RP 409(A)

IRON ORE DEPOSITS OF THE PROVINCE OF QUEBEC

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P. R. NO. 409

PROVINCE OF QUEBEC, CANADA

DEPARTMENT OF MINES

HON. W. M. COTTINGHAM, MINISTER

MINERAL DEPOSITS BRANCH

IRON ORE DEPOSITS

OF THE

PROVINCE OF QUEBEC

(SUPERSEDING P. R. No 173 AND P. R. No. 262)

COMPILED BY

G. W. WADDINGTON

QUEBEC
1960

P. R. NO. 409

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INTRODUCTION

Iron ore was the first metallic mineral to be mined in the Province of Quebec, and the only one during the French regime. Production continued on a modest scale up to the year 1954, when the first iron ore was shipped from the extensive deposits in the vicinity of Knob lake in northern Quebec. Rapid increases in production during succeeding years have brought iron ore into first place, in terms of value, among the products of Quebec mines. With the output of the mines that are now shipping iron ore, and the added output of other properties that are being prepared for production, Quebec promises to become one of the major iron ore producers of the world.

All of the known occurrences of iron ore in the Province of Quebec are included in this compilation and all known sources of information are listed in the references. Some reports contain lists of occurrences of iron ore, or casual mention of them, with no accompanying description. These have not been included in the references except in those cases where no description of the deposits is available. In the descriptions it has been attempted to use, as far as possible, the phraseology of the authors quoted. Deposits of bog iron ore are not included.

References to P.R. No. 173 and P.R. No. 262 are not given, as this report is intended to supersede them.

Names of companies are given in some cases as a means of indentifying the locality. The companies thus mentioned have at one time held the property or performed exploration work on it, but are not necessarily the present owners.

DESCRIPTION OF DEPOSITS

ABERCROMBY TOWNSHIP
(long. 74°00', lat. 45°55'.)

Range X, Lot 1.

Ref.: Geol. Surv. Can. — Ann. Rept., Vol. VIII, 1895, p.142J.

Que. Dept. Mines — Office records.

A remarkable case of local magnetic variation was observed on the road between St. Adèle and St. Sauveur. There are no outcrops in the vicinity.

St. Marguerite Station.

Ref.: Que. Bur. Mines — Ann. Rept. 1936, Pt. C, p.27.

A few exposures of anorthosite rich in opaque minerals were noted north of St. Marguerite station.

Shawbridge.

Ref.: Que. Bur. Mines — Ann. Rept. 1936, Pt. C, p.27.

An occurrence of anorthosite rich in opaque minerals was seen northeast of Shawbridge.

ALOIGNY TOWNSHIP
(long. 78°20', lat. 49°40')

Atlin-Ruffner Mines (B.C.) Ltd.

See Montgolfier township.

ARNAUD TOWNSHIP
(long. 66°35', lat. 50°15')

Hall Lake — Seven Islands Bay Area.

Ref.: Que. Dept. Mines — G.R. 11, p.25.

Between des Rapides lake, Hall lake and Seven Islands bay, outcrops of ferriferous gabbro are as frequent as to indicate the presence of a very large tonnage over an area of 20 square miles. Analyses indicate this material contains between 15 and 20 per cent iron, and the preparation of a concentrate carrying 50 to 60 per cent iron and 16 to 25 per cent titanium dioxide appears to present no special difficulties.

Marguerite River.

Ref.: Can. Mines Br. — Publ. No. 579, p.65.

Economic Geology — Vol. 36, 1941, p.720.
Que. Bur. Mines — Min. Oper. 1911, p.119; Les Minerais de Fer de la Province de Québec (1915), p.75.
Que. Dept. Mines — G.R. 11, p.25.

Below Clarke City lenticular masses of titaniferous magnetite, up to 15 feet wide and 80 feet long, grade into iron-rich gabbro. Two samples assayed 55.10 per cent iron, 20.68 per cent titanium dioxide, 1.52 per cent silica, 0.049 per cent phosphorus and 0.23 per cent sulphur and 53.03 per cent iron, 16.40 per cent titanium dioxide, 7.88 per cent silica, 0.013 per cent phosphorus and 0.59 per cent sulphur respectively.

Above Clarke City, in a quarry on the left bank of the river, about half a mile above the falls, iron ore was discovered in a rather coarse-grained anorthosite. A composite sample assayed 38.86 per cent iron, 15.08 per cent titanium dioxide, 15.96 per cent silica, 3.87 per cent lime, 0.08 per cent phosphorus and 0.187 per cent sulphur. Another sample taken from a lens of fine-grained compact ore assayed 57.84 per cent iron, 18.88 per cent titanium dioxide, 0.84 per cent silica, 0.013 per cent phosphorus and 0.51 per cent sulphur.

Ste. Marguerite Bay. (Iron sand)

Ref.: Geol. Surv. Can. — Rept. Prog. 1866-69, p.308.

On the coast between Marguerite river and Seven Islands bay the hills of clay are capped with brown siliceous sand banded with dark layers charged with black iron sand.

ARUNDEL TOWNSHIP
(long. 74°35', lat. 46°00')

Range I, Lot 24.

Ref.: Que. Dept. Mines. — P.R. No. 374, p.2.

A band of dark fine-grained gabbroic rock 10 feet wide occurs within granitic gneiss of the Morin series. A grab sample of this material assayed 15.78 per cent iron and 4.48 per cent titanium dioxide.

ASCOT TOWNSHIP
(long. 71°55', lat. 45°30')

Range VI, Lot 21. Smith mine.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.87; Ann. Rept. Vol. I, 1885, p.53A; Ann. Rept. Vol. II, 1886, p. 60J; Ann. Rept. Vol. IV, 1888-89, p.20K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.21; Mines of the Province of Quebec, 1899, p.7; Les Minerais de Fer de la Province de Québec (1915) p.47; Copper Deposits of the Eastern Townships of the Province of Quebec (1915) p.213.

The vein, which is from 10 to 14 feet wide, occurs in hard chloritic and felspathic schists, associated with quartz and jasper. The ore is slightly calcareous and assays 54.07 per cent iron, no titanium, 0.660 per cent phosphorus and 0.024 per cent sulphur.

Range IX, Lot 8. Belvédère Iron Mine.

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. I, 1885, p.53A; Ann. Rept. Vol. II, 1886, p.60J; Ann. Rept. Vol. IV, 1888-89, p.20K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.20; Mines of the Province of Quebec, 1899, p.7; Les Minerais de Fer de la Province de Québec (1915) p.46; Copper Deposits of the Eastern Townships of the Province of Quebec (1915), p.252.

The ore is mostly a slaty magnetite, with some hematite, and the country rock is largely a chloritic schist; the veins range from a few inches up to masses of 10 or 12 feet in width, and are irregularly distributed in the schists, in places following the bedding. The assay of this ore gives 28.39 per cent iron and 45.79 per cent insoluble matter, with no trace of titanium.

Range IX, Lot 16.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

ASHUAPMOUCHOUAN TOWNSHIP
(long. 72°35', lat. 48°35')

Range IX, Lot 43.

Ref.: Que. Bur. Mines — Ann. Rept. 1933, Pt. D, p.85.

To the south of À l'Ours river there are numerous nests and streaks of magnetite scattered through pegmatitic patches in granite.

BAIE-DE-GASPÉ-NORD TOWNSHIP
(long. 64°25', lat. 48°55')

Range I, Lots 28 to 33.

Ref.: Que. Dept. Mines — G.R. 35, p.115.

Lumps of limonite frequently are ploughed out of the soil in the fields. The lumps range in size up to 10 inches in diameter and appear to be of local rather than of transported origin.

Range I, Lot 34A.

Ref.: Que. Dept. Mines — P.R. No. 330, p.3; P. R. No. 374, p.2.

Small botryoidal masses of hematite that range in size up to 4 inches occur in a fracture zone in a basic dyke which cuts across the sandstones of the Battery Point formation. The fracture zone has an average width of 2.4 feet and an average tenor of 33.71 per cent iron and 26.87 per cent silica.

BAILLOQUET TOWNSHIP
(long. 65°10', lat. 50°25')

Chaloupe River — Cap Rond Area.

Ref.: Can. Mines Br. — Publ. No. 579, p.66.

Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.18; Min. Oper. 1911, p.128; Les Minerais de Fer de la Province de Québec (1915), p.82.

Que. Dept. Mines — P.R. No. 313, p.7.

The anorthosite body bordering the shore commonly contains disseminated ilmenite and magnetite, as well as small irregular lenses and numerous thin stratiform sheets of these minerals. In some places the ilmenite and magnetite are in numerous layers that vary in thickness from a fraction of an inch to 2 feet and that can be traced for 500 feet along their strike. In one of the occurrences at Cap Rond several closely spaced layers of ilmenite-magnetite make a band 44 feet wide which can be followed for 100 feet into the side of the hill. The average tenor across this zone is 35.84 per cent iron, 11.37 per cent titanium dioxide and 1.35 per cent sulphur.

BARLOW TOWNSHIP
(long. 74°35', lat. 49°55')

Premier Chibougamau Mines Ltd.

Ref.: Que. Dept. Mines — Office records.

Two diamond drill holes in this property intersected disseminated magnetite and narrow bands of magnetite enclosed in tuffs.

BEAUDET TOWNSHIP
(long. 72°30', lat. 49°05')

Ranges II and III.

Ref.: Que. Dept. Mines — Office records.

Ilmenite and titaniferous magnetite are reported to occur as narrow veins and small irregular lenses in pegmatite dykes cutting granite and granite gneiss at various places in the northwestern half of Ranges II and III.

BERESFORD TOWNSHIP
(long. 74°20', lat. 46°05')

Range V, South Halves of Lots 36W and 37E.

Ref.: Que. Dept. Mines — Office records.

Ore reserves to a depth of 300 feet are estimated by the owners, Titanium Development Corporation, to be (1952) 2,859,000 tons having a tenor of 38.5 per cent iron and 30.84 per cent titanium dioxide.

Range V, Lots 37W and 38. Ivry Mine.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.153; Publ. No. 579, p.53.

Que. Bur. Mines — Min. Oper. 1912, p.66; Les Minerais de Fer de la Province de Québec (1915), p.131; Ann. Rept. 1935, Pt. C, p.76.

Que. Dept. Mines — Office records.

A mineralized zone in Morin anorthosite, having a minimum length of 750 feet, contains segregated masses of titanic iron ore. The ore consists of an intimate intergrowth of hematite and ilmenite. A general sample assayed 42.75 per cent iron, 33.23 per cent titanium dioxide, 7.54 per cent silica, 0.036 per cent phosphorus and 1.010 per cent sulphur. The open pit is 130 feet long by 50 feet wide and the walls rise to a maximum

height of 45 feet above the floor of the pit.

Range VI, South Halves of Lots 36 to 41. Desgrosbois Mine.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.151; Publ. No. 579, p.68.

Que. Bur. Mines — Min. Oper. 1912, p.72; Les Minerais de Fer de la Province de Québec (1915), p.88; Ann. Rept. 1935, Pt. C, p.85.

Que. Dept. Mines — Office records.

Segregated masses of magnetite with associated ilmenite are found in anorthosite of the Morin series. The property is now (1958) held by Pershing Amalgamated Mines Ltd. This company estimates reserves of 5,527,000 tons grading 40.87 per cent iron and 10.99 per cent titanium dioxide and an additional 1,051,000 tons grading 25.67 per cent iron and 6.64 per cent titanium dioxide.

BERGERON TOWNSHIP

(long. 67°20', lat. 52°20')

Fire Lake Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

A deposit of specular hematite and quartz has been discovered in the Proterozoic magnetite-specularite iron formation north of Fire lake. The deposit is 2,500 feet long by 2,000 feet wide. The grade is estimated at 30 per cent iron. Research work has indicated that a commercially usable iron concentrate can be produced.

Hope Lake Area. Bellechasse Mining Corporation Ltd.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.100.

Three zones of iron formation with a total length of 8,400 feet have been located. The grade ranges from 33.6 to 36.4 per cent iron.

BLAKE TOWNSHIP

(long. 75°45', lat. 46°05')

Range V, Lots 2 to 5.

Ref.: Que. Dept. Mines — Office records.

Occurrences of massive magnetite are reported by Laurentian Iron and Graphite Mines Ltd., former holders of this property.

BLANCHIN TOWNSHIP
(long. 69°55', lat. 51°55')

Little Matonipi Lake Area.

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. VIII, 1895, pp.244L, 286L.

Thick bands of magnetite were met with on the portage leading northward from Matonipi lake.

On the shores and the small island adjoining the outlet of Little Matonipi lake there is a remarkable development of bedded iron ore. The sections exposed give a thickness of over 200 feet of ore, which varies from a pure mixture of magnetite and hematite to a highly quartzose ferruginous gneiss.

Styx Lake Area.

Ref.: Que. Dept. Mines — Office records.

The iron formation is characterized by well-defined layers less than one-half inch thick in most cases. It consists of silica-rich beds interstratified with magnetite-rich beds with, in places, some hematite. In some localities the rock contains as much as 40 per cent iron oxide. In places this silica-magnetite formation is at least 100 feet thick.

BLONDEAU TOWNSHIP
(long. 78°50', lat. 47°20')

Kelly Lake Area.

Ref.: Geol. Surv. Can. — Mem. 201, p.11.
Que. Bur. Mines — Ann. Rept. 1930, Pt. B, pp.64, 83.
Que. Dept. Mines — G.R. 20, Vol. II, p.118.

Bands of magnetite, up to half an inch in width, alternate with wide quartzose bands and occasional narrow bands of chlorite schist on the east side of Kelly lake. The outcrops range from 30 to 40 feet in width and from 20 to 200 feet in length.

Lett Lake Area.

Ref.: Geol. Surv. Can. — Mem. 201, p.11.
Que. Dept. Mines — G.R. 20, Vol. II, p.118.

Outcrops of thin bands of iron formation interbedded with basic lava flows are numerous east and west of Lett lake. The bands are seldom more than 40 feet and generally

less than 20 feet in width. The rock consists of bands of black, cherty quartz, rich in magnetite and up to one half inch or more in width, which alternate with wider bands of cherty, blue quartz and some bands of chlorite or hornblende schist.

BOLTON TOWNSHIP

(long. 72°20', lat. 45°15')

Range X, Lot 9.

Ref.: Que. Bur. Mines — Min. Oper. 1903, p.5; Min. Oper. 1904, p.25.

A deposit of magnetic iron was discovered in Lot 9 and 200 tons of ore was shipped from it in 1903.

Range XIV, Lot 2.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.66; Rept. Prog. 1863, p.677; Ann. Rept. Vol.IV, 1888-89, p.17K.

Minute crystals of magnetite are disseminated in a fine chloritic rock. A specimen assayed 37.79 per cent iron.

BOSSÉ TOWNSHIP

(long. 76°30', lat. 49°30')

Waswanipi Lake Area. Chesbar Chibougamau Mines Ltd.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.100.
Que. Dept. Mines — Office records.

Magnetite-bearing iron formations occur as remnants within a large granitic mass. Indicated reserves of ore mineable by open-pit methods are estimated by the company at approximately 28 million tons averaging about 26 per cent iron.

BOUCHER TOWNSHIP

(long. 72°50', lat. 47°05')

St. Michel Lake Area.

Ref.: Que. Dept. Mines — P.R. No. 376, p.6.

Disseminated magnetite occurs in the rocks on the west side of St. Michel lake.

BOURGET TOWNSHIP
(long. 71°20', lat. 48°35')

Range I, Lots 34 and 35.

Ref.: Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.18; Min. Oper. 1910, p.48.

A big deposit of titanic iron occurs in the shape of two hills 100 feet high.

(This is probably the original discovery of the St. Charles deposits in lots 44 and 45.)

Range I, Lots 44 to 47. St. Charles Deposits.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.149; Publ. No. 579, p.58; Publ. No. 642, p.42.

Geol. Surv. Can. — Rept. Prog. 1882-84, p.8D.

Que. Bur. Mines — Min. Oper. 1912, p.85; Les Minerais de Fer de la Province de Québec (1915), p.52; Min. Oper. 1924, p.84; Min. Oper. 1925, p.46.

Que. Dept. Mines — G.R. 78, p.22; Office records.

Lenticular bodies of titaniferous magnetite are irregularly distributed in medium-grained anorthosite, mainly over an area 6,000 feet long by 1,200 feet wide in lots 44 to 47. The average tenor of 56 samples, from 21 different localities in this zone, is 42.78 per cent iron and 16.47 per cent titanium dioxide. The largest outcrop has an area of 13,000 square feet, with no contacts exposed. Its average tenor is 40.23 per cent iron, 13.35 per cent titanium dioxide, 13.06 per cent silica, 6.37 per cent alumina, 0.21 per cent lime, 11.35 per cent magnesia, 0.03 per cent phosphorus and 0.05 per cent sulphur. Two types of magnetite, phosphatic and phosphorus-poor, were noted. The phosphatic type contains 5 to 30 per cent apatite by volume, whereas the phosphorus-poor type contains less than 5 per cent apatite.

Range II, Lot 49.

Ref.: Que. Dept. Mines — G.R. 78, p.22; Office records.

A lenticular body of titaniferous magnetite was noted in the anorthosite at the north end of the lot.

Range III, Lots 45 to 47.

Ref.: Que. Dept. Mines — G.R. 78, p.22; Office records.

Lenticular bodies of titaniferous magnetite

were noted in the anorthosite. A sample taken from the deposit in Lot 47 assayed 46.82 per cent iron, 22.33 per cent titanium dioxide, 2.06 per cent silica, 4.76 per cent alumina, 1.63 per cent lime, 0.64 per cent phosphorus and 0.05 per cent sulphur.

BOUTHILLIER TOWNSHIP

(long. 75°30', lat. 46°25')

Range XI, Lot 43.

Ref.: Que. Dept. Mines — G.R. 50, p.28.

Some magnetite mineralization was found in layers of quartzite interstratified with migmatites and paragneisses.

BOYER TOWNSHIP

(long. 75°10', lat. 46°30')

Range IV, Lot 13.

Ref.: Que. Dept. Mines — G.R. 23, p.41.

Numerous segregations of magnetite, up to 3 inches in diameter, occur in light-coloured and pegmatitic granites which cut the paragneiss on the old Gouin road.

BRANDON TOWNSHIP

(long. 73°25', lat. 46°15')

Range VII, Lot 14.

Ref.: Que. Dept. Mines — P.R. No. 330, p.14.

Ilmenite and magnetite are visible in a heavy massive rust-coloured rock which is black on the fresh surface. The tenor of a selected sample of this material is 34.54 per cent iron and 10.11 per cent titanium dioxide.

BRISTOL TOWNSHIP

(long. 76°20', lat. 45°35')

Range I, Lot 2.

Ref.: Can. Mines Br. — Publ. No. 23, pp.3, 90.
Geol. Surv. Can. — Rept. Prog. 1845-46, p.77;
Rept. Prog. 1863, p.678.

A small deposit of specular iron exists at the junction of a bed of white crystalline limestone with overlying reddish syenitic gneiss. It is 5 inches wide at the thickest part.

Range I, Lot 22.

Ref.: Can. Mines Br. — Publ. No. 23, p.91; Publ. No. 579, p.71.

An outcrop of coarse-grained rusty hornblende rock 2 feet square carries titaniferous magnetite in disseminated grains and patches. A sample from this outcrop assayed 34.25 per cent iron, 11.78 per cent titanium dioxide, 0.003 per cent phosphorus, and 0.063 per cent sulphur.

Range II, Lots 21 and 22. Hilton Mine.

Ref.: Can. Mines Br. — Publ. No. 23, p.75; Publ. No. 67, p.7; Publ. No. 217, Vol. I, p.53; Publ. No. 579, p.71.

Geol. Surv. Can. — Rept. Prog. 1873-74, pp.196, 208, 258; Ann. Rept. Vol. IV, 1888-89, p.12K; Mem. 136, p.107.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.10; Mines of the Province of Quebec, 1899, p.6; Min. Oper. 1912, p.107; Les Minerais de Fer de la Province de Québec (1915), p.23.

Que. Dept. Mines — G.R. 20, Vol. III, p.399; P.R. No. 307, p.7; P.R. No. 390, p.14.

The underlying bedrock consists of a medium-grained pink granite intruding crystalline limestones, dolomites, limey sandstones and slates. Iron-bearing minerals, mostly magnetite with a little hematite, have been substituted for the older lime-bearing formations, probably during the last stage of the granitic intrusion. Magnetite and a little hematite are present in fractures within the granite itself and in some of the pegmatite dykes that cut it.

Ore reserves are estimated (1956) at 43,590,000 tons averaging 15 to 20 per cent iron. Stripping is now being done over the orebody in preparation for open pit mining. Daily production will be 10,000 tons, from which it is expected 2,000 tons of magnetite will be recovered by magnetic concentration.

BROME TOWNSHIP

(long. 72°40', lat. 45°15')

Range I, Lots 2 and 6.

Ref.: Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.7.

Schists are impregnated with non-magnetic

oxide of iron in thicknesses extending to 50 feet.

Range III, Lots 1 and 2.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.63; Rept. Prog. 1863, p.680; Rept. Prog. 1873-74, p.228; Ann. Rept. Vol. IV, 1888-89, pp.17K, 18K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, pp.19, 20; Mines of the Province of Quebec, 1899, p.7; Min. Oper. 1910, pp.35, 39; Les Minerais de Fer de la Province de Québec (1915), p.46.

Ferric oxide of iron occurs in black slates in 3 parallel bands 5 to 18 feet thick. A selected sample from Lot 1 assayed 41.46 per cent iron and 24.16 per cent titanium dioxide. Another sample, taken from a bed 5 feet thick in Lot 2, assayed 28.63 per cent iron.

Ranges III and IV, Lots 4 to 6.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.64; Rept. Prog. 1863, p.680; Ann. Rept. Vol. IV, 1888-89, p.17K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, pp.19, 20; Mines of the Province of Quebec, 1899, p.7.

Beds of specular iron ore, up to 3 feet thick, are interstratified with chloritic slate and dolomitic limestone. The metallic iron content ranges from 30.97 to 37.91. A sample taken in Lot 5, Range IV, from a band of iron slate 8 feet thick, divided by a thin bed of chloritic slate, assayed 24.08 per cent iron.

Range V, Lots 4 and 5.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.65; Rept. Prog. 1863, p.681.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.19; Mines of the Province of Quebec, 1899, p.7.

A bed of laminated ferric oxide 5 feet thick, of which the structure is micaceous, is exposed in a small excavation in Lot 4. The rock on each side is chloritic slate. A sample of this ore assayed 30.97 per cent iron. A sample from a bed of the same description in Lot 5, which may be a continuation of the previous one, assayed 37.91 per cent iron.

BRUNEAU TOWNSHIP
(long. 77°10', lat. 49°20')

Range VI, Lot 62.

Ref.: Que. Bur. Mines — Ann. Rept. 1936, Pt. B, p.48.

Outcrops of banded magnetite are seen on the line between Bruneau and Desjardins townships.

Range VII, Lots 44 and 51.

Ref.: Que. Bur. Mines — Ann. Rept. 1936, Pt. B, p.48.

Outcrops of banded magnetite are seen on Sinclair creek above the main forks.

BUCKINGHAM TOWNSHIP
(long. 75°30', lat. 45°40')

Range VIII, Lot 19.

Ref.: Can. Mines Br. — Publ. No. 23, p.99.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

Range IX, Lot 17.

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. IV, 1888-89, p.15K.

A vein of feldspar 30 paces wide cuts the gneiss and contains large cleavable masses of magnetite some of which are 4 inches thick.

Range XI, Lot 17.

Ref.: Can. Mines Br. — Publ. No. 23, p.99.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

Range XII, Lot 26.

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. IV, 1888-89, p.15K.

A vein of feldspar 30 paces wide cuts the geniss and contains large cleavable masses of magnetite some of which are 4 inches thick.

CADILLAC TOWNSHIP
(long. 78°20', lat. 48°10')

Range VII. Orefield Mining Corporation.

Ref.: Que. Bur. Mines — Min. Oper. 1911, p.205.

Que. Dept. Mines — P.R. No. 390, p.15.

Three bands of iron formation 2 miles southwest of Newagama (Cadillac) lake, consisting of magnetite, jasper, and some quartz, have been explored by diamond drilling. These bands have widths of 30 to 45 feet, 50 feet and 100 feet and indicated lengths of 3,000 feet, 4,000 feet and 5,000 feet respectively. Two of them outcrop at the surface. The grade is estimated by the company at 30 per cent iron.

CAMERON TOWNSHIP
(long. 75°55', lat. 46°15')

Range I, Lot 38.

Ref.: Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.6; Les Minerais de Fer de la Province de Québec (1915), p.36.

On the left bank of the Gatineau river there is a deposit of magnetic iron with graphite. The enclosing rock is calcite.

Range II, Lot 30.

Ref.: Can. Mines Br. — Publ. No. 23, p.75.

Magnetite, of apparently good quality, occurs in a coarse granular crystalline limestone along the course of Post creek.

Range II, Lot 38.

Ref.: Que. Dept. Mines — P.R. No. 330, p.17.

Coarse-grained, massive magnetite, accompanied by varying amounts of graphite, pyroxene, calcite, biotite, pyrrhotite and marcasite, is exposed in a pit 7 feet in diameter a short distance northeast of the outlet of Roddick lake. White crystalline limestone outcrops on the shore of the lake. A selected sample of the massive magnetite assayed 55.69 per cent iron, 0.13 per cent titanium dioxide and 0.72 per cent sulphur.

CAMPBELL TOWNSHIP
(long. 75°25', lat. 46°35')

Range IV, Lot 16.

Ref.: Que. Dept. Mines — G.R. 23, p.41.

Numerous segregations of magnetite, up to 3 inches in diameter, occur in pegmatite dykes cutting pink gneissic granite which is included in paragneiss outcropping not far from the west shore of lac des Ecorces.

CANNON TOWNSHIP
(long. 67°20', lat. 49°40')

English Point-Pentecôte River Area. (Iron sand)

Ref.: Geol. Surv. Can. — Rept. Prog. 1866-69, p.308.

See Fitzpatrick township.

CARIGNAN TOWNSHIP
(long. 72°45', lat. 47°10')

Petit Lac Carignan Area.

Ref.: Que. Dept. Mines — P.R. No. 376, p.6.

Disseminated magnetite occurs in the rocks northwest of Petit Lac Carignan.

CATHCART TOWNSHIP
(long. 73°45', lat. 46°15')

Range V, Lot 7.

Ref.: Que. Dept. Mines — P.R. No. 214, p.9.

Concentrations of ilmenite were observed in the anorthosite due west of Crépeau lake on the Gareau Lakes road.

CHABANEL TOWNSHIP
(long. 72°30', lat. 48°15')

Des Soeurs Lake Area.

Ref.: Que. Dept. Mines — Office records.

A bulk sample of titaniferous magnetite from this locality assayed 51.69 per cent iron and 20.72 per cent titanium dioxide.

CHERTSEY TOWNSHIP
(long. 73°55', lat. 46°10')

Range I, Lot 9.

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. VIII, 1895, p.143J.

Disseminated iron ore occurs in anorthosite which is associated with quartzose gneiss.

Ranges VI to VIII, Lots 5 to 7.

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. VIII, 1895, p.143J.

Que. Bur. Mines — Min. Oper. 1910, p.43.

Que. Dept. Mines — P.R. No. 214, p.9; Office records.

Ilmenite-hematite ore occurs as bands in anorthosite and gabbroic rocks. Laurentian Titanium Mines Ltd., who held the property in 1955, reported reserves of 626,400 tons having an average tenor of 27.3 per cent iron and 19.9 per cent titanium dioxide.

Range IX, Lot 6.

Ref.: Que. Dept. Mines — P.R. No. 214, p.9.

Concentrations of ilmenite were observed in the anorthosite on the convex shore of Catherine lake.

CHESTER TOWNSHIP
(long. 71°45', lat. 46°05')

Range II, Lots 11 and 12.

Ref.: Rept. of Commissioner of Crown Lands (Quebec) — Min. Oper. 1895, p.49; Min. Oper. 1896, p.150.

Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.8; Min. Oper. 1907, p.5.

Que. Dept. Mines — P.R. No. 164, pp.5, 7.

Small pockets, stringers and short lenses (up to 2 feet thick) of hematite occur in dolomite. They are in general parallel to the strike of the dolomite. A sample of hematite from a lens 10 feet long, having a maximum thickness of 5 inches, assayed 69.42 per cent iron, 0.10 per cent silica, 0.03 per cent phosphorus and no sulphur.

CHIASSON TOWNSHIP

Jeannine Lake Area.

See Conan township.

CHILTON TOWNSHIP
(long. 74°05', lat. 46°15')

Range III, Lot 15.

Ref.: Que. Dept. Mines — Office records.

A sample taken from a narrow vein of magnetite in anorthosite is reported to have assayed 64.62 per cent iron and 9.84 per cent titanium dioxide.

Range VIII, Lot 12; Range IX, Lot 11.

Ref.: Que. Dept. Mines — P.R. No. 374, p.6.

The core from 8 diamond drill holes in these lots consists of medium-grained grey anorthosite containing regularly disseminated ilmenite and magnetite. There is little variation from the top to the bottom of the holes. Samples from 5 of the holes assayed 23 per cent iron and 12.5 per cent titanium dioxide.

CLARENDON TOWNSHIP
(long. 76°30', lat. 45°40')

Range II, Lot 25.

Ref.: Can. Mines Br. — Publ. No. 23, p.91.

Finely crystalline iron ore, which appears to be hematite, occurs in close association with a reddish syenitic gneiss merging in certain parts into hornblendic gneiss. An analysis of a sample from the principal outcrops gave 32.65 per cent iron, a trace of titanium, 50.03 per cent silica, 1.25 per cent alumina, 1.25 per cent lime, a trace of manganese, 0.002 per cent phosphorus, and 0.112 per cent sulphur.

Range VII, Lot 27.

Ref.: Can. Mines Br. — Publ. No. 23, p.92; Publ. No. 579, p.71.

Titaniferous magnetite mixed with rock occurs in veins and pockets in a dark, coarse hornblende rock. A specimen assayed 54.94 per cent iron, 7.23 per cent titanium dioxide, 7.84 per cent silica, 0.86 per cent lime, 1.92 per cent manganese, 0.001 per cent phosphorus, and 0.800 per cent sulphur.

CLEVELAND TOWNSHIP
(long. 72°05', lat. 45°40')

Range XIII, Lot 21.

Ref.: Que. Bur. Mines — Min. Oper. 1902, p.5.

A little work was done on a deposit of hematite in the limestone and 60 tons of this ore was shipped to Drummondville.

COMPORTÉ TOWNSHIP
(long. 77°30', lat. 49°40')

Shallow Lake Area.

Ref.: Que. Dept. Mines — G.R. 16, p.18.

Titaniferous magnetite occurs in the gabbro-anorthosite-pyroxenite complex 2 miles east of the north end of Shallow lake. A sample taken from a magnetite-rich layer 5 feet wide assayed 39.98 per cent iron and 10.83 per cent titanium dioxide.

CONAN TOWNSHIP
(long. 68°00', lat. 51°55')

Athol Lake — Silicate Lake Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

A large tonnage of quartz-magnetite iron formation is present in banded quartz-silicate iron formation.

Jeannine Lake Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

The magnetite-specularite iron formation in the Jeannine Lake area is of Proterozoic age and consists largely of specularite and quartz. An orebody which occurs in this formation is 7,000 feet long by 800 feet wide. It consists of specular hematite and quartz and is estimated to contain 300,000,000 tons having an average tenor of 30 per cent iron.

Research work has shown that a concentrate containing 66 per cent iron can be produced.

Rocky Lake Area.

See Hesry township.

DECELLES TOWNSHIP
(long. 74°20', lat. 48°05')

Decelles (Hair-cutting) Lake Area. (Iron sand)

Ref.: Geol. Surv. Can. — Rept. Prog. 1870-71, p.300.

Que. Dept. Mines — Office records.

Iron sands are met with along the lake shore.

DE LESSEPS TOWNSHIP
(long. 66°00', lat. 48°50')

Pekan Brook Area.

Ref.: Que. Bur. Mines — Ann. Rept. 1932, Pt.D, p.31; G.R. 20, Vol. III, p.395.

Two one-foot blocks of massive magnetite, and some blocks of altered sedimentary rock smeared with specular hematite, were observed. They have not been transported far, probably from a short distance north of Pekan brook, at the farthest.

DE L'ILE TOWNSHIP
(long. 71°45', lat. 48°40')

Range II, Lot 36. Ile d'Alma.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.148; Publ. No. 579, p.60.

Que. Bur. Mines — Min. Oper. 1910, p.53; Min. Oper. 1912, p.93; Les Minerais de Fer de la Province de Québec (1915), p.61.

Small lenses of hard compact titaniferous magnetite occur in a coarse-grained anorthosite, the largest being 15 feet by 30 feet. A sample of the magnetite assayed 53.07 per cent iron and 19.88 per cent titanium dioxide.

DESJARDINS TOWNSHIP
(long. 77°00', lat. 49°30')

Range V.

Ref.: Que. Bur. Mines — Ann. Rept. 1936, Pt. B, p.48.

Outcrops of banded magnetite are seen between Desjardins lake and Florence river.

DESLANDES TOWNSHIP
(long. 65°50', lat. 48°55')

Madeleine River Area.

Ref.: Que. Bur. Mines — Ann. Rept. 1932, Pt. D, p.31; Ann. Rept. 1933, Pt.D, p.54; G.R. 20, Vol. III, p.395.

Exposures of siderite, at least 4 feet thick, interbedded with Ordovician slates and limestones were found along Madeleine river not far above the mouth of the north fork. An assay of a lump-sample gave 40.30 per cent iron.

DESMELOIZES TOWNSHIP
(long. 79°25', lat. 48°55')

Range III, Lots 32 and 34.

Ref.: Que. Dept. Mines — P.R. No. 390, p.34.

Two diamond drill holes intersected a few zones of talc schist with disseminated magnetite and a rock called garnetiferous andesite which contains fairly abundant magnetite.

DIEPPE TOWNSHIP
(long. 79°25', lat. 49°30')

Conwest Exploration Company Ltd.

Ref.: Que. Dept. Mines — P.R. No. 390, p.37.

Three diamond drill holes were drilled. Hole No. 1 intersected a band of iron formation 250 feet wide with an average tenor of 22.32 per cent iron. Hole No. 2 intersected 3 bands: 95 feet at 27.63 per cent iron, 90 feet at 30.83 per cent and 105 feet at 28.10 per cent. Hole No. 3 intersected a band 80 feet wide averaging 17.62 per cent iron and another band 143 feet wide averaging 19.88 per cent iron.

DONCASTER TOWNSHIP
(long. 74°10', lat. 46°10')

Range IX.

Ref.: Que. Bur. Mines — Ann. Rept. 1935, Pt. C, p.75.

Small outcrops of anorthosite with ilmenite-hematite mineralization were found on the road from St. Agathe to St. Donat.

DUDLEY TOWNSHIP

(long. 75°35', lat. 46°15')

Range IX, Lots 24 to 26. (Iron sand)

Ref.: Que. Dept. Mines — P.R. No. 330, p.33.

The beach on the shore of Grand Lac du Cerf consists of siliceous sand interstratified with thin beds of iron-bearing sand. It has a width of 25 feet and a length of 1,200 feet. A composite sample of this sand was found to contain 12.3 per cent magnetite, 15.0 per cent ilmenite and 21.5 per cent garnet.

At the foot of the escarpment there is a bed of concentrated magnetite and ilmenite sand 1 to 2 inches thick which extends the whole length of the beach. A composite sample of this sand contained 38.2 per cent magnetite and 39.9 per cent ilmenite.

DUDSWELL TOWNSHIP

(long. 71°40', lat. 45°35')

Range V, Lot 11.

Ref.: Que. Dept. Mines — Office records.

A vein of quartz 10 to 15 feet wide in talc schist contains finely disseminated hematite and lenses of hematite up to 2 inches thick and 2 feet long. The iron content varies from 20 to 35 per cent.

DUFRESNOY TOWNSHIP

(long. 79°00', lat. 48°20')

Range East of Macamic Road, Lots 45 and 46.

Ref.: Que. Dept. Mines — P.R. No. 227, p.54.

Twelve diamond drill holes were drilled in quartz diorite in the western parts of lots 45 and 46. One hole cut 2 feet of massive magnetite with small particles of chalcopyrite.

DUNHAM TOWNSHIP

(long. 72°50', lat. 45°05')

Range I, Lot 5.

Ref.: Que. Dept. Mines — Min. Oper. 1907, p.5.

A band of dolomite contains irregularly distributed masses of hematite, in places as veins up to 2 feet thick. A sample of the hematite assayed 69.49 per cent iron, 1.32 per cent silica, 0.08 per cent phosphorus and 0.10 per cent sulphur.

DUVAL TOWNSHIP

(long. 61°40', lat. 50°05')

Range I, Lots 1 to 11. Natashquan Beach. (Iron sand)

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.96.

Can. Mines Br. — Publ. No. 145, pp.4, 7, 10; Publ. No. 217, Vol. II, p.154; Publ. No. 224, p.69; Publ. No. 285, p.90

Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.11; Les Minerais de Fer de la Province de Québec (1915), p.138.

Que. Dept. Mines — G.R. 20, Vol. III, p.398; G.R. 43, p.33.

Large deposits of iron sands occur near the mouth of Natashquan river, covering an area which extends 6 miles eastward along the shore from the mouth of the river and several hundred feet inland. The sands consist chiefly of quartz, feldspar, garnet, olivine, magnetite and ilmenite. They are buff coloured and contain lenticular layers of black iron sand up to 1 foot or more in thickness, 1 to 10 feet wide and 10 to 50 feet long. Bore holes encountered no black sand at depths of more than 30 feet and very little at depths of 25 to 30 feet. Sampling of the sand over an area of 169 acres by means of bore holes, to an average depth of 16.3 feet, indicated an average tenor of 14.7 per cent iron, 4.43 per cent titanium dioxide, 76.00 per cent insolubles, 0.006 per cent phosphorus and 0.006 per cent sulphur.

EARDLEY TOWNSHIP

(long. 76°00', lat. 45°35')

Range IX, Lot 10.

Ref.: Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.6.

Locality listed.

ESMANVILLE TOWNSHIP

(long. 67°05', lat. 52°30')

Midway Lake Area. Bellechasse Mining Corporation Ltd.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.99.

Que. Dept. Mines — Office records.

Low-grade iron ore has been found in 3 major zones, each having an estimated length of 2,000 feet and an average width of 100 feet. The grade is estimated at 30 per cent iron.

In an area of magnetic anomaly 6 miles west of Midway lake a drill hole of 37 feet intersected iron formation composed of magnetite and quartz and assaying between 25.6 and 29.9 per cent iron. Concentration tests produced concentrates grading 63 to 67 per cent iron and 8 to 19 per cent silica.

FABER TOWNSHIP
(long. 67°35', lat. 52°30')

Brown Lake Area.

Ref.: Que. Dept. Mines — P.R. No. 377, p.8.

Magnetite quartzite occurs as lenses of small extent within banded grunerite-quartzite in the area east of Brown lake.

Tuttle Lake Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — P.R. No. 377, p.8; Office records.

Magnetite quartzite occurs as lenses of small extent within banded grunerite-quartzite along the south-eastern extension of Tuttle lake.

FITZPATRICK TOWNSHIP
(long. 67°15', lat. 49°45')

English Point-Pentecôte River Area. (Iron sand)

Ref.: Geol. Surv. Can. — Rept. Prog. 1866-69, p.308.

Accumulations of iron sand are seen along the beach from English point to Pentecost river.

GABOURY TOWNSHIP
(long. 79°00', lat. 47°20')

McKenzie Lake Area.

Ref.: Geol. Surv. Can. — Mem. 201, p.11.

Que. Bur. Mines — Ann. Rept. 1930, Pt. B, p.63.

Que. Dept. Mines — G.R. 20, Vol. II, p.118.

Banded iron formation crops out on the peninsula at the west end of McKenzie lake. It consists of bands of magnetite, up to half an inch in width, alternating with wide quartzose bands and occasional narrow bands of chlorite schist. Magnetite constitutes about 50 per cent of the rock by volume.

Timber (des Bois) Lake Area.

Ref.: Geol. Surv. Can. — Mem. 201, p.11.

Que. Bur. Mines — Ann. Rept. 1930, Pt. B, p.63.

Que. Dept. Mines — G.R. 20, Vol. II, p.118;
Office records.

Outcrops of thin bands of iron formation interbedded with basic lava flows are numerous south of lac des Bois. The bands are seldom more than 40 feet and generally less than 20 feet in width. The rock consists of bands of black, cherty quartz, rich in magnetite and up to one half inch or more in width, which alternate with wider bands of cherty, blue quartz and occasional bands of chlorite or hornblende schist.

GENDREAU TOWNSHIP

(long. 79°00', lat. 46°40')

Kipawa Lake Area.

Ref.: Que. Dept. Mines — Office records.

An iron formation on the west shore of Kipawa lake, 2 miles north of the Kipawa railway station, contains a few thin steeply dipping beds of hematite. A sample taken from a bed 6 inches thick assayed 40.44 per cent iron.

GODEFROY TOWNSHIP

(long. 68°00', lat. 51°45')

Jeannine Lake Area.

See Conan township.

GRAND-CALUMET TOWNSHIP

(long. 76°45', lat. 45°45')

Range V, Lots 7 and 8.

Ref.: Can. Mines Br. — Publ. No. 23, p.100.

Locality listed.

Range V, Lots 11 and 12.

Ref.: Can. Mines Br. — Publ. No. 23, p.100.

Locality listed.

Range VI, Lots 11 and 12.

Ref.: Can. Mines Br. — Publ. No. 23, p.100.

Locality listed.

Range VII, Lot 13.

Ref.: Can. Mines Br. — Publ. No. 23, p.94.

Several outcrops of what appears to be hematite occur in white crystalline limestone. The deposit appears to be a veinlike occurrence, crossing the strike of the formation at right angles. A sample assayed 52.67 per cent iron, 0.25 per cent titanium dioxide, 22.00 per cent silica, 0.10 per cent lime, 0.010 per cent phosphorus and 0.038 per cent sulphur.

Range IX, Lot 2.

Ref.: Can. Mines Br. — Publ. No. 23, p.95.

Small lens-shaped, or veinlike bodies of magnetite, from a few inches up to 3 feet in width, are irregularly distributed in syenitic rock which merges at places into a granitoid gneiss, on the shore of the Ottawa river close to the water's edge.

GRANDISON TOWNSHIP

(long. 74°30', lat. 46°15')

Ref.: Geo. Surv. Can. — Rept. Prog. 1863, p.673.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.13.

Specimens of magnetic iron ore have been received from a bed 20 feet in thickness which occurs in gneiss.

GRENVILLE TOWNSHIP

(long. 74°40', lat. 45°45')

Range IV, Lot 3.

Ref.: Can. Mines Br. — Publ. No. 23, p.99; Publ. No. 217, Vol. II, p.145.

Geol. Surv. Can. — Rept. Prog. 1853-56, p.39; Rept. Prog. 1863, p.673; Ann. Rept. Vol. IV, 1888-89, p.13K; Ann. Rept. Vol. XII, 1899, p.111J.

Que. Bur. Mines — Ann. Rept. 1936, Pt. C, p.28.

A deposit of magnetite of the contact-metamorphic type is found in Grenville rocks beside rocks of the Chatham - Grenville stock. The bed did not appear to be over a few inches in breadth and the largest lumps which had been obtained did not exceed 1 foot in thickness. The ore was traceable for about 100 yards.

Range IV, Lot 13.

Ref.: Geol. Surv. Can. — Rept. Prog. 1851-52, p.21.

Magnetic iron ore was seen in a mass of gneiss. The seam of ore is 4 to 12 inches thick.

Range V, Lot 3.

Ref.: Can. Mines Br. — Publ. No. 23, pp.3, 98; Publ. No. 217, Vol. II, p.145.

Geol. Surv. Can. — Rept. Prog. 1853-56, pp.38, 40; Rept. Prog. 1863, p.673; Ann. Rept. Vol. XII, 1899, p.111J.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.13; Mines of the Province of Quebec, 1899, p.6.

Pockets and lens-shaped deposits of magnetite occur in a zone 25 feet wide in a micaceous gneiss interstratified with bands of grey quartzite. A sample of the ore assayed 57.4 per cent iron. In 1873 several hundred tons of ore were extracted.

Range VII, Lot 4.

Ref.: Can. Mines Br. — Publ. No. 23, p.99; Publ. No. 217, Vol. II, p.145.

Geol. Surv. Can. — Rept. Prog. 1853-56, p.39; Rept. Prog. 1863, p.673.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.13.

Some small bands of iron ore occur in a grey gneiss in the north half of the lot.

Range VIII, Lot 5.

Ref.: Can. Mines Br. — Publ. No. 23, p.99.

Geol. Surv. Can. — Rept. Prog. 1853-56, p.39; Rept. Prog. 1863, p.673; Ann. Rept. Vol. XII, 1899, p.111J.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.13.

A vein of magnetic iron ore about an inch thick runs in a straggling manner with the strike of the enclosing gneiss.

GUESLIS TOWNSHIP

(long. 67°20', lat. 52°30')

Half Mile Lake Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

Discontinuous lenses of specularite iron formation occur in quartzite southwest of Half Mile lake. The lenses have a maximum width of 60 feet and an average length of 700 feet.

Two bands of iron formation, separated by 60 feet of garnet gneiss, outcrop over a strike length of 4,000 feet in the area south of Half Mile lake. The west band consists of specularite iron formation. It is rather lean over most of its length but it terminates in the south with a spectacular pocket of high-grade iron oxides. The east band consists of thin banded quartz with disseminated magnetite and specularite.

A band of iron formation which lies southeast of Half Mile lake consists of magnetite-specularite material in the south, grading into magnetite-silicate formation to the north.

Lamelee Lake (North) Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

Two parallel bands of iron formation 8 miles northeast of Lamelee lake, of widths ranging from 100 to 200 feet, have been traced for a strike length of 1.5 miles. The iron formation consists almost entirely of specular hematite and quartz. The overall iron content is about 30 per cent.

HALIFAX TOWNSHIP
(long. 71°40', lat. 46°05')

Range I, Lot 13.

Ref.: Que. Dept. Mines — P.R. No. 164, pp.6, 7.

Blocks of hematite up to 8 inches across have been found among boulders of dolomite. These evidently came from dolomite which is exposed not far to the west of the locality where the loose material was found. One of the boulders of hematite assayed 67.81 per cent iron, 1.69 per cent silica, 0.01 per cent phosphorus and 0.02 per cent sulphur.

HAM SUD TOWNSHIP
(long. 71°30', lat. 45°45')

Range I, Lot 21.

Ref.: Can. Mines Br. — Publ. No. 63, p.109; Publ. No. 217, Vol. II, p.153.

Geol. Surv. Can. — Ann. Rept. Vol. II, 1886, pp.42J, 61J; Ann. Rept. Vol. IV, 1888-89, p.19K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.22; Mines of the Province of Quebec, 1899, p.8; Les Minerais de Fer de la Province de Québec (1915), p.47; Ann. Rept. 1931, Pt. D, p.93.

A deposit of magnetite occurs in a band of serpentine near its contact with sedimentary rocks. From a small pit, which is 12 feet in diameter and apparently 15 feet deep, 100 tons of ore have been mined. A sample of the ore from this deposit assayed 39.30 per cent iron, 19.85 per cent titanium dioxide, 0.96 per cent silica, 8.42 per cent alumina and 1.20 per cent lime.

HARRINGTON TOWNSHIP
(long. 72°40', lat. 45°50')

Range II, Lot 15b.

Ref.: Que. Dept. Mines — P.R. No. 390, p.52.

Magnetite occurs as small disconnected bodies in anorthosite of the Morin series. A grab sample of the magnetite assayed 63.66 per cent iron, 11.51 per cent titanium dioxide, 0.82 per cent silica, 0.26 per cent manganese, 0.07 per cent phosphorus and 0.03 per cent sulphur.

HAZEUR TOWNSHIP
(long. 74°50', lat. 49°25')

Caopatina Lake Area.

Ref.: Que. Dept. Mines — P.R. No. 292, p.10.

A few narrow beds of magnetite-rich rock occur in the sedimentary series on the south shore of Caopatina lake. An assay of this material gave almost 40 per cent iron.

HESRY TOWNSHIP
(long. 67°45', lat 51°55')

Athol Lake — Silicate Lake Area.

See Conan township.

Rocky Lake Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

The specularite iron formation consists principally of quartz and specularite, with local minor amounts of muscovite and ferromagnesian minerals. The beds range in thickness from a few feet to 120 feet. Iron oxides (mainly specularite) make up 20 to 50 per cent of the rock.

HINCKS TOWNSHIP
(long. 75°50', lat. 45°55')

Range VI, Lot 1.

Ref.: Geol. Surv. Can. — Paper 44-21.

Que. Dept. Mines — Min. Ind. 1943, p.31; G.R. 67, p.20; Office records.

Boulders of hematite are irregularly distributed over an area 600 feet by 300 feet. Trenching has exposed a lens of hematite 300 feet long having a maximum width of 20 feet. The ore is a brown, massive hematite and occurs in partly kaolinized gneisses and pegmatites. A sample of ore from the main trench assayed 57.52 per cent iron, 0.08 per cent titanium dioxide, 5.02 per cent silica, 0.20 per cent phosphorus and 0.02 per cent sulphur. The average tenor of 5 samples was 52.84 per cent iron.

HIND TOWNSHIP
(long. 67°20', lat. 52°15')

Hope Lake Area. Bellechasse Mining Corporation Ltd.

See Bergeron township.

HOUDET TOWNSHIP
(long. 77°05', lat. 47°05')

Cuff Lake Area.

Ref.: Que. Dept. Mines — P.R. No. 367, p.5; P.R. No. 390, p.52.

In the vicinity of Cuff lake 5 zones of magnetite mineralization are distributed over a length of 2½ miles along a band of medium to coarse grained paragneisses which are in places garnetiferous. A selected sample from the zone south of Cuff lake assayed 42.00 per cent iron, 0.02 per cent titanium dioxide, 29.54 per cent silica and 0.003 per cent sulphur.

HUBERT TOWNSHIP
(long. 72°35', lat. 49°15')

Continental Iron and Titanium Mining Ltd.

Ref.: Que. Dept. Mines — Office records.

Medium- to coarse-grained diorite contains disseminated titaniferous magnetite. The best representative sample assayed 24.80 per cent iron and 5.82 per cent titanium dioxide.

HULL TOWNSHIP
(long. 75°55', lat. 45°30')

Ranges VI and VII, Lots 10 to 20. Hull Iron Mine.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.107.

Can. Mines Br. — Publ. No. 23, pp. 37, 50, 53; Publ. No. 217, Vol. II, p.146.

Geol. Surv. Can. — Rept. Prog. 1845-46, p.75; Rept. Prog. 1863, p.673; Rept. Prog. 1866-69, p.253; Rept. Prog. 1873-74, p.211; Ann. Rept. Vol. IV, 1888-89, p.8K; Ann. Rept. Vol. XII, 1899, pp.42G, 110J.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.11; Mines of the Province of Quebec, 1899, p.5; Min. Oper. 1912, pp.114, 119; Les Minerais de Fer de la Province de Québec (1915), pp.30, 35.

Que. Dept. Mines — G.R. 20, Vol. III, p.400; Office records.

This property includes the former Baldwin, Forsyth, Lawless and Scott mines. Lenses of magnetite, with minor hematite, occur in limestone where fractures are abundant, and near granitic intrusives. Ore reserves are estimated (1958) at 3,000,000 tons grading 44 per cent iron, no titanium, 6 to 7 per cent silica, no phosphorus and 0.75 per cent sulphur.

Range X, Lot 2.

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. XII, 1899, pp.43G, 111J.

Locality listed.

Range X, Lot 3.

Ref.: Can. Mines Br. — Publ. No. 23, p.68; Publ. No. 579, p.71.

A crooked, irregular vein of hematite, having an average width of 10 inches, has been exposed for a length of 60 feet. A sample assayed 50.98 per cent iron and 13.58 per cent titanium dioxide.

Range XI, Lot 1.

Ref.: Can. Mines Br. — Publ. No. 23, p.67; Publ. No. 579, p.71.

Small stringers and lenses of titaniferous magnetite occur paralleling the lamination of a reddish gneissoid rock cut by pyroxene dykes. A sample assayed 58.21 per cent iron and 16.80 per cent titanium dioxide.

Range XIII, Lot 14.

Ref.: Can. Mines Br. — Publ. No. 23, p.99.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

INVERNESS TOWNSHIP

(long. 71°35', lat. 46°15')

Range II, Lot 4.

Ref.: Geol. Surv. Can. — Rept. Prog. 1863, p.681; Rept. Prog. 1873-74, pp.206, 210, 211; Ann. Rept. Vol. IV, 1888-89, p.19K.

Que. Bur. Mines — Les Minerais de Fer de la Province de Québec (1915), p.43.

A bed of iron slate 2 feet in thickness is said to occur in chloritic schist.

IRELAND TOWNSHIP
(long. 71°25', lat. 46°05')

Range IV, Lot 12.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

ISLE-DIEU TOWNSHIP
(long. 77°40', lat. 49°50')

Channel Rapid (Bell River).

Ref.:Que. Dept. Mines — G.R. 16, p.18.

Titaniferous magnetite occurs in the gabbro-anorthosite-pyroxenite complex at Channel rapid on Bell river. A representative sample, taken across a width of 6 feet, from a group of magnetite-rich bands exposed for a length of 35 feet, assayed 39.41 per cent iron and 11.23 per cent titanium dioxide.

JONQUIÈRE TOWNSHIP
(long. 71°15', lat. 48°25')

Range II.

Ref.: Geol. Surv. Can. — Rept. Prog. 1882-84, p.9D.

Locality listed.

KENOGAMI TOWNSHIP
(long. 71°30', lat, 48°25')

Range A North, Lots 44 to 46.

Ref.: Que. Dept. Mines — Office records.

Boulders of titaniferous magnetite, some of them weighing several tons, are strewn over a considerable area on the south bank of the Saguenay river. They are most abundant on Lot 44.

In Lot 46, 300 feet south of the present shore line, there is an outcrop of titaniferous magnetite which forms a bluff 12 feet high and 30 feet long. A sample from this outcrop assayed 44.08 per cent iron, 16.73 per cent titanium dioxide,

9.07 per cent silica, 6.05 per cent alumina, 0.19 per cent lime, 0.05 per cent phosphorus and 0.10 per cent sulphur.

Range IV, Lot 33.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.149; Publ. No. 579, p.59.

Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.18; Min. Oper. 1901, pp.5, 10; Min. Oper. 1910, p.48; Min. Oper. 1912, p.91; Les Minerais de Fer de la Province de Québec (1915), p.58.

Que. Dept. Mines — P.R. No. 330, p.54.

Fine- to medium-grained anorthosite and gabbro contain coarsely disseminated titaniferous magnetite. A chip sample taken over a width of 35 feet from an exposure of massive mineral in an open pit assayed 39.99 per cent iron and 18.38 per cent titanium dioxide.

KIAMIKA TOWNSHIP

(long. 75°20', lat. 46°25')

Range IV, Lot 50.

Ref.: Que. Dept. Mines — G.R. 23, p.41.

Numerous segregations of magnetite, up to 3 inches in diameter, were seen in quartz veins traversing a small granite intrusion.

LACOSTE TOWNSHIP

(long. 70°30', lat. 47°45')

Gouffre River Area. Montreal Titanium Corporation.

Ref.: Que. Dept. Mines — Office records.

Small masses of ilmenite occur in anorthosite. A sample taken across a width of 8 feet assayed 44.60 per cent iron, 36.60 per cent titanium dioxide, 1.20 per cent silica, 0.38 per cent alumina, 0.08 per cent lime, no phosphorus and 0.07 per cent sulphur.

LA DAUVERSIÈRE TOWNSHIP

(long. 74°20', lat. 49°35')

Obatogamau Lake Area.

Ref.: Geol. Surv. Can. — Rept. Prog. 1870-71, p.296.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.14.

Near the lake shore there is a deposit of magnetic iron in chlorite slate; its breadth is 50 feet and its length 200 paces. The ore occurs in crystalline lumps and grains throughout the rock. The whole 50 feet would probably yield an average of 15 to 20 per cent iron.

LAFLÈCHE TOWNSHIP

(long. 68°10', lat. 49°15')

Range I, Lot A.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

LA MORANDIÈRE TOWNSHIP

(long. 77°40', lat. 48°40')

Ref.: Que. Dept. Mines — Office records.

A zone of cherty iron formation has been discovered by diamond drilling under the waters of Castagnier lake in the extreme northwest corner of La Morandière township. The core of one hole is reported to average 24.1 per cent iron over a length of 124 feet.

LAUSSEDAT TOWNSHIP

(long. 68°00', lat. 52°05')

Big Three Lake Area.

Ref.: Que. Dept. Mines — Office records.

A band of medium- to coarse-grained rock 50 to 150 feet wide, which consists almost entirely of hematite and quartz, is exposed over a length of at least 6,000 feet. Seven grab samples taken from this formation ranged from 25.99 to 40.48 per cent iron, 0.00 to 0.30 per cent titanium dioxide, 42.06 to 63.60 per cent silica, 0.01 to 0.05 per cent manganese, 0.01 to 0.05 per cent phosphorus and 0.01 to 0.02 per cent sulphur. Reserves are estimated at 48,000 tons per vertical foot.

Mount Reed Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

Two deposits occur in the Proterozoic magnetite-specularite iron formation in the vicinity of Mount Reed. One of these deposits has a length of 5,000 feet and a width of 1,500 feet and consists of magnetite and quartz. The other has a length

of 2,500 feet and a width of 2,000 feet and consists of magnetite, specularite and quartz. Both have an average grade of 30 per cent iron. Research work has indicated that a commercially usable iron concentrate can be produced.

Rocky Lake Area.

See Hesry township.

LAVAL TOWNSHIP

(long. 69°05', lat. 48°45')

Range I, Lot 2. (Iron sand)

Ref.: Que. Dept. Mines — P.R. No. 330, p.60.

The beach at the foot of the cliff consists of stratified brown sand with irregular concentrations of black sand. The black sand consists chiefly of magnetite and ilmenite. A bed of black sand 12 inches thick has a width of 10 to 25 feet for a length of 500 feet and a width of 5 feet for an additional 1,000 feet.

Range I, Lot 5. (Iron sand)

Ref.: Que. Dept. Mines — P.R. No. 330, p.60.

On the beach in Lot 5, opposite Patte de Lièvre island, there is a bed of black sand 1 to 12 inches thick, which has a width of 5 to 10 feet and a length of 800 feet. A sample taken from this deposit assayed 35.03 per cent iron and 15.20 per cent titanium dioxide.

Range II, Lots 8 to 15.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

Range III, Lots 23 to 28.

Ref.: Que Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

Sault aux Cochons River Area. (Iron sand)

Ref.: Geol. Surv. Can. — Rept. Prog. 1866-69, p.307.

Hills of clay on the coast between Portneuf and Sault aux Cochons are capped with brown sand banded with dark

layers charged with black iron ore.

LAVERLOCHÈRE TOWNSHIP
(long. 79°15', lat. 47°25')

Range IV, Lot 2.

Ref.: Geol. Surv. Can. — Mem. 201, p.33.

Some stripping and trenching has been done on a band of iron formation 2 feet in width.

Range IV, Lot 34; Range V, Lots 34 and 35.

Ref.: Geol. Surv. Can. — Mem. 201, p.32.

A band of iron formation 3 to 8 feet in width has been stripped for a length of 500 feet. The band occurs in andesite flows.

Rousselot Lake Area.

Ref.: Geol. Surv. Can. — Mem. 201, p.11.

Que. Dept. Mines — G.R. 20, Vol. II, p.118;
G.R. 20, Vol. III, p.402.

Outcrops of thin bands of iron formation interbedded with basic lava flows are numerous east of Rousselot lake. The bands are seldom more than 40 feet and generally less than 20 feet in width. The rock consists of bands of black, cherty quartz, rich in magnetite and up to one half inch or more in width, which alternate with wider bands of cherty, blue quartz and occasional bands of chlorite or hornblende schist.

LEDUC TOWNSHIP
(long. 67°00', lat. 52°20')

Hope Lake Area. Bellechasse Mining Corporation Ltd.

See Bergeron township.

LEEDS TOWNSHIP
(long. 71°15', lat. 46°15')

Range IV, Lot 9.

Ref.: Que. Dept. Mines — Office records.

A lense of magnetite in schist is exposed in a creek bed for a length of 3 feet. The lens has a width of 12 inches. Within a radius of 30 feet of this lens there are a

number of magnetite boulders of various sizes lying on the ground.

Range V, Lot 7. Leeds Iron Mine.

Ref.: Can. Mines Br. — Publ. No. 63, p.110; Publ. No. 217, Vol. II, p.146.

Geol. Surv. Can. — Rept. Prog. 1873-74, pp.205, 209, 211; Ann. Rept. Vol. IV, 1888-89, p.19K; Mem. 211, p.12.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.18; Mines of the Province of Quebec, 1899, p.7; Min. Oper. 1901, p.6; Min. Oper. 1903, p.5; Min. Oper. 1912, p.100; Les Minerais de Fer de la Province de Québec (1915), p.38.

Lenticular layers of silica and finely streaked magnetite, up to 7 feet thick and 80 feet long, are interstratified in corrugated schists. A sample of average ore assayed 42.58 per cent iron and 39.30 per cent silica and insolubles. About 100 tons of ore has been shipped from here.

Range X, Lots 1 to 3.

Ref.: Can. Mines Br. — Publ. No. 63, p.110.

Geol. Surv. Can. — Rept. Prog. 1847-48, p.66; Rept. Prog. 1863, p.677; Rept. Prog. 1873-74, p.205.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.18.

Magnetic oxide occurs in large loose angular blocks, up to half a ton, near a band of serpentine which is associated in that vicinity with dolomitic limestone.

Range XIII, Lot 17.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

Range XIV, Lot 10.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

LEGAL TOWNSHIP
(long. 67°00', lat. 52°15')

Hope Lake Area. Bellechasse Mining Corporation Ltd.

See Bergeron township.

LEMOINE TOWNSHIP
(long. 74°10', lat. 49°50')

Dominion Gulf Company

See Rinfret township.

Five Mines Lake Area. Trepan Mining Corporation.

Ref.: Que. Dept. Mines — G.R. 82, p.40; Office records.

The company reports the presence of ilmenite-magnetite deposits in gabbro-anorthosite, as massive bands and disseminations, over an extensive area. The massive ore assays 53.05 per cent iron and 17.60 per cent titanium dioxide; the disseminated ore assays 47.26 per cent iron and 13.21 per cent titanium dioxide.

LESLIE TOWNSHIP
(long. 76°25', lat. 45°50')

Range III, Lot 11.

Ref.: Que. Dept. Mines — P.R. No. 346, p.6.

Red limonitic soil contains layers of iron-bearing nodules. A sample of soil and nodules assayed 48.83 per cent iron.

Otter Lake Area.

Ref.: Can. Mines Br. — Publ. No. 23, p.94.

Samples of pegmatite from Otter lake contain small pockets of dark glistening magnetite.

LE STRAT TOWNSHIP
(long. 69°25', lat. 51°55')

Larocque Lake Area. Consolidated Morrison Explorations Ltd.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.102.

Geol. Surv. Can. — Ann. Rept. Vol. VIII, 1895, p.286L.

Que. Dept. Mines — Office records.

Three zones containing iron oxide have been explored. Zones 1 and 2 consist of quartzite containing hematite and magnetite. Zone 1 is 5,000 feet long by 150 feet wide and zone 2 is 2,800 feet long by 200 feet wide. Zone 3 consists of iron silicates and magnetite. The main zone is 3,700 feet long by 400 feet wide and a southeast branch is 6,200 feet long by 100 feet wide. Potential reserves in the 3 zones are estimated at 341,000 tons per vertical foot and the average grade is estimated at 30 to 35 per cent iron, or 25 to 32 per cent iron contained in iron oxide. Research work indicates that a high-grade concentrate can be made from the ore at relatively coarse grinds.

LETELLIER TOWNSHIP

(long. 66°20', lat. 50°20')

Moisie Beach. (Iron sand)

Ref.: Can. Mines Br. — Publ. No. 145, pp.5, 6; Publ. No. 217, Vol. II, p.154.

Geol. Surv. Can. — Rept. Prog. 1866-69, pp.264, 267; Ann. Rept. Vol. IV, 1888-89, p.14K.

Que. Bur. Mines — Min. Oper. 1901, p.7; Min. Oper. 1910, p.38; Min. Oper. 1911, p.135; Les Minerais de Fer de la Province de Québec (1915), p.141.

Que. Dept. Mines — G.R. 20, Vol. III, p.398; G.R. 21, p.12.

Superficial concentrations of magnetic sand occur along the beach near the mouth of Moisie river. They extend for about 2 miles westward from a point 3 miles west of the estuary. The width of the strip varies between a few inches and 50 feet; the thickness varies between a few inches and 3 feet. (See also Moisie township).

Rivière des Rapides Area. Cran de Fer Falls Deposit (Molson Mine)

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.150; Publ. No. 579, p.62.

Geol. Surv. Can. — Rept. Prog. 1866-69, p.260; Ann. Rept. Vol. IV, 1888-89, p.14K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.29; Mines of the Province of Quebec, 1899, p.18; Min. Oper. 1901, p.10; Min. Oper. 1903, p.11; Min. Oper. 1910, pp.33, 45, 48; Min. Oper. 1911, p.108; Les Minerais de Fer de la Province de Québec (1915), p.65.

Que. Dept. Mines — G.R. 11, p.25.

Black, fine-grained gabbro grades into a magnetic-rich gabbro which grades locally into substantially pure titaniferous magnetite. A sample assayed 51.00 per cent iron, 22.78 per cent titanium dioxide, 1.76 per cent phosphorus and 0.85 per cent sulphur.

Rivière des Rapides Area. Gagnon Deposit.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.150; Publ. No. 579, p.64.

Que. Bur. Mines — Min. Oper. 1911, p.114; Les Minerais de Fer de la Province de Québec (1915), p.71.

Outcrops of black gabbro are heavily charged with grains of titaniferous magnetite. A sample assayed 28.37 per cent iron, 14.62 per cent titanium dioxide, 12.08 per cent silica and 1.61 per cent alumina.

Rivière des Rapides Area. Outarde Falls Deposit.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.150; Publ. No. 579, p.64.

Que. Bur. Mines — Min. Oper. 1911, p.115; Les Minerais de Fer de la Province de Québec (1915), p.72.

Black, fine-grained gabbro grades into magnetite-rich gabbro. All gradations from gabbro to practically pure magnetite can be seen. Solid magnetite, however, constitutes but a small proportion of the whole. A sample of the magnetite-rich gabbro assayed 54.99 per cent iron, 18.12 per cent titanium dioxide, 0.033 per cent phosphorus and 0.08 per cent sulphur.

LIGNERIS TOWNSHIP
(long. 78°30', lat. 48°55')

Ranges V and VI, Lots 18 to 28.

Ref.: Que. Dept. Mines — P.R. No. 390, p.58; Office records.

Iron formations, made up of thin bands of magnetite with cherty quartz and jasper mixed with about 50 per cent non-magnetic rock, occur in a sedimentary belt which consists mostly of graywacke, argillite, and arkose. Five diamond-drill holes were drilled. The best intersections were a little over 100 feet and the grade a little below 25 per cent iron. Five samples taken on the surface assayed 21.37 to 30.95 per cent iron, 48.67 to 67.73 per cent silica, 0.07 to 0.23 per cent phosphorus and 0.01 to 0.05 per cent sulphur.

LITCHFIELD TOWNSHIP

(long. 76°35', lat. 45°50')

Range I, Lot 1.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

Range I, Lot 12.

Ref.: Can. Mines Br. — Publ. No. 23, p.92.

Coarse crystalline magnetite occurs as impregnations and as pockets and lenses up to 4 feet in diameter in coarse crystalline limestone.

Range V, Lot 12. Ferreri Mine.

Ref.: Can. Mines Br. — Publ. No. 23, p.93; Publ. No. 579, p.71.

Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.6.

Que. Dept. Mines — P.R. No. 338, p.6.

A shaft has been sunk in what appears to be a pocket or lens of magnetite. The bedrock is gneissic diorite or gabbro. No magnetite in place could be found. A selected sample from the dump assayed 55.98 per cent iron, 13.03 per cent titanium dioxide, 4.00 per cent silica, 0.07 per cent lime, 0.004 per cent phosphorus and 0.921 per cent sulphur.

Range VIII, Lot 10.

Ref.: Can. Mines Br. — Publ. No. 23, p.94; Publ. No. 579, p.71.

The formation consists of quartzose feldspathic rocks. Blocks of magnetite can be seen strewn all over the hills, and in one place an outcrop of the solid ore can be noticed. A sample assayed 53.68 per cent iron, 15.75 per cent titanium dioxide, 2.75 per cent silica, 0.57 per cent lime, 0.005 per cent phosphorus and 0.078 per cent sulphur.

Range VIII, Lot 11.

Ref.: Can. Mines Br. — Publ. No. 23, p.94.

Impregnations of magnetite have been found in outcrops of reddish feldspathic rocks.

Range VIII, Lot 13.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

Range VIII, Lot 14.

Ref.: Can. Mines Br. — Publ. No. 23, p.94.

Impregnations of magnetite have been found in outcrops of reddish feldspathic rocks.

Range X, Lots 4 and 5.

Ref.: Can. Mines Br. — Publ. No. 23, p.96.

Titaniferous magnetite occurs in syenitic gneiss. A sample assayed 47.92 per cent iron, 15.44 per cent titanium dioxide, 0.004 per cent phosphorus and 0.084 per cent sulphur.

LONGFELLOW TOWNSHIP
(long. 63°35', lat. 50°35')

Orphelins Point. (Allard Lake)

Ref.: Que. Dept. Mines — G.R. 19, p.25.

An ilmenite-rich zone on the east side of Orphelins point, which contains small lenses of good ore in places, was traced southeast along Ilmenite bay for a distance of 235 feet.

Point Between Ilmenite and Froide Bays. (Allard Lake)

Ref.: Que. Dept. Mines — G.R. 19, p.25.

The anorthosite on the point between Ilmenite bay and Froide bay contains numerous irregular lenses of granular ilmenite. They vary in width from 1 to 8 feet. A grab sample taken from one of these lenses assayed 45.08 per cent iron, 35.98 per cent titanium dioxide, 1.78 per cent silica, no phosphorus and 0.47 per cent sulphur.

Rouge Point. (Allard Lake)

Ref.: Que. Dept. Mines — G.R. 19, p.24.

A concentration of granular ilmenite is exposed along the water's edge at Rouge point. A grab sample assayed 41.18 per cent iron, 36.00 per cent titanium dioxide, 2.57 per

cent silica, no phosphorus and 0.47 per cent sulphur. The true width of the ilmenite is not known, as the contacts are concealed by drift.

LORRAIN TOWNSHIP

(long. 76°55', lat. 47°05')

Byrd Lake Area.

Ref.: Que. Dept. Mines — P.R. No. 386, p.6.

A considerable amount of magnetite is distributed in medium to coarse grained basic paragneiss on one of the islands in Byrd lake. A grab sample assayed 34.50 per cent iron, 0.01 per cent titanium dioxide, 42.25 per cent silica and 0.11 per cent sulphur.

LYONNE TOWNSHIP

(long. 72°35', lat. 48°30')

Roberval Mining Corporation.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.113.

Que. Dept. Mines — P.R. No. 387, p.8; Office records.

Five zones of titaniferous magnetite have been found in a band of anorthositic gabbro. Zone A is 2,400 feet long by 600 feet wide. Indicated reserves in zone A to a depth of 500 feet are reported to be 90,000,000 tons averaging 23.6 per cent iron and 6.8 per cent titanium dioxide. Zone B is 1,800 feet long by 500 feet wide, and indicated reserves to a depth of 500 feet are reported to be 34,000,000 tons averaging 22.6 per cent iron and 6.2 per cent titanium dioxide. Laboratory tests show that a concentrate containing 67 per cent iron can be produced by grinding to minus 100 mesh.

MALAPART TOWNSHIP

(long. 67°35', lat. 52°20')

Lamelee Lake (South) Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

The quartz-magnetite iron formation consists of quartz and magnetite with minor iron silicates. The quartz-hematite iron formation consists of quartz and specular hematite. Both are of good grade and have mineable widths. Outcrops are limited.

Peppler Lake Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

A deposit of specular hematite, magnetite and quartz occurs in the Proterozoic iron formation. The deposit is 5,000 feet long and 2,500 feet wide. The grade is estimated at 27 per cent iron. Research work has indicated that a commercially usable iron concentrate can be produced.

MALARTIC TOWNSHIP
(long. 78°10', lat. 48°10')

Range III, Lot 4.

Ref.: Geol. Surv. Can. — Mem. 222, p.92.

Several zones of heavily carbonatized, chloritized graywacke contain beds of almost solid magnetite. The most persistent one is 10 feet wide and is exposed for 770 feet, with a possible total length of 1,800 feet.

MANICOUAGAN TOWNSHIP
(long. 68°20', lat. 49°05')

Peninsula at Mouths of Outarde and Manicouagan Rivers. (Iron sand)

Ref.: Geol. Surv. Can. — Rept. Prog. 1866-69, p.308.

Accumulations of iron sand are seen along the beach between the mouths of Outarde and Manicouagan rivers, a distance of 30 miles.

MARGANE TOWNSHIP
(long. 64°40', lat. 50°25')

Dock Area.

Ref.: Que. Dept. Mines — Office records.

At the village of Dock, in fine-grained anorthosite on the west side of a point, there is a zone containing lenses and segregations of massive ilmenite. The largest is 15 feet long and ranges in width from 1 to 3 feet. A sample assayed 38.55 per cent iron, 28.27 per cent titanium dioxide and 0.43 per cent sulphur.

At the northeast end of a point 1½ miles west of the village there is a vertical zone of brecciation 10 feet wide in which the interstitial spaces are filled with massive ilmenite.

Dock Bay Area. (Iron sand)

Ref.: Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.10.

Que. Dept. Mines — Office records.

On a small beach 2 miles east of Thunder river there is a belt of magnetic sand, with considerable amounts of red garnet, 400 feet long, 10 feet wide and 1 to 4 inches thick.

Thunder River (Rivière au Tonnerre) Area.

Ref.: Can. Mines Br. — Publ. No. 579, p.66.

Que. Bur. Mines — Min. Oper. 1911, p.133; Les Minerais de Fer de la Province de Québec (1915), p.87.

Que. Dept. Mines — Office records.

Massive ilmenite was observed in lenses along a zone 100 feet long in massive anorthosite at the first rapids above the mouth of Thunder river. The two largest lenses are 8 feet long by 1.5 feet wide and 5 feet long by 3 feet wide. A sample assayed 45.46 per cent iron, 37.68 per cent titanium dioxide and 0.50 per cent sulphur.

Ilmenite was observed in massive anorthosite 1½ miles northeast of the village. Boulders of massive ilmenite of a maximum diameter of 1.5 feet extend over an area 25 feet long by 15 feet wide. The area is surrounded by outcrops of anorthosite. A sample of the ilmenite assayed 49.75 per cent iron and 35.36 per cent titanium dioxide.

McGILL TOWNSHIP

(long. 75°35', lat. 46°10')

Range VI, Lot 12.

Ref.: Que. Dept. Mines — G.R. 68, p.17.

On the left bank of Serpent river, along the edge of a hypersthene diorite body, small pockets and irregular bands of ilmenite, 2 to 3 inches thick, are associated with a narrow band of hypersthene-bearing quartzite. A selected sample of the ilmenite assayed 35.95 per cent iron, 19.12 per cent titanium dioxide, 27.46 per cent silica, 0.24 per cent lime, a trace of phosphorus and no sulphur.

McKENZIE TOWNSHIP
(long. 74°20', lat. 49°55')

Gouin Peninsula.

Ref.: Que. Dept. Mines — G.R. 71, p.22.

A diamond drill hole on the south side of Gouin peninsula intersected gabbro with disseminated magnetite. A 45-foot section assayed 32.2 per cent iron, 1.60 per cent titanium dioxide, 24.5 per cent silica, 0.04 per cent phosphorus and 0.04 per cent sulphur.

MÉKINAC TOWNSHIP
(long. 72°45', lat. 46°55')

Rivière à la Truite Area.

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. V, 1890-91 (Sum. Rept. 1891), p.47A.

Que. Bur. Mines — Min. Oper. 1910, p.40.

Large masses of iron have been found in a dark greenish red gneiss on the north side of Mékinac river and along a tributary flowing out of Trout lake.

MELBOURNE TOWNSHIP
(long. 72°10', lat. 45°35')

Range I, Lot 8.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

MENNEVAL TOWNSHIP
(long. 67°45', lat. 52°30')

Harvey Lake Area.

Ref.: Que. Dept. Mines — P.R. No. 377, p.8.

Magnetite quartzite occurs as lenses of small extent within banded grunerite-quartzite on Turtleback hill on the west side of Harvey lake.

Kendrick Lake Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

Iron formations, consisting of specular hematite and quartz, are quite narrow but have considerable length.

Olga Lake Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

Zones of specularite-quartzite iron formation have been mapped in the area east of Olga lake.

MINGAN TOWNSHIP

(long. 64°10', lat. 50°25')

St. John River — Long Point Area. (Iron sand)

Ref.: Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.10; Min. Oper. 1911, p.151; Les Minerais de Fer de la Province de Québec (1915), p.153.

Que. Dept. Mines — Office records.

A strip of tidal magnetic sands runs for 3,000 to 4,000 feet along the beach between St. John river and Long point. It varies between a few feet and 40 feet in width, while the thickness is as a rule about 4 inches.

MOISIE TOWNSHIP

(long. 66°00', lat. 50°25')

Moisie Beach. (Iron sand)

Ref.: Can. Mines Br. — Publ. No. 145, pp.5, 6; Publ. No. 217, Vol. II, p.154.

Geol. Surv. Can. — Rept. Prog. 1866-69, pp.264, 267; Ann. Rept. Vol. IV, 1888-89, p.14K.

Que. Bur. Mines — Min. Oper. 1901, p.7; Min. Oper. 1910, p.38; Min. Oper. 1911, p.135; Les Minerais de Fer de la Province de Québec (1915), p.141.

Que. Dept. Mines — G.R. 20, Vol. III, p.398; G.R. 21, p.12.

Superficial concentrations of magnetic sand occur along the beach near the mouth of Moisie river. These sands consist of magnetite, hornblende, augite, garnets and ilmenite. They extend for 4 to 5 miles eastward from the river, and, in the estuary, on the concave bank, there is a band several hundred feet long. Systematic sampling of a strip 10,600 feet long on the beach showed widths ranging from 15 feet to 55 feet and depths of 0.6 foot to 3.3 feet. The weighted average of 29 samples was 36.42 per cent iron and 12.84 per cent titanium dioxide. (See also Letellier township).

MONTGOLFIER TOWNSHIP

(long. 78°30', lat. 49°40')

Atlin-Ruffner Mines (B.C.) Ltd.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.97.

Que. Dept. Mines — P.R. No. 390, p.64; Office records.

Iron formation, consisting of bands of fine-grained magnetite and some specular hematite and jasper, with barren or lean bands of argillite, biotite, chlorite or sericite schist and tuff, occurs on both sides of Harricana river. Two zones on the east side of the river and two on the west side were explored by diamond drilling. The best intersection averaged 26.1 per cent iron over a true width of 1,015 feet. The company estimates total reserves (1957) of 3,340,000 tons per vertical foot grading 25 per cent iron.

Metallurgical tests indicate that a concentrate grading 64.7 per cent iron and 3.8 per cent silica can be obtained.

MONTIGNY TOWNSHIP

(long. 75°10', lat. 46°25')

Range I, Lot 17.

Ref.: Que. Dept. Mines — Office records.

A sample taken from a lens of magnetite 7 feet wide and of unknown length, similar to those of Range II, assayed 46.65 per cent iron, 0.12 per cent titanium dioxide, 24.70 per cent silica, 2.30 per cent alumina, 4.85 per cent lime, a trace of phosphorus and 0.02 per cent sulphur.

Range II, Lots 12 and 13.

Ref.: Que. Dept. Mines — G.R. 23, p.40; Min. Ind. 1943, p.30; Office records.

Irregular and lenticular bodies of magnetite have been found associated with amphibolitic pyroxenite. A north-south trench that was dug across one of the lenses exposed 78 feet of magnetite having an average tenor of 46.42 per cent iron without reaching the north contact. A 60-foot section of this exposure averaged 48.50 per cent iron, 0.04 per cent titanium dioxide, 18.25 per cent silica, 0.88 per cent alumina, 2.99 per cent lime, 0.01 per cent phosphorus and 0.49 per cent sulphur. The best diamond drill intersection averaged 46.67 per cent iron over a width of 60 feet.

MORIN TOWNSHIP

(long. 74°10', lat. 46°00')

Range IV, Lot 43.

Ref.: Que. Bur. Mines — Ann. Rept. 1936, Pt. C, p.27.

Que. Dept. Mines — Office records.

A mass of metamorphic pyroxenite caught between anorthosite and quartz monzonite has been mineralized by titaniferous iron. A sample taken across a 7-foot face assayed 48.33 per cent iron and 0.17 per cent titanium dioxide.

MORISSET TOWNSHIP

(long. 73°15', lat. 50°50')

Albanel Lake. (Iron sand)

Ref.: Que. Dept. Mines — G.R. 53, p.31.

Magnetic black sands occur along the south-east shore of Albanel lake on both sides of the mouth of Richmond river. The sand consists of magnetite, hematite, ilmenite, garnet and quartz. A sample assayed 53.46 per cent iron, 20.42 per cent titanium dioxide and no sulphur.

MUSQUARO TOWNSHIP

(long. 61°15', lat. 50°15')

Range I, Lots 1 to 6. (Iron sand)

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23; Mines of the Province of Quebec, 1899, p.13.

Locality listed.

Musquaro Bay Area. (Iron sand)

Ref.: Que. Bur. Mines — Mines of the Province of Quebec, 1899, pp.11, 13.

Locality listed.

NATASHQUAN TOWNSHIP

(long. 61°45', lat. 50°10')

See Duval township.

NEWPORT TOWNSHIP
(long. 71°30', lat. 45°25')

Range I, Lot 11.

Ref.: Que. Bur. Mines — Min. Oper. 1912, p.120; Les Minerais de Fer de la Province de Québec (1915), p.48.

Iron minerals occur in thin bands in the grey schist on the sea shore around Newport. The mineral is a mixture of jasper and hematite.

Pembroke Creek Area.

Ref.: Que. Bur. Mines — Min. Oper. 1912, p.122; Les Minerais de Fer de la Province de Québec (1915), p.49.

A sample taken from a bed of very ferruginous sandstone in the midst of metamorphic grey schists gave 32.73 per cent iron and 48.28 per cent silica.

NORMAND TOWNSHIP
(long. 73°15', lat. 47°05')

Wakaumekonke Lake Area. (Iron sand).

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. XI, 1898, p.37J.

There are quantities of black iron sand along the shores of Wakaumekonke lake and the red gneiss frequently holds bunches of iron ore.

NORMANVILLE TOWNSHIP
(long. 67°20', lat. 52°45')

Bloom Lake Area. Normanville Mining Company Ltd.

Ref.: Que. Dept. Mines — Office records.

Seven zones of iron formation 1,200 to 40,000 feet long and 175 to 1,000 feet wide have been outlined. The company reports (1958) potential reserves of 547,000,000 tons of crude ore and 203,000,000 tons of concentrating ore. The ore is predominantly specular hematite in a coarse-grained quartzitic matrix.

Boulder Lake Area. Normanville Mining Company Ltd.

Ref.: Que. Dept. Mines — Office records.

Zones of iron formation have been outlined in the Roach Hill, Sudbury Hill, Labrador Hill and Roach Hill Ex-

tension areas. The zones range in length from 1,100 feet to 9,000 feet and in width from 400 feet to 650 feet. The company reports (1958) potential reserves of 394,000,000 tons of crude ore and 145,000,000 tons of concentrating ore in these four areas.

Mount Wright Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

A zone of specular hematite and quartz in the Proterozoic iron formation has been traced for 4 miles. Its average width is 300 feet and the average grade is estimated at 30 per cent iron. Research work has indicated that a commercially usable iron concentrate can be produced.

Quartz (Moiree) Lake Area.

See Township No. 2756.

NOYELLES TOWNSHIP
(long. 77°15', lat. 49°30')

Baptiste Creek Area.

Ref.: Que. Bur. Mines — Ann. Rept. 1936, Pt. B, p.48.

Outcrops of banded magnetite are seen north of Baptiste creek.

OBALSKI TOWNSHIP
(long. 74°20', lat. 49°50')

Caché Lake Area.

Ref.: Que. Dept. Mines — G.R. 71, pp.20, 22, 29.

A zone of magnetite-bearing gabbro, termed magnetite formation, which lies between Caché lake and Doré lake, has been traced for a length of 2 miles. It is 100 to 500 feet wide and averages 300 feet. The magnetite formation consists of sheets of nearly massive magnetite in magnetite-rich gabbro. The weighted average of 10 chip samples, taken over widths up to 200 feet, is 32.5 per cent iron, 8.8 per cent titanium dioxide, 29.9 per cent silica, 0.004 per cent phosphorus and 0.12 per cent sulphur.

ORFORD TOWNSHIP
(long. 72°10', lat. 45°25')

Range XV, Lots 21 and 22.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.66; Ann. Rept. Vol. IV, 1888-89, p.17K.

This is apparently a continuation of the bed of magnetic iron in Lot 2, Range XIV, Bolton township (p.16).

ORVILLIERS TOWNSHIP
(long. 78°45', lat. 49°40')

Atlin-Ruffner Mines (B.C.) Ltd.

See Montgolfier township.

PARKER TOWNSHIP
(long. 63°25', lat. 50°35')

Allard Lake Area.

Ref.: Que. Dept. Mines — G.R. 19, p.25.

Massive, dense ilmenite in anorthosite is exposed for a width of 8 feet on the east side of Allard lake directly east of the south tip of Ste. Hélène island. A channel sample assayed 43.33 per cent iron, 35.89 per cent titanium dioxide, 0.96 per cent silica, no phosphorus and 0.16 per cent sulphur. Twenty feet farther north a 4-foot width of pure, massive ilmenite is exposed for a length of 25 feet. It assays 43.41 per cent iron, 38.14 per cent titanium dioxide, 0.87 per cent silica, 0.05 per cent phosphorus and 0.16 per cent sulphur.

Petit Pas Lake Area.

Ref.: Que. Dept. Mines — G.R. 19, p.25.

A body of granular ilmenite is exposed for a length of 45 feet in the anorthosite on the northeast shore of Petit Pas lake. A grab sample assayed 43.64 per cent iron, 37.79 per cent titanium dioxide, 1.42 per cent silica, no phosphorus and 0.11 per cent sulphur.

Puyjalon Lake Area.

Ref.: Que. Dept. Mines — G.R. 19, p.26; Office records.

A body of ilmenitic anorthosite near the north end of Puyjalon lake, between that lake and Octave river, has a length of 7,200 feet and an average width of 1,200 feet. Based on reconnaissance geology, reserves in this deposit to depth of 100 feet are estimated at 80,000,000 tons.

On the west side of the lake, 4.5 miles northeast of the outlet of the lake, there is a body of disseminated ilmenite in anorthosite. It has a width of 400 feet and a length of several hundred feet.

Another ilmenite-rich zone occurs in the anorthosite on the east side of the lake on a point 2.5 miles northeast of the outlet. At the south end of the point there is a concentration of granular ilmenite 50 feet long, irregularly distributed across 8 feet.

Tio Lake Area. Quebec Iron and Titanium Corporation.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 27, p.53.

Can. Inst. Min. and Met. — Bull. Vol. 42, 1949, p.117.

Que. Dept. Mines — Min. Ind. 1948, p.26; Min. Ind. 1949, p.32; Min. Ind. 1951, p.26; Office records.

There are 3 large orebodies and a number of smaller ones in the anorthosite in the vicinity of Tio Lake. The ore consists of black ilmenite with microscopic crystals of hematite which make up about 15 per cent of the ore.

The Main orebody is roughly triangular in plan, with the apex to the south. Its dimensions are 3,000 feet north-south and 3,400 feet east-west. Diamond drill holes disclosed ore to a vertical depth of 300 feet, and a number of the holes were stopped in ore. Indicated ore is estimated at upwards of 100,000,000 tons averaging 36 per cent iron and 32 per cent titanium dioxide.

The Cliff orebody is a broad, flat-lying, tabular mass of ilmenite rising sharply above the west shore of Tio lake. It is rudely elliptical in surface plan, with dimensions of 1,240 feet by 740 feet. The average thickness of the ore is 200 feet. It contains 12,000,000 tons of proved ore of approximately the same grade as the Main orebody.

The Grader Lake orebody is 2 miles south of Tio lake. Reserves in this deposit are estimated at 200,000 tons averaging 40 per cent iron and 35 per cent titanium dioxide.

Ore shipped from these deposits during the period 1952-58 totals approximately 3,250,000 tons. A typical analysis of this ore is 39.0 per cent iron, 34.3 per cent titanium dioxide, 4.3 per cent silica, 3.5 per cent alumina, 0.9 per cent lime, 0.01 per cent phosphorus and 0.30 per cent sulphur.

PINET TOWNSHIP

(long. 69°40', lat. 51°55')

Matonipi Lake Area.

Ref.: Que. Dept. Mines — Office records.

Siliceous iron formations, in which the iron occurs mostly as hematite, have been mapped in the southwest corner of the township.

POLETTE TOWNSHIP
(long. 73°00', lat. 47°10')

Range I.

Ref.: Que. Dept. Mines — P.R. No. 376, p.6.

Disseminated magnetite occurs in the rocks on the south side of the river flowing from St. Thomas lake to St. Maurice river.

RADNOR TOWNSHIP
(long. 72°50', lat. 46°45')

Range I, Lot 28.

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. V, 1890-91 (Sum. Rept. 1891), p.47A.

Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.18; Min. Oper. 1910, p.40.

Large masses of iron ore have been found in a large quartz vein near Bouchard lake.

RAFFEIX TOWNSHIP
(long. 68°45', lat. 49°00')

Betsiamites River to Little River. (Iron sand)

Ref.: Geol. Surv. Can. — Rept. Prog. 1866-69, pp.266, 268, 308.

Que. Bur. Mines — Ann. Rept. 1932, Pt. D, p.128.

Que. Dept. Mines — G.R. 20, Vol. III, p.397.

Along the sea shore between Betsiamites river and Little river, iron sands form a rather continuous band 1½ miles long and about 5 feet wide, with a maximum thickness of 2½ feet. The sands consist of a mixture of magnetite, ilmenite, garnet and quartz.

RAWDON TOWNSHIP
(long. 73°45', lat. 46°05')

Range II, Lot 2.

Ref.: Geol. Surv. Can. — Rept. Prog. 1873-74, p.227; Rept. Prog. 1876-77, p.474; Ann. Rept. Vol. IV, 1888-89, p.15K; Ann. Rept. Vol. VII, 1894, p.110J; Ann. Rept. Vol. VIII, 1895, p.141J.

Que. Bur. Mines — Min. Oper. 1910, pp.36, 41; Les Minerais de Fer de la Province de Québec (1915), p.135.

Que. Dept. Mines — Office records.

Small masses of ilmenite occur in foliated anorthosite. A selected sample of the ilmenite assayed 40.71 per cent iron and 33.64 per cent titanium dioxide.

Range III, Lot 3.

Ref.: Que. Dept. Mines — Office records.

Four samples from a magnetite-pyrite-pyrrhotite zone in anorthosite assayed 25.88 to 32.60 per cent iron and 0.25 to 1.90 per cent titanium dioxide.

RAYMOND TOWNSHIP

(long. 79°10', lat. 49°40')

Ref.: Que. Dept. Mines — Office records.

Iron-bearing formations have been intersected by a few diamond drill holes in the northeast quarter of the township. Assay results were reported to vary between 14 and 35 per cent iron.

RINFRET TOWNSHIP

(long. 73°55', lat. 49°50')

Dominion Gulf Company.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.108

Que. Dept. Mines — G.R. 81, p.17; P.R. No. 352, p.4.

Two main zones of titaniferous magnetite formation have been outlined within the gabbro-anorthosite complex. The major zone is 180 feet wide and is separated from a minor zone 60 feet wide by a band of host rock 125 feet wide. These zones have been followed along strike for a distance of 7,200 feet in Lemoine and Rinfret townships. The magnetite occurs as massive bands ½ foot to 2 feet wide and as a dissemination in the gabbro-anorthosite. Bulk samples from the magnetite zones show an average tenor of 43.4 per cent iron, 12.3 per cent titanium dioxide, 23.5 per cent silica, 0.01 per cent phosphorus and 0.04 per cent sulphur.

ROY TOWNSHIP

(long. 74°05', lat. 49°55')

Magnetite Bay (Chibougamau Lake).

Ref.: Que. Dept. Mines — P.R. No. 388, p.22.

Irregular veinlets and small irregular pods of magnetite are very abundant in a marginal zone of serpentine 1,000 feet wide on the north side of the anorthosite mass. Core samples from a diamond drill hole in the serpentine-magnetite formation gave an average of 28 per cent iron and 1.07 per cent titanium dioxide.

Marguerite Island (Chibougamau Lake).

Ref.: Que. Dept. Mines — P.R. No. 370, p.6.

A magnetite formation occurs as a sharply defined band in transition rock and metaanorthosite at the south end of Marguerite island. The magnetite is present as fine-grained to coarse-grained disseminations and as tabular veinlets up to one-half inch thick. It is fairly evenly distributed and forms 30 to 70 per cent of the rock.

Nepton Bay (Chibougamau Lake).

Ref.: Que. Dept. Mines — G.R. 71, p.22.

A sample of gabbro containing disseminated magnetite, taken one-half mile north of Nepton bay, assayed 31.89 per cent iron, 1.63 per cent titanium dioxide, 19.74 per cent silica, 0.02 per cent phosphorus and 0.02 per cent sulphur.

Portage Island (Chibougamau Lake).

Ref.: Geol. Surv. Can. — Rept. Prog. 1870-71, p.296; Ann. Rept. Vol. VIII, 1895, p.258L; Mem. 185, p.86.

Que. Bur. Mines — Min. Oper.1904, p.15; Geology and Mineral Resources of the Chibougamau Region (1911), p.67.

Que. Dept. Mines — P.R. No. 352, p.24; P.R. No. 370, pp.6, 15.

A magnetite-rich formation occurs near the north perimeter of the anorthosite. It outcrops in the northern and southern parts of the island and has been found under the lake at the east end of the island by diamond drilling. A diamond drill hole which explored the northern band intersected 200 feet of material having an average tenor of 30.22 per cent iron and

1.37 per cent titanium dioxide. Two diamond drill intersections in the southern band averaged 24.76 per cent iron and 1.26 per cent titanium dioxide over a width of 335 feet and 29.20 per cent iron and 1.14 per cent titanium dioxide over a width of 165 feet.

Sorcerer Mountain.

Ref.: Geol. Surv. Can. — Mem. 185, pp.30, 58, 89.

Que. Bur. Mines — Min. Oper. 1904, p.15; Min. Oper. 1908, pp.59, 61; Geology and Mineral Resources of the Chibougamau Region (1911), pp.67, 185, 214; Les Minerais de Fer de la Province de Québec (1915), p.19.

Que. Dept. Mines — G.R. 71, p.22; P.R. No. 370, pp.6, 17.

Massive, dark green serpentine contains abundant grains and irregular pods up to 2 inches in diameter of magnetite, and along the north side of Magnetite bay is traversed by closely spaced, irregular seams up to ¼ inch wide. A chip sample taken across 80 feet of a prominent outcrop on the southern flank of Sorcerer mountain, about ¼ mile from Magnetite bay, assayed 35.7 per cent iron, 1.43 per cent titanium dioxide, 23.3 per cent insoluble residue, 0.017 per cent phosphorus and 0.25 per cent sulphur. Another sample, taken across 500 feet of the same zone, at a point 600 feet northeast of the first, assayed 23.8 per cent iron, 1.15 per cent titanium dioxide, 33.54 per cent insoluble residue, 0.022 per cent phosphorus and 0.18 per cent sulphur.

ST. DENIS TOWNSHIP

(long. 67°15', lat. 48°50')

Range VIII, Lot 45.

Ref.: Que. Bur. Mines — G.R. 9, p.29.

A number of loose blocks containing veins or small aggregates of magnetite, associated with chlorite and epidote, have been found. The solid bed-rock here is grey shale.

SCOTT TOWNSHIP

(long. 74°35', lat. 49°45')

Ref.: Que. Dept. Mines — G.R. 71, p.22.

A sample of gabbro with disseminated magnetite, reported to have been taken near the anorthosite in the eastern part of the township, assayed 24.80 per cent iron, 5.22 per cent titanium dioxide, 34.46 per cent silica, 0.21 per cent phosphorus and 0.18 per cent sulphur.

SHAWINIGAN TOWNSHIP

(long. 72°50', lat. 46°30')

Range VII, Lots 22 and 23. Grondin Mine.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.150; Publ. No. 579, p.66.

Geol. Surv. Can. — Rept. Prog. 1876-77, p.474.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.14; Min. Oper. 1903, p.5; Min. Oper. 1910, p.35; Min. Oper. 1912, p.78; Les Minerais de Fer de la Province de Québec (1915), p.95.

Que. Dept. Mines — Office records.

Titaniferous magnetite occurs as scattered small lenses, up to 12 feet wide, in gabbro. Seven samples taken from 5 different lenses averaged 35.52 per cent iron, 12.10 per cent titanium dioxide, 19.37 per cent silica, 7.08 per cent alumina, 4.95 per cent lime, 0.08 per cent phosphorus and 0.63 per cent sulphur.

SHEEN TOWNSHIP

(long. 77°10', lat. 46°05')

Range VI, Lot 12.

Ref.: Can. Mines Br. — Publ. No. 23, p.96.

Magnetite occurs in bands, veinlike and lens-shaped deposits through a quartzose feldspathic matrix which forms dykes intersecting fine-grained granitoid gneiss. A sample of the magnetite assayed 60.71 per cent iron, 5.91 per cent titanium dioxide, 2.20 per cent silica, 0.14 per cent lime, 0.007 per cent phosphorus and 0.221 per cent sulphur.

SIMPSON TOWNSHIP

(long. 72°20', lat. 45°55')

Range XII, Lot 8.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

SPALDING TOWNSHIP

(long. 70°45', lat. 45°40')

Range VIII, Lot 7.

Ref.: Can. Mines Br. — Publ. No. 63, p.79.

Que. Bur. Mines — Min. Oper. 1910, p.30.

Quartzite is impregnated with grains of magnetite.

Range VIII, Lots 10 and 11.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.145.

Que. Bur. Mines — Min. Oper. 1910, p.30; Min. Oper. 1912, p.105; Les Minerais de Fer de la Province de Québec (1915), p.43.

The rock is quartzite, sometimes schistose and sometimes massive. It is impregnated with grains of magnetite and hematite. A sample assayed 18.00 per cent iron, 57.47 per cent silica, 5.13 per cent manganese, 0.056 per cent phosphorus and 0.667 per cent sulphur.

Range IX, Lots 9 and 11.

Ref.: Can. Mines Br. — Publ. No. 63, p.79.

Hematite and magnetite occur with quartz in 4 bands of iron range rock separated by green chloritic schists.

STANBRIDGE TOWNSHIP

(long. 73°00', lat. 45°10')

Range VI, Lot 13.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

Range VII, Lot 27.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

STANSTEAD TOWNSHIP

(long. 72°05', lat. 45°05')

Range XIII, Lot 24.

Ref.: Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

SUTTON TOWNSHIP

(long. 72°40', lat. 45°05')

Range VIII, Lot 6.

Ref.: Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.7.

Schists are impregnated with non-magnetic oxide of iron.

Range IX, Lot 4.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.61; Ann. Rept. Vol. IV, 1888-89, p.17K.

A bed of oxide of iron 1 to 2 feet thick was met with in chloritic slate; the produce is 22.98 per cent.

Range IX, Lot 5.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.61; Rept. Prog. 1863, p.679; Ann. Rept. Vol. IV, 1888-89, p.17K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.19; Mines of the Province of Quebec, 1899, p.7; Les Minerais de Fer de la Province de Québec (1915), p.46.

Non-magnetic oxide of iron is exposed in beds interstratified with slates and quartz veins in an area 15 feet by 20 feet. The specimens taken from this locality give a produce of 48.60 per cent of pure iron.

Range IX, Lots 6 and 7.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.60; Rept. Prog. 1863, p.679; Ann. Rept. Vol. IV, 1888-89, p.16K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.19; Mines of the Province of Quebec, 1899, p.7; Les Minerais de Fer de la Province de Québec (1915), p.45.

Beds of iron slate range in thickness up to 8 feet. The ore is mostly red hematite or specular schist. The average percentage, derived from a mixed sample weighing 50 pounds,

is 22.98. The rock in the vicinity is chloritic and epidotic slate.

Range IX, Lot 8.

Ref.: Geol. Surv. Can. — Rept. Prog. 1873-74, p.228; Ann. Rept. Vol. IV, 1888-89, p.18K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.20; Min. Oper. 1910, pp.35, 39.

Titanic iron ore from this locality gave 39.14 per cent iron and 29.86 per cent titanium dioxide.

Range IX, Lot 9.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.62; Rept. Prog. 1863, p.677; Ann. Rept. Vol. IV, 1888-89, pp.17K, 20K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.20; Mines of the Province of Quebec, 1899, p.7; Les Minerais de Fer de la Province de Québec (1915), p.46.

A bed of dolomite 12 feet in breadth holds octahedral crystals of magnetite which amount, in many specimens, to 56 per cent of the mass, corresponding thus to about 38 per cent iron. This iron-bearing belt is interstratified with magnesian limestone in one part of which is an irregular bed of red hematite 1 to 2 feet in thickness.

Range X, Lot 7.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.62; Rept. Prog. 1863, p.679; Ann. Rept. Vol. IV, 1888-89, p.17K.

Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.7.

There are 2 beds of specular iron ore interstratified with slates and quartz veins: one 1 foot in thickness, the percentage of iron varying from 19.07 to 39.06, the other 7 feet thick and yielding from 19.42 to 32.13 per cent of metallic iron.

Range X, Lot 8.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.62; Rept. Prog. 1863, p.679.

Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.7; Les Minerais de Fer de la Province de Québec (1915), p.46.

A bed of schist impregnated with non-magnetic oxide of iron has a thickness of 7 feet; the produce is 32.13 per cent.

Range XI, Lot 7.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.62; Rept. Prog. 1863, p.680; Ann. Rept. Vol. IV, 1888-89, p.17K.

An exposure in which the exact thickness of the bed was not ascertained was seen; the produce of the ore is 28.63 per cent.

Range XI, Lot 9.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.62; Rept. Prog. 1863, p.679; Rept. Prog. 1873-74, p.228; Ann. Rept. Vol. IV, 1888-89, pp.17K, 18K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.20; Mines of the Province of Quebec, 1899, p.7; Min. Oper. 1910, pp.35, 39; Les Minerais de Fer de la Province de Québec (1915), p.46.

A sample from a 7-foot bed of ferric oxide has a produce of 39.90 per cent. Another sample gave 40.87 per cent iron and 27.20 per cent titanium dioxide.

TACHÉ TOWNSHIP

(long. 71°30', lat. 48°35')

Range II, Lot 11.

Ref.: Que. Dept. Mines — Office records.

A lenticular body of titaniferous magnetite was noted in the anorthosite. A sample assayed 48.56 per cent iron, 17.63 per cent titanium dioxide, 3.74 per cent silica, 7.61 per cent alumina, 0.10 per cent lime, 0.01 per cent phosphorus and 0.02 per cent sulphur.

Range III, Lot 2.

Ref.: Que. Dept. Mines — Office records.

A small mass of titaniferous magnetite was noted in the anorthosite.

TADOUSSAC TOWNSHIP

(long. 69°40', lat. 48°15')

Tadoussac Area. (Iron sand)

Ref.: Geol. Surv. Can. — Rept. Prog. 1866-69, p.308.

Accumulations of iron sand are seen along the beach in the vicinity of Tadoussac.

TAILLON TOWNSHIP
(long. 71°55', lat. 48°45')

Range XII, Lot 18.

Ref.: Que. Dept. Mines — Office records.

In the anorthosite on the south side of Peribonca river, opposite the mouth of Alex river, there are 2 outcrops of titaniferous magnetite 20 feet in diameter and 200 feet apart. A sample taken from the deposit nearest the river assayed 50.70 per cent iron, 20.86 per cent titanium dioxide, 0.22 per cent silica, 6.62 per cent alumina, no lime, no phosphorus and no sulphur.

TEMPLETON TOWNSHIP
(long. 75°40', lat. 45°40')

Range VI, Lots 27 to 29. Haycock Mine.

Ref.: Can. Mines Br. — Publ. No. 23, pp.3, 60; Publ. No. 217, Vol. II, p.147; Publ. No. 579, p.70.

Geol. Surv. Can. — Rept. Prog. 1863-66, p.20; Rept. Prog. 1873-74, p.226; Ann. Rept. Vol. IV, 1888-89, pp.12K, 15K; Ann. Rept. Vol. XII, 1899, pp.42G, 43G, 110J.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.14; Mines of the Province of Quebec, 1899, p.5; Min. Oper. 1912, p.119; Les Minerais de Fer de la Province de Québec (1915) p.35.

Que. Dept. Mines — G.R. 20, Vol. III, p.401.

Small pockets and narrow bands or lenses of specular hematite, with a considerable percentage of magnetite, occur in folded feldspathic gneiss.

Operations at this property have extended over several years. There is an open pit 70 feet by 21 feet by 20 to 25 feet deep from which 2,000 tons of ore are reported to have been mined. A sample taken from the dump assayed 65.56 per cent iron, 3.52 per cent titanium dioxide, 3.00 per cent silica, 0.10 per cent lime, 0.012 per cent phosphorus and 0.004 per cent sulphur.

Range VII, Lot 23.

Ref.: Can. Mines Br. — Publ. No. 23, p.69.

Float of hematite iron was found at various places in an area of about 25 acres, and in one trench ore in situ was found. A sample from this outcrop assayed 64.72 per cent iron, 0.25 per cent titanium dioxide, 3.96 per cent silica, 0.27 per cent lime, 0.179 per cent phosphorus and 0.004 per cent sulphur.

Range IX, Lot 22.

Ref.: Can. Mines Br. — Publ. No. 23, p.68.

Disconnected bodies, isolated lenses and pockets of very pure hematite ore, up to 3 feet in width, occur in reddish gneiss. A sample taken from one of the larger outcrops assayed 59.70 per cent iron, 5.97 per cent titanium dioxide, 1.86 per cent silica, 0.25 per cent lime, 0.006 per cent phosphorus and 0.046 per cent sulphur.

Range XI, Lot 3.

Ref.: Que. Bur. Mines — Mines of the Province of Quebec, 1899, p.5.

A vein of specular iron outcrops for a distance of 25 feet, its greatest development attaining 4 feet of solid ore at one point.

THURY TOWNSHIP

(long. 67°45', lat. 52°20')

Cassé Lake Area. Quebec Cartier Mining Company.

Ref.: Que. Dept. Mines — Office records.

The quartz-hematite iron formation consists of light blue-grey medium to coarse grained rock containing 25 per cent iron oxides, 5 per cent muscovite and biotite and 75 per cent quartz and accessory zircon.

The quartz-magnetite iron formation consists of light pink to green-yellow coarse-grained rock containing 20 per cent iron oxides and 70 per cent quartz.

Both are ideally suited for beneficiation.

TURCOTTE TOWNSHIP

(long. 72°55', lat. 47°20')

Range C.

Ref.: Que. Dept. Mines — P.R. No. 376, p.6.

Disseminated magnetite occurs in the rocks southwest of Rivière aux Rats.

TURGEON TOWNSHIP

(long. 75°00', lat. 46°30')

Range VI, Lot 38.

Ref.: Que. Dept. Mines — G.R. 23, p.41.

Numerous segregations of magnetite, up to 3 inches in diameter, occur in pegmatite intruding gneiss.

VAUQUELIN TOWNSHIP

(long. 77°15', lat. 48°05')

Monor Mining Company Ltd.

Ref.: Que. Dept. Mines — Office records.

A band of magnetite iron formation occurs in interbedded graywackes, tuffs and lavas. Three diamond drill holes, spaced over a length of 2,600 feet, gave intersections of 87 feet, 115 feet, and 64 feet respectively. Assays ranged from 21.7 per cent to 30.1 per cent iron.

Indicated reserves to a depth of 1,000 feet are estimated by the company (1959) at 50,000,000 tons grading 25 per cent iron.

Nordeau Mining Company Ltd.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.110.

Que. Dept. Mines — Min. Ind. 1957, p.20; Office records.

Two zones of iron formation in graywacke have been outlined by diamond drilling. The west zone is 3,000 feet long and contains lenses of magnetite 16 to 63 feet in width. The east zone has a length of 6,000 feet and contains lenses of magnetite 10 to 175 feet in width. Reserves to a depth of 1,000 feet are estimated by the company (1958) at 25,000,000 tons grading 29 per cent iron in the west zone and 75,000,000 tons grading 24 per cent iron in the east zone. Tests indicate that a concentrate containing 65 to 69 per cent iron can be obtained magnetically at a 200-mesh grind.

VIGNEAU TOWNSHIP

(long. 63°35', lat. 50°25')

Allard Lake Area.

Ref.: Que. Dept. Mines — G.R. 19, p.24.

Granular ilmenite occurs in anorthosite on the west side of Allard lake, approximately 3 miles up the lake from the south end. The ore is exposed for 20 feet along the water's edge over a width of 4 to 5 feet. Beneath the water it is seen to extend for a further 20 feet around the point to the north. A grab sample assayed 45.01 per cent iron, 32.24 per cent titanium dioxide, 1.36 per cent silica, no phosphorus and 0.14 per cent sulphur. Smaller lenses of ilmenite were observed to a distance of 100 feet west from the lake.

Bat le Diable Lake Area.

Ref.: Que. Dept. Mines — G.R. 19, p.23.

A tabular body of granular ilmenite 8 feet thick and 50 feet long outcrops on the south tip of the island in the north arm of Bat le Diable lake. A sample assayed 41.06 per cent iron, 36.83 per cent titanium dioxide, 1.50 per cent silica, 0.01 per cent phosphorus and 0.01 per cent sulphur. Other small lenses of ilmenite were noted on the island and on the lake shore west and south of the island.

WABASSEE TOWNSHIP
(long. 75°45', lat. 46°15')

Range II N., Lot 26.

Ref.: Que. Dept. Mines — G.R. 50, p.28.

Some magnetite mineralization was found in layers of quartzite interstratified with migmatites and paragneisses.

WAKEFIELD TOWNSHIP
(long. 75°50', lat. 45°40')

Range I, Lot 7.

Ref.: Can. Mines Br. — Publ. No. 23, p.99.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Locality listed.

Range III, Lots 18 and 19.

Ref.: Can. Mines Br. — Publ. No. 23, p.99.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Localities listed.

Range IV, Lots 13, 22 and 23.

Ref.: Can. Mines Br. — Publ. No. 23, p.99.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Localities listed.

Range V, Lots 13, 22, 23 and 24.

Ref.: Can. Mines Br. — Publ. No. 23, p.99.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.23.

Localities listed.

Range VI, Lot 23. Leduc Iron Mine.

Ref.: Can. Mines Br. — Publ. No. 23, p.74.

Geol. Surv. Can. — Ann. Rept. Vol. IV, 1888-89, p.15K.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.12.

Magnetite occurs in the form of small pockets and veins in syenitic and hornblende gneiss. A sample assayed 65.14 per cent iron, 2.98 per cent titanium dioxide, 2.50 per cent silica, 1.10 per cent lime, 0.001 per cent phosphorus and 0.023 per cent sulphur.

Range IX, Lots 14 to 17.

Ref.: Que. Dept. Mines — Office records.

Magnetite-rich bands up to 1 inch in thickness are interlayered with lean dioritic bands of equal or greater thickness.

WENTWORTH TOWNSHIP

(long. 74°25', lat. 45°45')

Range VI, Lot 26.

Ref.: Geol. Surv. Can. — Rept. Prog. 1863, p.673.

Que. Bur. Mines — Ann. Rept. 1936, Pt. C, p.27.

On the south side of Gate lake iron ore occurs in bands of gneiss interstratified in the limestone and forms several small irregular layers not more than an inch or two in thickness.

WEXFORD TOWNSHIP
(long. 74°10', lat. 46°05')

Ranges II and III, Lots 6 to 9.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.109.

Geol. Surv. Can. — Ann. Rept. Vol. VII, 1894, p.111J; Ann. Rept. Vol. VIII, 1895, p.142J.

Que. Bur. Mines — Min. Oper. 1910, p.42.

Que. Dept. Mines — P.R. No. 393, p.9; Office records.

Ilmenite-hematite ore occurs as discontinuous bands up to several feet wide in anorthosite and gabbroic rocks. The owners of the property, Laurentian Titanium Mines Ltd. report reserves (1955) of 15,131,400 tons grading 27.6 per cent iron and 19.9 per cent titanium dioxide.

Range III, Lots 14 to 17; Range IV, Lots 15 to 19.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, pp.103, 114.

Que. Dept. Mines — P.R. No. 393, p.10; Office records.

Magnetite and ilmenite occur in anorthosite as disseminated grains, small blobs and thin streaks. Estimates made by the owners of the property in 1958 indicate a potential of 230,000,000 tons averaging 20 to 23 per cent iron and 6 per cent titanium dioxide.

Preliminary metallurgical work indicates that a concentrate grading 67 per cent iron can be obtained after grinding to minus 150-mesh.

TOWNSHIP NO. 343
(long. 70°10', lat. 49°25')

Hibou Lake Area.

Ref.: Que. Dept. Mines — Office records.

A dyke or lens of massive ilmenite occurs in anorthosite. The dyke has a width of 2 to 5 feet; it has been explored over a length of 35 feet.

TOWNSHIP NO. 344
(long. 69°55', lat. 49°25')

Cassé Lake Area.

Ref.: Que. Dept. Mines — P.R. No. 333, p.8.

On the shore of Cassé lake, approximately 5.5 miles northwest of the main dam, thin layers of magnetite-ilmenite are associated with grey labradorite anorthosite.

Lise Lake Area. The Bersimis Mining Company.

Ref.: Que. Dept. Mines — P.R. No. 333, p.8; P.R. No. 390, p.79.

Diamond drilling indicates the presence of 3 lenticular bodies of ilmenite-hematite in a batholitic mass of andesine anorthosite. One hole intersected mainly ilmenite and a few thin bands of anorthositic pegmatite over a width of 100 feet.

TOWNSHIP NO. 745
(long. 69°40', lat. 50°00')

La Blache Lake Area. The Bersimis Mining Company.

Ref.: Que. Dept. Mines — P.R. No. 374, p.45; Office records.

Four large deposits of massive magnetite occur in anorthosite. The West Hervieux deposit, which is 130 to 350 feet wide, is exposed almost continuously over a length of 3,700 feet. The East Hervieux deposit is exposed in 8 large outcrops over a length of 8,000 feet, with widths up to 270 feet. The Schmoo Lake deposit is exposed almost continuously for 720 feet with a maximum width of 300 feet. The East La Blache deposit comprises a number of outcrops, one of which measures 180 feet by 150 feet. Possible reserves to a depth of 100 feet are estimated at 25,000,000 tons having an average tenor of 49 per cent iron and 21 per cent titanium dioxide.

TOWNSHIP NO. 746
(long. 69°25', lat. 50°00')

La Blache Lake Area.

See Township No. 745.

TOWNSHIP NO. 1265
(long. 65°20', lat. 50°40')

Manitou River Area.

Ref.: Que. Dept. Mines — P.R. No. 326, p.7.

In a stream bed a mile and a quarter west of Manitou river magnetite layers, up to 1 foot thick, occur in gneissic granite. As exposed in a cliff face, the magnetite-rich zone is 25 feet long and 3 feet thick. A grab sample of the magnetite assayed 53.50 per cent iron, 1.53 per cent titanium dioxide, 2.40 per cent phosphorus and 0.20 per cent sulphur.

TOWNSHIP NO. 1364
(long. 65°25', lat. 50°50')

Gad Lake Area. Hollinger (Quebec) Exploration Company Ltd.

Ref.: Que. Dept. Mines — P.R. No. 330, p.91; Office records.

A zone 4,000 feet long by 600 feet wide in granitic gneiss contains veins or lenses of massive magnetite or of magnetite-rich material. The largest has a length of 1,200 feet and a width of 10 to 50 feet. The average grade is 61.5 per cent iron, 1.52 per cent titanium dioxide, 7.86 per cent silica, 0.111 per cent phosphorus and 0.075 per cent sulphur.

Marmont Lake Area. Hollinger (Quebec) Exploration Company Ltd.

Ref.: Que. Dept. Mines — P.R. No. 349, p.7.

Three zones of magnetite-rich rock were found in injection gneiss southwest of Marmont lake. The zones are conformable lenses having an average width of 20 feet and lengths of 1,600, 1,200 and 1,000 feet respectively. In places the zones are as much as 100 feet wide. Systematic sampling has established the tenor at approximately 52 per cent iron, with less than 2.2 per cent titanium dioxide and 20 per cent silica.

TOWNSHIP NO. 1530
(long. 73°00', lat. 51°05')

Albanel Lake Area. Albanel Minerals Ltd.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.96.

Que. Dept. Mines — G.R. 54, p.27; Min. Ind. 1957, p.20; P.R. No. 330, pp.92, 93; Office records.

The 3 lower zones of the iron formation consist of magnetite, hematite, and jasper or chert. The upper (fourth) member contains mainly massive magnetite, siderite and chert. The company reports the presence of several large zones of magnetite of medium grade 100 to 150 feet wide, some deposits of medium to high grade hematite and a deposit of massive siderite. Tenors range from 20 to 40 per cent iron.

TOWNSHIP NO. 1531
(long. 72°45', lat. 51°05')

Albanel Lake Area.

See Township No. 1530.

TOWNSHIP NO. 1631
(long. 72°45', lat. 51°15')

Albanel Lake Area.

See Township No. 1530.

TOWNSHIP NO. 1662
(long. 65°50', lat. 51°15')

Wacouno River Area.

Ref.: Que. Dept. Mines — P.R. No. 290, p.9.

In a railroad cut at Mile 82.1 of the Quebec North Shore and Labrador railway magnetite has extensively replaced granite over a width of 10 feet. A grab sample of this material assayed 36.47 per cent iron and 1.22 per cent titanium dioxide.

TOWNSHIP NO. 1770
(long. 65°05', lat. 51°20')

Awater-Lapointe Deposit.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.105.

Que. Dept. Mines — Office records.

Four zones of titaniferous magnetite occur in anorthosite. The largest of these zones is 11,600 feet long by 1,000 feet wide and is reported to contain 725,000,000 tons having an average tenor of 45.71 per cent iron, 10.81 per cent titanium dioxide and 7.45 per cent silica. Total reserves in the four zones are estimated at 1,553,000,000 tons.

TOWNSHIP NO. 2044
(long. 69°55', lat. 51°50')

Jones Mountain Area.

Ref.: Que. Dept. Mines — Office records.

A siliceous iron deposit, in which the iron occurs mostly as magnetite, was outlined during geological mapping.

TOWNSHIP NO. 2045
(long. 69°40', lat. 51°50')

Matonipis Lake Area.

Ref.: Que. Dept. Mines — Office records.

Siliceous iron deposits, in which the iron occurs mostly as hematite, have been mapped on the west side of Matonipis lake and on islands in the western part of the lake.

TOWNSHIP NO. 2046
(long. 69°25', lat. 51°50')

Hummingbird Lake Area.

Ref.: Que. Dept. Mines — P.R. No. 330, p.94; Office records.

A zone of iron formation has a length of 2,400 feet. The essential minerals are magnetite with a little hematite, quartz, and a black or greenish mineral that looks like an amphibole.

Larocque Lake Area.

See Le Strat township.

TOWNSHIP NO. 2756
(long. 67°05', lat. 52°45')

Quartz (Moiree) Lake Area. Bellechasse Mining Corporation Ltd.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.98.

Que. Dept. Mines — Office records.

The iron formation is predominantly an iron-bearing quartzite in which the iron occurs as specularite and magnetite in varying proportions. Three zones are estimated (1954) to contain 72,000,000 tons grading 30 to 35 per cent iron. Laboratory tests indicate that a concentrate containing 66.2 per cent iron and 2.98 per cent silica can be produced.

Consolidated Fenimore Iron Mines Ltd.

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 27, p.82; Min. Inf. Bull. MR 31, p.102.

Exploration work indicates 2 sub-parallel iron-rich beds 2,800 feet long by 200 feet wide and 3,600 feet long by 300 feet wide respectively. The company estimates the presence

of 80,000,000 tons of magnetite-specularite ore averaging 25 per cent iron.

Roxton Mining and Development Company Ltd.

Ref.: Que. Dept. Mines — Office records.

Two outcrops of iron formation have been found, one composed of specularite, magnetite and quartz and the other containing interbedded magnetite and quartz-hornblende gneiss.

BATISCAN SEIGNEURY
(long. 73°40', lat. 46°45')

Champlain River Area. (Iron sand)

Ref.: Que. Bur. Mines — Min. Oper. 1910, p.30; Min. Oper. 1912, p.125; Les Minerais de Fer de la Province de Québec (1915), p.161.

On the beach there is a strip of magnetic sand 600 feet long, 3 to 4 feet wide and a few inches thick. The black sands on the plateau contain 7.10 to 24.93 per cent magnetite.

COTE DE BEAUPRE SEIGNEURY
(long. 70°50', lat. 47°15')

Décharge Range. Gilbert's Workings.

Ref.: Can. Mines Br. — Publ. No. 579, p.53.

Que. Bur. Mines — Min. Oper. 1911, p.97; Les Minerais de Fer de la Province de Québec (1915), p.128.

A lens of titanic iron ore 6 or 7 feet wide has been discovered in grey anorthosite on the left bank of Gouffre river 3 miles above St. Urbain.

St. Jacques Concession.

Ref.: Que. Dept. Mines — Office records.

A lens of coarse friable ilmenite 3 feet wide and 5 feet long occurs at the contact between anorthosite and mangerite. A sample assayed 41.48 per cent iron and 42.11 per cent titanium dioxide.

St. Jerome Range, Lots 608 and 609. Bignell Deposit.

Ref.: Can. Mines Br. — Publ. No. 579, p.52.

Que. Bur. Mines — Min. Oper. 1911, p.96; Les Minerais de Fer de la Province de Québec (1915), p.127.

Que. Dept. Mines — Office records.

Deposits of ilmenite occur in a large mass of anorthosite. The ore is an intergrowth of ilmenite and hematite. The property is now held by Continental Iron and Titanium Mining Ltd. Diamond drilling has outlined 3,091,500 tons of mineral having a tenor of 35.23 per cent iron and 36.21 per cent titanium dioxide.

St. Jerome Range, Lot 619. Du Pont Deposit.

Ref.: Que. Bur. Mines — Ann. Rept. 1931, Pt. A, p.21.

An important body of ilmenite has been discovered in this lot.

St. Jerome Range, Lot 622. Bouchard Deposit.

Ref.: Can. Mines Br. — Publ. No. 579, p.48.

Geol. Surv. Can. — Mem. 152, p.50.

Que. Bur. Mines — Min. Oper. 1911, p.85; Les Minerais de Fer de la Province de Québec (1915), p.116.

A branching vein or dyke of dense, black, medium-grained ilmenite, 8 feet wide at its widest part, occurs in medium-grained grey anorthosite. A general sample assayed 36.94 per cent iron, 32.90 per cent titanium dioxide, 1.68 per cent silica, 0.53 per cent phosphorus and 1.46 per cent sulphur.

St. Thomas Range, Lot 641.

Ref.: Can. Mines Br. — Publ. No. 579, p.52.

Que. Bur. Mines — Min. Oper. 1911, p.97; Les Minerais de Fer de la Province de Québec (1915), p.128.

A small lenticular mass of rather impure titanic iron 6 feet by 4 feet is found in anorthosite.

St. Urbain Range, Lot 312. Glen Prospect.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.152; Publ. No. 579, p.47.

Geol. Surv. Can. — Mem. 152, p.53.

Que. Bur. Mines — Min. Oper. 1911, p.83; Les Minerais de Fer de la Province de Québec (1915), p.114.

A mass of compact ilmenite, in contact with anorthosite, is exposed over an area 30 feet by 35 feet. A sample assayed 43.06 per cent iron, 38.29 per cent titanium dioxide, 1.68 per cent silica, traces of phosphorus and 0.041 per cent sulphur.

St. Urbain Range, Lot 319. Coulombe Mine.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.152; Publ. No. 579, p.48.

Geol. Surv. Can. — Mem. 152, p.50.

Que. Bur. Mines — Min. Oper. 1911, p.86; Les Minerais de Fer de la Province de Québec (1915), p.117.

Que. Dept. Mines — Office records.

A steeply dipping deposit of ilmenite in anorthosite is worked by 3 open pits, the largest of which is 300 feet long by 100 feet wide and 80 feet deep. Continuity has been proved to a depth of 340 feet by diamond drilling. Crude ore shipped from 1939 to 1948 totalled 120,000 tons. A 3,000 ton shipment of run of mine ore made in 1941 had an average tenor of 36 per cent iron, 39 per cent titanium dioxide, 4 per cent silica, 4 per cent alumina and 5 per cent lime.

St. Urbain Range, Lot 324. General Electric Mine.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.152; Publ. No. 579, pp.41, 50.

Geol. Surv. Can. — Mem. 152, p.49.

Que. Bur. Mines — Min. Oper. 1911, p.91; Les Minerais de Fer de la Province de Québec (1915), p.122.

Que. Dept. Mines — Office records.

A steeply dipping body of rutile-bearing ilmenite occurs in anorthosite. The deposit has been explored by diamond drilling to a depth of 975 feet. The deposit is worked by an open pit having a depth of 60 feet. Large shipments of crude ore from this deposit, made in 1941, had an average tenor of 37 per cent iron, 42 per cent titanium dioxide, 3 per cent alumina and 0.4 per cent lime. The property is now held by Continental Iron and Titanium Mining Ltd. who report reserves of 2,500,000 tons.

St. Urbain Range, Lots 352 and 361. Furnace Mine.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.151; Publ. No. 579, p.51.

Geol. Surv. Can. — Rept. Prog. 1849-50, p.26; Rept. Prog. 1863, pp.501, 754; Rept. Prog. 1873-74, p.227; Ann. Rept. Vol. IV, 1888-89, p.14K; Mem. 152, p.49.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, pp.8, 27; Mines of the Province of Quebec, 1899, p.17; Min. Oper. 1910, pp.32, 37, 44, 47; Min. Oper. 1911, p.94; Les Minerais de Fer de la Province de Québec (1915), p.125.

Que. Dept. Mines — Office records.

In a mass of ilmenite which has been traced for a distance of 400 feet with a breadth of over 100 feet there are 3 open pits in which the breasts are 100 feet, 60 feet and 50 feet wide and 20 feet, 30 feet and 50 feet high respectively. The country rock is fine grained, grey and reddish anorthosite. The ilmenite assays 37.21 per cent iron, 40.00 per cent titanium dioxide, 1.91 per cent silica, 4.00 per cent alumina and 1.00 per cent lime. Another assay made by the Mines Branch gave 44.12 per cent iron, 38.00 per cent titanium dioxide, 1.26 per cent silica, 0.038 per cent phosphorus and 0.300 per cent sulphur. The property is held at present by Continental Iron and Titanium Mining Ltd., who report reserves of 500,000 tons.

St. Joachim Parish, Lot 1.

Ref.: Que. Dept. Mines — Office records.

A lens of massive magnetite 15 feet wide is exposed for a length of 20 feet in a band of metamorphic pyroxenite. A sample of the magnetite assayed 58.32 per cent iron, 0.02 per cent titanium dioxide and 0.003 per cent sulphur.

Des Sources Lake Area.

Ref.: Que. Dept. Mines — Office records.

Massive granular black ilmenite, with a few inclusions of altered grey anorthosite, occurs in an outcrop 50 feet long by 30 feet wide ½ mile southwest of Lac des Sources. A representative sample assayed 39.87 per cent iron and 37.10 per cent titanium dioxide.

Ontario Lake Area.

Ref.: Geol. Surv. Can. — Mem. 152, p.47.

Que. Dept. Mines — Office records.

Two masses of ilmenite-hematite, respectively 6 feet and 5 feet across, separated from one another by 3 feet of rock, occur in the anorthosite just east of Ontario lake.

Another deposit occurs in an outcrop 35 feet by 12 feet, all ilmenite, in anorthosite, one quarter of a mile south of the east end of the lake and another is exposed over an area 6 feet square on the Southwest Branch trail 2 miles east of the lake.

Northeast Corner of Seigneury.

Ref.: Can. Mines Br. — Publ. No. 579, p.53.

Que. Bur. Mines — Min. Oper. 1911, p.97; Les Minerais de Fer de la Province de Québec (1915), p.128.

Que. Dept. Mines — Office records.

A lenticular mass of titanic iron 5 feet long disappears on one side beneath grey anorthosite and on the other under a thick layer of soil. A sample assayed 50.68 per cent iron, 31.28 per cent titanium dioxide, 2.50 per cent silica, a trace of phosphorus and 0.040 per cent sulphur.

LAKE MATAPÉDIA SEIGNEURY
(long. 67°35', lat. 48°35')

La Croix Island (Matapédia Lake).

Ref.: Que. Bur. Mines — G.R. 9, p.29.

Hematite, in a siliceous gangue resembling red jasper, occurs in veins in basalt. Some of the veins outcrop for a length of several feet, but they rarely exceed 1 inch in width. An iron content of 55.04 per cent was obtained from the assay of a sample from one of the veins.

MILLE ILES SEIGNEURY (AUGMENTATION)
(long. 74°05', lat. 45°50')

North Range, Rivière du Nord, St. Jérôme Rivière du Nord Municipality, Lots 460 to 463.

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. IV, 1888-89, p.16K; Ann. Rept. Vol. VII, 1894, p.109J; Ann. Rept. Vol. VIII, 1895, p.139J.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, p.13; Mines of the Province of Quebec, 1899, p.7; Min. Oper. 1910, p.38; Les Minerais de Fer de la Province de Québec (1915), p.36.

Que. Dept. Mines — P.R. No. 390, p.84; Office records.

A zone 15 feet wide in gneiss contains lenses of massive magnetite up to 4 feet thick over a length of 1,100 feet. A magnetometric survey indicates mineralization over

a length of 2,300 feet. Five representative samples of the magnetite averaged 60.71 per cent iron, 0.56 per cent titanium dioxide, 8.31 per cent silica, a trace of alumina, 1.81 per cent lime, 0.03 per cent phosphorus and 0.05 per cent sulphur.

PABOS SEIGNEURY
(long. 64°40', lat. 48°25')

Range I, Lots 60 to 72.

Ref.: Que. Bur. Mines — Min. Oper. 1912, p.121; Les Minerais de Fer de la Province de Québec (1915) p.48.

Que. Dept. Mines — Office records.

Lenses of siliceous hematite are scattered through the rocks along the shore. A sample from an exposure 62 feet by 20 feet assayed 30.89 per cent iron, no titanium, 53.49 per cent silica, 0.06 per cent phosphorus and 0.01 per cent sulphur.

RIGAUD-VAUDREUIL SEIGNEURY
(long. 70°45', lat. 46°15')

Range A, Lot 10.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.148; Publ. No. 579, p.70.

Geol. Surv. Can. — Rept. Prog. 1847-48, p.67; Rept. Prog. 1863, pp.501, 754; Ann. Rept. Vol. IV, 1888-89, p.18K; Mem. 127, p.85.

Que. Bur. Mines — Mines and Minerals of the Province of Quebec, 1889-90, pp.22, 29; Min. Oper. 1907, p.6; Min. Oper. 1910, pp.32, 39, 46, 52, 53; Min. Oper. 1912, pp.94, 95; Les Minerais de Fer de la Province de Québec (1915), p.101.

Small irregular pockets of titaniferous magnetite occur in a serpentine rock. In places there is an imperceptible transition from magnetite to normal serpentine. A sample from one of the pockets assayed 43.06 per cent iron, 0.16 per cent titanium dioxide, 0.045 per cent phosphorus and 0.075 per cent sulphur. A sample from another pocket assayed 47.73 per cent iron and 16.28 per cent titanium dioxide.

St. Charles Range, Lots 301 and 302.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.148; Publ. No. 579, p.69.

Geol. Surv. Can. — Mem. 127, p.85.

Que. Bur. Mines — Min. Oper. 1907, p.6; Min. Oper. 1910, p.52; Min. Oper. 1912, pp.94, 97; Les Minerais de Fer de la Province de Québec (1915), p.104.

Titaniferous magnetite occurs as small pockets a few feet in diameter and as lenses up to 12 feet wide in pyroxenite and peridotite. There is a gradual transition from magnetite to country rock. A sample assayed 54.77 per cent iron and 12.49 per cent titanium dioxide.

ST. ARMAND SEIGNEURY
(long. 72°50', lat. 45°05')

Lot 45.

Ref.: Geol. Surv. Can. — Rept. Prog. 1847-48, p.59; Rept. Prog. 1863, p.678; Ann. Rept. Vol. IV, 1888-89, p.16K.

A bed of finely granular iron ore, mostly red hematite, is exposed over an area 5 feet by 30 feet. The rock in the vicinity is chloritic and epidotic slate. A portion of the ore assayed 37.0 per cent iron.

ST. HYACINTHE SEIGNEURY
(long. 72°52', lat. 45°27')

Yamaska Mountain

Ref.: Que. Dept. Mines — Office records.

Titaniferous magnetite has been reported to occur sporadically in the zone of contact between the essexite and yamaskite facies of the intrusive forming the core of the Yamaska mountain.

CHICOUTIMI REGION
(long. 70°45', lat. 49°00')

Jervais River Area.

Ref.: Geol. Surv. Can. — Rept. Prog. 1882-84, p.9D.

Locality listed.

St. Gédéon Parish, Range I.

Ref.: Geol. Surv. Can. — Rept. Prog. 1882-84, p.9D.

Locality listed.

Shipshaw River Area.

Ref.: Geol. Surv. Can. — Rept. Prog. 1882-84, p.9D.

Locality listed.

ILES DE LA MADELEINE REGION
(long. 61°45', lat. 47°25')

Allright Island.

Ref.: Que. Bur. Mines — Min. Oper. 1904, p.26.

The Magdalen Islands Company has sent in the following assay of iron ore from Allright island: 51.90 per cent iron, 2.61 per cent silica, 0.16 per cent manganese, 0.041 per cent phosphorus and 0.041 per cent sulphur.

NEW QUEBEC REGION
(long. 69°05', lat. 56°45')

Caniapiscau (Koksoak) River Area.

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.157.

Geol. Surv. Can. — Ann. Rept. Vol. VII, 1894, p.67A; Ann. Rept. Vol. VIII, 1895, pp.270L, 283L.

Que. Dept. Mines — G.R. 20, Vol. III, p.10.

Bedded iron ores are found in several places along the Koksoak river between Cambrian lake and the mouth of Swampy Bay river. Samples from various exposures assayed 31.28, 33.62, 48.29 and 54.35 per cent iron, with no titanium. The amount of ore in sight must be reckoned by hundreds of millions of tons.

Connelly Lake Area. Great Mountain Iron Corporation.

(long. 69°25', lat. 56°50')

Ref.: Que. Dept. Mines — Min. Ind. 1952, p.27; Office records.

To the immediate north of Connelly lake the iron formation outcrops continuously in cliffs for a distance of 2 miles. Sampling indicates the presence of ore containing between 45.7 and 60.5 per cent iron.

Duncan Lake Area. Duncan Range Iron Mines Ltd.

(long. 77°40', lat. 53°30')

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.103.

Que. Dept. Mines — Office records.

Iron ore deposits are distributed along an early Precambrian sedimentary iron formation at the east end of Duncan lake for a length of 15 miles. The deposits consist of fine grained black rock made up of alternate thin silica-rich and magnetite-rich layers up to 1 inch in thickness. There are 13 orebodies with a combined length of 13.7 miles and an average width of 401 feet. Potential reserves are estimated by the company (1958) at 3,157,300 tons per vertical foot. The average grade of a large number of samples taken over a total width of 4,014 feet is 32.0 per cent iron. Metallurgical tests show that a concentrate can be produced that carries an average of 66.0 per cent iron, 0.53 per cent titanium dioxide, 6.62 per cent silica, 0.024 per cent phosphorus and 0.021 per cent sulphur.

Forbes Lake Area. Fort Chimo Mines Ltd.

(long. 69°55', lat. 57°20')

Ref.: Que. Dept. Mines — Min. Ind. 1949, p.27; Min. Ind. 1952, p.27; Office records.

Zones of enriched iron formation have been found at 3 localities.

The Bergeron Lake zone is 1 mile north of the west end of Bergeron lake. It has been explored along strike over a length of 2,400 feet. The width varies from 30 feet to 500 feet. A bulk sample from 3 trenches, representing an area 700 feet by 200 feet, assayed 43.76 per cent iron, 18.96 per cent silica, 0.40 per cent alumina, 5.60 per cent manganese, 0.16 per cent phosphorus and 0.12 per cent sulphur. Another sample from a series of trenches over a width of 450 feet assayed 39.0 per cent iron, 31.0 per cent silica and 3.3 per cent manganese.

The Piastitute zone is 1 mile north of the west end of Forbes lake. A chip sample from the wall of a test pit, representing a thickness of 6 feet, assayed 46.2 per cent iron, 31.0 per cent silica and 0.30 per cent manganese.

The Pothole zone is 2 miles south of the central part of Forbes lake. Detailed mapping and a considerable amount of trenching indicates fair widths of enriched iron formation. The silica content is 35 to 40 per cent.

Ford Lake Area. Atlantic Iron Ores Ltd.

(long. 70°05', lat. 59°15')

Ref.: Que. Dept. Mines — Office records.

In the Ford Lake area the Sokoman iron formation rests on the granite complex to the north and is overlain by schist and gabbro to the south. It can be traced for more than 18 miles and in some places the width of exposure is more than 1,000 feet. Ore zones in the vicinity of Hopes Advance bay and of Red Dog lake and Ford lake, respectively 8 and 16 miles west-southwest of the bay, are estimated by the company (1958) to contain 581,700,000 tons of proved ore to a depth of 150 feet. The average grade, as established by systematic channel sampling and by diamond drilling, is 35.7 per cent iron. Additional reserves of possible ore, containing over 30 per cent iron, are estimated at 225,000,000 tons.

The ore is medium grained, and consists of thin beds of almost massive magnetite or hematite interlayered with cherty beds containing disseminated iron oxides. The average ratio of magnetite to hematite is 40 to 60. In places, especially in the upper half of the formation, the iron oxides, mainly magnetite, are disseminated through massive thick beds of cherty iron formation.

Laboratory tests of large bulk samples indicate that the ore can be beneficiated quite readily to produce a concentrate containing 65 per cent iron.

Gabriel Lake Area.
(long. 68°50', lat. 58°10')

Ref.: Que. Dept. Mines — P.R. No. 373, p.10.

Lenses of iron formation are present, but they are poorly exposed and have a low magnetite content.

Girard Lake Area. Quebec Labrador Development Company Ltd.
(long. 69°25', lat. 57°00')

Ref.: Que. Dept. Mines — Office records.

Samples from outcrops northwest of the mouth of Swampy Bay river contained up to 68 per cent iron.

Granite Lake Area.
(long. 77°00', lat. 61°00')

Ref.: Que. Dept. Mines — P.R. No. 355, p.4.

Iron formation outcrops along the north shore of a small lake southwest of Granite lake. It consists of interbedded chert and hematite-rich chert layers.

Hematite Lake Area. Fort Chimo Mines Ltd.
(long. 68°55', lat. 56°35')

Ref.: Que. Dept. Mines — Office records.

Two zones of enriched iron formation occur on the west side of Hematite lake.

Iron Mountain Lake Area. Great Whale Iron Mines Ltd.
(long. 76°55', lat. 55°05')

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.104.

Que. Dept. Mines — Office records.

Several deposits of magnetite, in places interbedded with thin bands of quartz, have been discovered. One of these deposits is some 1,900 feet wide and over 15,000 feet long. Samples from various parts of the deposit, and a 40-ton bulk sample taken from a trench 300 feet long, reveal a uniform grade of 40 to 43 per cent iron. Total reserves to a depth of 500 feet are estimated (1958) by the company at 600,000,000 tons. Ore dressing and concentration tests show that the ore concentrates readily by straight magnetic separation and produces a concentrate of about 66 per cent iron, very low in phosphorus and sulphur.

Knob Lake Area. Iron Ore Company of Canada.
(long. 66°45', lat. 54°50')

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. VIII, 1895, p.285L.

Que. Dept. Mines — G.R. 75, p.18; Min. Ind. 1944-57; Office records.

In the Knob Lake area many important deposits of iron ore have been found in the iron-rich Proterozoic sedimentary rocks of the Labrador geosyncline. The Archaean gneisses and schists in the area are overlain by carbonaceous shales and slates (0 to 1,200 feet in thickness), dolomite (0 to 400 feet), chert breccia (10 to 400 feet), quartzite (150 to 250 feet), ferruginous slate (20 to 100 feet), the Sokoman iron formation (500 to 800 feet) and carbonaceous slates (upwards of 1,000 feet). The overlying mantle of glacial drift ranges up to 125 feet in thickness. Most of the orebodies are in the Sokoman iron formation. They are found in many types of structures, but synclines are generally favoured. The composition ranges from light yellow limonite, to dark brown goethite, brownish red hematite, steely blue hematite and martite with minor magnetite, to a jet black manganese ore.

At present there are 4 producing open pit mines within the area sub-leased by Iron Ore Company from Hollinger North Shore Exploration Company Limited: the Burnt Creek, Ferriman, French and Gagnon mines. Since the beginning of mining operations in 1954 these mines have produced, up to the end of 1958, 6,460,331 tons of Bessemer ore averaging 56.06 per cent iron, 6.42 per cent

silica, 0.90 per cent alumina, 0.46 per cent manganese and 0.027 per cent phosphorus, 15,417,469 tons of Non-Bessemer ore averaging 51.78 per cent iron, 7.10 per cent silica, 1.31 per cent alumina, 0.93 per cent manganese and 0.061 per cent phosphorus and 3,607,876 tons of manganiferous ore averaging 47.55 per cent iron, 7.89 per cent silica, 1.27 per cent alumina, 4.92 per cent manganese and 0.085 per cent phosphorus, for a total of 25,485,676 tons. By mines, this production is made up to 232,447 tons from the Burnt Creek mine, 1,652,601 tons from the Ferriman mine, 8,078,141 tons from the French mine and 15,522,487 tons from the Gagnon mine.

Indicated reserves of high grade direct-shipping open pit ore in this section of the property are estimated (1958) at 267,937,000 tons averaging 50.5 per cent iron, 8.34 per cent silica, 1.08 per cent manganese and 0.059 per cent phosphorus.

Larch River Area. Consolidated Fenimore Iron Mines Ltd.
(long. 70°00', lat. 57°30')

Ref.: Can. Mines Br. — Publ. No. 217, Vol. II, p.158.

Geol. Surv. Can. — Ann. Rept. Vol. IX, 1896, p.31L.

Que. Dept. Mines — Office records.

On Gossan hill, 1 mile south of Larch river, there is an almost continuous outcrop of massive iron formation 5,000 feet long and 3,200 feet wide. The middle member consists of interbedded iron carbonate and chert. It overlies a series of jasper metallic iron formation interlayered with carbonate and chert and is overlain by spotted silica carbonate. Reserves are estimated (1955) at 112,670,000 tons of interbedded carbonate and chert averaging 24.0 per cent iron, 1.50 per cent manganese and 34.7 per cent insolubles and 61,170,000 tons of magnetite-hematite iron formation averaging 33.0 per cent iron, 2.60 per cent manganese and 34.3 per cent insolubles.

At Old Red hill, 2 miles farther south, there is another deposit similar to the one at Gossan hill, except that it has a greater covering of spotted silica carbonate. Reserves are estimated (1955) at 147,670,000 tons of interbedded carbonate and chert averaging 24.50 per cent iron, 1.52 per cent manganese and 29.82 per cent insolubles and 100,170,000 tons of magnetite-hematite iron formation averaging 32.70 per cent iron, 2.21 per cent manganese and 35.35 per cent insolubles.

Total reserves in the two deposits is 421,680,000 tons.

Leaf Lake Area. Consolidated Fenimore Iron Mines Ltd.
(long. 69°50', lat. 58°45')

Ref.: Que. Dept. Mines — P.R. No. 360, p.6; P.R. No. 384, p.6; Office records.

Extensive prospecting and geological exploration have located an almost continuous band of iron formation extending 15 miles north of Leaf bay and 40 miles south of it. Areas of enrichment are listed below, from south to north.

In the Dragon Lake-Irony Lake area a band of iron formation extends almost continuously for 6 miles south and 3 miles north of Irony lake. It consists of 5 units: spotted silica carbonate, black-weathering silica carbonate, thin-bedded jasper iron formation, brown carbonate, and thick-bedded jasper iron formation. Reserves at Dragon lake are estimated at 16,240,250 tons and at Irony lake, 87,768,780 tons.

In the West Finger Lake area the iron formation is exposed more or less continuously over a length of 12,000 feet and a width of 300 to 1,100 feet. It consists of interbedded carbonate and chert, some brown carbonate, and a thin layer of thin-bedded jasper iron formation, usually rich in magnetite. Reserves are estimated at 5,719,950 tons.

In the western zone of the North Finger Lake area there is an almost continuous exposure of the iron formation over a lenght of more than 3 miles. The exposed width varies from 200 feet to 2,300 feet. The average thickness is approximately 60 feet. The lower facies is siliceous magnetite-hematite iron formation, mostly magnetite; the upper facies is magnetite-hematite iron formation with abundant hematite and specularite and, in places, an almost equal proportion of magnetite. Reserves are estimated at 98,330,250 tons.

In the eastern zone of the North Finger Lake area the iron formation is exposed over a length of 7,000 feet. It consists of a series of beds of magnetite-hematite iron formation 45 feet to 65 feet thick. It is underlain by 5 feet to 60 feet of metallic iron formation. Reserves are estimated at 26,358,550 tons.

The Middle outcrop is 2.3 miles south of Leaf lake. Here the iron formation is exposed continuously for a length of 2,000 feet. It is overlain by spotted silica carbonate. Reserves are estimated at 12,471,140 tons.

On the south shore of Leaf lake the iron formation is exposed over a length of 9,000 feet and a maximum width of 2,000 feet. It is overlain by spotted silica carbonate. The average thickness of the metallic iron formation is 80 feet. It consists of a lower magnetite-hematite zone 20 to 100 feet thick of alternating siliceous layers containing specular hematite, magnetite and silicate overlain by an upper facies which is richer, more massive, and contains alternating beds of jasper and a little magnetite. This upper member corresponds to the

magnetite-hematite iron formation of the other deposits. Reserves on the south shore of Leaf lake are estimated at 19,716,000 tons.

Bands of magnetite and hematite similar to those on the south shore of Leaf lake have been found in a zone extending north from Leaf lake to Pig lake, a distance of 13 miles. Numerous channel samples reveal that the grade is somewhat higher than elsewhere, but individual bands are narrower.

Ore reserves in the Leaf Lake area are estimated (1955) at 45,967,320 tons of carbonate ore containing 20.90 per cent iron, 2.06 per cent manganese and 35.23 per cent insolubles and 220,637,600 tons of magnetite-hematite iron formation containing 31.12 per cent iron, 1.62 per cent manganese and 43.73 per cent insolubles, for a total of 266,604,920 tons.

The company reports that a concentrate containing 65 to 68 per cent iron can be produced.

Morgan Lake Area.
(long. 70°00', lat. 59°45')

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, pp.110, 112.

Que. Dept. Mines — P.R. No. 348, pp.5, 6; Office records.

The Sokoman iron formation in the vicinity of Morgan lake is exposed on the limbs of a small south-plunging synclinal fold for a strike lenght of approximately 10 miles. It rests on the granite complex, located outside of the fold, and is overlain by schist and gabbro. The middle member is a massive magnetite-hematite quartzite in which magnetite is normally more abundant than specular hematite.

Two companies, International Iron Ores Ltd. and Oceanic Iron Ore (Quebec) Ltd., hold property in the Morgan Lake area. International Iron Ores Ltd. report reserves (1958) of 122,000,000 tons of possible ore averaging 32.4 per cent iron on their property. Oceanic Iron Ore (Quebec) Ltd. report (1957) 300,000,000 tons of indicated ore plus a further 115,000,000 tons of partially indicated ore in their section of the area.

Metallurgical tests indicate that a concentrate containing 65 per cent iron can be readily obtained from this ore.

Otelnuk Lake Area. Norancon Exploration (Quebec) Ltd.
(long. 68°20', lat. 56°10')

Ref.: Que. Dept. Mines — Office records.

Cherty carbonates in the vicinity of Fifth lake average 32.6 per cent iron, 34.31 per cent silica, 0.056 per cent

phosphorus and 2.79 per cent manganese over a thickness of 50 feet.

Carbonates of the iron formation northeast of Pepsi lake average 32.88 per cent iron, 14.24 per cent silica, 0.049 per cent phosphorus and 2.24 per cent manganese over an exposed thickness of 17 feet.

A grab sample of banded jaspilite iron formation in the vicinity of Tree Island lake assayed 54.56 per cent iron, 18.70 per cent silica, 0.51 per cent manganese and 0.034 per cent phosphorus.

Payne River Area. Oceanic Iron Ore (Quebec) Ltd.
(long. 70°00', lat. 59°55')

Ref.: Can. Dept. Mines — Min. Inf. Bull. MR 31, p.110.

Que. Dept. Mines — P.R. No. 348, pp.5, 6; Office records.

The middle member of the Sokoman iron formation is a massive magnetite-hematite quartzite in which magnetite is normally more abundant than hematite. Extensive surface exploration, followed by diamond drilling, indicates reserves (1957) of 50,000,000 tons of high-grade iron formation and 25,000,000 tons of low-grade iron formation.

Richmond Gulf Area.
(long. 76°20', lat. 56°10')

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. XIII, 1900, pp.51D, 76D, 77D.

Oxide ores occur on the islands and southern shores of Richmond gulf.

Roberts Lake Area. International Iron Ores Ltd.
(long. 70°10', lat. 60°20')

Ref.: Geol. Surv. Can. — Ann. Rept. Vol. XI, 1898, p.20L.

Que. Dept. Mines — Office records.

The Sokoman iron formation and other sedimentary rocks form a large south-plunging synclinal fold; the nose of the fold encircles Roberts lake and the two limbs extend southward as far as Payne river. In places the iron formation is exposed over widths of 800 feet. The ore is medium grained, and consists of thin beds of almost massive magnetite or hematite interlayered with cherty beds containing disseminated iron oxides. In places, especially in the upper half of the formation, the iron oxides, mainly magnetite, are disseminated through massive

thick beds of cherty iron formation. Indicated reserves to a depth of 150 feet are estimated by the company (1957) at 900,000,000 tons. The average grade, as established by systematic channel sampling and by diamond drilling, is 36.0 per cent iron and 1.0 per cent manganese. Laboratory tests of large bulk samples indicate that the ore can be beneficiated quite readily to produce a concentrate containing 65 per cent iron.