 816 In Canadian Northern railway subway under Canadian Pacific railway, $\frac{1}{2}$ mile east of Côte-des-Neiges and near northerly entrance of Mount Royal tunnel. The bench-mark is placed vertically in top of concrete coping of retaining wall, at north side of Canadian Pacific railway, and at west side of Canadian Northern railway, 1 foot from sloping face of retaining wall.
- 817 In side (or west) concrete foundation wall of Canadian Northern railway electric power substation near northerly entrance of Mount Royal tunnel. The bench-mark is 21 inches below brickwork and 13 feet from front wall of building.
- 818 In west face of concrete retaining wall at east side of Park avenue subway under Canadian Pacific railway, $\frac{1}{2}$ mile west of Mile End station. The bench-mark is 26 inches above sidewalk through subway, in pilaster between fifth and sixth panels north of railway tracks.
- 819 In rear (or south) wall of Canadian Pacific station-house, Mile End. The bench-mark is 26 inches above concrete platform and 3 feet west of east line of St. Dominique street.
- 820 In fourth course of stonework below water-table course, in St. Urbain street wall of St. George's Roman Catholic church, 32 feet north of north wall of tower. This church is on Bernard avenue, between Waverley and St. Urban streets.
- 821 In east face of concrete retaining wall on top of north end of east abutment of Iberville street subway under Canadian Pacific railway, $1\frac{1}{2}$ miles southeast of Mile End station. The bench-mark is 20 inches below top of retaining wall and opposite east end of northerly girder.
- 822 In south end of east face of west concrete abutment—11 feet below bridge seat—of Moreau street subway under Longue Pointe branch of the Canadian Pacific railway. This subway is immediately north of Forsyth street and about 500 feet east of main track from Mile End to Place Viger station.

- 823 In south face of concrete retaining wall at north side of Canadian Pacific railway track in front of Belle Rive park, 400 feet west of subway leading to Longueuil ferry landing. The bench-mark is 6 feet west of east end of wall and 6 feet, 6 inches below top.
- 824 In easterly concrete abutment of Notre Dame street bridge over Canadian Pacific railway at entrance to Place Viger station yard. The bench-mark is 2 feet above track level, in east face of fourth buttress from east end of retaining wall at south side of street.
- N In south end of west (or Callières street) wall of Montreal custom house—at the corner of Callières and Commissioner streets. The bench-mark is 4 feet 9 inches above concrete sidewalk.
- 825 In first course of stonework above basement windows, in west (or McGill street) wall of Customs examining warehouse, 21 feet from southwest corner of building.

BENCH-MARKS BETWEEN BRANTFORD AND LUCAN CROSSING, ONT., VIA GRAND TRUNK RAILWAY THROUGH GUELPH AND STRATFORD.

Elevations on page 36.

- 77-F In side of concrete bench-mark pier, 5 feet west of east line of Grand Trunk railway right of way, 1,470 feet north of a (private) subway and $\frac{1}{2}$ mile north of Harrisburg.
- 78-F In south end of east face of stone coping on southeast retaining wall of deck-truss bridge on Grand Trunk railway, $2\frac{1}{4}$ miles north of Harrisburg.
- 79-F In south end of east face of coping on east end of stone-arch subway under Grand Trunk railway, $\frac{1}{4}$ miles south of Brantford.
- 80-F In south end of west face of coping on west end of stone-arch subway (farm road) under Grand Trunk railway, $2\frac{1}{4}$ miles south of Galt and at mile post 9 from Harrisburg.
- 81-F In second course of stonework above concrete platform, in front (or east) wall of Grand Trunk station-house at Galt, 22 feet from southeast corner of building.
- 82-F In first course of stonework above concrete sidewalk, in front (or east) wall of Galt post office, 26 feet south of north wall of clock tower and immediately north of a steel rain-water pipe.
- 82-F-2 In tenth course of stonework below bridge seat, in west face—fourth stone from south end—of east abutment of bridge by which Canadian Pacific railway passes over Grand Trunk railway, $\frac{1}{4}$ miles north of Galt (Grand Trunk station).
- 83-F In first course of stonework above concrete sidewalk, in front (or east) wall of Preston post office, immediately south of northerly entrance.
- 84-F In seventh course of stonework below window sills, in south end of front (or west) wall of Preston town hall and fire station.
- 85-F Destroyed.
- 86-F In front (or west) wall of Hespeler town hall, 3 feet 6 inches below water-table course of stonework and between the two basement windows to the north of the main entrance.
- 87-F In top course of stonework, in east face of south abutment of large stone and concrete culvert under Grand Trunk railway, $3\frac{1}{4}$ miles north of Hespeler and at mileage 22.5 from Harrisburg.
- 88-F In side of concrete bench-mark pier, 9 feet east of west line of Grand Trunk railway right of way, $\frac{1}{2}$ mile south of Guelph Junction and 60 feet north of mile post 26 from Harrisburg.
- 89-F In Corinthian Stone Company's building, immediately northwest of Grand Trunk railway diamond crossing at Guelph Junction. The bench-mark is 18 inches above ground and 3 feet from east corner of building, in southeast wall (wall facing towards diamond).
- 90-F In fifth course of stonework below brickwork, in front (or south) wall of Grand Trunk station-house at Guelph, immediately west of west wall of ticket office.
- 91-F In first course of stonework below water-table course, in front (or east) wall of armoury at Guelph—directly above first basement window north of main entrance.
- 92-F In second course of stonework below water-table course, in small rounded wall (facing Douglas street) at east side of Guelph post office. The bench-mark is 6 feet from east wall of vestibule at entrance to Customs and Inland Revenue offices.
- 93-F In top course of stonework, in west face of retaining wall behind east abutment of subway under Grand Trunk railway, $2\frac{1}{4}$ miles east of Breslau and at mileage 55.8 from Toronto. The bench-mark is 14 feet north of centre line of track.
- 94-F In third course of stonework below top, in north face—2 feet from west end—of southeast retaining wall of Grand Trunk railway bridge over Grand river, $\frac{1}{4}$ mile west of Breslau.

- 5-F In third course of stonework below brickwork, in front (or north) wall of Grand Trunk station-house at Kitchener, 33 feet from northeast corner of building.
- 96-F In fourth course of stonework below brickwork, in north (or Weber street) wall of Kitchener public library, 26 feet from northeast corner of building.
- 97-1 In second course of stonework above concrete sidewalk, in north wall of Kitchener post office—corner of Benton street and King street east. The bench-mark is in line with west side of clock tower.
- 98-1 In stone plinth-course of front (or south) wall of Grand Trunk station-house at Waterloo, 11 feet from southeast corner of building.
- 99-F In east (or King street) wall of Waterloo post office, 4 feet below water-table and 11 feet north of north wall of clock tower.
- 100-F In third course below coping, in northeast face of northwest retaining wall of small stone arch culvert under Grand Trunk railway, 3 miles east of Petersburg and 1,800 feet east of mile post 66 from Toronto.
- 101-F In east face of stone coping on north end of brick arch culvert under Grand Trunk railway, 1 mile east of Paden and 100 feet west of a highway crossing.
- 102-F In second course of stonework below water-table course, in front (or north) wall of New Hamburg public library, 8 feet from northwest corner of building.
- 103-F In west face of concrete coping on southwest brick retaining wall of Grand Trunk railway bridge over Nith river, $\frac{1}{2}$ mile west of New Hamburg.
- 104-F In third course below coping, in west end of south face of square stone culvert under Grand Trunk railway, 2 miles east of Shakespeare and at mileage 79.6 from Toronto.
- 105-F In side of concrete bench-mark pier, 7 feet north of south line of Grand Trunk railway right of way, $3\frac{1}{4}$ miles east of Stratford, 450 feet east of a highway crossing and 58. feet east of mile post 85 from Toronto.
- 106-F In first course of stonework above concrete platform, in front (or south) wall of Grand Trunk station-house at Stratford, 27 feet west of west wall of ticket office.
- 107-F In stone plinth-course of westerly wall of Stratford city hall, 21 feet north of centre line of Wellington street entrance.
- 108-F In second course of stonework below coping, in east face of southeast retaining wall of small plate-girder bridge on Grand Trunk railway, $\frac{1}{2}$ mile west of Stratford station.
- 109-F In south end of west face—2 feet 10 inches below top—of concrete retaining wall behind east stone abutment of plate-girder bridge on Grand Trunk railway, $2\frac{1}{2}$ miles west of St. Pauls and at mileage 95.8 from Toronto.
- 110-F In stone plinth-course of front (or east) wall of Grand Trunk station-house at St. Marys, 16 feet north of north wall of ticket office.
- 111-F In east face—10 inches below top—of southeast stone and concrete retaining wall of long plate-girder bridge over north branch of Thames river, on main line of Grand Trunk railway, 1 mile west of St. Marys Junction.
- 112-F In south face—6 inches below top—of stone and concrete retaining wall behind west abutment of plate-girder bridge over Fish creek, 2 miles east of Granton and at mileage 105.7 from Toronto.
- 113-F In east end of north face—9 inches below top—of large square concrete culvert under Grand Trunk railway, $1\frac{1}{2}$ miles west of Granton and at mileage 109.45 from Toronto.
- 113-F 2 In side of concrete bench-mark pier, 8 feet north of south line of Grand Trunk railway right of way, 2 miles east of Lucan and at mileage 111.65 from Toronto—200 feet west of a whistle-post to the east of crossing of road allowance between concessions VI and VII, township of Biddulph.
- 114-F In the first course of stonework below coping, in east end of north face of square stone (double) culvert under Grand Trunk railway, $\frac{1}{2}$ mile east of Lucan and 110 feet west of mile post 113 from Toronto.
- 337 In third course of stonework above ground, in west face—11 feet from north end—of northeast wing wall of Grand Trunk railway subway at Lucan Crossing.

BENCH-MARKS BETWEEN GUELPH JUNCTION AND PALMERSTON, ONT.,
VIA GRAND TRUNK RAILWAY.*Elevations on page 37.*

Note. These descriptions are written with the assumption that the railway runs in a north-westerly direction from Guelph Junction to Palmerston, except between Elora and Fergus, where the direction is northeasterly.

- 115-F In northeast face—5 inches below top—on concrete block forming foundation for semaphore pulley, 8 feet northeast of centre line of Grand Trunk railway track and 16 feet northwest of first (or home) semaphore northwest of diamond crossing of Canadian Pacific railway, 2½ miles northwest of Guelph Junction.
- 116-F In northeast (or inner) face—5 feet 6 inches from southeast end—of coping on southwest face-wall of large stone arch culvert under Grand Trunk railway, 1½ miles southeast of Elora and at mileage 35.8 from Harrisburg.
- 117-F In first course of stonework below water-table course, in east wall of Elora post office, 9 feet north of north wall of clock tower.
- 118-F In northeast face of stone coping on north retaining wall of Grand Trunk railway bridge over Grand river at mileage 42.1 from Harrisburg—between Elora and Fergus. (See note above regarding direction of railway at this point).
- 119-F In first course of stonework below water-table course, in south wall of Fergus post office, 8 feet west of west wall of clock tower.
- 120-F In west end of north face of square concrete culvert under Canadian Pacific railway, beside a public highway, 140 feet northeast of diamond crossing of Grand Trunk and Canadian Pacific railways at Fergus.
- 121-F In second course of stonework below top, in northeast end of southeast face of northwest abutment of deck-truss bridge on Grand Trunk railway, 2½ miles southeast of Elora and at mileage 46.3 from Harrisburg.
- 122-F In side of concrete bench-mark pier, 15 feet southwest of northeast line of Grand Trunk railway right of way, 25 feet northwest of a farm crossing, 2¼ miles northwest of Alina and 800 feet southeast of mile post 52 from Harrisburg.
- 123-F In top course of stonework, in southwest end of northwest face of southeast abutment of deck-truss bridge over Conestoga river, ½ mile southeast of Drayton.
- 124-F In southwest end of northwest face—40 inches below top—of concrete retaining wall behind southeast abutment of plate-girder bridge on Grand Trunk railway, ½ mile northwest of Moorefield.
- 305 In second course of stonework above ground, in west face of pilaster at southwest corner of porch at entrance to public library at Palmerston.

BENCH-MARKS BETWEEN FERGUS AND MELVILLE, ONT.,
VIA CANADIAN PACIFIC RAILWAY.*Elevations on page 37.*

Note.—These descriptions are written with the assumption that the railway runs in an easterly direction from Fergus to Cataract and thence northerly to Melville; beyond Melville the Toronto-Owen Sound line is assumed to be east-west.

- 125-F In centre of south face of square concrete culvert under Canadian Pacific railway, ½ mile west of Spier flag-station and at mileage 20.9 from Cataract.
- 126-F In west end of south face—11 inches below top—of small concrete arch culvert under Canadian Pacific railway, 2 miles east of Belwood and at mileage 15.7 from Cataract.
- 127-F In centre of north face of square concrete culvert under Canadian Pacific railway, 1¼ miles east of Orton and at mileage 11.6 from Cataract.
- 128-F In east end of south face of square concrete (double) culvert under Canadian Pacific railway, ½ mile west of Hillsburgh and at mileage 8.6 from Cataract.
- 129-F In west end of south face—9 inches below top—of south face-wall of triangular concrete (double) culvert under Canadian Pacific railway, ¼ mile west of Erin and at mileage 5.3 from Cataract.
- 130-F In side of concrete bench-mark pier, 9 feet north of south line of Canadian Pacific railway right of way, ¼ mile west of Cataract and 60 feet east of intersection of railway track with east line of a public highway—the road allowance between concessions IV and V west, township of Caledon.

- 131-F In east face—5 inches below top—of concrete retaining wall behind south abutment of plate-girder bridge on Canadian Pacific railway, 0.4 mile north of Alton and at mileage 30.1 from Streetsville Junction.
- 132-F In north face—6 inches below top—of concrete retaining wall behind east abutment of plate-girder bridge over Credit river, $\frac{1}{2}$ mile west of Melville and at mileage 19.4 from Bolton.
Note.—This bridge replaces the trestle bridge containing bench-mark 266, on the Toronto-Owen Sound line. Bench-mark 266 has consequently been destroyed.
- 265 In southeast face of square concrete culvert running diagonally under Canadian Pacific railway—at a highway crossing— $3\frac{1}{2}$ miles east of Melville (or 1 mile west of Caledon) and at mileage 15.5 from Bolton.

BENCH-MARKS AT PORT DALHOUSIE AND PORT COLBORNE, ONT.

Elevations on page 38.

- 133-F In northeast bevelled corner—14 inches below top—of concrete retaining wall behind south abutment of plate-girder approach at south end of swing-bridge by which Welland branch of Grand Trunk railway crosses Welland canal, $1\frac{1}{2}$ miles south of Port Dalhousie.
- 134-F In first course of stonework above bridge seat, in north end of west face of retaining wall behind east abutment of swing (highway) bridge over Welland Canal at Port Dalhousie—immediately south of lock No. 1.
- 135-F In first course of stonework above concrete sidewalk, in south wall of Imperial Bank at Port Colborne, 16 feet from southwest corner of building.
- 136-F In top course of stonework, in circular stone foundation of municipal water-tower at Port Colborne. The bench-mark faces east.
- 137-F In east wall of Maple Leaf Milling company's flour mill at Port Colborne—a solid concrete building at west side of harbour. The bench-mark is 1 foot above concrete floor of wharf, in base of fifth pilaster south of doorway of dynamo room.

BENCH-MARKS BETWEEN FRANZ AND PORT ARTHUR, ONT., VIA CANADIAN PACIFIC RAILWAY.

Elevations on page 39.

- 709 In east face of large cube-shaped boulder, 50 feet north of Canadian Pacific railway track, 3 miles west of Franz and between sixteenth and seventeenth telegraph poles west of mile post 86 from Chapleau—immediately east of a small sand hill.
- 710 In south face of concrete retaining wall behind east abutment—3 feet 6 inches above bridge seat—of three-span plate-girder bridge over Magpie lake, $6\frac{1}{2}$ miles west of Franz and at mileage 90.1 from Chapleau.
- 711 In vertical rock exposure facing north, parallel to and 50 feet south of Canadian Pacific railway track, 2 $\frac{1}{2}$ miles east of Grasett and between second and third telegraph poles east of mile post 93 from Chapleau. The bench-mark is 10 feet west of a similar exposure facing west—at east side of a large swamp.
- 712 In north end of west face of concrete retaining wall behind east abutment—28 inches above bridge seat—of plate-girder bridge on Canadian Pacific railway, $\frac{1}{2}$ mile west of Grasett and at mileage 95.85 from Chapleau.
- 713 In north face of large mass of rock, 80 feet south of Canadian Pacific railway track, 500 feet east of westerly switch of Ryerson passing-track and at mileage 99.6 from Chapleau.
- 714 In west face of vertical rock exposure, 40 feet north of Canadian Pacific railway track—at west end of a small rock cut—between third and fourth telegraph poles west of mile post 103 from Chapleau.
- 715 In south face of boulder, 55 feet north of Canadian Pacific railway track, 210 feet west of Tripoli west mile-board and 70 feet west of a stone-arch culvert at mile post 106 from Chapleau.
- 716 In south face of rock exposure—45 feet south of Canadian Pacific railway track and near rail level—2 $\frac{1}{2}$ miles east of Amyot and 25 feet west of first telegraph pole west of mile post 109 from Chapleau; this is opposite centre of a small borrow pit on north side of track.
- 717 In south face of vertical rock surface, 60 feet north of Canadian Pacific railway track—at south side of rocky hill facing Negwazu lake— $\frac{1}{2}$ mile west of Amyot and at mileage 112.5 from Chapleau. The bench-mark is 350 feet west of point where shore line of lake diverges from direction of track at an angle of about 45°.
- 718 In west face of southwest retaining wall—10 inches below top—of square concrete culvert under Canadian Pacific railway, at mile post 115 from Chapleau.

- 719 In south end of east face of concrete retaining wall behind west abutment of plate-girder bridge on Canadian Pacific railway, at mileage 117.7 from Chapleau.
- 720 In east face of granite boulder—40 feet by 8 feet—190 feet north of Canadian Pacific railway track and at 10th telegraph pole east of mile post 124 from Chapleau. This boulder is 100 feet east of a large prominent mass of gray rock which is slightly farther from the track.
- 721 In third course of stonework below coping, in north face—6 feet from east end—of northeast retaining wall of combination stone-arch and plate-girder bridge on Canadian Pacific railway, $7\frac{1}{2}$ miles east of White River station and at mileage 121.6 from Chapleau.
- 722 In north end of west face of concrete retaining wall behind east abutment—4 feet 7 inches above bridge seat—of one-span plate-girder over White river, $2\frac{1}{2}$ miles east of White River station and at mileage 129.1 from Chapleau.
- 723 In north concrete wall of Canadian Pacific roundhouse at White River—4 feet below window sills—in north face of pilaster at northeast corner of rectangular concrete extension containing three engine-stalls on north side of main building.
- 723 A In front (or south) concrete foundation wall—4 feet below woodwork and 20 feet east of main entrance—of White River public school.
- 724 In north face of wedge-shaped boulder, 50 feet south of centre line between tracks of Canadian Pacific railway and between second and third telegraph poles east of mile post 3 from White River.
- 725 In south face of large square boulder, 80 feet north of centre line between tracks of Canadian Pacific railway and at third telegraph pole west of mile post 6 from White River.
- 726 In north side of rock cut on Canadian Pacific railway, at sixth telegraph pole west of mile post 9 from White River.
- 727 In south face—9 inches below top—of concrete retaining wall behind west abutment of two-span plate-girder bridge over White river, at mileage 12.2 from White River.
- 728 In north end of west face of concrete retaining wall behind east abutment—30 inches above bridge seat—of two-span plate-girder bridge over Brenner river, at mileage 15.3 from White River.
- 729 In west face of south face-wall—5 inches below top—of square concrete culvert under Canadian Pacific railway, at mileage 19.1 from White River.
- 730 In south face of boulder on top of low sandy bank immediately north of Canadian Pacific railway track, at thirteenth telegraph pole west of mile post 24 from White River—40 feet east of easterly switch of a cross-over.
- 731 In first course of stonework below coping, in southeast face of southwest wing-wall of stone-arch culvert under Canadian Pacific railway, at mileage 23.4 from White River.
- 732 In south end of east face of concrete retaining wall behind west abutment—33 inches above bridge seat—of five-span plate-girder bridge over White river, at mileage 24.6 from White River.
- 733 In west end of south face of square concrete culvert under Canadian Pacific railway at mile post 28 from White River.
- 734 In east face of gray granite boulder, 65 feet south of Canadian Pacific railway track and between ninth and tenth telegraph poles west of mile post 31 from White River—behind the centre of a small clay and rock cut about 400 feet west of point where an arm of a lake touches south side of right of way.
- 735 In north end of west face of concrete retaining wall behind east abutment—28 inches above bridge seat—of plate-girder bridge over Cedar river, at mileage 33.9 from White River.
- 736 In south face of exposed rock surface, 45 feet north of Canadian Pacific railway track, $2\frac{1}{2}$ miles east of Henla and at mile post 37 from White River—on top of west bank of an inlet which the railway has cut off from a small lake.
- 737 In southeast face of exposed rock surface, 50 feet north of Canadian Pacific railway track, $\frac{1}{2}$ mile west of Henla and at fifth telegraph pole west of mile post 40 from White River—at east end of a small rock cut.
- 738 In top course of stonework, in southwest face of southwest retaining wall of stone-arch culvert under Canadian Pacific railway at mileage 42.6 from White River.
- 739 In east face of small white boulder, 30 feet north of Canadian Pacific railway track and 130 feet east of a concrete tile culvert at mileage 46.1 from White River.
- 740 In east face of stone coping on southeast retaining wall of steel truss and plate-girder bridge over Black river, at mileage 50.3 from White River.

- 741 In west end of south face of square concrete culvert under Canadian Pacific railway, $3\frac{1}{4}$ miles east of Heron Bay and at mile post 52 from White River.
- 742 In south face—34 inches below top and 11 inches from east end—of southwest concrete retaining wall of long steel bridge over Fire river, $\frac{1}{4}$ mile east of Heron Bay.
- 742 A In north face of exposed rock surface, 85 feet south of centre line between tracks of Canadian Pacific railway and 400 feet east of Heron Bay station.
- 743 In south side of small rock cut on sharp curve on Canadian Pacific railway—near west end of cut—2 $\frac{1}{4}$ miles west of Heron Bay and at second telegraph pole west of mile post 58 from White River.
- 744 In south face of exposed rock surface, 85 feet north of centre line between tracks of Canadian Pacific railway, 300 feet west of a whistle-post (for a large rock cut) for westbound trains and between tenth and eleventh telegraph poles west of mile post 61 from White River.
- 745 In south face of smooth clean-cut rock exposure in side of sand bank, 60 feet north of Canadian Pacific railway track, 0.4 mile west of Peninsula and 60 feet east of mile post 61 from White River.
- 746 In east face of vertical rock surface, 40 feet south of Canadian Pacific railway track, 230 feet west of westerly switch of Angler passing-track and at second telegraph pole west of mile post 67 from White River.
- 747 In south face of exposed rock surface, 45 feet north of Canadian Pacific railway track, $4\frac{1}{4}$ miles east of Coldwell and at second telegraph pole west of mile post 70 from White River.
- 748 In east face—8 inches below top—of concrete retaining wall at south side of Canadian Pacific railway track, $1\frac{1}{4}$ miles east of Coldwell, 170 feet west of a watchman's cabin and between first and second telegraph poles west of mile post 71 from White River.
- 749 In south face of large red boulder, 150 feet north of Canadian Pacific railway track, 1.6 miles west of Coldwell and 100 feet east of mile post 76 from White River.
NOTE—Owing to the danger of this boulder being affected by frost, the elevation of this bench mark must be considered unreliable.
- 750 In vertical rock exposure facing south, 100 feet north of Canadian Pacific railway track, 265 feet east of Neys west mile-board, 370 feet east of a whistle-post for westbound trains and at mileage 78.9 from White River.
- 751 In south face of large boulder, 120 feet north of Canadian Pacific railway track, $\frac{1}{4}$ mile east of Middleton and at first telegraph pole east of mile post 82 from White River.
- 752 In south face of large broken mass of rock, 50 feet north of Canadian Pacific railway track, 440 feet east of a whistle-post for eastbound trains and at first telegraph pole east of mile post 85 from White River—at the base of a steep hill of rock through which the railway cuts.
- 753 In south face of outcrop of rock—20 feet north of Canadian Pacific railway track and 2 feet below rail level—485 feet east of a whistle-post for eastbound trains and 20 feet west of mile post 88 from White River.
- 754 In vertical rock exposure facing south, 30 feet south of Canadian Pacific railway track and between second and third telegraph poles west of mile post 91 from White River—behind east end of a short, deep, sharply curved rock cut.
- 755 In east end of north face of square concrete culvert under Canadian Pacific railway at mile post 91 from White River—between two large rock cuts.
- 756 In south face of exposed rock surface, 50 feet north of Canadian Pacific railway track, $2\frac{1}{4}$ miles east of Jackfish, 120 feet east of westerly switch of Santoy passing-track and between second and third telegraph poles west of mile post 97 from White River.
- 757 In north side of long rock cut on Canadian Pacific railway, 540 feet west of a whistle-post for westbound trains, $\frac{1}{4}$ mile west of Jackfish and at mileage 100.2 from White River.
- 758 In north face of exposed rock surface, 100 feet south of Canadian Pacific railway track, $3\frac{1}{4}$ miles west of Jackfish and between first and second telegraph poles east of mile post 103 from White River—opposite a watchman's cabin situated at west end of a large rock cut.
- 759 In west face of exposed rock surface—at west end of a rock cut—40 feet north of Canadian Pacific railway track and at mileage 105.9 from White River.
- 760 In north end of west face of concrete retaining wall behind east abutment—2 feet above bridge seat—of steel truss bridge over Black river, at mileage 110.5 from White River.
- 761 In south face of boulder in side of gravelly bank, 75 feet north of Canadian Pacific railway track and at second telegraph pole east of mile post 114 from White River—within the limits of Bluejay passing-track.

- 762 In southeast face of vertical rock surface—slightly above rail level—at the base of a rocky hill about 75 feet north of Canadian Pacific railway track, 2 miles east of Schreiber and at mileage 116.4 from White River.
- 763 In south concrete wall of Canadian Pacific roundhouse at Schreiber—20 inches below window sills—in south face of pilaster at southeast corner of rectangular concrete extension (containing three engine-stalls) on south side of main building.
- 764 In west face of southeast retaining wall of concrete subway under Canadian Pacific railway at west end of Schreiber station grounds. The bench-mark is 2 feet above roadway and 3 feet, 8 inches from south end of retaining wall.
- 765 In east face of exposed rock surface—slightly below rail level—30 feet north of Canadian Pacific railway track and at second telegraph pole east of mile post 3 from Schreiber.
- 766 In north side of rock cut on Canadian Pacific railway 520 feet west of Horn west mile-board, 300 feet east of a rail-stand and 35 feet east of mile-post 6 from Schreiber.
- 767 In south face of vertical rock surface on east side of rocky hill, 80 feet north of centre line between tracks of Canadian Pacific railway and 70 feet west of mile post 10 from Schreiber. The bench-mark is opposite west end of a straight fill about 200 yards in length.
- 768 In southwest face of large flat outcrop or rock, 60 feet north of centre line between tracks of Canadian Pacific railway, $1\frac{1}{2}$ miles east of Rossport and between first and second telegraph poles west of mile post 13 from Schreiber.
- 769 In south side of rock cut on Canadian Pacific railway—near west end of cut and at rail level— $1\frac{1}{2}$ miles west of Rossport and at fifth telegraph pole west of mile post 16 from Schreiber.
- 770 In south end of west face of concrete retaining wall behind east abutment—30 inches above bridge seat—of plate-girder bridge on Canadian Pacific railway (eastbound track only), $\frac{1}{4}$ mile west of Rossport and at mileage 18.86 from Schreiber.
- 771 In east end of north face—6 inches below top—of square concrete culvert under Canadian Pacific railway, at mile post 22 from Schreiber, within the limits of Pays Plat passing-track.
- 772 In vertical rock exposure facing east, 110 feet north of Canadian Pacific railway track, 500 feet west of a whistle-post for westbound trains and 100 feet east of mile post 25 from Schreiber.
- 773 In west end of north face of small square concrete culvert under Canadian Pacific railway, at first telegraph pole east of mile post 28 from Schreiber.
- 774 In west face of boulder in side of gravelly bank, 30 feet north of centre line between tracks of Canadian Pacific railway and 190 feet east of mile post 31 from Schreiber.
- 775 In south end of west face of concrete retaining wall behind east abutment—29 inches above bridge seat—of plate-girder bridge on Canadian Pacific railway, $\frac{1}{4}$ mile west of Gravel and at mileage 32.6 from Schreiber.
- 776 In east end of north face of coping on north end of concrete arch culvert under Canadian Pacific railway, at second telegraph pole west of mile post 38 from Schreiber.
- 777 In north face of large flat outcrop of rock, 40 feet north of Canadian Pacific railway track, 115 feet east of Gurney west mile-board and 180 feet west of mile post 41 from Schreiber.
- 778 In south face of large flat outcrop of rock, 40 feet north of Canadian Pacific railway track—at the head of a short steep grade—between twelfth and thirteenth telegraph poles west of mile post 41 from Schreiber.
- 779 In south face—6 inches below top—of concrete retaining wall behind east abutment—of through-truss bridge over Jackpine river, $\frac{1}{4}$ mile east of Kama and at mileage 16.4 from Schreiber.
- 780 In south face of vertical bank of red rock—about 120 feet long and 15 feet high—30 feet north of Canadian Pacific railway track, 60 feet east of a whistle-post for westbound trains, 2 miles west of Kama and at mileage 48.7 from Schreiber.
- 781 In north end of west face of concrete retaining wall behind east abutment—20 inches above bridge seat—of small plate-girder bridge on Canadian Pacific railway at mileage 50.73 from Schreiber and at east end of Ozone passing-track.
- 782 In north end of west face of concrete retaining wall behind east abutment—29 inches above bridge seat—of plate-girder bridge on Canadian Pacific railway, $1\frac{1}{2}$ miles east of Fire Hill and at mileage 53.33 from Schreiber.
- 783 In east end of north face of square concrete culvert under Canadian Pacific railway, $1\frac{1}{4}$ miles west of Fire Hill and at mileage 56.5 from Schreiber.
- 784 In north side of long rock cut on Canadian Pacific railway—90 feet from east end of cut and at rail level— $3\frac{1}{2}$ miles east of Nipigon and at second telegraph pole east of mile post 60 from Schreiber.

- 785 In second course of stonework above bridge seat, in east face of northwest retaining wall of Canadian Pacific railway bridge over Nipigon river and Canadian Northern railway, $\frac{1}{2}$ mile east of Nipigon.
- 786 In north end of west face of east abutment of square concrete culvert under Canadian Pacific railway, $1\frac{1}{4}$ miles west of Nipigon and at mileage 65.1 from Schreiber.
- 787 In north side of rock cut on Canadian Pacific railway—30 feet from east end of cut—240 feet east of a whistle-post for eastbound trains and at mileage 67.8 from Schreiber; this is opposite a point on Canadian Northern railway at fifth telegraph pole west of mile post 82 from Jellicoe.
- 788 In second course of stonework above bridge seat, in north end of west face of retaining wall behind east abutment of plate-girder bridge on Canadian Pacific railway, at mileage 70.5 from Schreiber.
- 789 In south end of west face of concrete retaining wall behind east abutment—39 inches above bridge seat—of steel-truss and plate-girder bridge over Black Sturgeon river, $1\frac{1}{2}$ miles east of Coglin and at mileage 73.9 from Schreiber.
- 790 In first course of stonework above bridge seat, in south end of west face of retaining wall behind east abutment of plate-girder bridge on Canadian Pacific railway, $\frac{1}{2}$ mile west of Coglin and at mileage 76.45 from Schreiber; this is opposite a point on Canadian Northern railway at first telegraph pole east of mile post 91 from Jellicoe.
- 791 In top course of stonework, in north face of west abutment of square culvert under Canadian Pacific railway, 300 feet east of Hurkett station and immediately west of a water tank.
- 792 In south end of west face of stone and concrete retaining wall behind east abutment—27 inches above bridge seat—of through-truss bridge over Wolf river, 2 miles east of Dorion and at mileage 83.16 from Schreiber.
- 793 In first course below coping, in west end of north face of square stone culvert under Canadian Pacific railway, $\frac{1}{4}$ mile west of Dorion and at second telegraph pole east of mile post 86 from Schreiber.
- 794 In first course below coping, in west end of south face of square stone culvert under Canadian Pacific railway, $\frac{1}{4}$ mile west of Ouimet and at mileage 89.15 from Schreiber.
- 795 In vertical rock exposure facing north, 35 feet south of Canadian Pacific railway track, 500 feet west of westerly switch of Bowker passing-track and at second telegraph pole east of mile post 93 from Schreiber.
- 796 In second course of stonework above bridge seat, in south end of east face of retaining wall behind west abutment of plate-girder bridge over Pearl river, immediately west of Pearl station.
- 797 In southwest face of boulder, 120 feet south of Canadian Pacific railway track, 700 feet west of a whistle-post for eastbound trains and at third telegraph pole east of mile post 99 from Schreiber.
- 798 In northwest face of small boulder embedded in ground, beside ditch at south side of Canadian Pacific railway track, 290 feet east of order-board at Loon station.
- 799 In second course of stonework above bridge seat, in south end of west face of retaining wall behind east abutment of plate-girder bridge on Canadian Pacific railway, at mileage 105.9 from Schreiber.
- 800 In second course of stonework above bridge seat, in south end of east face of retaining wall behind west abutment of plate-girder bridge on Canadian Pacific railway, at east end of Beek passing-track and at mileage 107.9 from Schreiber.
- 801 In second course of stonework above bridge seat, in south end of east face of retaining wall behind west abutment of plate-girder bridge on Canadian Pacific railway, at mileage 110.6 from Schreiber.
- 802 In second course of stonework above bridge seat, in south end of west face of retaining wall behind east abutment of plate-girder bridge on Canadian Pacific railway, $\frac{1}{2}$ mile east of Mackenzie and at mileage 113.2 from Schreiber.
- 803 Destroyed.
- 804 In vertical rock exposure facing west, 60 feet north of Canadian Pacific railway track, 0.4 mile east of Navilus and 60 feet west of mile post 120 from Schreiber—at the east end of a rock cut.
- 805 Destroyed.
- 806 In south face—13 inches below top—of southeast concrete retaining wall of Canadian Pacific railway bridge over Current river, 2 miles east of Port Arthur.
- 93-E In second course of stonework below brickwork, in north end of front (or west) wall of Canadian Northern station-house, Port Arthur.

BENCH-MARKS BETWEEN JASPER, ALTA. AND LOOS, B.C., VIA GRAND TRUNK PACIFIC RAILWAY.

Elevations on page 41.

- 105-II In side of concrete bench-mark pier, 49 feet north of Grand Trunk Pacific railway track, $2\frac{1}{4}$ miles west of Jasper and 110 feet east of mile post 1039 from Winnipeg—opposite a point on Canadian Northern railway between tenth and eleventh telegraph poles west of mile post 109 from Tollerton.
- 106-II In north side of rock cut on Grand Trunk Pacific railway—near rail level— $5\frac{1}{4}$ miles west of Jasper and 33 feet west of mile post 1033 from Winnipeg.
- 107-II In south end of east face of concrete retaining wall behind west abutment—4 feet 4 inches above bridge seat—of steel-truss bridge over Miette river, $\frac{1}{2}$ mile east of Giekie and at mileage 1035.2 from Winnipeg.
- 108-II In north side of rock cut on Grand Trunk Pacific railway—near centre of cut and slightly below rail level—460 feet west of bridge over Miette river and 65 feet east of fourth telegraph pole east of mile post 1039 from Winnipeg.
- 109-II In north side of rock cut on Grand Trunk Pacific railway—65 feet from west end of cut— $\frac{1}{2}$ miles east of Alberta-British Columbia boundary and at mile post 1013 from Winnipeg.
- 110-II In north side of short deep rock cut on Grand Trunk Pacific railway—135 feet from east end of cut and 7 feet above rail level—1 mile west of Yellowhead and 10 feet west of first telegraph pole east of mile post 1046 from Winnipeg.
- 111-II In concrete foundation—6 inches below woodwork and directly beneath the spout—of Grand Trunk Pacific water tank at Lucerne.
- 112-I¹ In north end of west — of concrete block on top of most easterly pier of plate-girder bridge on Canadian Northern railway, $2\frac{1}{4}$ miles west of Lucerne and opposite a point on Grand Trunk Pacific railway at mileage 1051.5 from Winnipeg. The bench-mark is 9 feet below rail level.
- 113-II In south end of east face of concrete retaining wall behind west abutment—11 inches above bridge seat—of Grand Trunk Pacific railway bridge over Grant brook, $\frac{3}{4}$ mile east of Grant Brook station and at mileage 1058.4 from Winnipeg.
- 114-II In north end of east face of concrete retaining wall behind west abutment—1 feet 6 inches above bridge seat—of Grand Trunk Pacific railway bridge over Moose river, 2 miles west of Grant Brook station and at mileage 1061.2 from Winnipeg.
- 115-II In north side of rock cut on Grand Trunk Pacific and Canadian Northern railways—100 feet from east end of cut and near rail level—110 feet east of Rainbow east (C.N.R.) mile board, 85 feet west of G.T.P. mile post 1064 from Winnipeg and between third and fourth telegraph poles east of C.N.R. mile post 15 from Lucerne.
- 116-II In side of concrete bench-mark pier, 45 feet north of Grand Trunk Pacific railway track, $2\frac{1}{4}$ miles west of Rainbow and 56 feet east of fifth telegraph pole east of mile post 1068 from Winnipeg—also between tenth and eleventh poles east of C.N.R. mile post 19 from Lucerne.
- 117-II In north face—7 feet below top and 11 feet 6 inches from east end—of northeast concrete retaining wall of Canadian Northern railway bridge over Fraser river, $1\frac{1}{2}$ miles east of Resplendent and at mileage 22.2 from Lucerne—opposite a point on Grand Trunk Pacific railway at mileage 1071.5 from Winnipeg.
- 118-II In south end of west face of concrete retaining wall behind east abutment—4 feet 6 inches above bridge seat—of Grand Trunk Pacific railway bridge over Fraser river, $\frac{1}{2}$ mile west of Resplendent and at mileage 1073.6 from Winnipeg.
- 119-II In south end of east face of concrete retaining wall behind west abutment—6 feet 5 inches above bridge seat—of plate-girder bridge on Grand Trunk Pacific railway, $1\frac{1}{4}$ miles east of Mount Robson station and at mile post 1078 from Winnipeg.
- 120-II In north face of large broken mass of rock, immediately south of Grand Trunk Pacific railway track at twelfth telegraph pole west of mile post 1082 from Winnipeg. This is directly behind a guide-post indicating Mount Robson and is 140 feet east of east end of a lookout platform 3 miles west of Mount Robson station.
- 121-II In south side of rock cut on Grand Trunk Pacific railway—near centre of cut and at rail level— $\frac{3}{4}$ mile east of Swiftwater and at seventh telegraph pole east of mile post 1085 from Winnipeg.
- 122-II In east face—10 inches below top—of concrete retaining wall at north side of Grand Trunk Pacific railway track, 65 feet west of easterly whistle-post for Albiola and at mileage 1088.4 from Winnipeg.

- 123-II In south side of long rock cut on Grand Trunk Pacific railway, 2 miles west of Albrechts and 20 feet east of mile post 1091 from Winnipeg—this mile post being the sixth pole west of a small tunnel. The bench-mark is also 52 feet east of east end of the farthest west of three concrete retaining walls at north side of track.
- 124-II In south end of west face of concrete retaining wall behind east abutment—6 feet above bridge seat—of three-span plate-girder bridge over McLennan river, 2½ miles east of Tête Jaune and at mileage 1093.7 from Winnipeg.
- 125-II In south end of west face of concrete retaining wall behind east abutment—4 feet 9 inches above bridge seat—of through-truss bridge on Grand Trunk Pacific railway, ½ mile east of Shere and at mileage 1100.7 from Winnipeg.
- 126-II In side of concrete bench-mark pier, 42 feet south of Grand Trunk Pacific railway track, 625 feet east of easterly switch of Croydon passing-track and between first and second telegraph poles west of mile post 1108 from Winnipeg.
- 127-II In northwest face—13 inches below top—of northeasterly concrete footing under Grand Trunk Pacific (steel) water-tank at Dunster.
- 128-II In side of concrete bench-mark pier, 33 feet north of Grand Trunk Pacific railway track, 2.4 miles east of Raush Valley and 16 feet west of mile post 1120 from Winnipeg.
- 129-II In south end of west face of concrete retaining wall behind east abutment—7 feet 4 inches above bridge seat—of long steel trestle bridge over Raushuswap river, 1½ miles west of Raush Valley and at mile post 1124 from Winnipeg.
- 130-II In south end of west face of concrete retaining wall behind east abutment—4 feet 3 inches above bridge seat—of through-truss bridge on Grand Trunk Pacific railway, 1 mile east of Eddy and at mile post 1127 from Winnipeg.
- 131-II In Grand Trunk Pacific roundhouse at McBride, in northwest concrete foundation wall (wall facing station)—10 inches below brickwork and 3 feet 7 inches from north corner—of one-room extension to main building.
- 132-II In south end of west face of concrete retaining wall behind east abutment—4 feet 6 inches above bridge seat—of through-truss bridge on Grand Trunk Pacific railway, 2½ miles west of McBride and at mileage 1137.2 from Winnipeg.
- 133-II In side of concrete bench-mark pier, 27 feet north of Grand Trunk Pacific railway track, 3,440 feet east of east end of a trestle bridge at mileage 1142.6 from Winnipeg and 16 feet west of second telegraph pole east of mile post 1142.
- 134-II In north side of small rock cut on Grand Trunk Pacific railway—60 feet from east end of cut—½ mile west of Legrand and between thirteenth and fourteenth telegraph poles west of mile post 1148 from Winnipeg.
- 135-II In north face of southeast concrete retaining wall of tunnel on Grand Trunk Pacific railway, 3½ miles east of Rider and at mileage 1152.8 from Winnipeg. The bench-mark is 10 inches above rail level and 64 feet east of head-wall at eastern portal of tunnel.
- 136-II In south side of rock cut on Grand Trunk Pacific railway—100 feet from west end of cut and 6 inches above rail level—935 feet east of easterly whistle-post for Rider and at mileage 1155.5 from Winnipeg.
- 137-II In south end of west face of concrete retaining wall behind east abutment—2 feet above bridge seat—of two-span truss bridge over Goat river, 2 miles east of Rooney and at mileage 1160.5 from Winnipeg.
- 138-II In southwest face—11 inches below top—of southwesterly concrete footing under Grand Trunk Pacific (steel) water-tank at Rooney.
- 139-II In top of concrete bench-mark pier, 45 feet south of Grand Trunk Pacific railway track, 1,480 feet west of west end of trestle bridge at mileage 1169.7 from Winnipeg and between seventh and eighth telegraph poles east of mile post 1170—1¼ miles east of Loos.

BENCH-MARKS BETWEEN ABBOTSFORD AND RESPLENDENT, B.C., VIA CANADIAN
PACIFIC RAILWAY TO MATSQUI AND CANADIAN NORTHERN
RAILWAY TO RESPLENDENT.

Elevations on page 42.

Note.—These descriptions are written with the assumption that the railway runs in a northerly direction from Abbotsford to Matsqui, thence easterly to Hope, thence northerly to Ashcroft, thence easterly to Kamloops Junction, thence northerly to Jackman and thence easterly to Resplendent.

- 28 J In east concrete foundation wall—6 inches below concrete blocks and 9 feet, 4 inches from south (or front) wall—of Glazeley's Block at Abbotsford, a concrete-block structure on the north side of the main street and on west side of first street west of Canadian Pacific railway.

- 29-J In north face of concrete base of pilaster at northeast corner of British Columbia Electric Railway company's Matsqui substation in the village of Clayburn.
- 30-J In south concrete foundation wall—3 feet, 9 inches below woodwork and 2 feet from southeast corner—of signal tower at diamond crossing of Canadian Pacific and Canadian Northern railways near Matsqui.
- 31-J In west face of hill of rock through which is the first rock cut east of Matsqui on Canadian Northern railway. The bench-mark is 6 or 8 feet above road about 50 feet south of track, 1225 feet west of Sumas west mile-board and at mileage 81.45 from Boston Bar.
- 32-J In north face of exposed mass of smooth rock in side of steep clay bank cut away by Canadian Northern railway, 1350 feet east of mile post 80 from Boston Bar and 15 feet south of track.
- 33-J In south face of outcrop of rock, 8 feet north of north line of Canadian Northern railway right-of-way—at the base of a rocky hill just west of a curve in the railway—about mileage 75.75 from Boston Bar.
- 34-J In south concrete foundation wall—5 feet, 6 inches from south-east corner—of municipal hall at Chilliwack, immediately north of Canadian Northern railway.
- 35-J In concrete foundation of side (or west) wall of Chilliwack post office, 10 feet from front wall of building and immediately below stonework.
- 36-J In south face of boulder partly buried in ditch, 14 feet north of south line of Canadian Northern railway right of way, 185 feet east of a highway crossing and 0.6 mile east of Rosedale.
- 37-J In south side of rock cut on Canadian Northern railway—1 foot above rail level and near centre of cut—330 feet east of a bridge over a stream and at mileage 58.7 from Boston Bar.
- 38-J In north face of exposed rock surface, 35 feet south of south line of Canadian Northern railway right of way and at south side of main road to Hope. The bench-mark is 860 feet east of point where this road crosses the railway and is at mileage 56.25 from Boston Bar.
- 39-J In south side of deep rock cut on Canadian Northern railway—70 feet from east end of cut—670 feet east of the crossing of a road leading to a cemetery, 790 feet east of C. View east mile-board and at mileage 52.8 from Boston Bar.
- 40-J In side of concrete bench-mark pier, 3 feet north of south line of Canadian Northern railway right of way, 30 feet west of a gate in the fence, 900 feet west of a bridge over a stream and between fourth and fifth telegraph poles west of mile post 47 from Boston Bar.
- 41-J In east face of boulder lying on south line of Canadian Northern railway right of way, immediately west of a small stream at mileage 45.6 from Boston Bar.
- 42-J In west face of exposed rock surface—6 feet above and 36 feet south of Canadian Northern railway track—at west entrance of a large rock cut (the first one east of a long trestle bridge), 1/4 mile west of Hope.
- 43-J In north end of west face of concrete retaining wall behind east abutment—3 feet 8 inches above bridge seat—of Kettle Valley railway bridge over Fraser river at Hope.

Direction, Hope to Ashcroft—North.

- 44-J In west face of exposed rock surface, 37 feet east of Canadian Northern railway track, 2 1/2 miles north of Hope and between fourth and fifth telegraph poles north of mile post 38 from Boston Bar—directly behind concrete inflow of a timber culvert.
- 45-J In west face of mass of rock, 75 feet east of Canadian Northern railway track, 2,200 feet south of a bridge over a stream and between twelfth and thirteenth telegraph poles south of mile post 33 from Boston Bar—at south end of a steep shaley bank lying along east side of track. The bench-mark is marked by a white cross painted on a large fir tree growing beside the rock.
- 46-J In south face of vertical rock surface, 40 feet west of Canadian Northern railway track, 870 feet south of a bridge over a small stream and at mileage 29.5 from Boston Bar—at the south entrance of a small rock cut.
- 47-J In south face of mass of rock, 37 feet east of Canadian Northern railway track, 2 miles north of Yale and at mileage 24.8 from Boston Bar.
- 48-J In west face—7 inches below top and 18 inches from south end—of concrete retaining wall at west side of Canadian Northern railway track at mileage 21.5 from Boston Bar—at northerly portal of the "twin tunnels".
- 49-J In south face of mass of rock, 13 feet west of Canadian Northern railway track and nearly at rail level, 5 feet north of northerly switch of Stout passing track and 180 feet north of milepost 18 from Boston Bar.

- 50-J In west face—4 feet below top and 7 feet from south end—of northwest concrete retaining wall of Canadian Northern railway bridge at mileage 16.7 from Boston Bar. This is a plate-girder bridge supported at the centre by a steel trestle tower.
- 51-J In south face of exposed rock surface, 53 feet east of Canadian Northern railway track and at rail level, 1,380 feet south of southerly switch of Chapinam passing-track and between sixth and seventh telegraph poles south of mile post 13 from Boston Bar—at south end of a deep rock cut.
- 52-J In south face of large rounded mass of rock, 50 feet west of Canadian Northern railway track, 180 feet north of a rail-stand and 120 feet south of mile post 10 from Boston Bar.
- 53-J In east end of south face of concrete retaining wall behind north abutment of open culvert under Canadian Northern railway, at mileage 6.7 from Boston Bar and about $\frac{1}{2}$ mile north of Hell Gate tunnel.
- 54-J In side of concrete bench-mark pier, 8 feet west of east line of Canadian Northern railway right of way, 60 feet south of an eight-foot jog in the right of way fence and 90 feet north of mile post 3 from Boston Bar.
- 55-J In west end of south face of concrete retaining wall behind north abutment—4 feet 6 inches above bridge seat—of long steel trestle bridge over Anderson river, 2 miles south of Boston Bar.
- 56-J In east end of south face of concrete retaining wall behind north abutment—6 feet 2 inches above bridge seat—of long steel trestle bridge on Canadian Northern railway, 2 miles north of Boston Bar and at mileage 123.7 from Kamloops Junction.
- 57-J In west end of south face of concrete retaining wall behind north abutment—4 feet 3 inches above bridge seat—of long steel trestle bridge on Canadian Northern railway, at mileage 120.1 from Kamloops Junction and at southern portal of first tunnel south of Boothroyd passing-track.
- 58-J In south face of small boulder, 7 feet east of east line of Canadian Northern railway right of way, 150 feet north of Inkitsaph flag-station and at mileage 114.8 from Kamloops Junction.
- 59-J In west face of large boulder partly buried in hillside, 3 feet below and 42 feet east of Canadian Northern railway track, $\frac{1}{4}$ mile south of Falls Creek station and 130 feet south of mile post 111 from Kamloops Junction—460 feet north of a flume carrying a stream under track.
- 60-J In west end of south face of concrete retaining wall behind north abutment—4 feet 8 inches above bridge seat—of one-span plate-girder bridge on Canadian Northern railway, at mileage 107.35 from Kamloops Junction.
- 61-J In east face—3 feet below top—of concrete retaining wall behind north abutment of long steel arch bridge over Fraser river and Canadian Pacific railway, $5\frac{1}{2}$ miles south of Lytton.
- 62-J In south face of concrete retaining wall behind south abutment of Canadian Northern railway bridge over Fraser river, $\frac{1}{2}$ mile south of Lytton. The bench-mark is 22 inches below top of retaining wall and 11 feet 6 inches west of centre line of track.
- 63-J In east face—3 feet below top and 5 feet 4 inches from north face—of southeast concrete retaining wall of Canadian Northern railway bridge over Thompson river, $\frac{1}{2}$ mile north of Lytton.
- 64-J In east face of rough pyramid-shaped mass of rock, 25 feet west of Canadian Northern railway track, $\frac{1}{4}$ mile north of a tunnel, 800 feet south of Gossett section house and between third and fourth telegraph poles south of mile post 91 from Kamloops Junction.
- 65-J In west face of large mass of rock, 55 feet east of centre line of Canadian Northern railway track and near mile post 88 from Kamloops Junction.
- 66-J In south face of steep hill of rock at southern portal of a tunnel, the farthest north of three tunnels which are within a short distance of one another. The bench-mark is 25 feet east of Canadian Northern railway track and 110 feet north of Skoonkn south mile-board.
- 67-J In side of concrete bench-mark pier, 28 feet east of Canadian Northern railway track, 130 feet south of a road crossing, 700 feet south of a trestle bridge and $\frac{1}{4}$ mile south of Spence Bridge station.
- 68-J In south face—22 inches below top—of concrete tombstone projecting about 3 feet above ground, 50 feet east of Canadian Northern railway track, 350 feet north of order-board at Spence Bridge station and 670 feet north of highway bridge over Thompson river.
- 69-J In south face of large rounded boulder, 40 feet east of Canadian Northern railway track, 350 feet south of a wooden culvert, $3\frac{1}{4}$ miles north of Spence Bridge and at mileage 71.6 from Kamloops Junction.
- 70-J In east face of outcrop of rock at foot of mountain range, 8 feet west of west line of Canadian Northern railway right of way, 650 feet south of first tunnel north of Martel passing-track and 1,500 feet north of mile post 68 from Kamloops Junction.

- 71-J In south end of west face—22 inches below top—of southwest concrete retaining wall of Canadian Northern railway bridge over Thompson river, 1 mile south of Basque and at mileage 59.7 from Kamloops Junction.
- 72-J In centre of west face of west concrete face-wall of tile culvert under Canadian Pacific railway at twenty-third telegraph pole south of C.P.R. mile post 54 from Kamloops, opposite a point on Canadian Northern railway 400 feet south of mile post 57 from Kamloops Junction.
- 73-J In south face—2 feet below top and 2 feet from east end—of concrete retaining wall behind north abutment of Canadian Northern Railway bridge over Thompson river at mile post 55 from Kamloops Junction, at the southern portal of a long curved tunnel.
- 74-J In east face of large triangular boulder, 37 feet west of west line of Canadian Northern railway right of way, 1½ miles south of Ashcroft and at seventh telegraph pole south of mile post 50 from Kamloops Junction.

Direction, Ashcroft to Kamloops Junction—East.

- 75-J In north face—22 inches below top and 7 feet, 2 inches from east end—of northeast concrete retaining wall of Canadian Northern railway bridge over Thompson river, 1½ miles east of Ashcroft and at mileage 47.3 from Kamloops Junction.
- 76-J In north end of west face—1 foot below top—of concrete retaining wall behind east abutment of Canadian Northern railway bridge over Thompson river, 3 miles east of Ashcroft and at mileage 45.8 from Kamloops Junction.
- 77-J In east face of exposed rock surface, 50 feet south of Canadian Northern railway track, 1,200 feet east of easterly switch of McAbee passing-track and at mileage 40.4 from Kamloops Junction—immediately west of a short, deep rock cut.
- 78-J In east face—1 foot below top—of coping on north concrete abutment of two span steel highway bridge over Thompson river, 2¼ miles west of Walhachin.
- 79-J In west face of concrete retaining wall behind west abutment of Canadian Northern railway bridge over Thompson river, 1½ miles west of Walhachin and at mileage 34.1 from Kamloops Junction. The bench-mark is 20 inches below top of retaining wall and 12 feet, 9 inches north of centre line of track.
- 80-J In south end of east face of concrete retaining wall behind west abutment—4 feet, 6 inches above bridge seat—of Canadian Northern railway bridge over Thompson river, 3¼ miles west of Savona and at mileage 28.9 from Kamloops Junction.
- 81-J In side of concrete bench-mark pier, 3 feet south of north line of Canadian Northern railway right of way, 1,200 feet west of Savona station and 530 feet west of crossing of road leading to bridge over Thompson river.
- 82-J In south face of exposed rock surface, 29 feet north of Canadian Northern railway track and at rail level, 1,800 feet west of a small wooden culvert and 65 feet west of mile post 23 from Kamloops Junction.
- 83-J In west face of rock cliff, 100 feet south of Canadian Northern railway track and about 1 foot above rail level—at western portal of tunnel—150 feet east of easterly switch of Copper Creek passing-track.
- 84-J In east face of hill of rock, 31 feet south of the east end of a rock cut on Canadian Northern railway and 1,500 feet east of mile post 16 from Kamloops Junction.
- 85-J In west face of rock cliff—105 feet south of Canadian Northern railway track and about 4 feet below rail level—at western portal of 2,800-foot tunnel at mileage 10.5 from Kamloops Junction.
- 86-J In south face of rocky hill lying immediately north of a public road 250 feet north of Canadian Northern railway, at a point opposite tenth telegraph pole east of mile post 4 from Kamloops Junction.
- 87-J In east face of concrete coping on most easterly pier of Canadian Northern railway bridge over North Thompson river at Kamloops Junction. The bench-mark is 9 inches below top of coping and directly in line with southerly plate-girder.

Direction, Kamloops Junction to Jackman—North.

- 88-J In west face of exposed rock surface, 35 feet west of east line of Canadian Northern railway, 4½ miles north of Kamloops Junction, 460 feet north of mile post 135 from Blue river and 230 feet north of point where power line wires cross from east to west side of track.
- 89-J In northwest face of exposed rock surface on hillside, slightly above and 50 feet east of Canadian Northern railway track, 3 miles south of Vinsulla and 1,050 feet north of mile post 128 from Blue river—at north end of a deep rock and clay cut.

- 90-J In northeast face of large boulder partly buried in hillside, 800 feet east of east line of Canadian Northern railway right of way, $2\frac{1}{4}$ miles north of Vinsulla and at mileage 122.4 from Blue river. This boulder lies about 20 feet south of a fence which runs east from a point 100 yards east of the railway.
- 91-J In top of concrete bench-mark pier, 4 feet west of east line of Canadian Northern railway right of way, 2 miles south of McLure and 20 feet north of a private crossing at mileage 118.5 from Blue river.
- 92-J In east face of mass of rock, 12 feet west of Canadian Northern railway track and near centre of a sharp curve—facing a steep gravelly bank—between third and fourth telegraph poles south of mile post 113 from Blue river.
- 93-J In north face of exposed rock surface—18 feet east of Canadian Northern railway track and at the north end of a rock cut— $2\frac{1}{4}$ miles south of Louis Creek station and between fourth and fifth telegraph poles north of mile post 110 from Blue river.
- 94-J In west face of exposed rock surface—15 feet east of Canadian Northern railway track and at the south end of a deep clay cut— $1\frac{1}{4}$ miles north of Louis Creek station and 140 feet north of mile post 106 from Blue river.
- 95-J In southwest face of large boulder, 25 feet east of east line of Canadian Northern railway right of way, 600 feet south of a private crossing, $1\frac{1}{4}$ miles north of Barrière and at sixth telegraph pole south of mile post 103 from Blue river.
- 96-J In west face of boulder, 15 feet east of Canadian Northern railway track, $1\frac{1}{4}$ miles south of Chinook Cove and between fourth and fifth telegraph poles north of mile post 100 from Blue river.
- 97-J In west face of boulder, 30 feet east of centre line of road lying parallel to and about 400 feet east of Canadian Northern railway, $2\frac{1}{4}$ miles north of Chinook Cove and opposite a point between fifth and sixth telegraph poles north of mile post 96 from Blue river.
- 98-J In southwest face of large boulder, 25 feet west of west line of Canadian Northern railway right of way and 80 feet north of second crossing (0.4 mile) north of Chu Chua.
- 99-J In west face of vertical rock cliff, 30 feet east of Canadian Northern railway track—on a sharp curve— $1\frac{1}{4}$ miles south of Mount Olie station and at third telegraph pole south of mile post 87 from Blue river.
- 100-J In west face—50 feet from south end—of outcrop of rock occurring in east side of long curved rock and clay cut on Canadian Northern railway, $2\frac{1}{4}$ miles north of Mount Olie station and at mileage 83.5 from Blue river.
- 101-J In east side of rock cut on Canadian Northern railway—near centre of cut— $2\frac{1}{4}$ miles north of boulder and between third and fourth telegraph poles south of mile post 80 from Blue river.
- 102-J In west face of outcrop of rock occurring in east side of short clay cut on Canadian Northern railway, 1,400 feet south of a whistle post for northbound trains, 2 miles south of Blackpool and between seventh and eighth telegraph poles north of mile post 76 from Blue river.
- 103-J In west face of exposed rock surface on east side of Canadian Northern railway track—near centre of a long clay bank—at second telegraph pole south of mile post 72 from Blue river.
- 104-J In east side of rock cut on Canadian Northern railway—near centre of cut—at fourth telegraph pole north of mile post 69 from Blue river.
- 105-J Destroyed.
- 106-J In east face—8 inches below top—of concrete footing under Canadian Northern water-tank at Birch Island. The footing referred to is the southeasterly one of the four footings inside chamber beneath tank.
- 107-J In east face of exposed rock surface—47 feet west of Canadian Northern railway track and near rail level—365 feet north of two whistle posts (one for northbound and one for southbound trains), $3\frac{1}{4}$ miles north of Birch Island and between sixth and seventh telegraph poles south of mile post 58 from Blue river.
- 108-J In east face of concrete pier (built originally for astronomical observations), 7 feet west of west line of Canadian Northern railway right of way, 55 feet south of a private crossing, $2\frac{1}{4}$ miles south of Vavenby and at mileage 55.5 from Blue river.
- 109-J In west face of large boulder, 50 feet east of Canadian Northern railway track and directly beneath telegraph wires, 1 mile north of Vavenby and between second and third telegraph poles south of mile post 52 from Blue river.
- 110-J In west face of white boulder, 25 feet east of Canadian Northern railway track—immediately behind a rail stand on a sharp curve— $1\frac{1}{4}$ miles south of Irvine and between first and second telegraph poles north of mile post 49 from Blue river.
- 111-J In concrete foundation—8 inches below woodwork and 2 feet to the left of the spout—of Canadian Northern water-tank at Irvine.

- 112-J In west face of exposed rock surface—15 feet east of Canadian Northern railway track and 1 foot above rail level— $\frac{1}{4}$ mile north of bridge over North Thompson river above Irvine and between eleventh and twelfth telegraph poles south of mile post 43 from Blue river.
- 113-J In north face of boulder, 20 feet west of Canadian Northern railway track, 105 feet north of a whistle post for northbound trains and at eighth telegraph pole north of mile post 10 from Blue river.
- 114-J In east side of rock cut on Canadian Northern railway—50 feet from north end of cut— $\frac{1}{4}$ mile north of McMurphy and at mileage 36.6 from Blue river.
- 115-J In southwest face of boulder, 55 feet east of Canadian Northern railway track, 580 feet north of a whistle post for northbound trains and at mileage 32.7 from Blue river.
- 116-J Destroyed.
- 117-J In west side of rock cut on Canadian Northern railway—near centre of cut— $2\frac{1}{4}$ miles north of Avola and at mileage 22.45 from Blue river.
- 118-J In east face of vertical rock surface, 22 feet west of Canadian Northern railway main line track, 150 feet north of southerly switch of Cottonwood Flats passing-track and between first and second telegraph poles north of mile post 49 from Blue river.
- 119-J In west side of rock cut on Canadian Northern railway—100 feet from north end of cut and at rail level—85 feet south of a whistle post for northbound trains, 970 feet south of a whistle post for southbound trains and between fifth and sixth telegraph poles south of mile post 16 from Blue river.
- 120-J In north face—2 feet below top—of stone and concrete retaining wall at east side of Canadian Northern railway track at mileage 13.1 from Blue river—immediately north of first bridge above Messiter.
- 121-J In west side of rock cut on Canadian Northern railway—near centre of cut— $3\frac{1}{4}$ miles north of Messiter, 170 feet north of a rail-stand and 80 feet south of mile post 10 from Blue river.
- 122-J In west side of rock cut on Canadian Northern railway—near centre of cut—530 feet north of Wolfenden north mile board and 400 feet south of mile post 7 from Blue river.
- 123-J In south face of mass of rock on hillside, 45 feet west of Canadian Northern railway track at mile post 4 from Blue river.
- 124-J In west concrete foundation—6 inches below woodwork and directly beneath the spout—of Canadian Northern water-tank at Blue river.
- 125-J In west concrete foundation wall—9 inches below woodwork and 5 feet, 6 inches from northwest corner—of Canadian Northern roundhouse at Blue river.
- 126-J In east face of flat white boulder, 80 feet west of Canadian Northern railway track, $1\frac{1}{2}$ miles north of Blue River station, 210 feet south of "Yard Limit" post and at tenth telegraph pole south of mile post 109 from Lucerne.
- 127-J In east face of exposed rock surface—30 feet west of Canadian Northern railway track and at rail level—at thirteenth telegraph pole south of mile post 104 from Lucerne.
- 128-J In east face of concrete retaining wall behind south abutment of Canadian Northern railway bridge over North Thompson river, $\frac{1}{4}$ mile south of Thunder River station and at mileage 101.4 from Lucerne. The bench-mark is 3 feet, 10 inches above bridge seat and 2 feet west of easterly girder.
- 129-J In west face of smooth gray rock exposure, immediately east of Canadian Northern railway track and 50 feet north of a cascade on east side of track, at mileage 97.5 from Lucerne.
- 130-J In east side of rock cut on Canadian Northern railway—at deepest point of cut—215 feet north of mile post 95 from Lucerne and at a point where railway grade touches bank of North Thompson river.
- 131-J In east side of rock cut on Canadian Northern railway—100 feet from north end of cut—at mileage 92.2 from Lucerne; this is the first rock cut ($\frac{1}{4}$ mile) north of Pyramid.
- 132-J In west face of flat boulder, 50 feet east of Canadian Northern railway track—at rail level—175 feet south of bridge at mileage 88.6 from Lucerne.
- 133-J In east side of rock cut on Canadian Northern railway—near north end of cut—380 feet south of a whistle-post for northbound trains, 1,100 feet south of Lempiere south mile-board and at mileage 85.8 from Lucerne.
- 134-J In east side of rock cut on Canadian Northern railway—near north end of cut—2 miles north of Lempiere and at eleventh telegraph pole north of mile post 83 from Lucerne.
- 135-J In east side of boulder, 35 feet west of Canadian Northern railway track—near north end of large gravelly cut—at fifth telegraph pole north of mile post 80 from Lucerne.

- 136-J In west face of exposed rock surface—30 feet east of Canadian Northern railway track and beside a small watercourse—at fourteenth telegraph pole north of mile post 78 from Lucerne.
- 137-J In south face of boulder, 45 feet east of Canadian Northern railway track, 2½ miles south of Albrecht and 80 feet south of mile post 72 from Lucerne.
- 138-J In west face—6 inches below top—of concrete foundation under centre Canadian Northern water-tank at Albrecht.
- 139-J In south end of west face of coping on southwest concrete retaining wall of plate-girder bridge on Canadian Northern railway, 2 miles north of Albrecht and at mileage 67.65 from Lucerne.
- 140-J In west side of rock cut on Canadian Northern railway—near rail level—230 feet north of mile post 65 from Lucerne.
- 141-J In west side of rock cut on Canadian Northern railway—near centre of cut—¼ mile north of canoe River station and between sixth and seventh telegraph poles south of mile post 61 from Lucerne.
- 142-J In east face of flat mass of rock about 20 feet square, 40 feet west of Canadian Northern railway track, 300 feet north of a deep rock cut and at mileage 58.5 from Lucerne—beside a sharp curve in the railway.
- 143-J In west face of large boulder embedded in hillside, 110 feet east of east line of Canadian Northern railway right of way, 1,000 feet south of Swift Creek station and 180 feet south of a whistle-post for southbound trains.
- 144-J In top of concrete bench-mark pier, 4 feet west of east line of Canadian Northern railway right of way, 410 feet south of first creek crossing (1½ mile) north of Swift Creek station and at mileage 49.5 from Lucerne.
- 145-J In west face of small rock exposure on east line of Canadian Northern railway right of way, 2½ miles south of Jackman, 350 feet south of a rail stand and 155 feet north of mile post 16 from Lucerne.

Direction, Jackman to Resplendent—East.

- 146-J In north face (side nearest track)—8 inches below top—of concrete foundation under centre of Canadian Northern water-tank, ¼ mile east of Jackman.
- 147-J In south side of long solid rock cut on Canadian Northern railway—near centre of cut—3¼ miles east of Jackman and 15 feet west of mile post 40 from Lucerne.
- 148-J In west face of exposed rock surface, 30 feet south of Canadian Northern railway track—at east side of a small gully from which a stream flows through a culvert—1½ mile west of Morey and 35 feet west of eighth telegraph pole west of mile post 37 from Lucerne.
- 149-J In north face—1 foot below top and 3 feet from west end—of concrete retaining wall at north side of Canadian Northern railway track, 1½ miles east of Morey and at mile post 34 from Lucerne.
- 150-J In north face of boulder embedded in hillside, 30 feet south of Canadian Northern railway track and 20 feet west of eighth telegraph pole west of mile post 31 from Lucerne.
- 151-J In west face of flat boulder about 10 feet square, 85 feet south of Canadian Northern railway track, 280 feet west of Mount Robson east mile board and between fourth and fifth telegraph poles west of mile post 28 from Lucerne.
- 152-J In north face of large flat boulder, 120 feet south of Canadian Northern railway track, 1½ mile west of Resplendent and at mileage 25.4 from Lucerne—exactly opposite a small timber culvert at east end of a curve.
- 153-J In top of concrete bench-mark pier, 52 feet north of centre line of Canadian Northern railway track, 60 feet south of centre line of Grand Trunk Pacific railway track and 225 feet east of east end of C.N.R. bridge over Fraser river situated 1½ mile east of Resplendent and at mileage 22.2 from Lucerne.
- 117-II In Canadian Northern railway bridge over Fraser river, 1½ mile east of Resplendent—see line from Jasper to Loos.

BENCH-MARKS BETWEEN REVELSTOKE AND KAMLOOPS, B.C.,
VIA CANADIAN PACIFIC RAILWAY.

Elevations on page 44.

- 315-C In west end of south face of south concrete face-wall of tile pipe culvert under Canadian Pacific railway at mileage 3.9 from Revelstoke.
- 316-C In north face of very large mass of rock, 40 feet south of centre line between tracks of Canadian Pacific railway, 200 feet west of Clanwilliam east mile-board and at mileage 7.1 from Revelstoke.

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- 317 C In rear (or west) face of diverting wall—1 foot below top and 5 feet from south end of wall—in south side of square concrete culvert under Canadian Pacific railway, 140 feet west of Clanwilliam west mile-board and at mileage 9.8 from Revelstoke. This is $\frac{1}{4}$ mile west of the farthest west of three short tunnels.
- 318 C In east end of south face of square concrete culvert under Canadian Pacific railway, 2 miles east of Three Valley and at mileage 12.6 from Revelstoke.
- 319 C In northwest face of point of rock on south bank of Eagle river, $\frac{1}{4}$ mile west of Three Valley and 200 feet south-east of plate-girder bridge on Canadian Pacific railway at mileage 15.41 from Revelstoke.
- 320 C In east face of large mass of rock, 2 feet north of north line of Canadian Pacific railway right of way (westbound track), 800 feet west of mile post 18 from Revelstoke and 1,630 feet west of a bridge over Eagle river.
- 321 C In west face of easterly concrete pier of Canadian Pacific railway bridge (eastbound track) over Eagle river, at mileage 18.9 from Revelstoke. The bench-mark is 8 feet south of north face of pier and 47 feet 6 inches below rail level.
- 322 C In side of concrete bench-mark pier, 3 feet north of south line of Canadian Pacific railway right of way, $\frac{1}{4}$ mile east of Taft and 133 feet west of mile post 21 from Revelstoke.
- 323 C In east face of west concrete abutment of plate-girder bridge over Crazy creek, 450 feet east of Taft station. The bench-mark is directly beneath centre line of westbound track.
- 324 C In east face—14 inches below top and 5 feet from north end—of west concrete abutment of Canadian Pacific railway bridge over Eagle river, 2 miles east of Craigellachie and at mileage 26.5 from Revelstoke.
- 325 C In north face of concrete base of monument built to commemorate driving of last spike in trans-continental line of Canadian Pacific railway; this is 800 feet west of Craigellachie station, at north side of track.
- 326 C In top course of stonework, in east face—9 feet 6 inches from south end—of west abutment of Canadian Pacific railway bridge over Eagle river, $\frac{1}{4}$ mile west of Madawm and at mile post 33 from Revelstoke.
- 327 C In centre of east face of coping on west concrete abutment of Canadian Pacific railway bridge over Eagle river, at mileage 37.25 from Revelstoke.
- 328 C In centre of east face—1 foot below stone coping—of west concrete abutment of Canadian Pacific railway bridge over Eagle river, $\frac{1}{4}$ mile east of Salsqua flag-station and at mileage 40.6 from Revelstoke.
- 329 C In centre of east face of stone coping on west abutment of Canadian Pacific railway bridge over Eagle river, $\frac{1}{4}$ mile east of Siemous and at mile post 41 from Revelstoke.
- 330 C In east face—8 inches below bridge seat and 15 inches from south end—of west concrete abutment of five-span plate-girder bridge over Siemous narrows, $\frac{1}{4}$ mile east of Siemous.
- 331 C In north face of north concrete face-wall of tile pipe culvert under Canadian Pacific railway, $\frac{3}{4}$ miles west of Siemous and at mileage 48.2 from Revelstoke.
- 332 C In northwest face of point of rock on shore of Salmon Arm—about 15 feet above water surface—150 feet north of western portal of tunnel on Canadian Pacific railway at mileage 52.24 from Revelstoke. This is the first point of rock on shore (about $\frac{1}{4}$ mile) east of Mowitch flag-station.
- 333 C In east end of north face—7 inches below top—of large square concrete culvert under Canadian Pacific railway, $\frac{1}{4}$ mile east of Canoe flag-station and at mileage 57.2 from Revelstoke.
- 334 C In north face of exposed rock surface on hillside, 29 feet south of Canadian Pacific railway track, 300 feet east of a private crossing, $\frac{1}{4}$ mile east of Salmon Arm and at ninth telegraph pole east of mile post 62 from Revelstoke.
- 335 C In west face of concrete foundation—5 inches below woodwork—of pilaster at northwest corner of Canadian Bank of Commerce at Salmon Arm.
- 336 C In centre of west face—1 foot below stone coping—of east concrete abutment of plate-girder bridge over Salmon river, $\frac{1}{4}$ mile west of Salmon Arm and at mile post 65 from Revelstoke.
- 337 C In north face of exposed rock surface, 10 feet south of south line of Canadian Pacific railway right of way, $\frac{1}{4}$ mile east of Tappen and at fourth telegraph pole east of mile post 69 from Revelstoke—about 150 feet east of east end of a sharp curve around a rocky point facing Salmon Arm.
- 338 C In side of concrete bench-mark pier, 2 feet north of south line of Canadian Pacific railway right of way, 240 feet west of a highway crossing, 316 feet east of mile post 76 from Revelstoke and $\frac{1}{4}$ mile West of Carlin flag-station.

- 339-C In front (or south) concrete foundation wall—8 inches below woodwork and 6 feet from southeast corner—of Notch Hill public school, 350 feet west of railway station.
- 340-C In west face of east concrete abutment—3 feet 6 inches below bridge seat and near centre of abutment—of plate-girder bridge on Canadian Pacific railway, 5½ miles west of Notch Hill and at mileage 85.4 from Revelstoke.
- 341-C In east end of north face of north concrete face-wall of pipe culvert under Canadian Pacific railway at mileage 91.6 from Revelstoke—within the limits of Stormont passing-track.
- 342-C In centre of west face—6 inches below stone coping—of east concrete abutment of Canadian Pacific railway bridge over Chase creek, ¼ mile east of Chase station.
- 343-C In centre of north face of square concrete culvert under Canadian Pacific railway, 1¼ mile west of Shuswap and at mileage 96.9 from Revelstoke.
- 344-C In side of concrete bench-mark pier, 2 feet north of south line of Canadian Pacific railway right of way, 920 feet east of a square concrete culvert, 520 feet east of mile post 99 from Revelstoke and 3¼ miles west of Shuswap.
- 345-C In east end of south face—8 inches below top—of square concrete culvert under Canadian Pacific railway, 2 miles east of Pritchard and at mileage 102.75 from Revelstoke.
- 346-C In east end of north face—9 inches below top—of square concrete culvert under Canadian Pacific railway, 1.6 miles west of Pritchard and at mileage 106.4 from Revelstoke.
- 347-C In east end of south face—9 inches below top—of square concrete culvert under Canadian Pacific railway, 1 mile east of Duck and at mileage 110.65 from Revelstoke.
- 348-C In east end of north face—11 inches below top—of large concrete arch culvert under Canadian Pacific railway, ¼ mile west of Duck and at mile post 112 from Revelstoke.
- 349-C In east end of south face—8 inches below top—of square concrete culvert under Canadian Pacific railway, 3¼ miles west of Duck and at mileage 115.4 from Revelstoke.
- 350-C In west face—16 inches below bridge seat and 12 feet from north end—of east concrete abutment of plate-girder bridge over Campbell creek, at mileage 117.4 from Revelstoke.
- 351-C In north face—9 inches below top—of square concrete culvert under Canadian Pacific railway, at mileage 122.5 from Revelstoke.
- 352-C In east end of north face—9 inches below top—of square concrete culvert under Canadian Pacific railway, 4 miles east of Kamloops and 200 feet east of mile post 125 from Revelstoke.
- 353-C In north wall of city of Kamloops power station—a concrete building immediately north of Canadian Pacific railway, about 1 mile east of Kamloops. The bench-mark is 4 inches above water-table, in north face of pilaster at northeast corner of building.
- 354-C In second course of stonework below brickwork, in front (or north) wall—5 feet from northwest corner—of Canadian Pacific station-house at Kamloops.
- 355-C In fifth course of stonework below water-table course, in east end of north wall of court house at Kamloops—corner of First avenue and Seymour street.
- 87-J In Canadian Northern railway bridge over North Thompson river at Kamloops Junction—see line from Abbotsford to Resplendent.

TABLE II
RESIDUES OF PRECISE LEVELLING,
ROUSE POINT, N. Y., TO SHERBROOKE, Q. P.

Run by G. F. Dalton and H. P. Moulton

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark \oplus	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Mile	Miles	Feet	Feet	Feet	No.
	581 B	1.8	1.8	-003	-001	107.950	
581-B	582-B	3.1	4.9	-005	-008	114.059	581-B
582-B	583-B	1.9	6.8	-009	+0.001	112-115	582-B
583-B	584-B	2.0	8.8	-015	-014	141.821	583-B
	585 B	2.3	11.1	000	-014	175.437	
584-B	586-B	3.6	14.7	-019	-033	182.913	584-B
	587 B	0.4	15.1	+006	-027	181.029	
586-B	588-B	3.1	17.8	005	-028	185.041	586-B
588-B	589-B	2.9	20.7	+013	-015	181.842	588-B
	590 B	1.3	25.0	+023	+008	175.769	
589-B	591-B	0.8	25.8	-004	+005	126.722	589-B
591-B	592-B	2.6	28.4	+011	+016	132.823	591-B
592-B	593-B	1.2	29.6	-017	-001	90.468	592-B
593-B	594-B	0.3	29.9	+008	+007	90.363	593-B
	595 B	3.4	33.0	+026	-033	88.453	
594-B	596-B	2.6	35.6	+011	+014	71.491	594-B
596-B	597-B	4.4	40.0	+033	+011	50.815	596-B
597-B	597-B-2	1.8	41.8	+002	+013	57.990	597-B
597-B-2	598-B	1.0	42.8	+002	+015	55.560	597-B-2
	599 B	1.9	44.7	-008	+007	88.091	
598-B	600-B	1.6	46.3	+008	+015	88.519	598-B
600-B	601-B	3.2	49.5	+037	+022	84.540	600-B
601-B	602-B	1.4	50.9	-007	+015	79.927	601-B
602-B	603-B	2.0	52.9	+006	+021	78.335	602-B
	604 B	1.0	53.9	+011	+032	63.175	
603-B	605-B	1.6	54.9	-005	+027	61.800	603-B
605-B	606-B	3.2	58.1	-016	+011	51.438	605-B
606-B	607-B	0.8	58.9	+014	+022	66.138	606-B
607-B	608-B	3.0	61.9	+016	+038	85.648	607-B
	609 B	2.4	64.3	+005	+043	129.962	
608-B	610-B	5.7	70.0	+012	+055	106.506	608-B
610-B	611-B	2.4	72.4	-017	+038	115.842	610-B
	612 B	0.2	72.6	+004	+042	111.913	
611-B	613-B	0.2	72.8	-003	+039	110.415	611-B
	614 B	2.0	74.1	+007	+015	108.969	
614-B	621-B	2.1	76.5	-023	+022	108.778	614-B
621-B	625-B	2.8	79.3	-023	-001	140.408	621-B
625-B	626-B	2.4	81.7	-010	-011	212.173	625-B
626-B	627-B	3.3	85.0	-041	-022	294.428	626-B
	628 B	0.3	85.3	+001	-018	198.845	
627-B	629-B	3.5	88.5	+019	-003	215.106	627-B
629-B	630-B	2.7	91.2	-000	-003	222.508	629-B
630-B	631-B	2.0	93.2	-004	-007	310.008	630-B
631-B	632-B	3.5	96.7	+017	+010	326.556	631-B
632-B	633-B	2.5	99.2	+022	+032	355.235	632-B
633-B	634-B	3.0	102.2	+001	+033	430.000	633-B
						595.694	634-B

\oplus United States bench-mark on Chapman Block, Rouse Point, N. Y.

RESULTS OF PRECISE LEVELLING
ROUSE POINT, N.Y., TO SHERBROOKE, QUE.

Run by G. F. Dalton and H. P. Moulton

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark ①	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
634-B	635-B	1.2	103.4	-0.00	+0.13	603.011	635-B
635-B	636-B	3.0	196.4	-0.09	+0.21	518.359	636-B
636-B	637-B	2.5	198.9	-0.03	+0.24	528.274	637-B
637-B	638-B	2.7	111.6	-0.25	-0.04	419.295	638-B
638-B	639-B*	1.8	113.4	+0.11	+0.07	394.247	639-B*
639-B*	640-B	0.3	117.7	-0.02	+0.05	387.942	640-B
640-B	641-B	1.0	115.6	-0.01	+0.02	388.902	641-B
641-B	642-B	2.7	118.3	-0.01	+0.01	405.291	642-B
642-B	643-B	2.7	121.0	+0.02	+0.02	401.892	643-B
643-B	644-B	2.4	124.4	-0.07	-0.04	410.719	644-B
644-B	645-B	0.4	123.7	-0.06	-0.10	415.972	645-B
645-B	646-B	3.1	129.8	+0.15	+0.05	428.791	646-B
646-B	647-B	3.2	130.0	+0.09	+0.14	439.880	647-B
647-B	648-B	1.2	131.2	+0.15	+0.29	483.890	648-B
648-B	649-B	2.3	133.5	-0.13	+0.16	479.841	649-B
649-B	650-B	2.5	136.0	-0.16	-0.00	490.563	650-B
650-B	3†	1.7	137.7	+0.07	+0.07	484.039	3†

Connections with Public Works Dept's bench-marks —
 B.M.—DCL-D. & H. station, Rouse Point, Elev. 123.761.
 B.M.—DCCCXIX—Dwelling near G.T.R. station, Lacolle, Elev. 156.760.
 B.M.—MCCCXXXII—C.P.R. bridge over La Tortue river, Elev. 93.318.
 B.M.—DLXXXXVII—G.T.R. culvert 1½ miles north of Brossau, Elev. 58.494.
 B.M.—DLXXXXVII—G.T.R. culvert 2¼ miles north of Brossau, Elev. 58.420.
 B.M.—DLXXXXVI—G.T.R. subway, St. Lambert, Elev. 72.050.
 B.M.—MCCCXXXIX—Roman Catholic church, St. Hubert, Elev. 84.420.
 B.M.—MCCCLII—G.T.R. subway, St. Hubert, Elev. 52.301.

*See also elevation of this bench-mark on page 31.
 †The elevation of bench-mark 3 given on page 319, 1917 publication, is 484.318.

RESULTS OF PRECISE LEVELLING
STE. ROSALIE JCT. TO FARNHAM, QUE.

Run by H. P. Moulton

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 614-B	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
614-B	614-B					108.778	614-B
615-B	615-B	1.6	1.6	-0.03	-0.03	108.751	615-B
616-B	616-B	2.5	4.1	+0.20	+0.17	108.878	616-B
617-B	617-B	2.9	7.0	-0.15	+0.02	109.274	617-B
618-B	618-B	3.1	10.1	-0.00	+0.02	130.618	618-B
618-B	619-B	2.5	12.6	+0.16	+0.18	189.312	619-B
619-B	620-B	2.7	15.3	+0.02	+0.20	195.043	620-B
620-B	621-B	3.5	18.8	+0.05	+0.25	215.456	621-B
621-B	622-B	2.4	20.9	-0.00	+0.00	232.838	622-B
622-B	623-B	4.1	25.6	-0.08	+0.00	220.586	623-B
623-B	62*	1.8	26.8	+0.06	+0.02	195.017	62*

*The elevation of bench-mark 62 given on page 317, 1917 publication, is 195.121.

RESULTS OF PRECISE LEVELLING
CHAUDIÈRE TO RICHMOND, QUE.

Run by H. P. Moulton

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 258-B	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
258-B	651-B	4.2	4.2	+ 018	+ 018	169.643	258-B
651-B	652-B	4.3	8.5	+ 021	+ 039	275.148	651-B
652-B	653-B	4.2	12.7	- 006	+ 033	348.559	652-B
653-B	654-B	1.2	13.9	+ 018	+ 051	392.713	653-B
654-B	655-B	0.2	14.1	+ 006	+ 057	416.028	654-B
654-B	656-B	5.1	19.0	- 008	+ 043	436.318	655-B
656-B	657-B	3.4	22.4	- 027	+ 016	484.925	656-B
657-B	658-B	3.0	25.4	+ 008	+ 024	429.371	657-B
658-B	659-B	3.0	28.4	- 016	+ 008	443.415	658-B
659-B	660-B	1.6	30.0	+ 023	+ 031	457.137	659-B
660-B	661-B	2.8	32.8	- 010	+ 021	441.203	660-B
661-B	662-B	1.7	34.5	+ 017	+ 038	486.719	661-B
662-B	663-B	3.2	37.7	+ 015	+ 053	467.757	662-B
663-B	664-B	2.3	40.0	+ 028	+ 081	458.812	663-B
664-B	665-B	2.8	42.8	- 006	+ 075	412.045	664-B
665-B	666-B	0.7	43.5	- 009	+ 066	412.876	665-B
665-B	667-B	3.9	46.7	+ 001	+ 076	505.083	666-B
667-B	668-B	1.7	48.4	+ 007	+ 083	512.660	667-B
668-B	669-B	3.0	51.4	+ 010	+ 093	513.780	668-B
669-B	670-B	6.0	57.4	+ 002	+ 095	497.001	669-B
670-B	671-B	0.2	57.6	- 006	+ 089	437.739	670-B
670-B	672-B	0.5	57.9	+ 005	+ 100	439.024	671-B
672-B	673-B	4.6	62.5	- 003	+ 097	418.850	672-B
673-B	674-B	2.8	65.3	+ 006	+ 103	420.238	673-B
674-B	675-B	0.8	66.1	- 014	+ 089	519.044	674-B
675-B	676-B	4.3	70.4	- 007	+ 082	473.489	675-B
676-B	677-B	2.6	73.0	+ 006	+ 088	433.707	676-B
677-B	678-B	3.0	76.0	- 008	+ 080	448.929	677-B
678-B	679-B	1.6	77.6	+ 003	+ 083	390.766	678-B
679-B	680-B	2.7	80.3	- 025	+ 058	444.540	679-B
680-B	681-B	2.6	82.9	+ 004	+ 062	464.930	680-B
681-B	682-B	3.0	85.9	+ 003	+ 065	481.691	681-B
682-B	683-B	2.0	87.9	- 018	+ 047	482.910	682-B
683-B	639-B*	1.6	89.5	- 023	+ 024	461.647	683-B
						393.289	639-B*

*See also elevation of this bench-mark on page 33.

Connection at Chaudière with Public Works Dept's bench-mark—

B.M.—MCLXXII—I.R.C. bridge over Chaudière river, Elev. 233.595.

RESULTS OF PRECISE LEVELLING
LOOP LINE AROUND MONTREAL, QUE.

Run by W. N. McGrath

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 597-B-2	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
597-B-2	DLXXXVI	0.4	0.4	+ .007	+ .007	55.560	597-B-2
DLXXXVI	DLXXXV	0.5	0.9	- .000	+ .007	72.050	DLXXXVI
DLXXXV	DLXXXIV	1.4	2.3	+ .006	+ .013	67.619	DLXXXV
DLXXXIV	DLXXXIII	2.0	4.3	+ .016	+ .029	67.247	DLXXXIV
DLXXXIII	DCCCXLVI	0.9	5.2	- .007	+ .022	61.531	DLXXXIII
DCCCXLVI	807	0.5	5.5	- .003	+ .019	55.502	DCCCXLVI
						112.979	807
807	808	0.9	6.4	- .005	+ .014	111.834	808
808	809	0.2	6.6	+ .011	+ .025	124.830	809
807	810	1.0	6.5	- .013	+ .006	153.717	810
810	811	1.6	8.1	- .023	- .017	168.142	811
811	812	1.1	9.2	+ .018	+ .001	151.216	812
812	812	0.7	9.9	+ .013	+ .014	126.061	813
813	814	1.4	11.3	- .019	- .005	151.619	814
814	815	2.8	14.1	+ .014	+ .009	190.911	815
815	816	0.7	14.8	+ .001	+ .010	188.466	816
816	817	0.1	14.9	- .001	+ .009	178.253	817
816	818	1.3	16.1	- .000	+ .010	203.377	818
818	819	0.5	16.6	- .015	- .005	225.095	819
819	820	0.2	16.8	- .008	- .013	226.571	820
819	821	1.7	18.3	+ .014	+ .009	166.600	821
821	822	1.0	19.3	- .001	+ .008	67.814	822
822	823	1.1	20.4	- .005	+ .003	55.284	823
823	824	0.9	21.3	+ .005	+ .008	65.287	824
824	N	1.3	22.6	+ .001	+ .009	49.030	N
N	825	0.2	22.8	+ .007	+ .016	49.902	825
825	DLXXXIV	1.2	24.0	- .007	+ .009	67.247	DLXXXIV

RESULTS OF PRECISE LEVELLING
BRANTFORD TO LUCAN CROSSING, ONT.

Run by W. N. McGrath

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 218	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No	No. 218	Miles	Miles	Feet	Feet	Feet	No.
218	77 F	3.8	3.8	+ .008	+ .008	703.470	218
77 F	78 F	1.9	5.7	+ .018	+ .026	751.378	77-F
78 F	79 F	1.9	7.6	+ .002	+ .028	750.731	78 F
79 F	80 F	4.6	12.2	- .003	+ .025	788.766	79 F
80 F	81 F	2.7	4.9	- .002	+ .023	868.836	80-F
						878.005	81-F
81 F	82 F	0.5	15.1	- .002	+ .021	870.997	82 F
81 F	82 F 2	1.2	16.1	- .002	+ .021	922.517	82-F-2
82 F-2	83 F	3.4	19.5	+ .011	+ .032	930.206	83-F
83 F	84 F	0.2	19.7	- .005	+ .029	933.755	81 F
83 F	85 F	3.5	23.0	- .031	+ .001	916.466	85-F
85 F	86 F	0.7	23.7	+ .005	+ .005	980.430	86-F
86 F	87 F	3.6	27.3	+ .014	+ .020	1008.553	87 F
87 F	88 F	3.4	30.7	+ .023	+ .043	1059.596	88 F
88 F	89 F	0.9	31.6	+ .010	+ .053	1076.788	89-F
89 F	90 F	1.0	32.6	+ .002	+ .055	1070.043	90-F
90 F	91 F	—	32.6	- .002	+ .053	1063.648	91-F
90 F	92 F	0.4	33.0	- .001	+ .054	1078.160	92-F
89 F	93 F	6.3	37.9	+ .023	+ .076	1071.474	93-F
93 F	94 F	2.6	40.5	- .004	+ .072	1008.575	94-F
94 F	95 F	3.9	44.4	+ .005	+ .077	1102.960	95-F
95 F	96 F	0.5	41.9	- .000	- .077	1124.752	96-F
96 F	97 F	0.3	45.2	+ .004	- .081	1101.370	97-F
95 F	98 F	1.6	46.0	+ .013	- .080	1030.902	98-F
98 F	99 F	0.2	46.2	- .004	+ .085	1075.571	99-F
95 F	100 F	3.4	47.8	+ .023	+ .100	1202.325	100-F
100 F	101 F	5.5	53.3	+ .032	+ .132	1183.054	101-F
101 F	102 F	3.5	56.8	+ .008	+ .140	1090.714	102 F
102 F	103 F	0.5	57.3	- .011	+ .129	1125.216	103-F
103 F	104 F	4.5	61.8	+ .011	+ .140	1185.466	104-F
104 F	105 F	5.1	66.9	+ .014	+ .151	1205.032	105-F
105 F	106 F	3.3	70.2	+ .021	+ .178	1194.242	106-F
106 F	107 F	0.7	70.9	- .005	+ .173	1180.745	107-F
106 F	108 F	0.7	70.9	+ .010	+ .188	1182.359	108 F
108 F	109 F	7.0	77.9	+ .022	+ .210	1103.918	109-F
109 F	110 F	3.5	81.4	+ .001	+ .211	1057.075	110-F
110 F	111 F	0.9	82.3	+ .002	+ .213	1040.402	111-F
111 F	112 F	6.4	88.7	+ .022	- .235	981.652	112-F
112 F	113 F	3.7	92.4	- .007	+ .228	998.996	113-F
113 F	113-F-2	2.2	94.6	+ .001	+ .232	1030.227	113-F-2
113 F 2	114 F	1.4	96.0	+ .001	+ .233	997.137	114 F
114 F	337*	2.9	98.9	+ .005	+ .238	864.741	337*

*The elevation of bench-mark 337 given on page 84, 1913 publication, is 861.945.

RESULTS OF PRECISE LEVELLING
GUELPH JCT. TO PALMERSTON, ONT.

Run by W. N. McGrath

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 89-F	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
89-F	89 I'					1076.788	89-F
115-F	115 I'	2.7	2.7	-026	-026	1112.121	115-F
116-F	116 I'	6.2	8.9	+010	-016	1165.981	116-F
117-F	117 I'	4.5	13.4	-010	-026	1272.843	117-F
118-F	118 I'	1.8	15.2	+008	-018	1300.922	118-F
118-F	119 F	1.0	16.2	+005	-013	1310.044	119-F
119-F	120-F	0.4	16.6	+001	-012	1302.232	120-F
120-I	121-F	2.9	19.5	-033	-015	1302.210	121-F
121-I	122-F	5.5	25.0	-008	-053	1506.389	122-F
122-F	123-F	6.1	31.1	+017	-036	1349.339	123-F
123-F	124-F	5.1	36.2	-015	-051	1328.039	124-F
124-F	305*	6.6	42.8	+013	-038	1317.328	305*

*The elevation of bench-mark '05 given, on page 83, 1913 publication, is 1317.286.

RESULTS OF PRECISE LEVELLING
FERGUS TO MELVILLE, ONT.

Run by W. N. McGrath

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 120-F	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
120-F	120-F					1362.232	120-F
125-F	125-F	3.7	3.7	-014	-014	1396.287	125-F
126-F	126-F	5.3	9.0	-014	-028	1490.923	126-F
127-F	127-F	4.2	13.2	-024	-052	1441.928	127-F
127-F	128-F	2.8	16.0	+003	-019	1433.733	128-F
128-F	129-F	3.4	19.4	+012	-037	1296.986	129-F
129-F	130-I	4.3	23.7	+013	-024	1283.341	130-F
130-F	131-F	4.4	28.1	-014	-038	1299.534	131-F
131-F	132-F	1.8	29.9	+002	-036	1326.069	132-F
132-F	265*	3.8	33.7	-029	-065	1349.412	265*

*The elevation of bench-mark 265 given on page 82, 1913 publication, is 1349.299.

Geodetic Survey of Canada

RESULTS OF PRECISE LEVELLING
ST. CATHARINES TO PORT DALHOUSIE, ONT.*Run by W. N. McGeath*

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 208	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
208	208	1.8	1.8	- .003	- .003	358.616	208
133-F	133-F	1.6	3.4	+ .007	+ .004	320.978	133-F
	131-F					259.719	131-F

RESULTS OF PRECISE LEVELLING
WELLAND JCT. TO PORT COLBORNE, ONT.*Run by W. N. McGeath*

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 214	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
214	214	5.1	5.1	- .013	- .013	580.353	214
135-F	135-F	0.3	5.4	- .010	- .023	583.314	135-F
136-F	136-F	0.5	5.9	- .013	- .036	605.566	136-F
	137-F					579.302	137-F

For connections at Port Dalhousie and Port Colborne with Hydrographic Survey bench-marks, see Introduction

Precise Levelling

RESULTS OF PRECISE LEVELLING
FRANZ TO FORT ARTHUR, ONT.

Run by A. J. Rainboth

BENCH-MARK		Distance between successive bench marks	Distance from bench-mark 634	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
708	708		194.2		+ .362	1219.304	708
709	709	3.3	197.5	+ .023	+ .385	1189.871	709
710	710	3.7	201.2	+ .014	+ .399	1157.843	710
711	711	2.9	204.1	+ .002	+ .401	1208.771	711
711	712	2.0	207.0	- .005	+ .396	1250.080	712
712	713	3.7	210.7	+ .019	+ .415	1385.431	713
713	714	3.5	211.2	+ .006	+ .421	1410.287	714
714	715	2.9	217.1	+ .005	+ .426	1424.738	715
715	716	3.0	220.1	+ .022	+ .448	1428.784	716
716	717	3.5	223.6	+ .004	+ .452	1376.524	717
717	718	2.4	226.0	+ .005	+ .457	1369.824	718
718	719	2.7	228.7	- .002	+ .455	1357.126	719
719	720	3.2	231.9	- .022	+ .433	1382.409	720
720	721	3.7	235.6	- .009	+ .424	1355.094	721
721	722	4.5	240.1	+ .014	+ .438	1255.447	722
722	723	2.7	242.8	- .002	+ .436	1225.260	723
723	723-A	0.2	243.0	- .000	+ .436	1222.132	723-A
723	724	3.1	245.9	- .000	+ .436	1225.742	724
724	725	3.1	249.0	+ .006	+ .442	1199.050	725
725	726	3.0	252.0	+ .001	+ .446	1195.487	726
726	727	3.1	255.1	+ .002	+ .448	1145.722	727
727	728	3.2	258.3	- .002	+ .446	1129.694	728
728	729	3.7	262.0	- .001	+ .445	1108.312	729
729	730	2.2	264.2	+ .001	+ .446	1086.915	730
730	731	2.4	266.3	+ .009	+ .455	1084.388	731
731	732	1.3	267.6	- .012	+ .443	1076.573	732
732	733	3.3	270.9	- .015	+ .428	1054.424	733
733	734	3.3	274.2	+ .009	+ .437	1053.395	734
734	735	2.7	276.9	+ .013	+ .450	1031.527	735
735	736	3.1	280.0	- .007	+ .443	1028.112	736
736	737	3.1	283.1	+ .002	+ .445	966.300	737
737	738	2.5	285.6	- .002	+ .443	871.151	738
738	739	3.5	289.1	+ .002	+ .445	875.666	739
739	740	4.3	293.4	+ .027	+ .472	801.639	740
740	741	1.6	295.0	- .008	+ .464	794.347	741
741	742	2.4	297.4	- .013	+ .451	683.853	742
742	742-A	0.7	298.1	- .002	+ .449	708.778	742-A
742-A	743	2.9	301.0	- .016	+ .433	738.913	743
743	744	3.2	304.2	- .004	+ .429	681.593	744
744	745	2.7	306.9	- .007	+ .422	698.604	745
745	746	3.1	310.0	- .021	+ .401	715.375	746
746	747	3.0	313.0	+ .004	+ .405	739.529	747
747	748	3.0	316.0	+ .002	+ .407	652.930	748
748	749	2.9	318.9	- .013	+ .394	784.428	749
749	750	3.0	321.9	+ .007	+ .401	794.108	750
750	751	3.0	324.9	- .005	+ .396	692.462	751
751	752	3.0	327.9	- .008	+ .388	650.501	752
752	753	3.0	330.9	- .008	+ .380	650.659	753
753	754	3.0	333.9	- .009	+ .371	713.691	754
754	755	3.0	336.9	- .005	+ .366	709.893	755
755	756	3.0	339.9	- .013	+ .353	702.105	756
756	757	3.1	343.0	+ .003	+ .356	632.884	757

Geodetic Survey of Canada

RESULTS OF PRECISE LEVELLING

FRANZ TO PORT ARTHUR, ONT.—*Continued**Run by A. J. Rainboth*

BENCH MARK		Distance between successive bench-marks	Distance from bench-mark 634	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
757	758	2.8	345.8	-0.12	+341	651.299	758
758	759	2.9	348.7	-0.05	+339	746.206	759
759	760	4.5	353.2	+0.05	+344	885.359	760
760	761	3.5	356.7	-0.19	+363	970.171	761
761	762	2.4	359.1	0.22	+385	959.532	762
762	763	1.9	361.0	-0.14	+374	997.875	763
763	764	0.2	361.2	-0.03	+374	979.935	764
764	765	2.9	364.1	+0.12	+386	955.775	765
765	766	3.0	367.1	+0.15	+401	823.515	766
766	767	4.0	371.1	-0.17	+384	698.170	767
767	768	3.0	374.1	+0.15	+399	660.454	768
768	769	3.0	377.1	+0.25	+421	640.329	769
769	770	2.8	379.9	+0.20	+444	634.229	770
770	771	3.2	383.1	-0.22	+422	613.002	771
771	772	3.0	386.1	-0.22	+400	618.265	772
772	773	2.9	389.0	+0.01	+401	635.305	773
773	774	3.4	392.1	+0.10	+417	626.056	774
774	775	2.6	394.7	-0.04	+413	606.940	775
775	776	4.4	399.1	-0.09	+401	607.148	776
776	777	3.0	402.1	+0.16	+420	636.044	777
777	778	3.3	405.4	+0.06	+426	723.053	778
778	779	2.1	407.5	-0.00	+426	640.209	779
779	780	2.2	409.7	-0.17	+409	624.553	780
780	781	2.1	411.8	-0.13	+396	631.458	781
781	782	2.8	414.6	+0.02	+398	615.595	782
782	783	3.0	417.6	-0.16	+382	623.466	783
783	784	3.4	421.0	-0.10	+372	700.429	784
784	785	2.5	423.5	-0.19	+353	683.144	785
785	786	2.6	426.1	+0.11	+364	613.162	786
786	787	2.7	428.8	+0.28	+392	628.469	787
787	788	2.7	431.5	-0.15	+377	640.920	788
788	789	3.4	434.9	-0.03	+374	661.285	789
789	790	2.5	437.4	+0.05	+379	617.731	790
790	791	3.9	441.3	-0.04	+375	603.868	791
791	792	2.8	444.1	+0.12	+387	623.042	792
792	793	2.8	446.9	+0.04	+394	674.579	793
793	794	3.2	450.1	-0.23	+368	736.495	794
794	795	3.8	453.9	+0.01	+360	771.598	795
795	796	3.4	457.3	+0.13	+382	845.080	796
796	797	2.6	459.9	+0.13	+395	937.812	797
797	798	3.0	462.9	-0.02	+393	1047.761	798
798	799	4.0	466.9	+0.13	+406	993.449	799
799	800	2.0	468.9	-0.17	+389	956.424	800
800	801	2.7	471.6	-0.00	+389	927.855	801
801	802	2.6	474.2	+0.05	+394	902.167	802
802	803	2.8	477.0	-0.01	+393	904.758	803
803	804	4.0	481.0	-0.06	+387	783.612	804
804	805	2.7	483.7	-0.20	+367	697.298	805
805	806	3.8	487.5	+0.05	+372	636.543	806
806	93-E*	2.1	489.6	+0.01	+373	616.301	93-E*

*The elevation of bench-mark 93-E given on page 184, 1916 publication, is 617.149.
For connection at Port Arthur with Hydrographic Survey bench-mark, see Introduction.

Precise Levelling

RESULTS OF PRECISE LEVELLING

JASPER, ALTA., TO LOOS, B.C.

Run by N. H. Smith and A. J. Ramboth

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 28-D	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet*	Feet	No.
104-II	104-II		565.3		+ .361	3483.531	104-II
105-II	105-II	2.7	568.0	- .010	+ .351	3504.151	105-II
106-II	106-II	3.0	571.0	- .014	+ .337	3544.618	106-II
107-II	107-II	2.1	573.1	+ .003	+ .345	3577.810	107-II
108-II	108-II	3.7	576.8	+ .009	+ .354	3625.835	108-II
109-II	109-II	4.1	580.9	- .007	+ .347	3695.456	109-II
110-II	110-II	2.9	583.8	+ .010	+ .357	3700.530	110-II
111-II	111-II	3.0	586.8	+ .012	+ .360	3643.387	111-II
112-II	112-II	2.4	589.2	+ .003	+ .377	3585.783	112-II
113-II	113-II	7.1	596.3	- .005	+ .372	3480.823	113-II
114-II	114-II	2.8	599.1	+ .007	+ .379	3429.085	114-II
115-II	115-II	2.9	602.0	+ .009	+ .388	3398.796	115-II
116-II	116-II	3.8	605.8	+ .004	+ .392	3401.944	116-II
117-II*	117-II*	3.6	609.4	- .010	+ .402	3399.866	117-II*
118-II	118-II	2.1	611.5	- .015	+ .387	3396.388	118-II
119-II	119-II	4.5	616.0	.000	+ .387	3171.898	119-II
120-II	120-II	4.3	620.3	- .018	+ .369	2979.400	120-II
121-II	121-II	2.4	622.7	- .022	+ .347	2855.384	121-II
122-II	122-II	3.6	626.3	- .005	+ .342	2678.376	122-II
123-II	123-II	2.5	628.8	- .009	+ .333	2555.876	123-II
124-II	124-II	2.8	631.6	+ .007	+ .340	2445.614	124-II
125-II	125-II	7.0	638.6	- .005	+ .335	2401.906	125-II
126-II	126-II	7.4	646.0	+ .005	+ .341	2520.014	126-II
127-II	127-II	6.5	652.5	- .008	+ .333	2568.628	127-II
128-II	128-II	5.4	657.9	+ .010	+ .343	2497.190	128-II
129-II	129-II	3.9	661.8	+ .002	+ .345	2418.920	129-II
130-II	130-II	3.0	664.8	+ .020	+ .365	2366.936	130-II
131-II	131-II	7.8	672.6	+ .021	+ .386	2371.772	131-II
132-II	132-II	2.5	675.1	+ .023	+ .409	2353.571	132-II
133-II	133-II	4.8	679.9	+ .008	+ .417	2341.379	133-II
134-II	134-II	6.4	686.3	+ .006	- .411	2314.920	134-II
135-II	135-II	4.4	690.7	- .012	+ .399	2295.988	135-II
136-II	136-II	2.7	693.4	+ .001	+ .400	2251.664	136-II
137-II	137-II	4.9	698.3	+ .010	+ .410	2205.864	137-II
138-II	138-II	1.9	700.2	+ .002	+ .412	2199.250	138-II
139-II	139-II	7.3	707.5	+ .009	+ .421	2155.523	139-II

*See also elevation of this bench-mark on page 44.

Geodetic Survey of Canada

RESULTS OF PRECISE LEVELLING
ABBOTSFORD TO RESPLENDENT, B.C.
Run by D. McMillan and A. J. Rayboth

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 25 J	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
	25-J					172.075	25-J
25-J	28-J	1.3	1.3	+ 006	+ 006	88.025	28-J
28-J	29-J	2.6	3.9	- 003	+ 003	37.718	29-J
29-J	30-J	2.4	6.3	- 017	- 014	17.432	30-J
30-J	31-J	3.7	10.0	+ 002	+ 012	35.049	31-J
31-J	32-J	4.6	14.6	+ 003	- 009	35.080	32-J
32-J	33-J	4.0	18.6	+ 011	+ 002	31.785	33-J
33-J	31-J	3.8	22.4	+ 003	+ 005	30.751	34-J
34-J	35-J	0.6	23.0	+ 011	+ 016	35.411	35-J
34-J	36-J	7.6	30.6	+ 007	+ 012	47.730	36-J
36-J	37-J	5.8	35.8	- 014	- 002	80.901	37-J
37-J	38-J	2.4	38.2	000	- 002	79.331	38-J
38-J	39-J	3.4	41.6	+ 014	+ 012	95.819	39-J
39-J	40-J	5.7	47.3	- 012	000	112.671	40-J
40-J	41-J	1.5	48.8	+ 001	+ 004	117.488	41-J
41-J	42-J	4.8	53.6	- 011	- 007	150.948	42-J
42-J	43-J	1.9	55.5	- 008	- 015	137.713	43-J
43-J	44-J	2.8	58.3	+ 021	+ 006	147.338	44-J
44-J	45-J	4.6	62.9	- 006	000	171.364	45-J
45-J	46-J	3.8	66.7	- 011	- 014	182.877	46-J
46-J	47-J	4.9	71.6	- 014	- 028	212.997	47-J
47-J	48-J	3.2	74.8	+ 013	- 015	243.892	48-J
48-J	49-J	3.5	78.3	- 006	- 021	282.546	49-J
49-J	50-J	1.3	79.6	- 009	- 040	289.062	50-J
50-J	51-J	3.5	83.1	+ 020	- 020	349.178	51-J
51-J	52-J	3.2	86.3	+ 031	+ 011	397.961	52-J
52-J	53-J	3.3	89.6	- 009	+ 002	389.617	53-J
53-J	54-J	3.7	93.3	+ 001	+ 003	427.126	54-J
54-J	55-J	1.0	94.3	- 007	- 004	432.189	55-J
55-J	56-J	3.9	98.2	+ 027	+ 023	461.156	56-J
56-J	57-J	3.6	101.8	- 013	+ 010	512.028	57-J
57-J	58-J	5.3	107.1	+ 029	+ 039	573.731	58-J
58-J	59-J	3.7	110.8	+ 006	+ 045	602.930	59-J
59-J	60-J	3.6	114.4	+ 031	+ 076	597.073	60-J
60-J	61-J	3.7	118.1	- 014	+ 062	598.790	61-J
61-J	62-J	5.2	123.3	+ 027	+ 089	559.634	62-J
62-J	63-J	1.0	124.3	- 010	+ 079	561.813	63-J
63-J	64-J	6.3	130.6	- 019	+ 060	618.950	64-J
64-J	65-J	3.1	133.7	+ 014	+ 074	647.670	65-J
65-J	66-J	7.8	141.5	+ 014	+ 088	713.987	66-J
66-J	67-J	4.6	146.1	+ 021	+ 109	735.423	67-J
67-J	68-J	0.9	147.0	+ 014	+ 095	745.330	68-J
68-J	69-J	3.1	150.1	+ 001	+ 096	768.917	69-J
69-J	70-J	3.8	153.9	- 013	+ 083	831.549	70-J
70-J	71-J	8.1	162.0	- 001	+ 082	893.727	71-J
71-J	72-J	2.5	164.5	- 006	+ 076	890.583	72-J
72-J	73-J	2.1	166.6	- 008	+ 068	924.677	73-J
73-J	74-J	4.8	171.4	+ 026	+ 094	978.222	74-J
74-J	75-J	2.9	174.3	+ 017	+ 111	988.498	75-J
75-J	76-J	1.5	175.8	+ 005	+ 116	1005.848	76-J
76-J	77-J	5.4	181.2	- 037	+ 079	1032.369	77-J
77-J	78-J	5.4	186.6	+ 026	+ 105	1070.835	78-J
78-J	79-J	0.8	187.4	+ 008	+ 113	1082.247	79-J
79-J	80-J	5.2	192.6	+ 034	+ 117	1128.763	80-J

RESULTS OF PRECISE LEVELLING
 ABBOTSFORD TO RESPLENDENT, B.C.—Continued
 Run by D. McMillan and A. J. Rumbolt

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 25-J	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No	No	Miles	Miles	Feet	Feet	Feet	No
80-J	81-J	3 0	195.6	-003	+114	1176.509	81-J
81-J	82-J	2 9	198.5	+011	+125	1172.052	82-J
82-J	83-J	2.6	201.1	+016	+141	1173.446	83-J
83-J	84-J	4.8	205.9	-033	+108	1170.412	84-J
84-J	85-J	5.3	211.2	+015	+123	1175.534	85-J
85-J	86-J	7 0	218.2	+009	+132	1136.526	86-J
86-J	87-J	3 5	221.7	-033	+089	1141.716	87-J
87-J	88-J	4 9	226.6	+027	+126	1159.043	88-J
88-J	89-J	7.1	233.7	000	+126	1177.377	89-J
89-J	90-J	5.3	239.0	+030	+156	1266.973	90-J
90-J	91-J	3.9	242.9	+015	+171	1188.508	91-J
91-J	92-J	5.3	248.2	+004	+175	1211.247	92-J
92-J	93-J	3.3	251.5	+013	+188	1225.266	93-J
93-J	94-J	3 8	255.3	+007	+195	1246.093	94-J
94-J	95-J	2 9	258.2	+005	+200	1251.204	95-J
95-J	96-J	3.3	261.5	+016	+216	1257.770	96-J
96-J	97-J	4 1	265.6	-019	+197	1262.681	97-J
97-J	98-J	5.5	271.1	+033	+230	1264.481	98-J
98-J	99-J	3.3	274.4	+027	+257	1257.549	99-J
99-J	100-J	3.5	277.9	+014	+271	1278.476	100-J
100-J	101-J	3 4	281.3	+021	+292	1293.026	101-J
101-J	102-J	4.3	285.6	-020	+272	1295.472	102-J
102-J	103-J	3.7	289.3	-008	+264	1312.423	103-J
103-J	104-J	3.1	292.4	+019	+283	1330.425	104-J
104-J	105-J	2.9	295.3	+002	+285	1350.297	105-J
105-J	106-J	4 4	299.7	+019	+304	1384.110	106-J
106-J	107-J	3.5	303.2	-028	+276	1443.269	107-J
107-J	108-J	2 7	305.9	+027	+303	1497.445	108-J
108-J	109-J	3 4	309.3	+011	+314	1538.348	109-J
109-J	110-J	3.1	312.4	+022	+336	1602.868	110-J
110-J	111-J	1.9	314.3	+005	+341	1634.169	111-J
111-J	112-J	3.8	318.1	+007	+348	1691.549	112-J
112-J	113-J	3.5	321.6	+002	+350	1735.800	113-J
113-J	114-J	3.2	324.8	+018	+368	1779.214	114-J
114-J	115-J	3 9	328.7	+012	+380	1862.343	115-J
115-J	116-J	5.5	334.2	-015	+365	1897.159	116-J
116-J	117-J	4.8	339.0	+035	+400	1934.640	117-J
117-J	118-J	3.5	342.5	+010	+410	1996.917	118-J
118-J	119-J	2.8	345.3	+034	+444	2041.799	119-J
119-J	120-J	3.0	348.3	+015	+459	2085.193	120-J
120-J	121-J	3.1	351.4	-029	+430	2140.346	121-J
121-J	122-J	2.9	354.3	+025	+455	2185.487	122-J
122-J	123-J	3.1	357.4	-009	+446	2202.932	123-J
123-J	124-J	4 1	361.5	-007	+439	2233.474	124-J
124-J	125-J	0.1	361.6	-003	+436	2233.499	125-J
125-J	126-J	1.4	363.0	+010	+446	2232.570	126-J
126-J	127-J	4.9	367.9	+012	+458	2235.096	127-J
127-J	128-J	2 9	370.8	+027	+485	2258.472	128-J
128-J	129-J	3 9	374.7	-036	+449	2267.949	129-J
129-J	130-J	2.6	377.3	+007	+456	2287.042	130-J
130-J	131-J	2.8	380.1	+012	+468	2308.285	131-J
131-J	132-J	3.5	383.6	-028	+440	2342.315	132-J
132-J	133-J	2.8	386.4	+001	+441	2409.075	133-J
133-J	134-J	3.1	389.5	+003	+444	2502.853	134-J

*See also elevation of this bench-mark on page 45.

Geodetic Survey of Canada

RESULTS OF PRECISE LEVELLING

ABBOTSFORD TO RESPLENDENT, B.C. - *Continued**Run by D. McMillan and A. J. Rainboth*

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 25 J	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
134 J	135 J	2.8	392.3	- 024	+ 420	2595.741	135-J
135-J	136-J	2.2	391.5	+ 009	+ 429	2669.167	136-J
136-J	137-J	5.6	109.1	- 024	+ 405	2829.511	137-J
137-J	138-J	2.2	402.3	+ 002	+ 497	2865.487	138-J
138-J	139-J	2.1	401.4	+ 011	+ 418	2826.141	139-J
139-J	140-J	2.7	407.1	+ 010	+ 408	2785.603	140-J
140-J	141-J	3.8	410.9	+ 003	+ 411	2719.456	141-J
141-J	142-J	2.6	113.5	000	+ 411	2687.281	142-J
142-J	143-J	7.2	420.7	- 013	+ 398	2613.318	143-J
143-J	144-J	1.9	422.6	+ 010	+ 408	2621.094	144-J
144-J	145-J	3.6	426.2	+ 026	+ 431	2750.118	145-J
145-J	146-J	2.8	429.0	+ 019	+ 453	2822.580	146-J
146-J	147-J	3.2	432.2	- 011	+ 442	2922.567	147-J
147-J	148-J	2.8	435.0	+ 011	+ 456	3016.659	148-J
148-J	149-J	3.2	438.2	+ 028	+ 481	3100.449	149-J
149-J	150-J	2.8	441.0	000	+ 481	3193.541	150-J
150-J	151-J	3.1	441.1	- 010	+ 471	3289.242	151-J
151-J	152-J	2.8	446.9	000	+ 474	3401.106	152-J
152-J	153-J	3.2	450.1	+ 002	+ 476	3408.631	153-J
153-J	117-H*	450.1	- 002	+ 474	3399.817	117-H*

* See also elevation of this bench-mark on page 11.

RESULTS OF PRECISE LEVELLING

REVELSTOKE TO KAMLOOPS, B.C.

Run by D. McMillan

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 51-D	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
314 C	314-C		298.2		+ 266	1512.387	314-C
315-C	315-C	2.9	271.1	000	+ 266	1602.967	315-C
315-C	316-C	3.2	274.3	+ 003	+ 269	1742.270	316-C
316-C	317-C	2.7	277.0	+ 021	+ 290	1791.210	317-C
317-C	318-C	2.8	279.8	+ 002	+ 292	1642.759	318-C
318-C	319-C	2.8	282.6	+ 006	+ 298	1620.147	319-C
319-C	320-C	2.7	285.3	+ 005	+ 293	1481.555	320-C
320-C	321-C	0.7	286.9	+ 009	+ 302	1425.076	321-C
321-C	322-C	4.1	290.1	000	+ 302	1325.728	322-C
322-C	323-C	1.1	291.2	- 007	+ 295	1276.419	323-C
323-C	324-C	2.3	293.5	+ 006	+ 301	1250.714	324-C
324-C	325-C	2.1	295.6	+ 012	+ 313	1226.728	325-C
325-C	326-C	4.5	300.1	+ 017	+ 296	1199.427	326-C
326-C	327-C	4.3	304.4	+ 003	+ 299	1173.813	327-C
327-C	328-C	3.3	307.7	+ 020	+ 319	1155.948	328-C

RESULTS OF PRECISE LEVELLING
 RIVELSTOKE TO KAMLOOPS, B.C. — Concluded

Run by D. McMillan

BENCH-MARK		Distance between successive bench-marks	Distance from bench-mark 51 D	DISCREPANCY		Elevation above mean sea level	BENCH-MARK
From	To			Partial	Total		
No.	No.	Miles	Miles	Feet	Feet	Feet	No.
328-C	329-C	3.4	311.1	+ 030	+ 349	1151.130	329-C
329-C	330-C	0.6	311.7	- 005	+ 344	1151.864	330-C
330-C	331-C	3.6	315.3	- 008	+ 336	1155.637	331-C
331-C	332-C	4.4	319.4	- 025	+ 311	1153.563	332-C
332-C	333-C	4.9	324.3	+ 000	+ 320	1151.100	333-C
333-C	334-C	4.5	328.8	- 004	+ 316	1161.388	334-C
334-C	335-C	1.8	330.6	- 003	+ 313	1161.178	335-C
335-C	336-C	1.4	332.0	- 002	+ 311	1144.518	336-C
336-C	337-C	3.9	335.9	+ 004	+ 315	1155.966	337-C
337-C	338-C	7.0	342.9	- 007	+ 308	1159.206	338-C
338-C	339-C	4.0	346.9	+ 041	+ 319	1708.263	339-C
339-C	340-C	5.1	352.3	- 015	+ 304	1409.301	340-C
340-C	341-C	0.2	358.5	- 019	+ 285	1143.631	341-C
341-C	342-C	2.1	360.6	+ 024	+ 309	1173.863	342-C
342-C	343-C	3.2	363.8	+ 010	+ 319	1144.836	343-C
343-C	344-C	2.1	365.9	+ 017	+ 336	1146.128	344-C
344-C	345-C	3.8	369.7	+ 006	+ 342	1162.252	345-C
345-C	346-C	3.6	373.3	+ 002	- 340	1148.847	346-C
346-C	347-C	4.2	377.5	- 013	+ 327	1156.219	347-C
347-C	348-C	4.4	378.9	+ 009	+ 336	1151.083	348-C
348-C	349-C	3.3	382.2	- 020	+ 316	1146.333	349-C
349-C	350-C	2.0	384.2	+ 003	+ 319	1153.857	350-C
350-C	351-C	5.0	389.2	- 002	+ 317	1153.736	351-C
351-C	352-C	2.6	391.8	- 001	+ 316	1140.871	352-C
352-C	353-C	2.9	394.7	- 006	+ 310	1143.837	353-C
353-C	354-C	4.1	395.8	- 008	+ 302	1162.429	354-C
354-C	355-C	0.4	396.2	- 000	+ 302	1182.008	355-C
354-C	87-J*	3.5	399.3	- 009	- 293	1142.810	87-J*

*See also elevation of this bench-mark on page 43.

TABLE III

RAIL ELEVATIONS, ROUSE POINT, N.Y., TO SHERBROOKE, QUE.

(Elevations taken in 1915 and 1916)

	FEET
Delaware & Hudson Railroad—Rouse Point	123.2
" Rutland railroad (diamond crossing)	121.0
Napierville Junction Ry.—Grand Trunk railway, Ottawa division (diamond crossing)	142.4
" Lacolle	146.1
" Napierville	184.7
" St. Edouard	176.8
" La Tortue	133.5
" Delson	91.2
Canadian Pacific Railway—Delson	91.8
" Grand Trunk railway (diamond crossing at Delson)	92.1
Grand Trunk Railway—Laprairie	60.0
" Brosseau	59.4
" Montreal and Southern Counties (electric) railway, diamond crossing	63.5
" St. Lambert	71.3
" St. Hubert	89.7
" St. Bruno	80.0
" St. Bazile	61.3
" " "	62.9
" Richelieu river, water, Nov. 3, 1915, 20.8, rail	65.7
" Otterburn Park	70.0
" St. Hilaire	83.9
" St. Hilaire East	100.0
" Ste. Madeleine	116.9
" Quebec, Montreal and Southern railway (diamond crossing)	113.7
" St. Hyacinthe	109.8
" Yamaska river, water, May 16, 1916, 63.7, rail	103.9
" Canadian Pacific railway, St. Guillaume branch (diamond crossing at Ste. Rosalie Junction)	110.5
" Ste. Rosalie	113.5
" Britannia Mills	220.9
" St. Laboire	289.3
" Upton	202.3
" Black river, water, May 29, 1916, 166.1, rail	202.1
" Actonville	310.5
" Canadian Pacific railway, Drummondville branch (diamond crossing)	317.6
" Danby	437.3
" South Durham	607.4
" Lisgar	528.6
" Gore	534.8
" St. Francis river, water, June 19, 1916, 365.6; rail	422.5
" Richmond	391.1
" Corris	402.4
" Morse	408.0
" Windsor Mills	416.2
" Coney Island	421.6
" Titus	427.2
" St. Francis river, water, July 5, 1916, 411.1; rail	442.4
" Bromptonville	470.0
" Magog river, water, July 7, 1916, 462.4, rail	486.9
" Sherbrooke	484.9

RAIL ELEVATIONS, STE. ROSALIE JUNCTION TO FARNHAM, QUE.

(Elevations taken in 1916)

Canadian Pacific Railway—Grand Trunk railway (diamond crossing at Ste. Rosalie Junction)	110.5
" St. Hyacinthe	108.6
" St. Pie	131.4
" Black river, water, May 3, 1916, 109.0; rail	132.0
" Montreal and Southern Counties (electric) railway, diamond crossing	208.8
" Abbotsford	208.6
" Papineau	211.7
" Canrobert	234.8
" Yamaska river, water, May 6, 1916, 180.8, rail	212.1
" Central Vermont railway (diamond crossing at Farnham)	208.6

Precise Levelling

RAIL ELEVATIONS, CHAUDIERE TO RICHMOND, Q.U.E.

(Elevations taken in 1916)

		FEET
Grand Trunk Railway	Chaudiere	237.1
"	Craig Road	348.2
"	St. Agapit	409.3
"	Dosquet	448.0
"	Lyster	440.5
"	Béancour river, water, Oct. 3, 1916, 429.5, rail.	440.4
"	Ste. Julie	477.9
"	Plessisville	444.2
"	Princeville	528.5
"	Branch Nicolet river, water, Oct. 27, 1916, 475.4, rail	501.2
"	Victoriaville	433.4
"	Nicolet river, water, Oct. 21, 1916, 305.3, rail.	322.5
"	Warwick	483.4
"	Kingsey	346.6
"	Southwest branch Nicolet river, water, Oct. 30, 1916, 365.0, rail	394.0
"	Danyville	448.6
"	St. Cyr	484.3
"	Richmond	394.1

RAIL ELEVATIONS, MONTREAL LOOP LINE.

(Elevations taken in 1917)

Grand Trunk Railway	St. Lambert	74.3
"	Victoria bridge (highest point)	94.3
"	Point St. Charles	52.9
"	Lachine canal, water, 56.9, rail	65.8
"	St. Henri	60.2
Canadian Pacific Railway	Montreal, Windsor street station.	108.5
"	Atwater avenue suloway	132.6
"	Westmount	151.7
"	Montreal West	158.4
"	North Junction	139.6
"	St. Luc Junction	156.2
"	Côte-des-Neiges	179.3
"	Outremont	206.2
"	Mile End	222.7
"	Angus	160.3
"	Hochelega	77.2
"	Montreal, Place Viger station.	58.1

RAIL ELEVATIONS, BRANTFORD TO LUCAN CROSSING, ONT.

(Elevations taken in 1916)

Grand Trunk Railway	Brantford	705.9
"	Alford (Harrisburg branch)	717.6
"	Harrisburg	736.7
"	Branchton	895.3
"	Galt	876.4
"	Canadian Pacific railway, main line (overhead crossing) rail 943.9, G.T.R. rail.	921.5
"	Preston	925.9
"	Galt, Preston & Hespeler (electric) railway, diamond crossing	949.7
"	Speed river, water, June 13, 1916, 935.7; rail.	919.2
"	Hespeler	943.4
"	Gourack	1,059.6
"	Guelph Junction (diamond crossing)...	1,075.9
"	Guelph	1,069.1
"	Mosborough	1,084.9
"	Breslau	1,025.1
"	Grand river; water, June 28, 1916, 962.4; rail...	1,012.0
"	Kitchener	1,401.2
"	Waterloo (branch)	1,058.2
"	Petersburg	1,211.9
"	Buden	1,457.9
"	New Hamburg	1,128.0
"	Nith river; water, July 10, 1916, 1085.0; rail.	1,126.2
"	Shakespeare	1,183.6
"	Stratford	1,192.7
"	St. Pauls	1,165.7
"	St. Marys Junction	1,083.0
"	St. Marys (branch)	1,055.3

RAIL ELEVATIONS, BRANTFORD TO LUCAN CROSSING, ONT.—*Concluded.*

(Elevations taken in 1916)

	FEET
Grand Trunk Railway—North branch Thames river; water, July 27, 1916, 989.7; rail.....	1,042.2
" Granton	1,034.2
" Lucan.....	990.5
" Grand Trunk railway, London Wingham line (under crossing) rail	
861.6; main line, rail.....	882.5
" Lucan Crossing (station)	861.6

RAIL ELEVATIONS, GUELPH JUNCTION TO PALMERSTON, ONT.

(Elevations taken in 1916)

Grand Trunk Railway—Guelph Junction (diamond crossing).....	1077.0
" Canadian Pacific railway, Guelph-Goderich line (diamond crossing)....	1112.4
" Marden.....	1131.5
" Llora.....	1295.6
" Grand river; water, Aug. 14, 1916, 1236.6; rail	1303.1
" Fergus.....	1355.8
" Canadian Pacific railway, Llora branch (diamond crossing).....	1364.3
" Alma.....	1438.6
" Goldstone	1454.8
" Conestoga river; water, Aug. 24, 1916, 1301.3; rail.....	1351.4
" Drayton.....	1356.2
" Moorefield.....	1349.7
" Palmerston.....	1312.1

RAIL ELEVATIONS, FERGUS TO MELVILLE, ONT.

(Elevations taken in 1916)

Canadian Pacific Railway—Fergus.....	1360.1
" Grand Trunk railway, Harrisburg-Southampton line (diamond	
crossing).....	1364.3
" Spier	1394.5
" Grand river; water, Sept. 2, 1916, 1351.0; rail.....	1372.4
" Belwood.....	1419.5
" Orton.....	1451.7
" Hillsburgh.....	1418.6
" Erin.....	1293.7
" Cataract.....	1253.9
" Alton.....	1315.9
" Melville (Streetsville Junction line).....	1329.0
" Melville (Toronto-Owen Sound line).....	1328.7

RAIL ELEVATIONS, PORT DALHOUSIE TO PORT COLBORNE, ONT.

Grand Trunk Railway—Lake Ontario; water, Sept. 28, 1916.....	245.6
" Welland canal swing bridge; water, 317.9; rail	323.5
" Merriton.....	397.4
" Port Robinson.....	588.0
" Welland.....	599.4
" Welland Junction (diamond crossing).....	579.5
" Humberstone.....	589.0
" Port Colborne (diamond crossing)	583.0
" Lake Erie; water, Oct. 5, 1916.....	571.3

RAIL ELEVATIONS, FRANZ TO PORT ARTHUR, ONT.

(Elevations taken in 1916)

Canadian Pacific Railway—Algoma Central railway (diamond crossing at Franz).....	1216.5
" Williams.....	1179.2
" Maggie lake; water, May 12, 1916, 1129.4; rail (on bridge).....	1160.4
" Swanson.....	1160.8
" Grasett.....	1236.4
" Ryerson	1382.5
" Girdwood.....	1432.0
" Tripoli	1411.7
" Amyot.....	1379.9
" Birch.....	1370.7
" White river (mileage 119.5 from Chnpicau); water, May 25, 1916,	
1298.0; rail.....	1329.6

RAIL ELEVATIONS, FRANZ TO PORT ARTHUR, ONT.—Continued.

(Elevations taken in 1916)

	FEET
Canadian Pacific Railway—O'Brien.....	1438.3
" Depew.....	1317.5
" White river (mileage 129.1 from Chapleau); water, June 1, 1916, 1241.0; rail.....	1260.5
" White river (mileage 129.6 from Chapleau); water, June 1, 1916, 1237.2; rail.....	1219.7
" White River (station).....	1223.2
" Denison.....	1175.1
" White river (mileage 12.2 from White River); water, June 12, 1916, 1136.3; rail.....	1146.8
" Bromner.....	1148.5
" Bromner river; water, June 14, 1916, 1121.7; rail.....	1132.4
" King.....	1077.9
" White river (mileage 21.6 from White River); water, June 15, 1916, 1069.9; rail.....	1079.0
" Trudeau.....	1038.5
" Struthers.....	1032.2
" Cedar river (mileage 33.9 from White River); water, June 23, 1916, 1025.6; rail.....	1035.4
" Hemlo.....	970.5
" Pringle.....	880.1
" McLeod.....	813.1
" Black river; water, July 6, 1916, 756.2; rail.....	802.8
" Pic river; rail on bridge.....	687.4
" Heron Bay.....	707.8
" Craigs.....	699.7
" Peninsula.....	703.2
" Angler.....	703.4
" Coldwell.....	711.3
" Neys.....	855.2
" Little Pic river; rail on bridge.....	693.1
" Middleton.....	687.9
" Ripple.....	666.6
" Steel.....	737.6
" Steel river; water, July 25, 1916, 609.8; rail.....	674.2
" Santoy.....	702.5
" Jackfish.....	633.2
" Nosto.....	693.6
" Blacks.....	893.8
" Black river; water, Aug. 15, 1916, 817.8; rail.....	888.0
" Schreiber.....	992.9
" Horn.....	863.1
" Winston.....	762.4
" Selim.....	718.3
" Rossport.....	644.6
" Pays Plat river; water (Lake Superior), Aug. 18, 1916, 602.1; rail.....	608.1
" Pays Plat.....	620.2
" Cavers.....	642.2
" Gravel.....	618.8
" Gravel river; Water (Lake Superior), Aug. 30, 1916, 602.1; rail.....	621.3
" Gurney.....	608.3
" Dublin.....	687.9
" Kama.....	644.5
" Ozono.....	627.3
" Fire Hill.....	605.9
" Ruby.....	691.4
" Nipigon river; water, Sept. 13, 1916, 605.2; rail.....	685.5
" Canadian Northern railway (under crossing) rail 619.2; C.P.R. rail.....	679.3
" Nipigon.....	638.2
" Red Rock.....	690.1
" Sprucewood.....	667.3
" Black Sturgeon river; water, Sept. 22, 1916, 612.6; rail.....	669.3
" Coglin.....	606.8
" Hurkett.....	627.0
" Wolf river; water, Sept. 23, 1916, 608.8; rail.....	677.1
" Dorion.....	740.5
" Quimet.....	774.4
" Bowker.....	845.5
" Pearl.....	818.7
" Pearl river; rail on bridge.....	1048.4
" Loon.....	996.9
" Mackenzie river; water, Oct. 3, 1916, 985.4; rail.....	957.1
" Beck.....	913.7
" Mackenzie.....	762.7
" Navilus.....	

RAIL ELEVATIONS, FRANZ TO PORT ARTHUR, ONT. *included.*

(Elevations taken in 1916)

	FEET
Canadian Pacific Railway—Current River (station)	639.6
" Current river; water, Oct. 14, 1916, 625.3; rail	638.0
" Port Arthur...	613.7
" Lake Superior, water, Oct. 17, 1916.	602.0

RAIL ELEVATIONS, JASPER, ALTA. TO LOOS, B.C.

(Elevations taken in 1916 and 1917)

Grand Trunk Pacific Ry.—Jasper	3469.7
" Miette river (mileage 1035.2 from Winnipeg); water, Aug. 15, 1916, 3555.9; rail	3580.5
" Geikie.	3588.4
" Miette river (mileage 1038.8 from Winnipeg); water, Aug. 17, 1916, 3613.5; rail	3625.2
" Miette river (mileage 1044.4 from Winnipeg); water, Aug. 18, 1916, 3704.0; rail	3719.3
" Interprovincial boundary, Alberta-British Columbia.	3722.0
" Yellowhead....	3717.1
" Lucerne.	3639.8
" Alpland.	3539.7
" Grant Brook.	3471.3
" Moose river; water, Aug. 29, 1916; 3416.9; rail.	3431.8
" Rainbow....	3399.8
" Resplendent	3404.4
" Fraser river; water, Aug. 30, 1916, 3360.9; rail	3400.4
" Mount Robson.	3115.0
" Swiftwater.	2827.2
" Albrede	2655.3
" McLennan river; water, Sept. 11, 1916, 2409.7; rail.	2449.7
" Tête Jaune.	2402.5
" Shere..	2418.8
" Croydon.	2525.1
" Dunster..	2568.2
" Raush Valley..	2452.5
" Raushwap river; water, sept. 27, 1916, 2329.8; rail.	2420.9
" Eddy..	2363.2
" McBride.	2368.4
" Legrand	2314.9
" Rider...	2237.2
" Rooney.	2198.4
" Loos.	2162.3

RAIL ELEVATIONS, ABBOTSFORD TO RESPLENDENT AND RAINBOW, B.C.

(Elevations taken in 1915, 1916 and 1917)

Canadian Pacific Railway—Abbotsford	87.8
" British Columbia Electric railway (diamond crossing).	24.1
" Clayburn...	21.6
" Matsqui	23.9
Canadian Northern railway, main line (diamond crossing)	23.1
Canadian Northern Railway—Matsqui.	21.7
" Sumas.	34.3
" Arnold.	28.9
" British Columbia Electric railway (diamond crossing near Chil- iwuck).	29.3
" Rosedale	51.7
" Cheam View..	99.8
" St. Ilmo	94.2
" Kettle Valley railway (diamond crossing near Hope)..	162.3
" Coquihalla river; water, Oct. 15, 1915, 159.0; rail.	163.4
" Yale.	218.2
" Chapman.	357.4
" Anderson river; water, May 13, 1916, 324.3; rail..	436.7
" Boston Bar	452.7
" Falls Creek.	605.9
" Canadian Pacific railway, main line (under crossing) rail 541.8; C.N.R. rail.	602.9
" Fraser river (mileage 103.9 from Kamloops Junction); water, May 29, 1916, 432; rail..	602.9
" Fraser river (mileage 98.3 from Kamloops Junction); water, May 29, 1916, 456.3; rail..	562.6
" Lytton..	565.3

RAIL ELEVATIONS, ABBOTSFORD TO RESPLENDENT AND RAINBOW, B.C.—*Concluded.*

(Elevations taken in 1915, 1916 and 1917)

	FEET
Canadian Northern Railway—Thompson river (mileage 97.5 from Kamloops Junction); water	
May 30, 1916, 462.0; rail..	566.3
Seddell..	699.3
Spence Bridge..	741.8
Thompson river (mileage 59.7 from Kamloops Junction); water,	
June 21, 1916, 862.7; rail..	898.5
Basque	901.8
Thompson river (mileage 55.0 from Kamloops Junction); water,	
June 22, 1916, 897.0; rail..	928.0
Ashcroft..	992.5
Thompson river (mileage 47.3 from Kamloops Junction); water,	
June 23, 1916, 971.2; rail..	991.9
Thompson river (mileage 45.8 from Kamloops Junction); water,	
June 24, 1916, 979.7; rail..	1008.0
McAbee	1032.9
Thompson river (mileage 34.1 from Kamloops Junction); water,	
July 3, 1917, 1060.7; rail..	1085.2
Wallachin..	1085.5
Thompson river (mileage 28.9 from Kamloops Junction); water,	
July 4, 1916, 1104.2; rail..	1132.2
Savona	1174.1
Copper Creek	1171.8
Tranquille..	1183.4
Mytton..	1152.8
North Thompson river; water, July 18, 1916, 1125.2; rail..	1155.1
Kamloops Junction..	1153.2
St. Paul	1176.4
Vinsulla..	1185.5
Lure..	1187.8
Louis Creek (station)	1236.1
Louis creek; water, May 7, 1917, 1233.5; rail..	1242.3
Barrière	1247.9
Barrière river; water, May 7, 1917, 1228.3; rail..	1246.0
Chinook Cove	1252.1
Chu Chua	1275.7
Mount Olie..	1267.2
Boulder..	1286.4
Blackpool..	1302.7
Clearwater..	1329.4
Birch Island..	1385.8
North Thompson river, Birch Island bridge; water (southerly	
channel) May 30, 1917, 1389.6; rail..	1405.7
water (northerly channel) May 30, 1917, 1396.5; rail..	1425.9
Vayenby..	1537.6
Irvine	1633.4
North Thompson river; water, June 4, 1917, 1612.3; rail..	1681.1
McMurphy..	1785.7
North Thompson river; water, June 12, 1917, 1851.7; rail..	1868.7
Avola..	1896.7
Messiter	2079.4
Wolfenden	2169.4
Trout Creek	2189.9
Blue River (station)	2236.9
Blue river; water, July 5, 1917, 2211.2; rail..	2228.9
Thunder river; water, July 6, 1917, 2248.0; rail..	2259.2
North Thompson river; water, July 10, 1917, 2244.3; rail..	2260.1
Thunder River (station)	2258.7
Pyramid..	2304.3
Lemprière..	2440.7
Clemina..	2744.8
Albreda	2866.1
Canoe River..	2723.3
Swift Creek..	2602.2
Jackman..	2818.3
Morey..	3059.3
Mount Robson..	3258.3
Resplendent	3417.9
Fraser river; water, Aug. 13, 1917, 3386.4; rail..	3408.1
Rainbow..	3400.6

RAIL ELEVATIONS, REVELSTOKE TO KAMLOOPS, B.C.

(Elevations taken in 1916)

	FEET
Canadian Pacific Railway—Revelstoke	1496.7
" Columbia river; water, Aug. 1, 1916, 1438; rail.	1479.0
" Three Valley	1638.8
" Eagle river (mileage 15.44 from Revelstoke); water, Aug. 8, 1916, 1616.3; rail	1625.2
" Eagle river (mileage 17.9 from Revelstoke); water, Aug. 8, 1916, 1488.7; rail	1503.0
" Crazy creek (mileage 21.2 from Revelstoke); water, Aug. 9, 1916, 1272.8; rail	1281.6
" Taft	1281.5
" Eagle river (mileage 21.8 from Revelstoke); water, Aug. 9, 1916, 1255.4; rail	1266.5
" Eagle river (mileage 26.0 from Revelstoke); water, Aug. 10, 1916, 1241.6; rail	1253.0
" North fork, Eagle river (mileage 26.5 from Revelstoke); water, Aug. 10, 1916, 1243.3; rail.	1256.1
" Craigellachie	1226.9
" Eagle river (mileage 31.5 from Revelstoke); water, Aug. 11, 1916, 1196.5; rail	1214.4
" Malakwa	1215.9
" Eagle river (mileage 33.0 from Revelstoke); water, Aug. 12, 1916, 1189.9; rail	1200.5
" Eagle river (mileage 37.25 from Revelstoke); water, Aug. 19, 1916, 1159.8; rail	1179.5
" Eagle river (mileage 40.6 from Revelstoke); water, Aug. 19, 1916, 1150.0; rail	1167.2
" Solsqua	1161.5
" Eagle river (mileage 44.0 from Revelstoke); water, Aug. 21, 1916, 1138.5; rail	1158.2
" Seamous narrows, water Aug. 21, 1916, 1137.5; rail.	1156.0
" Seamous	1155.4
" Canoe	1153.5
" Salmon Arm	1159.6
" Salmon river; water, Sept. 1, 1916, 1138.8; rail.	1151.3
" Tappen	1159.5
" Carlin	1423.1
" Notch Hill	1692.4
" Elson	1485.7
" Chase	1184.6
" Shuswap	1154.9
" Pritchard	1152.2
" Duek	1156.2
" Kamloops	1160.7

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Note.—Under "Year of Publication,"
 1912 refers to Vol. I, No. 2*, "Publications of the Dominion Observatory."
 1913 " Vol. I, No. 3, " " "
 1914 " Vol. I, No. 8, " " "
 1915 " Vol. II, No. 1, " " "
 1916 " Vol. III, No. 6, " " "
 1917 " Vol. III, No. 8, " " "
 1918 " refers to the present publication.

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A				
Abbotsford, B.C.	28-J	1918	Page 23	Page 43
Abbotsford, Que.	620-B	1918	11	33
Abercorn, Que.	54	1917	282	318
Actonvale, Que.	630-B	1918	9	32
Adamsville, Que.	59	1917	281	317
Ailsa Craig, Ont.	343	1914	220	236
Alameda, Sask.	57-C	1913	69	83
Albert Canyon, B.C.	303-C	1917	270	310
Alcove, Que.	472	1914	218	234
Aldergrove, B.C.	24-J	1916	170	191
Algoma, Ont.	602	1916	156	181
Alix, Alta.	61-F 62 F	1916	165	187
Allenford, Ont.	292	1913	60	83
Alliston, Ont.	382, 383	1913	64	86
Almonte, Ont.	64 G, 65-G, 66-G	1917	250	293
Alton, Ont.	131-F	1918	17	37
Amherst, N.S.	545-B to 548-B	1916	146	173
Andover, N.B.	40-B	1917	277	314
Antigonish, N.S.	172-B, 173-B	1913	47	74
Apoahqui, N.B.	115-B	1913	44	73
Appin, Ont.	240	1913	56	81
Apple Hill, Ont.	100	1917	285	320
Ardendale, Ont.	165-G	1917	256	295
Adrossan, Alta.	55-H	1916	163	186
Argyle, N.S.	457-B	1915	13	30
Arnprior, Ont.	73-G, 74-G, 75-G	1917	250	293
Aroostook, N.B.	41-B	1917	277	314
Artland, Sask.	28-II	1915	20	34
Ashcroft, B.C.	74-J	1918	26	42
Asquith, Sask.	5-II	1915	19	34
Athalmer, B.C.	153-D	1917	265	305
Atwood, Ont.	309	1913	61	83
Auburn, N.S.	487-B	1916	148	175
Avondale, N.S.	167-B	1913	47	74
Avonmore, Ont.	103	1917	285	320
Ayers Cliff, Que.	28-A-2, 29	1913	48	75
Aylesbury, Sask.	14-D	1913	72	90
Azilda, Ont.	457	1914	225	238
B				
Bden, Ont.	101-F	1918	15	36
Baker Brook, N.B.	264-B	1917	247	290
Bala, Ont.	408	1913	66	86
Banff, Alta.	240-C, 241-C	1916	167	188
Barons, Alta.	76-D, 77-D	1915	25	38
Barrington, N.S.	444-B	1915	12	29
Barrington Passage, N.S.	446-B	1915	12	29
Barrys Bay, Ont.	523	1915	16	32
Bashaw, Alta.	65-F	1916	165	187

*The bench mark numbers in this publication (Yukon levelling) follow a series independent of those in the later publications; in order to distinguish them they are printed in italics in the "B.M. Number" column.

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Bath, N.B.	35-B	1917	Page 276	Page 314
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Beansville, Ont.	204	1913	63	85
Beaudette, Minn.	16-E	1914	226	239
Beavermouth, B.C.	281-C	1917	269	309
Belford, Que.	66	1917	282	318
Belford, N.S.	506-B	1916	144	171
Beecher Falls, Vt.	562-B	1916	153	180
Benton, Ont.	379	1913	64	86
Beiseker, Alta.	48-F	1916	161	187
Belgrave, Ont.	316	1913	61	83
Bellamy, Ont.	101-G	1917	252	298
Belle River, Ont.	252	1913	57	81
Belleville, N.S.	459-B	1915	13	30
Belleville, Ont.	156 to 157 A 2	1917	288	322
Beloeil, Que.	606-B	1918	9	32
Bennett, B.C.	52-R	1912	23	23
Benton, N.B.	18-B	1917	276	313
Berwick, N.S.	488-B	1916	148	175
Bethune, Sask.	9-D	1913	71	90
Bienfait, Sask.	61-C	1913	69	88
Biggar, Sask.	12-H	1915	20	34
Blackie, Alta.	63-D	1915	26	38
Bladworth, Sask.	19-D	1914	227	240
Blaine, Wash.	19-J	1916	169	190
Blairmore, Alta.	103-D	1917	262	304
Blind River, Ont.	604, 605	1916	156	181
Bloomfield, N.B.	111-B	1913	44	73
Blue River, B.C.	124 J, 125-I	1918	28	43
Bluevale, Ont.	313	1913	61	83
Blyth, Ont.	317	1913	61	83
Bohara, Sask.	106-C	1914	229	241
Boiestown, N.B.	33-C	1916	151	178
Boisbassin, Man.	31-C, 32-C	1913	67	87
Bolton, Ont.	260	1913	58	82, 86
Bothwell, Ont.	243	1913	57	81
Boundary Creek, N.B.	128-B	1917	45	73
Bow Island, Alta.	178-C, 179-C	1915	23	35
Bownville, Ont.	177	1913	54	79
Braeburn, Y.T.	57	1912	27	27
Brant, Alta.	65-D	1915	26	38
Brantford, Ont.	219, 220	1913	55	80
Breslau, Ont.	94-F	1918	14	36
Bridgburg, Ont.	215-A	1913	64	85
Bridgewater, N.S.	409-B to 411-B	1915	10	28
Brierly Brook, N.S.	170-B	1913	47	74
Brighton, Ont.	163	1917	288	322
Bristol, N.B.	34-B	1917	276	314
Britannia Mills, Que.	625-B	1918	9	32
Brockville, Ont.	123, 124	1917	286	321
" "	105-G, 106-G	1917	252	298
Brome, Que.	50	1917	282	318
Bromptonville, Que.	648-B	1918	10	33
Brookport, Que.	60	1917	281	317
Bruce, Alta.	45-H	1916	162	186
Bruce Mines, Ont.	619	1916	156	182
Brucefield, Ont.	329	1913	62	84
Brunswick, N.B.	6-B	1917	275	313
Brussels, Ont.	312	1913	61	83
Bull River, B.C.	135-D	1917	264	305
Burdett, Alta.	180-C, 181-C	1915	23	35, 36
Burlington Det., Ont.	196	1913	55	80
Bury, Que.	13 A 2	1913	49	76
C				
Calabogie, Ont.	139-G	1917	254	299
Calais, Maine.	1-B	1917	275	313
Caldwell, Ont.	512	1915	16	32
Caledon, Ont.	265	1913	58	82
" "	265	1918	17	37

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Campbellton, N.B.	25-G, 26-G	1916	148	175
Camrose, Alta.	70-F, 71-F	1916	151	177
Canmore, Alta.	235-C	1916	165	187
Canrobert, Que.	622-B	1918	167	188
Canterbury, N.B.	16-B	1917	11	33
Capelton, Que.	26	1917	276	313
Cap St. Ignace, Que.	567-B	1913	48	75
Cariboo, Y.T.	18-R	1917	247	291
Carievale, Sask.	49-C	1912	21	24
Carleton Place, Ont.	60-G, 61-G, 62-G	1913	68	88
Carmangay, Alta.	73-D, 74-D	1917	249, 250	293
Carnduff, Sask.	50-C	1915	25	38
Caron, Sask.	108-C	1913	68	88
Cartwright, Man.	20-C	1914	229	241
Cascades, Que.	467	1913	67	87
Cataract, Ont.	130-F	1914	218	234
Chamberlain, Sask.	12-D	1918	16	37
Champion, Alta.	71-D	1913	72	90
Chaplin, Sask.	113-C	1915	26	38
Chase, B.C.	342-C	1914	229	241
Chatham, Ont.	246-A, 247, 247-A	1918	31	45
"	373, 247	1913	57	81
Chatham, N.B.	49-G	1914	222	236
Chatsworth, Ont.	283	1916	152	178
Chaudiere, Que.	M.C.L.XXII	1913	59	82
Chauvin, Alta.	30-II	1918	3	34
Chelsen, Que.	464	1915	21	34
Chesley, Ont.	295, 296	1914	218	234
Chester, N.S.	401-B	1914	60	83
Chesterville, Ont.	107	1915	10	28
Chilliwaek, B.C.	31-J, 35-J	1917	285	320
Chin, Alta.	191-C	1918	24	42
Chipman, N.B.	352-B	1915	23	36
Chu Chua, B.C.	98-J	1914	216	233
Clarkson, Ont.	192	1918	27	43
Clarksville, N.S.	520-B, 521-B	1913	55	80
Clayburn, B.C.	29-J	1916	145	171
Clifton, N.S.	531-B	1918	24	42
Clinton, Ont.	320, 321	1916	145	172
Cloverdale, B.C.	20-J, 21-J	1913	62	85
Cooticook, Que.	14, 15, 16	1916	169	191
Coblenz, Sask.	17-II	1917	283	319
Cobourg, Ont.	171	1915	20	34
Cochrane, Alta.	222-C, 223-C	1913	53	79
Colborne, Ont.	166	1916	166	188
Coldbrook, N.S.	491-B	1917	288	322
Coldwater, Ont.	399-A	1916	148	175
Coleman, Alta.	105-D	1913	65	86
Collins Bay, Ont.	144	1917	262	304
Compton, Que.	10	1917	287	321
Condie, Sask.	5-D	1917	283	319
Conn Mills, N.S.	139-B	1913	71	90
Cooking Lake, Alta.	53-II	1913	46	74
Cookshire, Que.	10-A-3, 11-A	1916	161	186
Capetown, Ont.	216-A	1913	49	76
Corbetton, Ont.	273	1913	55	80
Corbyville, Ont.	185-G	1913	59	82
Cornwall, Ont.	489, 490, 491	1917	257	301
Corunna, Ont.	361	1914	219	235
Coteau Jet., Que.	90	1917	221	236
Côte-des-Neiges, Que.	815, 816, 817	1917	281	320
Courtright, Ont.	363	1918	13	35
Coutts, Alta.	216-C†	1914	222	236
Cowley, Alta.	97-D	1915	25	37
Craighurst, Ont.	392	1917	262	304
"		1913	65	86

†Refer to Public Works Dept.

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Crowsnest, B.C.	109-D	1917	263	304
Crysler, Ont.	496	1914	220	235
Crystal City, Man.	16-C	1913	67	87
D				
Dalhousie Mills, Ont.	95	1917	285	320
Danby, Que.	633-B	1918	10	33
Danville, Que.	679-B	1918	12	43
Dauntless, Alta.	171-C	1915	22	35
Davidson, Sask.	18-D	1914	227	240
Dawson, Y.T.	227, 227†	1912	34	34
Dean Lake, Ont.	609	1916	156	182
Debec, N.B.	20-B	1917	276	313
Delburne, Alta.	59-F	1916	165	187
Deloraine, Man.	36-C	1913	68	88
Delson, Que.	593-B, 594-B	1918	8	32
Denfield, Ont.	338	1913	62	84
Denmark, N.S.	149-B	1913	46	74
Depot Harbour, Ont.	566, 567	1915	13	31
Derby Jet., N.B.	47-G-2	1916	152	178
Derby Line, Vt.	33-A	1913	49	75
Desharats, Ont.	622	1916	157	182
Devlin, Ont.	27-E	1914	226	239
DeWinton, Alta.	57-D	1915	26	38
Dinant, Alta.	73-F	1916	165	187
Disley, Sask.	8-D	1913	71	90
Doaktown, N.B.	37-G	1916	151	178
Dobbinton, Ont.	294	1913	60	83
Dorechester, N.B.	DCCCLXXXIX, etc.	1916	†	174
Dorelee, Alta.	66-F	1916	165	187
Dosquet, Que.	657-B	1918	11	34
Drayton, Ont.	123-F	1918	16	37
Dresden, Ont.	370	1914	222	236
Drinkwater, Sask.	91-C	1913	70	89
Duck, B.C.	348-C	1918	31	45
Duck Lake, Sask.	42-D	1914	228	240
Dundalk, Ont.	274	1913	59	82
Dundas, Ont.	215	1913	55	80
Dundurn, Sask.	25-D	1914	227	240
Dunmore, Alta.	165-C	1915	22	35
E				
Eastman, Que.	41	1917	281	317
East Pubnico, N.S.	453-B	1915	13	29
Eastray, Que.	44	1917	281	317
Eastwood, Ont.	225	1913	55	80
Echo Bay, Ont.	626	1916	157	182
Edgerton, Alta.	33-H	1915	21	34
Edmonton, Alta.	58-H to 61-H	1916	163	186
Edmundston, N.B.	58-B, 59-B, 60-B	1917	278	314
Edson, Alta.	81-H, 82-H	1917	272	311
Eganville, Ont.	514	1915	16	32
Elinwood, Ont.	297	1913	60	83
Elora, Ont.	117-F, 118-F	1918	16	37
Elva, Man.	44-C	1913	68	88
Embrun, Ont.	498	1914	220	235
Emerson, Man.	3-C	1913	66	87
Emo, Ont.	23-E, 24-E	1914	226	239
Enlaugra, Que.	51	1917	282	318
Ensign, Alta.	66-D	1915	26	38
Erin, Ont.	129-F	1918	16	37
Ernestown, Ont.	146	1917	287	321

† Also bench-mark in international boundary monument ‡ Refer to Public Works Dept

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Fairville, N.B.	96-B	1917	280	316
Farnham, Que	62	1917	281	317
"	63, 61	1917	282	318
"	623-B, 62	1918	11	33
Fergus, Ont	119-F, 120-F	1918	16	37
Ferintosh, Alta	67-F	1916	165	187
Ferne, B.C.	121-D to 123-D	1917	263	305
Field, B.C.	260-C	1916	168	189
Finch, Ont.	105	1917	285	320
"	495	1914	219	235
Finchater, Sask	11-D	1913	72	90
Flesherton, Ont	277	1913	59	82
Forest, Ont	351	1914	221	236
Fort Erie, Ont	215-A	1913	64	85
Fort Frances, Ont	29-E, 30-F	1914	226	239
Fort William, Ont	90-E to 92-E	1916	161	184
Foster, Que	47	1917	281	317
Frank, Alta	102-D	1917	262	304
Franz, Ont	708	1917	261	303
French Village, N.S.	393-B	1915	9	28
Frobisher, Sask	58-C	1913	69	88
Fulford, Que	56	1917	281	317
G				
Gainsborough, Sask	47-C	1913	68	88
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Girvin, Sask	17-D	1913	72	90
Glacier, B.C.	294-C	1917	270	309
Glacier, Y.T.	266	1912	36	36
Glencoe, Ont	241, 241-A	1913	56	81
Glen Ewen, Sask	52-C	1913	68	88
Glentay, Ont	117-G	1917	253	295
Goderich, Ont.	325, 326, 327	1913	62	83, 84
Godfrey, Ont	150-G	1917	255	300
Golden, B.C.	273-C	1917	269	309
Golden Lake, Ont.	515	1915	16	32
Goodlands, Man.	38-C	1913	68	88
Gracefield, Que.	484	1914	219	234
Graceton, Minn.	14-E	1914	226	239
Grafton, Ont	168	1913	53	79
Grainger, Alta	50-F	1916	164	187
Grand Coulee, Sask	101-C	1913	71	89
Grand Falls, N.B.	46-B	1917	277	314
Grand Jagne, Que.	78	1917	280	317
Grand Pre, N.S.	198-B	1916	149	175
Grandora, Sask	3-II	1915	19	34
Grassy Lake, Alta	182-C, 183-C	1915	23	36
Green River, N.B.	54-B	1917	277	314
Green Valley, Ont.	97	1917	285	320
Gretna, Man.	4-C	1913	66	87
Grimsby, Ont	203	1913	63	85
Guelph, Ont.	90-F to 92-F	1918	14	36
Guelph Jct., Ont	88-F, 89-F	1918	14	36
Gull Lake, Sask	136-C	1914	230	241
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Hague, Sask	38-D	1914	228	240
Halbrite, Sask	73-C	1913	69	89
Halifax, N.S.	386-B, 387-B	1915	9	28
"	386-B, 387-B	1916	144	171
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Hanover, Ont	298, 299	1913	60	83
Hantsport, N.S.	500-B	1916	149	176
Harlaks Jet., Que	219-B	1913	52	77
Harrisburg, Ont	77-F	1918	14	36
Harrison, Ont	303, 304	1913	61	83
Harrowsmith, Ont	154-G	1917	255	300
Hartland, N.B.	31-B	1917	276	313
Hatton, Sask	151-C	1915	21	35
Hawthorne, Ont	502	1914	220	235
Heath, Alta	34-H	1915	21	34
Henfryn, Ont	310	1913	61	83
Herbert, Sask	118-C	1914	230	241
Heron Bay, Ont	742, 742-A	1918	19	39
Hesper, Ont	86-F	1918	14	36
Hillhurst, Que	13	1917	283	319
Hillsburgh, Ont	128-F	1918	16	37
Holden, Alta	46-H	1916	163	186
Holland Centre, Ont	281	1913	59	82
Holmesville, Ont	322	1913	62	83
Holmfield, Man	22-C	1913	67	87
Hope, B.C.	42-J, 43-J	1918	21	42
Howick Jet., Que	87	1917	284	320
Hubbards, N.S.	397-B	1915	9	28
Hull, Que	459, 460	1914	217	234
Humes, Y.T.	182	1912	31	31
Huntingdon, B.C.	26-J, 27-J	1916	170	191
Hyde Park Jet., Ont	341	1913	63	81
I				
Herville, Que	74	1917	280	317
Hiderton, Ont	339	1913	63	84
Indian River, Y.T.	205	1912	33	33
Ingersoll, Ont	220, 230	1913	56	80
Inkerman, Ont	110	1917	285	320
Iruia, Alta	39-H	1916	162	185
Irvine, Alta	159-C, 160-C	1915	22	35
Ivanhoe, Ont	179-G	1917	257	296
J				
Jackish, Ont	757	1918	19	39
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James River, N.S.	169-B	1913	47	74
Jasper, Alta	104-H	1917	274	312
Jasper, Ont	97-G	1917	252	298
Jeannette, Ont	249-A	1913	57	81
Jordan, Ont	205	1913	63	85
Juniata, Sask	6-H	1915	19	34
K				
Kakabeka Falls, Ont	85-E	1916	161	184
Kamloops, B.C.	353-C to 355-C	1918	31	45
Kamloops Jet., B.C.	87-J	1918	26	43
Nazabazua, Que	479	1911	218	234
Kearney, Ont	552	1915	14	31
Keewatin, Ont	31-F	1915	19	33
Kempton, Ont	113	1917	286	320
Kemptville, Ont	113-A	1913	52	78
Kenaston, Sask	21-D	1914	227	240
Kennetcook, N.S.	523-B, 524-B	1916	145	171
Kenora, Ont	36-F, 37-F, 38-F	1915	19	33
Kentville, N.S.	492-B to 494-B	1916	148	175
Kilburn, N.B.	37-B	1917	277	314
Killaloe, Ont	518, 519	1915	16	32
Killarney, Man	25-C	1913	67	87

ALPHABETICAL LIST OF CITIES, TOWNS AND VILLAGES AT OR NEAR WHICH BENCH-MARKS HAVE BEEN ESTABLISHED—Continued.

Place	B.M. Number	Year of Publication	Description	Elevation
Kingsley, Que.	677-B	1918	Page	Page
Kingston, N.S.	486-B	1916	12	44
Kingston, Ont.	139, 141, 141-A, 112	1917	148	175
Kipp, Alta.	81-D	1915	287	321
Kippen, Ont.	330	1915	25	38
Kirkcaldy, Alta.	70-D	1913	62	84
Kirk Ferry, Que.	465, 466	1915	26	38
Kitchener, Ont.	95-F to 97-F	1914	218	234
Kleinburg, Ont.	238	1918	15	36
Knowlton, Que.	49	1913	58	82
Komoka, Ont.	237-A	1917	282	318
Kootenay Landing, B.C.	204-D, 205-D	1913	56	80
		1917	268	308
I.				
Lac Baker, N.B.	267-B	1917	247	290
Lacolle, Que.	583-B	1918	8	32
Lake Louise, Alta.	248-C, 249-C	1916	167	189
Landis, Sask.	16-II	1915	20	34
Lansdowne, Ont.	130, 131	1917	286	321
Laprairie, Que.	596-B	1918	8	32
Lavant, Ont.	132-G	1917	254	299
Leekford, Sask.	41-D	1914	228	240
Lenoxy, Sask.	8-II	1915	19	34
Lennoxville, Que.	6	1917	283	319
Lepreau, N.B.	89-B	1917	279	316
Lethbridge, Alta.	196-C to 200-C	1915	24	36
	83-D	1915	25	38
Levis, Que.	221-B, 222-B	1913	52	77
	222-B	1916	153	179
L'Islet, Que.	568-B	1917	248	291
Listowel, Ont.	307-308	1913	61	83
Little River, Y.T.	33	1912	26	26
Liverpool, N.S.	418-B, 419-B, 420-B	1915	11	29
Londesborough, Ont.	318	1913	61	83
London, Ont.	235, 236	1913	56	80
Londonderry, N.S.	CM1X-X1X	1916	‡	172
Longwood, Ont.	239-A	1913	56	81
Lousana, Alta.	58-F	1916	165	187
Low, Que.	476	1914	218	234
Lower Argyle, N.S.	455-B	1915	13	30
Lower East Pubnico, N.S.	452-B	1915	12	29
Lucan, Ont.	114-F	1918	15	36
Lucan Crossing, Ont.	337	1913	62	84
	337	1918	15	36
Lucerne, B.C.	111-II	1918	22	41
Lumsden, Sask.	7-D	1913	71	90
Lyn, Ont.	125	1917	286	321
Lynden, Ont.	217	1913	55	80
Lyon Brook, N.S.	156-B	1913	47	74
Lyster, Que.	660-B	1918	11	34
Lytton, B.C.	62-J, 63-J	1918	25	42
M				
Maccan, N.S.	CMXVI..	1916	‡	173
Macleod, Alta.	87-D, 88-D	1917	262	304
Macoun, Sask.	69-C	1913	69	89
Madawaska, Ont.	530, 531	1915	15	32
Madoc Jet., Ont.	182-G	1917	257	301
Magog, Que.	40, 41, 41-A	1917	281	317
Maitland, Ont.	121	1917	286	320
Malagash, N.S.	144-B	1913	46	74
Mallorytown, Ont.	128	1917	286	321
Manitou, Man.	11C, 12-C	1913	66	87
Maple Creek, Sask.	145-C, 146-C	1914	231	241
Markdale, Ont.	279	1913	59	82
Marysville, Ont.	152	1917	288	321
Massawippi, Que.	28-A	1913	48	75

‡ Refer to Public Works Dept.

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Place	B.M. Number	Year of Publication	Description	Elevation
Massoy, Ont.	590	1916	Page	Page
Mather, Man.	17 C	1913	155	181
Matsqui, B.C.	30-A	1918	67	87
McAdam, N.B.	11-B	1917	24	42
McBride, B.C.	131-B	1917	275	313
McGivney Jet., N.B.	333-B	1918	23	41
Meadowville, N.S.	153-B	1914	215	233
Medicine Hat, Alta.	167-C, 168-C, 169-C	1913	46	74
Medora, Man.	46-C	1915	22	35
Medway, N.S.	415-B	1915	68	88
Megantic, Que.	21-A-2, 22-A	1915	10	28
Melancthon, Ont.	271-A, 272	1913	50	76
Mehta, Man.	42-C, 43-C	1913	59	82
Melville, Ont.	132-F	1911	68	88
Memramcook, N.B.	519-B	1918	17	37
Merigomish, N.S.	164-B	1916	146	171
Merrickville, Ont.	84-G	1913	47	71
Merriton, Ont.	41-G	1917	251	295
Michel, B.C.	209	1911	61	85
Michipicoten, Ont.	114-D	1917	263	304
Michale, Sask.	698	1917	261	303
Middleton, N.S.	71-C	1913	69	89
Midhurst, Ont.	482-B, 483-B	1916	118	175
Midnapore, Alta.	390	1913	65	86
Milan, Que.	51-D	1915	27	39
Milestone, Sask.	18-A-2	1913	50	76
Milk River, Alta.	85-C	1913	70	89
Millerton, N.B.	213-C, 214-C	1915	25	37
Millerton, N.B.	47-G	1916	152	178
Mine Centre, Ont.	42-E	1916	158	183
Minto, Y.T.	198	1912	30	36
Mirror, Alta.	63-F	1916	165	137
Mission, B.C.	30-J	1918	24	42
Molson, Man.	10-F	1915	17	33
Monarch, Alta.	84-D	1917	261	304
Monckland, Ont.	102	1917	285	320
Moncton, N.B.	132-B, 133-B, 134-B	1913	45	73
"	373-B, 374-B, 132-B	1914	217	233
"	132-B	1916	146	174
Monk, Que.	385-B	1917	245	289
Montague, Y.T.	69	1912	28	28
Mont Carmel, Que.	28-G	1917	248	292
Montmagny, Que.	566-B	1917	247	291
Montreal, Que.	807 to 825	1918	13, 14	35
Montreal West, Que.	811 to 813	1918	13	35
Mooretown, Ont.	362	1914	221	236
Moosejaw, Sask.	91-C, 95-C, 96-C	1913	71	89
"	103-C	1914	229	241
Morden, Man.	7-C, 8-C	1913	66	87
Morse, Sask.	116-C, 117-C	1914	229	241
Mortlach, Sask.	110-C	1914	229	241
Mountain, Ont.	111	1917	285	326
Moyie, B.C.	181-D	1917	267	307
Mulgrave, N.S.	185-B	1913	48	75
Muniac, N.B.	37-B	1917	277	314
Murrayville, B.C.	23-J	1916	170	191
Musquash, N.B.	91-B, 92-B	1917	279	316
Mystic, Que.	65	1917	282	318
N				
Nairn, Ont.	579, 580	1916	154	181
Napadogan, N.B.	323-B, 324-B	1914	215	232
Napanee, Ont.	149 to 150-A-2	1917	287	321
Napierville, Que.	586-B, 587-B	1918	8	32
Napinka, Man.	41-C	1913	68	88
Nappan, N.S.	C.M.XIX	1916	?	173
Nauwigewauk, N.B.	107-B	1913	44	73
Nelson Jet., N.B.	47-G 2	1916	152	178

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Place	H.M. Number	Year of Publication	Description	Elevation
Newbury, Ont.	242	1915	Page 56	Page 81
Newcastle, Ont.	176	1913	53	79
New Dayton, Alta.	206-C, 207-C	1915	24	36
New Germany, N.S.	199-B-2	1916	147	175
New Glasgow, N.S.	160-B	1911	47	74
New Hamburg, Ont.	102-F, 103-F	1918	15	36
New Norway, Alta.	68-F	1916	165	187
New Westminster, B.C.	9-A to 13-I	1916	169	190
Nictaux, N.S.	480-B	1916	148	175
Ninga, Man.	29-C	1913	67	87
Nipigon, Ont.	785	1918	21	40
Nor'ford, Alta.	79-D	1915	25	38
Nordenskiöld, Y.T.	47	1912	27	27
Northfield, Ont.	494	1911	219	235
North Lake, Ont.	106-E	1916	162	185
North Portal, Sask.	†	1913	88	88
Northwood, Ont.	245	1913	57	81
Norton, N.B.	113-B	1913	44	71
Norton Mills, Vermont	23, 24, 25	1917	284	319
Notch Hill, B.C.	339-C	1918	31	45
Notre-Dame-du-Lac, Que.	64-B	1917	278	314
O				
Oak Bay, N.B.	4-II	1917	275	313
Oakville, Ont.	193	1913	55	80
Oban, Sask.	14-H	1915	20	34
Okotoks, Alta.	60-D	1915	26	38
Orangeville, Ont.	267	1913	58	82
Osgoode, Ont.	117-A, 118-A	1913	52	78
Oshawa, Ont.	178-A, 179-A, 179	1913	54	79
Osler, Sask.	36-D	1914	228	240
Ottawa, Ont.	124-A, 125-A	1913	53	78
	503, 504, 124-A	1914	220	255
Owen Sound, Ont.	286, 287, 288	1913	60	82
Oxbow, Sask.	55-C	1913	69	88
Oxford, Ont.	114	1917	286	320
Oxford, N.S.	136-B	1913	46	74
Oxford, Jct., N.S.	135-B	1913	45	71
	135-B	1916	146	173
P				
Painsec, N.B.	MDXLIH	1916	‡	174
Pakenham, Ont.	68-G, 69-G	1917	250	293
Palgrave, Ont.	376	1913	64	86
Palmerston, Ont.	305	1913	61	83
	305	1918	16	37
Paquette, Que.	557-II	1916	153	180
Paris, Ont.	222	1913	55	80
Parkbeg, Sask.	111-C	1914	229	241
Park Head Jct., Ont.	291	1913	60	83
Parkhill, Ont.	346	1914	221	236
Parry Sound, Ont.	419, 420	1914	223	237
Pasqua, Sask.	95-C	1913	71	89
Pelly, Y.T.	118, 119	1912	30	30
Pense, Sask.	99-C	1913	71	89
Perth, Ont.	112-G to 115-G	1917	253	295
Perth, N.B.	39-B	1917	277	314
Petitcodiac, N.B.	121-B	1913	45	73
Piapot, Sask.	141-C	1914	231	241
Pickering, Ont.	180-A-2	1913	54	79
Piedmont, N.S.	165-B	1913	47	74
Pierson, Man.	45-C	1913	68	88
Pike Creek, Ont.	253	1913	57	81
Pilot Mound, Man.	15-C	1913	67	87
Pineher, Alta.	94-D	1917	262	304
Pinecroft, Ont.	29-E	1914	228	259

† International boundary monument.
‡ Refer to Public Works Dept.

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Place	B.M. Number	Year of Publication	Description	Elevation
Pinto, Sask.	67-C	1913	Page 69	Page 85
Plaster Rock, N.B.	301-B, 302-B	1914	213	232
Plessisville, Que.	665-B, 666-B	1914	12	34
Ponquet, N.S.	76-B	1913	48	74
Portal, North Dakota	†	1913	88	88
Port Arthur, Ont.	93-E to 95-E	1916	161	184
"	93-E	1918	21	40
Port Clyde, N.S.	442-B	1915	12	29
Port Colborne, Ont.	135-F to 137-F	1918	17	38
Port Dalhousie, Ont.	133-F, 134-F	1918	17	38
Porthill, Idaho	198-D	1917	268	307
Port Hope, Ont.	172, 172-A, 173.	1913	53	79
Port Robinson, Ont.	212	1913	63	85
Port Saxon, N.S.	441-B	1915	12	29
Port Union, Ont.	182	1913	54	79
Prescott, Ont.	118, 119	1917	286	320
Freston, Ont.	83-F, 84-F	1918	14	36
Prince Albert, Sask.	47-D, 48-D, 49-D	1914	228	240
Princeton, Ont.	224	1913	55	80
Princeville, Que.	668-B	1918	12	34
Pubnico, N.S.	454-B	1915	13	30
Q				
Quarryville, N.B.	45-G	1916	152	178
R				
Rainy River, Ont.	17-E	1914	226	239
Reford, Sask.	18-H	1915	20	34
Regina, Sask.	1-D, 2-D, 3-D	1913	71	90
Renfrew, Ont.	505, 506, 507	1915	17	32
"	505	1917	251, 254	294, 299
Resplendent, B.C.	117-H, 153-I	1918	29	44
Revelstoke, B.C.	311-C to 314-C	1917	271	310
Richford, Vt.	55	1917	282	318
Richmond, Que.	639-B, 640-B	1918	10	33
River Beaudette, Que.	DLXXVII	1917	†	322
River Glade, N.B.	125-B	1913	45	73
Rivière-du-Loup, Que.	76-B, 77-B, 78-B	1917	279	315
Rivière-Ouelle Jet., Que.	MCXXXVII	1917	†	292
Roche-Percee, Sask.	65-C	1913	69	88
Rock Island, Que.	33-A	1913	49	75
Romford, Ont.	452	1914	224	238
Roosevelt, Minn.	13-E	1914	226	239
Rosedale, B.C.	36-J	1918	24	42
Rose Point, Ont.	565	1915	13	31
Rosport, Ont.	768	1918	20	40
Rosthern, Sask.	40-D	1914	228	240
Rothsary, N.B.	103-B, 104-B	1913	44	73
Rouleau, Sask.	88-C, 89-C	1913	70	89
Rouse Point, N.Y.	581-B	1918	8	32
Rush Lake, Sask.	120-C	1914	230	241
Russell, Ont.	499	1914	220	235
Ryley, Alta.	47-H, 48-H.	1916	163	186
S				
Sable River, N.S.	427-B	1915	11	29
Sackville, N.B.	MCXXXVI etc.	1916	†	174
Salmon Arm, B.C.	335-C	1918	30	45
Sandstone, Alta.	58-D	1915	26	38
Sarnia, Ont.	557, 358, 359, 360	1914	221	236
Saskatoon, Sask.	29-D to 33-D	1914	227, 228	240
Sault Ste. Marie, Ont.	632, 633	1916	157	182
Sault Ste. Marie, Mich.	636	1915	157	182
Savona, P.C.	81-J	1918	†	43
Sawyerville, Que.	552-B	1916	113	180

†Refer to Public Works Dept.
 †International boundary monument.

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Place	B.M. Number	Year of Publication	Description	Elevation
Schreiber, Ont.	763, 764	1918	Page 20	Page 40
Scotia Jet., Ont.	553	1915	14	31
Scotstown, Que.	16-A-2	1913	49	76
Scott, Sask.	19-11	1915	20	34
Shag Harbour, N.S.	449-B	1915	12	29
Shallow Lake, Ont.	290	1913	60	83
Shannonville, Ont.	154	1917	288	321
Sharbot Lake, Ont.	124-G	1917	253	295
Shelburne, N.S.	433-B to 436-B	1915	11, 12	29
Shelburne, Ont.	271	1913	59	82
Sherbrooke, Que.	1, 2, 3	1917	283	319
"	35, 36	1917	281	317
"	3	1918	10	33
Sicamous, B.C.	330-C	1918	30	45
Siegas, N.B.	51-B	1917	277	314
Sirdar, B.C.	203-D	1917	268	308
Slute River, Ont.	87-E	1916	161	184
Smiths Falls, Ont.	88-G, 89-G, 107-G, 108-G	1917	251 to 253	295
South Durham, Que.	635-B	1918	10	33
South Maitland, N.S.	528-B, 529-B	1916	145	172
South Stukely, Que.	45	1917	281	317
Spence Bridge, B.C.	67-J, 68-J	1918	25	42
Spillimacheen, B.C.	159-D	1917	267	306
Sprague, Man.	10-E	1914	225	236
Springfield, N.S.	472-B	1916	147	175
Springhill, Que.	19-A-2, 20-A	1913	50	76
Springhill Jet., N.S.	C.M.X.	1916	‡	173
Springdale, Ont.	556	1915	14	31
Springrove, Alta.	64-11	1917	271	311
Stanbridge, Que.	67	1917	282	318
Stanley, Ont.	86-E	1916	161	184
Stanstead, Que.	34	1913	49	75
Steele, B.C.	138-D	1917	264	305
Steeltown, Ont.	637, 635	1916	157	182
Stellarton, N.S.	M.C.C.C.	1913	‡	75
Stephen, Minnesota	1-C	1913	66	87
Stevens, Y.T.	148	1912	31	31
Stewart Crossing, Y.T.	162, 163	1912	32	32
Stiekney, N.B.	32-B	1917	276	313
Stirling, Alta.	203-C, 204-C	1915	24	36
Stittville, Ont.	55-G	1917	249	293
Stoney Creek, Ont.	201	1913	63	85
Stoney Point, Ont.	250	1913	57	81
Stonyplain, Alta.	65-11	1917	271	311
Stottsville, Que.	79	1917	280	317
Stratford, Ont.	106-F to 108-F	1918	15	36
Sudbury, Ont.	454, 454-A	1914	225	238
"	567-A	1916	154	181
Sumas, Wash.	26-I, 27-J	1916	170	191
Sussex, N.J.	117-B	1913	44	73
Sutton, Que.	52	1917	282	318
Swalwell, Alta.	51-F	1916	164	187
Sweetgrass, Montana	216-C †	1915	25	37
Swift Current, Sask.	126-C, 127-C	1914	230	241
ST.				
St. Agapit, Que.	633-B to 655-B.....	1918	11	34
St. Alexandre, Que. (Kamouraska Co.)	M.C.L.I.	1917	‡	292
St. Anne, Que. (Kamouraska Co.)	M.X.C.I.X.	1917	‡	292
St. Anselme, Que.	214-B	1913	52	77
St. Armand, Que.	68, 69, 70	1917	282	318
St. Bazile, Que. (Chambly Co.)	604-B	1918	9	32
St. Bruno, Que. (Chambly Co.)	602-B	1918	9	32
St. Catharines, Ont.	207, 208	1913	63	85

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Place	B.M. Number	Year of Publication	Description	Elevation
St. Charles Jet., Que.	MCXXXI	1917	Page †	Page 291
St. Edouard, Que. (Napierville Co.)	589-B	1918	8	32
St. Evariste, Que.	195-B, 196-B	1913	51	77
St. George, N.B.	83-B	1917	279	316
Ste. Henedine, Que.	212-B	1913	52	77
St. Henri, Que. (Levis County)	216-B	1913	52	77
St. Hilaire, N.B.	202-B	1917	247	290
St. Hilaire, Que. (Rouville Co.)	607-B	1918	9	32
St. Honoré, Que.	70-B	1917	278	314
St. Hubert, Que.	600-B	1918	9	32
St. Hyacinthe, Que.	611-B to 613-B	1918	9	32
	615-B	1918	10	33
St. Jean Port Joli, Que.	MCVI	1917	†	291
St. John, N.B.	97-B to 100-B	1917	280	316
St. Johns, Que.	75, 76	1917	280	317
St. Joseph-de-Lévis, Que.	220-B	1913	52	77
Ste. Julie, Que. (Mégantic Co.)	662-B	1918	11	34
St. Lambert, Que.	597-B-2, 598-B	1918	9	32
St. Leonard, N.B.	50-B	1917	277	314
St. Liboire, Que.	626-B	1918	9	32
St. Louis, Que. (Beauharnois Co.)	88	1917	284	320
Ste. Madeleine, Que.	609-B	1918	9	32
Ste. Madeleine, Que.	227-B	1917	244	289
St. Malo, Que. (Compton County)	555-B	1916	153	180
St. Margaret, N.S.	394-B	1915	9	28
St. Mary, Que. (Beauce County)	209-B	1913	51	77
St. Marys, Ont.	110-F, 111-F	1918	15	37
St. Pacôme, Que.	MCXCVI	1917	†	292
St. Paschal, Que.	MCXLVI	1917	†	292
St. Philippe-de-Neri, Que.	27-G	1917	248	292
St. Pie, Que. (Bagot County)	618-B	1918	11	33
St. Pierre, Que. (Montmagny Co.)	565-B	1917	247	291
St. Polycarpe Jet., Que.	92	1917	285	320
Ste. Rosalie Jet., Que.	614-B	1918	9	32
Ste. Rose, Que. (Temiscouata County)	62-B	1917	278	314
St. Stephen, N.B.	2-B, 3-B	1917	275	313
St. Vallier, Que.	MCXXXV	1917	†	291
T				
Taber, Alta.	186-C, 187-C	1915	23	36
Taft, B.C.	323-C	1918	30	44
Takhini, Y.T.	20, 21	1912	25	25
Tako, Sask.	20-H	1915	20	34
Tara, Ont.	293	1913	60	83
Tatamagouche, N.S.	147-B	1913	46	74
Thamesville, Ont.	243-A	1913	57	81
Thedford, Ont.	349	1914	221	236
Thornhill, Man.	9-C	1913	66	87
Thorold, Ont.	210, 211	1913	63	85
Three Hills, Alta.	53-F	1916	164	187
Tichborne, Ont.	146-G	1917	255	300
Tolfield, Alta.	50-H, 51-H	1916	163	186
Tompkins, Sask.	138-C	1914	231	241
Toronto, Ont.	185 to 189	1913	54	79
Tottenham, Ont.	377-A	1913	64	86
Trenton, Ont.	161	1917	288	322
Tring Jet., Que.	204-B	1913	51	77
Trochu, Alta.	55-F	1916	164	187
Truro, N.S.	534-B to 537-B	1916	146	172
Tupperville, Ont.	369	1914	222	236
Tusket, N.S.	460-B	1915	13	30
Tweed, Ont.	174-G to 176-G	1917	256	296

‡Refer to Public Works Dept.

†Also bench-mark in international boundary monument.

ALPHABETICAL LIST OF CITIES, TOWNS AND VILLAGES AT OR NEAR WHICH BENCH-MARKS HAVE BEEN ESTABLISHED—Continued.

Place	B.M. Number	Year of Publication	Description	Elevation
U				
Unity, Sask.	22-II	1915	20	34
Upper Woods Harbour, N.S.	451-B	1915	12	29
Upton, Que.	627-B, 628-B	1918	9	32
Utopia, Ont.	387	1913	65	86
V				
Valleyfield, Que.	89	1917	284	320
Valley Jet., Que.	207-B	1913	51	77
Vnn Buren, Maine.	50-B	1917	277	314
Vnnceboro, Maine.	12-B, 13-B	1917	275	313
Vancouver, B.C.	1-J to 5-J	1916	168	190
Vera, Sask.	23-II	1915	20	34
Verona, Ont.	152-G	1917	255	300
Versailles, Que.	72	1917	280	317
Victoriaville, Que.	670-B to 672-B	1918	12	34
Viking, Alta.	43-II	1916	162	185
Vulcan, Alta.	68-D, 69-D	1915	26	38
W				
Wabnmun, Alta.	69-H	1917	272	311
Wainwright, Alta.	36-II	1915	21	34
Wakefield, Que.	469, 470	1914	218	234
Walkerville, Ont.	255	1913	57	81
Wallaceburg, Ont.	367	1914	222	236
Walsh, Alta.	155-C	1915	22	35
Wnrmn, Sask.	35-D	1914	228	240
Wnrner, Alta.	209-C, 210-C	1915	24	36, 37
Warroad, Minn.	12-E	1914	226	239
Wnrwick, Que.	674-B, 675-B	1918	12	34
Waterloo, Ont.	98-F, 99-F	1918	15	36
Waterville, N.S.	489-B	1916	148	175
Waterville, Que.	9	1917	283	319
Watt, N.B.	8-B	1917	275	313
Webb, Sask.	132-C	1914	230	241
Webbwood, Ont.	585	1916	155	181
Welland, Ont.	213	1913	64	85
Welland Jet., Ont.	214	1913	64	85
Westchester, N.S.	CMLX	1916	†	172
Westfort, Ont.	89-E	1916	161	184
West Huntingdon, Ont.	181-G	1917	257	301
West Merigomish, N.S.	163-B	1913	47	74
Westmount, Que.	810	1918	13	35
Weston, Ont.	256-A	1913	58	82
Weyburn, Sask.	80-C, 81-C	1913	70	80
Whitby, Ont.	180-A	1913	54	79
Whitefish Lake, Que.	487	1914	219	234
Whitehorse, Y.T.	1	1912	25	25
Whitemouth, Man.	14-F	1915	18	33
White Pass, B.C.	42-R, 43-R	1912	23	23
White River, Ont.	723, 723-A	1918	18	39
Whiterock, B.C.	17-J, 18-J	1916	169	190
White water, Man.	35-C	1913	68	88
Whitney, Ont.	536	1915	15	31
Wilcox, Sask.	86-C, 87-C	1913	70	89
Wilmot, N.S.	485-B	1916	148	175
Winchester, Ont.	109	1917	285	320
Windsor, Ont.	255	1913	57	81
Windsor, N.S.	502-B to 505-B	1916	149	176
Windsor Jet., N.S.	MXXXIV	1916	†	171
Windsor Mills, Que.	644-B, 645-B	1918	10	33
Wingham, Ont.	314	1913	61	83
Winnifred, Alta.	176-C	1915	23	35

†Refer to Public Works Dept.

ALPHABETICAL LIST OF CITIES, TOWNS AND VILLAGES AT OR NEAR WHICH
BENCH-MARKS HAVE BEEN ESTABLISHED—*Concluded.*

Place	B.M. Number	Year of Publication	Description	Elevation
Winnipeg, Man.	1-F, 2-F, 3-F	1915	Page	Page
Winona, Ont.	202	1913	17	33
Winter, Sask.	25-H	1915	63	85
Wolfville, N.S.	495-B to 497-B	1916	20	34
Woodstock, Ont.	226, 227	1913	148, 149	175
Woodstock, N.B.	25-B, 26-B, 27-B	1917	55	80
Worthington, Ont.	577	1916	276	313
Wounded Moose, Y.T.	179	1912	154	181
	Y		33	33
Yahk, B.C.	187-D	1917	267	307
Yarmouth, N.S.	463-B, 461-B, 465-B	1915	13	30
Yellow Grass, Sask.	83-C	1913	70	89
Yukon Crossing, Y.T.	94	1912	29	29
	Z			
Zumbro, Sask.	27-II	1915	20	34

February, 1918





MICROCOPY RESOLUTION TEST CHART

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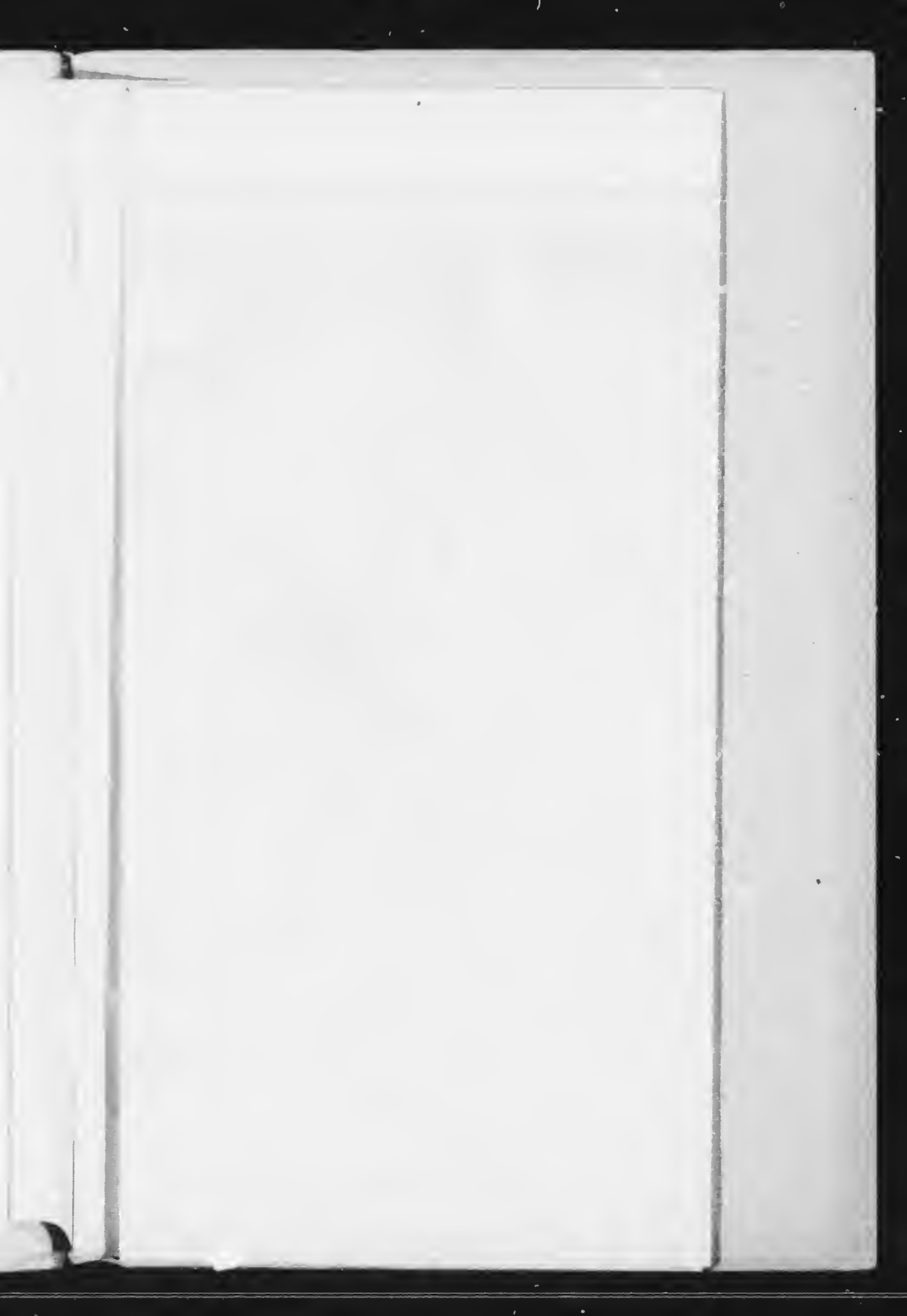
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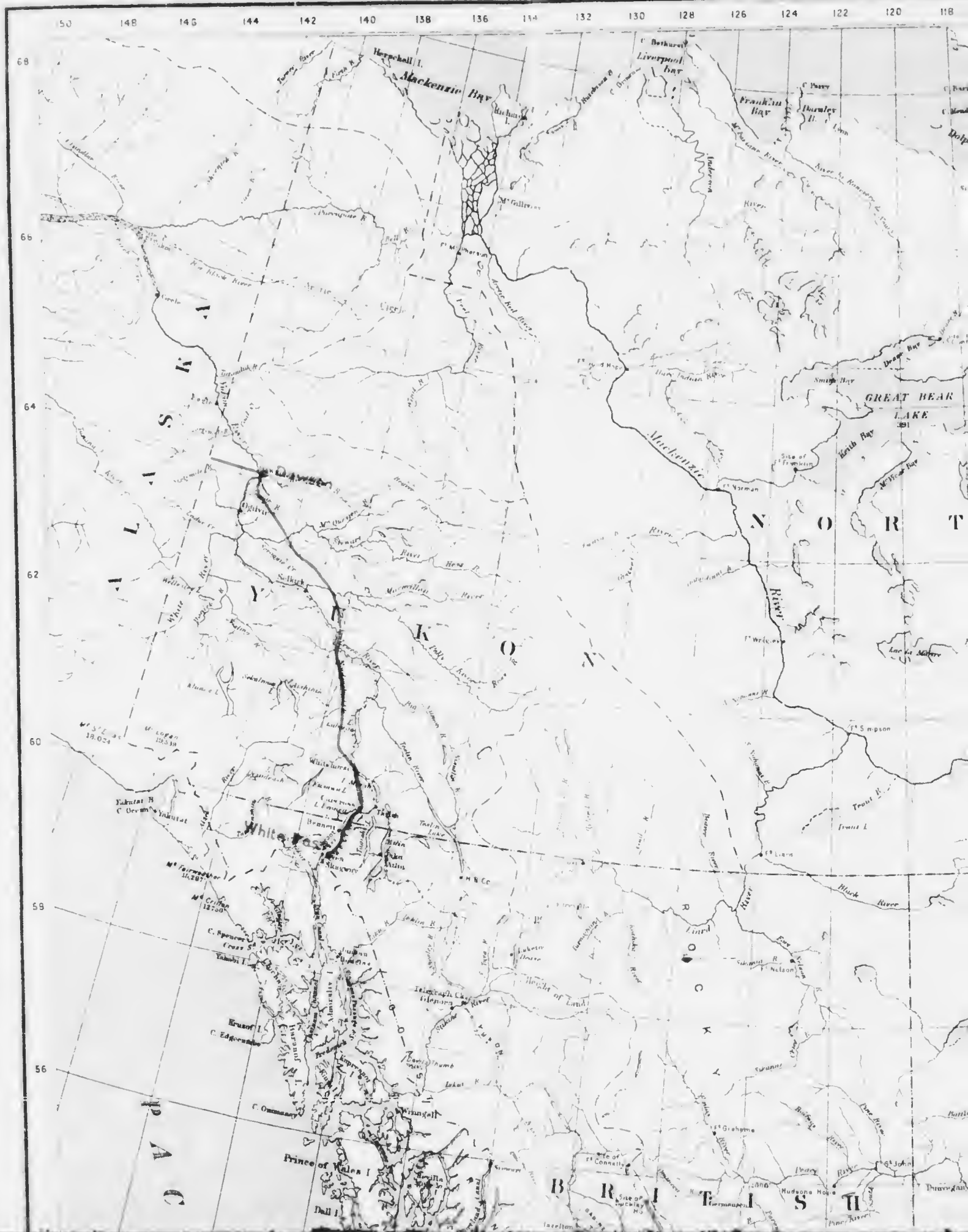


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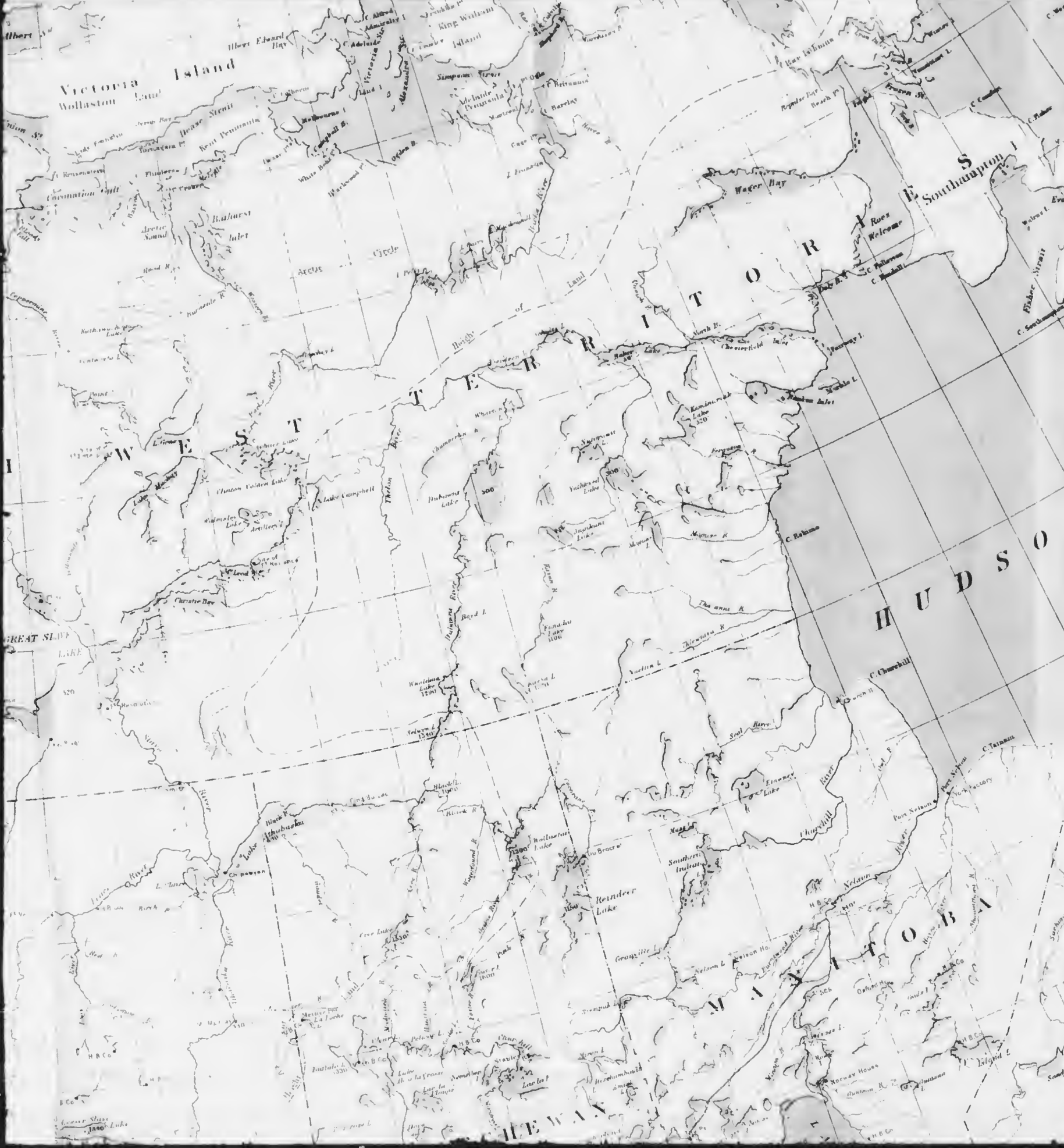
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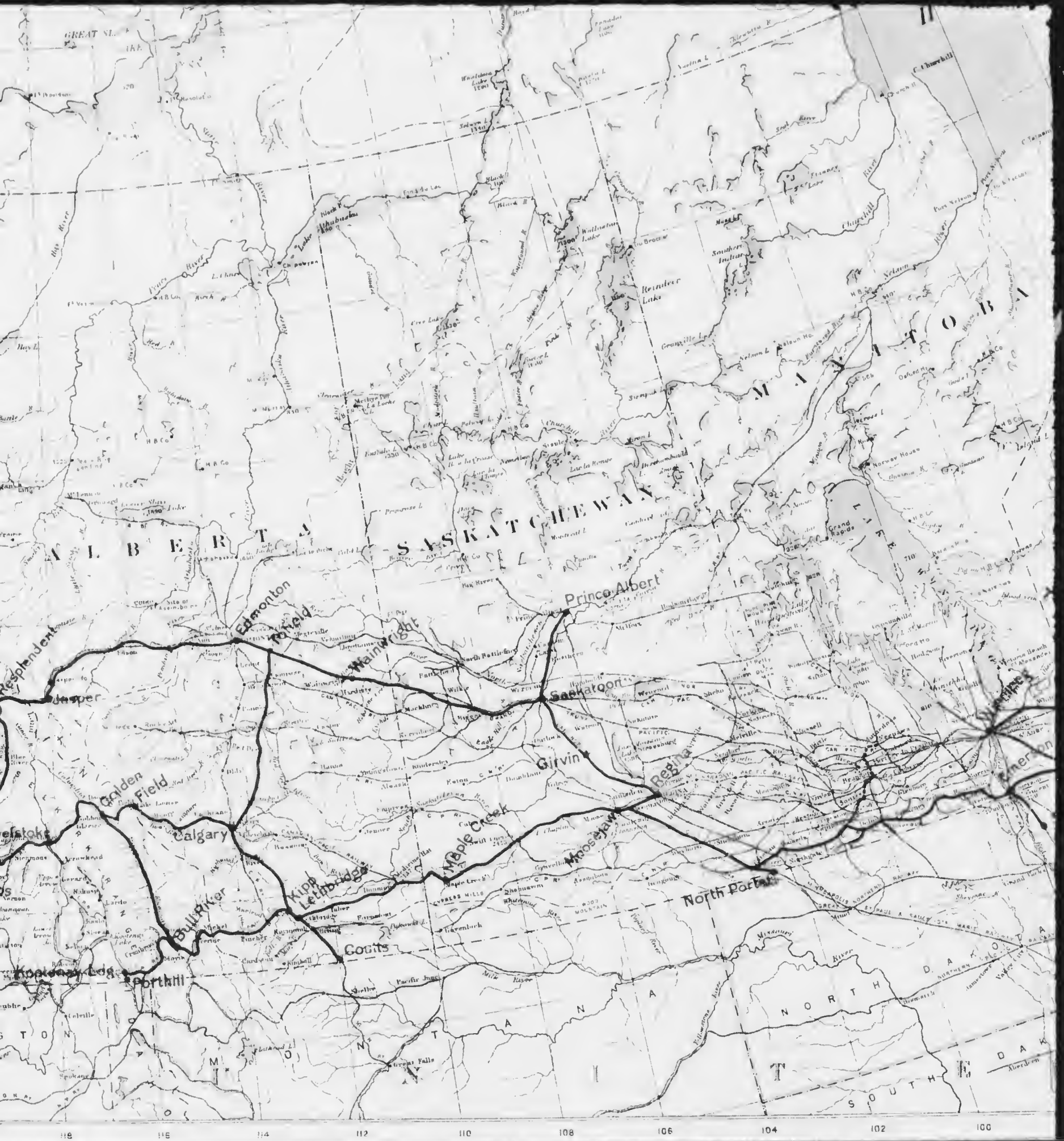
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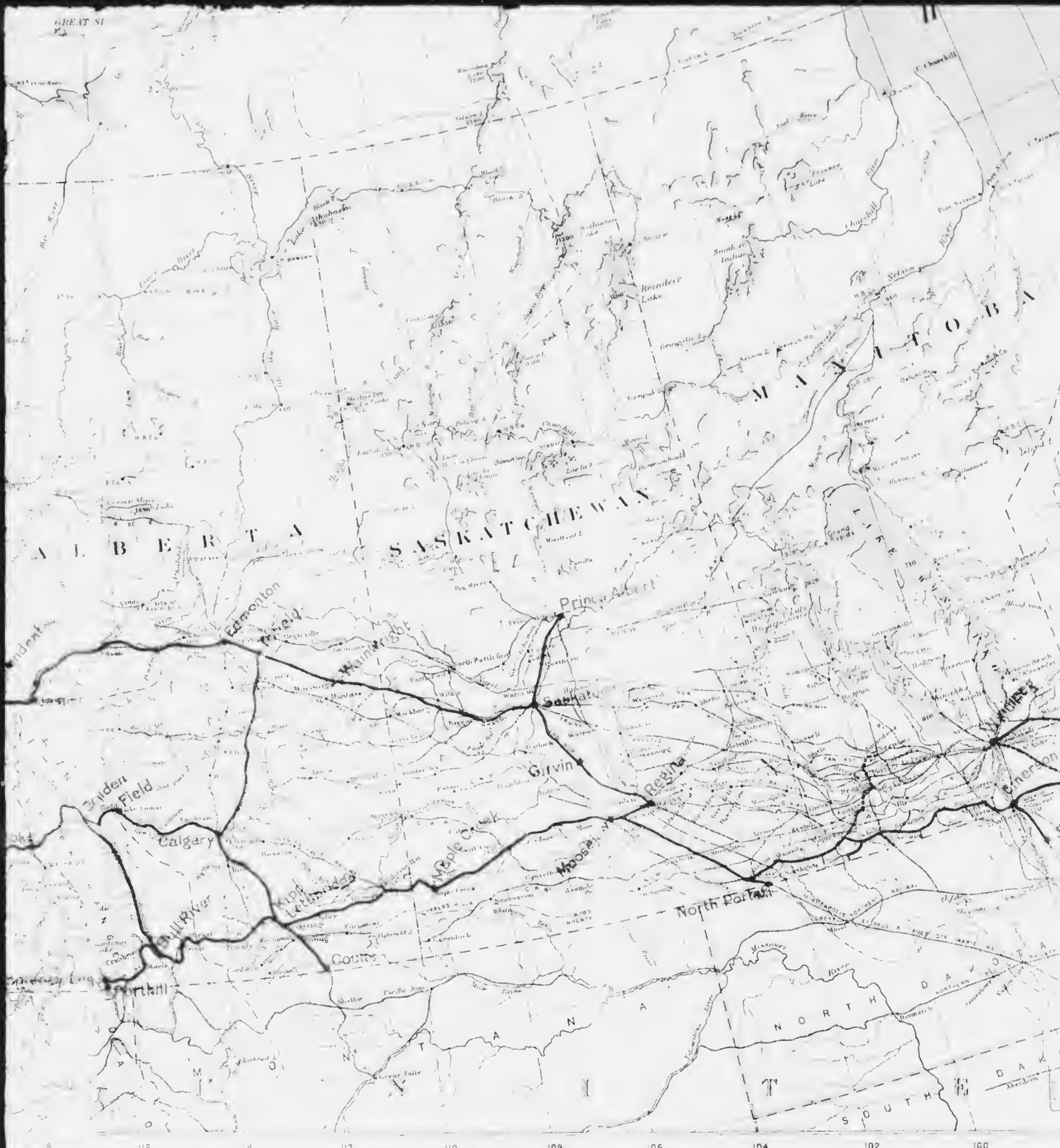
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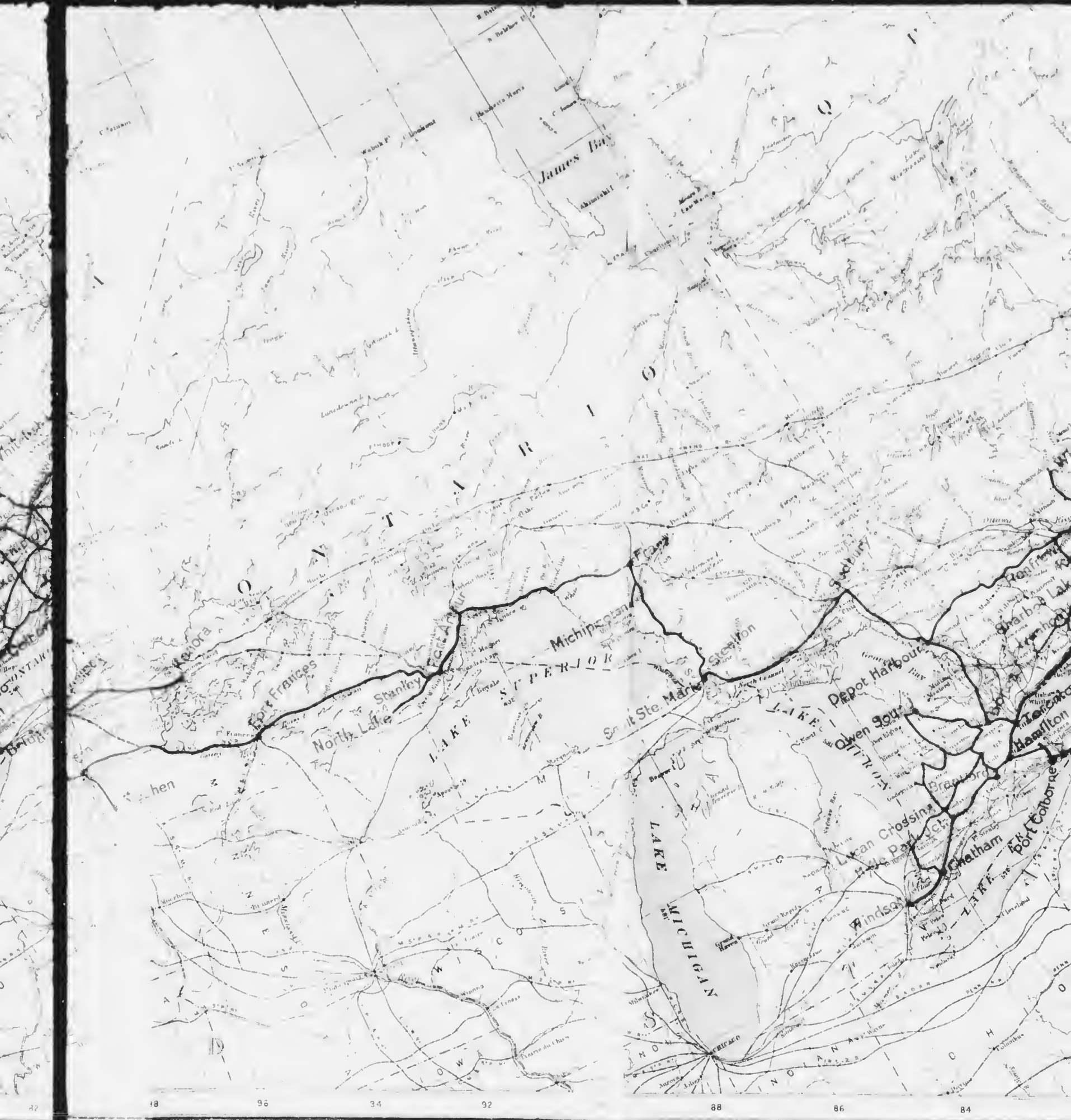


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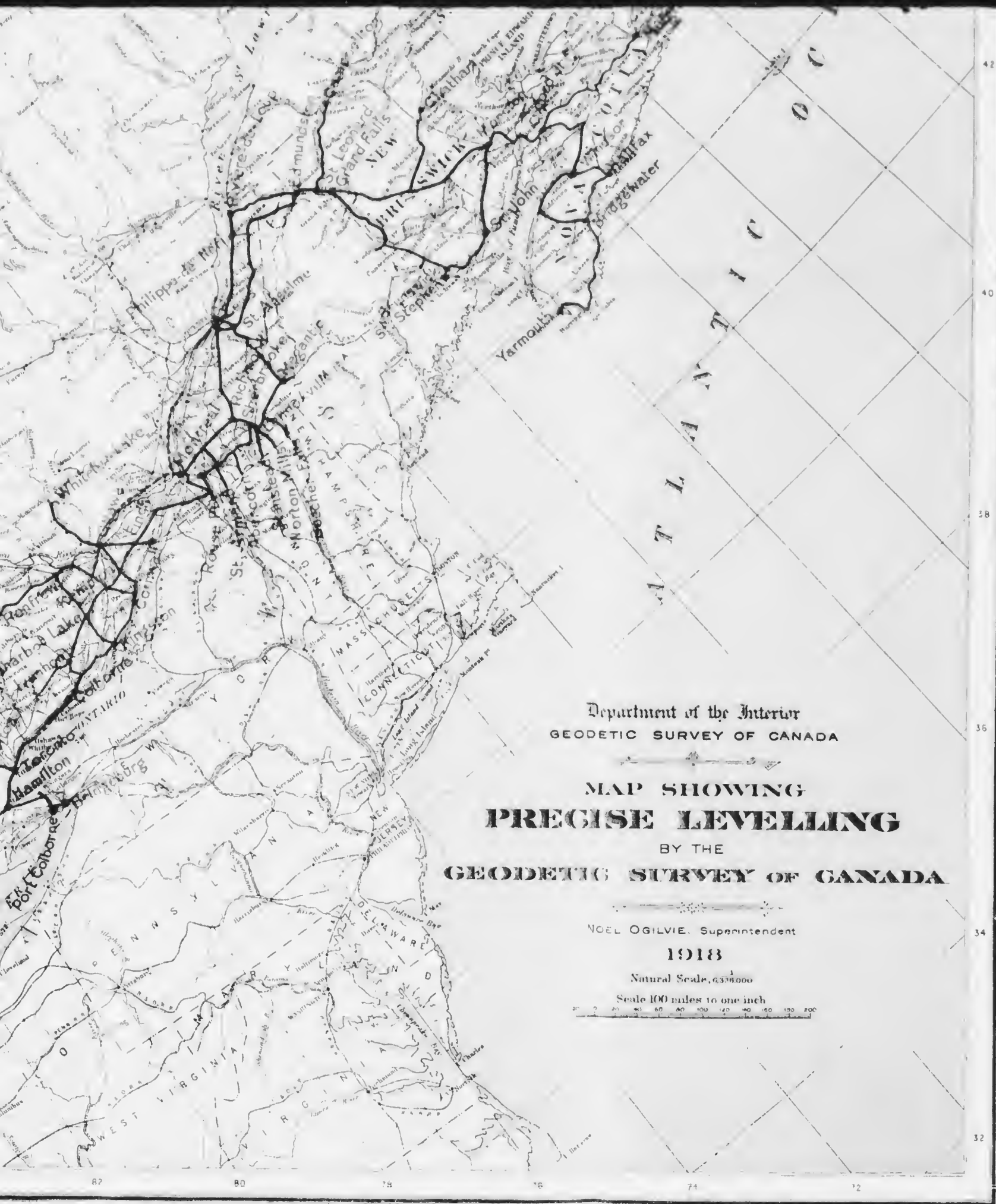
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Department of the Interior
GEODETIC SURVEY OF CANADA

MAP SHOWING
PRECISE LEVELLING
BY THE
GEODETIC SURVEY OF CANADA

NOEL OGILVIE, Superintendent

1918

Natural Scale, 6,336,000

Scale 100 miles to one inch







