

GM 09436

REPORT ON GEOLOGICAL, DIP NEEDLE AND MAGNETIC SURVEYS WITH PHOTOS

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Énergie et Ressources
naturelles

Québec 

Remis par M. Martial Dumulon
13/7/48

REPORT

On The Property of

NEW QUEBEC EXPLORATIONS
LIMITED

BLANCHIN-PINET-DION-SENECAL TWS

MATONUPI LAKE DISTRICT

SAGUENAY COUNTY

QUEBEC

12766

8685

By

John B. De Mille

Rebours à la Couronne
(Service des Titres Mines)
OTsaly 18/11/58
Consulting Geologist

QUEBEC DEPARTMENT OF MINES

MAR 25 1952

MINERAL DEPOSITS BRANCH

No. 9436

June 30, 1948

42484

JOHN B. DEMILLE
CONSULTING GEOLOGIST
465 ST. JOHN STREET
MONTREAL

June 30, 1948

The President,
New Quebec Explorations, Ltd.,
Montreal, P.Q.

Dear Sir:

In accordance with your instructions I have undertaken a dip needle survey supplemented by geological mapping of the property held by the above captioned company and located in the Matonipi Lake district, Saguenay County, Quebec. The surveyed property covering an area of 25,647.6 acres had not previously been investigated for its mineral resources, except for the general information reported in 1895 by Dr. A.P. Low and the Gilman and Walker reports of 1937 and 1938.

My report attached herewith discusses in some detail the field organization that has been used in carrying out this assignment. I would also call your attention to the recommendations for continuing the investigation of economic possibilities indicated for this property and the adjacent area. Due to the very extensive area which merits intensive exploration, together with high costs for transportation, substantial finances and careful planning are going to be essential in continuing the serious study that has been shown to be justified by the important economic possibilities of this area.

The success that has followed our carefully planned work during the past four months, encourages the belief that ore deposits of commercial importance may be discovered. As carried out since March 1, the program of intensive field work has been directed specifically to the group of surveyed claims. Certain adjoining ground, however has been given a preliminary examination and 40 claims having a combined area of 1,600 acres were staked south of the property boundary and near the west shore of Matonipi Lake.

It is now proposed to carry on large scale staking to the east of Lac Larocque, where very promising iron-ore discoveries have been made. Possibilities are believed to be excellent for the discovery of additional ore deposits as field work is continued outside the large area of surveyed claims. I will prepare supplementary reports discussing all pertinent details relating to the progress of mapping and prospecting.

Respectfully submitted, *John B. Demille*

II

LOCATION OF PROPERTY

The surveyed mining claims held by the New Quebec Explorations Limited cover an area of 25,647.6 acres represented by Miner's Licenses 30651 to 30777, inclusive. The outside boundary of this property was surveyed by J. Hector Pacquin, Quebec Land Surveyor of Rouyn, the work being performed from April 15 to June 27, 1947.

To the west of the property, Pletipi Lake approaches to within eight miles, at which distance a tie-in line has been provided by a survey party that was engaged last winter in extending a baseline to the north of Pletipi Lake.

Due east of the Matonipi Lake area 150 miles is the southwest corner of Labrador, near the headwaters of the Moisie River. The deep water port of Comeau Bay is located 200 miles to the south, down the Mushalagan and Manicouagan Rivers. The coal field at Sydney Mines, Cape Breton, is 530 miles northeast from Comeau Bay by deep water across the Gulf of St. Lawrence, a distance of 125 miles greater than the route to be followed if coal shipments are to be made to Seven Islands for the purpose of smelting the Labrador iron ores, to which consideration is now being given.

Tide water at Comeau Bay is accessible from the Matonipi Lake area along the well developed channel of the Manicouagan River. This route can furnish an excellent right-of-way for railroad construction at such time as consideration may be given such a project. Over such a route the construction

problem would be much simpler than for the 375-mile route now being considered from the Labrador iron-ore deposits south to Seven Islands. The route to tide water at Comeau Bay is estimated at 225 to 250 miles, available for railroad construction at such time as plans can be made for exploiting the Matonipi Lake iron ores.

A study of this possible route, as plotted on the Standard Topographic map (revised April 1, 1947, by the Hydrographic and Map Service, Department of Mines and Resources, Ottawa), indicates a difference in elevation of less than 800 feet in an airline distance of approximately 200 miles. This gradient compares with an elevation of about 2,000 feet for the route from Seven Islands Harbor inland to the Labrador iron-ore deposits.

From the Roberval airbase on Lake St. John, the Matonipi Lake area is located at a distance of 265 miles north-east. Matonipi Lake lies approximately 100 miles south-east of the Hudson's Bay Company trading post and the airbase of the Department of Transport at Nitchequon, near the north end of Nitchicun Lake. This is 125 miles east of the north end of Lake Mistassini; Manuan Lake, 45 miles southwest of the Matonipi Lake area, provides an airbase and radio station operated by the Department of Transport. The radio station at Manuan Lake adjoins a large storage dam that controls the flow of water into the Peribonka River, to the southwest.

III

WATER, POWER, TIMBER, AND CLIMATE

Preliminary comments are submitted concerning the available local sources of water power, timber for construction, and weather conditions prevailing from March 25 to June 20, 1948. A few photographs representative of the area are attached to this report and will be supplemented later by a more complete record of the activities of my field party.

Water power in the Matonipi Lake area can be developed adequate for maintaining mining operations on a large scale. The Riviere aux Outardes can be dammed at a point where the Matonipi River enters the former stream. This suggested dam site is located about twenty miles southeast of the outlet of Pletipi Lake and forty miles due south of the portion of Matonipi Lake which is inside the boundary of this surveyed mining property. The Mushalagan River has its source at a point 115 miles farther to the north and this stream also offers good possibilities for water storage by means of dam construction at a point eight miles southeast of the property boundary.

Timber for construction purposes is available in large volume near the east shore of Lac Larocque (this is shown as Lac aux Roches on the map representing the Pacquin survey), and on the watershed northeast and west of Matonipi Lake. Other good stands of spruce trees may be located as our work continues. It has been found that spruce and jack pine in this area generally do not reach a diameter larger than 12 inches. Some scattered stands of balsam fir, white birch, and yellow birch have been seen, and a few poplars. Tamarack is

common but is usually less than 12 inches at the butt.

The climate of this area is stated to be two or three weeks later than at Lake St. John and about two weeks earlier than at Nitchicun Lake, which is close to the height of land between the Gulf of St. Lawrence and Ungava Bay. Methodical weather records kept by me show a temperature range from 42° below zero (April 11) to 78° (June 2).

The following temperatures were the lowest recorded:

Mar. 25 - 20 Apr. 7 - 20 Apr. 11 - 42 Apr. 18 - 30 Apr. 22 - 22
Mar. 29 - 35 Apr. 10 - 28 Apr. 14 - 25 Apr. 21 - 15 Apr. 24 - 10

Eighteen days in May and June recorded temperatures of 32° or lower, as follows: May 1, 2, 3, 4, 5, 9, 12, 13, 16, 17, 19, 30, and June 5, 6, 7, 8, 19, and 20. Minimum thermometer readings have been taken fairly consistently between the hours of 4 and 5 a.m. Since a maximum and minimum thermometer was not available, it was possible to get regular readings only at 8 a.m. and 8 p.m. and many extremes were consequently missed. In this Matonipi Lake area the daytime temperatures have been moderate generally, with only a few days when the temperatures did not rise above 32° in the period under observation.

The snowfall amounted to about 24 inches during the period. April 27, when the breakup started, the average depth of snow was four feet. The blizzard of May 19 resulted in a total fall estimated at eight inches in 12 hours (4 inches were measured), the temperature in that time ranging from 15° to 32° . Rainfall occurred April 1, 2, 16, 28, and 29; May 7, 8, 9, 10, 17, 21, 24, 25, 26, 27, 28, and 29; and June 1, 3, 4, 11, 12, 14, 15, 16, and 18. The sun was shining for at least part of the time on 43 days and snow fell on 23 days in this period totalling 88 days.

Ice disappeared from Cohen River on May 16; from

the outlet of Lac Larocque, May 18; from Cohen Lake, May 20. Matonipis and Matonipi Lakes continued to be ice-bound until June 3. At our No. 2 Camp it was necessary to dig trenches six to twelve inches deep around both of the tents in order to drain off the melting snow. Rain and rising temperatures made fast work in carrying off the snow. Swift-running brooks all through the district had been open for some time before May 10, when open water began to show in rivers and small lakes.

Weather conditions interferred with field work at no time to April 27 but from that day until about May 10 the break-up made it impossible for us to leave camp. It was possible to travel from three to eight miles a day in certain areas where there were no streams wider than ~~then~~ to fifteen feet, which could be bridged by chopping down two or more trees. To the east we were cut off by the swift river outlet (200 feet wide) of Lac Larocque, which the ice in Matonipis Lake prevented us from reaching by canoe until May 30. On the Cohen River our canoe was put to good use for crossing on the baseline and for travelling from Cohen Lake south to Matonipis Lake. A 20-foot freighter canoe with outboard motor is now needed to supplement the light 16-foot canoe that was taken in by plans² during the winter. At that time there was no large canoe available in Roberval.

*Breakup
last time*

IV

GENERAL GEOLOGY AND PREVIOUS WORK

Some rapid reconnaissance work conducted within the Matonipi Lake area in 1937 and 1938 is believed to have only limited significance. Traces of this work were found between Matonipi and Matonipis Lakes. No evidence of sampling was seen on the magnetite deposit located about one mile north of Matonipi Lake, crossing the portage to Little Matonipi Lake, which is mentioned in the 1895 report by Dr. A. P. Low. My own attempt to map the geology of this particular area is without question the first effort at systematic prospecting having as its objective the development of iron-ore resources.

The area bordering the Mushalagan River is underlain by iron ore, crystalline limestone, mica schists, and garnet gneiss, within an area having a "probable preponderance of Grenville rocks," as shown on the geological map of 1929, published by the Quebec Bureau of Mines. An attempt is being made in this preliminary report to bring together some of the available published opinion on rock relations, modes of occurrence, and age. It is my plan to collect a series of specimens of rocks and minerals for study next winter at McGill University, as part of a program for assembling information that can be employed to support the more detailed exploration of the Matonipi Lake area.

The iron ore occurring within the valley of the Mushalagan River and the outcrops of magnetite observed on the portage from Matonipi Lake to Little Matonipi Lake ^{are} ~~is~~ described by Low as associated with the "mica-gneisses and limestones of the supposed bedded series of the Laurentian...(which) ~~varies~~ from a pure magnetite ore to a ferruginous gneiss."

Along the Mushalagan River crystalline limestone occurs close to garnet mica-gneiss and chlorite schists, as described by Low. These gneisses and schists are believed to be either foliated eruptives or to have their origin as clastics. Of these two, the clastics are the oldest. Gneisses and schists are intensely folded and some have been intruded by granite. The eruptive rocks of Laurentian age, under Low's classification, have been assigned more recently to the Grenville period.

The Barn Mountain iron ore (magnetite), the first to be discovered in the course of this field work, is located about six miles due west of the Mushalagan River and about one mile and a half south of the extreme southeast corner of these surveyed claims. This magnetite consists of a deposit of very large tonnage and of high quality, the black, massive mineral being free of quartz and other impurities. The orebody, as exposed in numerous large outcrops in the upper one hundred feet of Barn Mountain, is two hundred to three hundred feet in width and upwards of 1,000 feet in length. The mountain is very steep and difficult to climb, its inaccessibility evidently having prevented its discovery in the past. shown on map?

This high-grade ore was obviously unknown to Low, its north-south strike being at a right angle to the east-

west direction implied by Low's description of the orebodies that he projected from the Mushalagan River to Little Matonipi Lake. At Barn Mountain there are no signs of any sampling or other investigation, as contrasted with the previous work that had been done on the magnetite that outcrops along the portage between Matonipis and Matonipi Lakes. Several outcrops of magnetite, where trenches had been opened ten years ago, or more, were first located by me along this portage on June 2, when the receding ice on Matonipis Lake made it possible for my party to push through the lake to the portage leading to Matonipi Lake. The trenches and a picket line near this portage and along the north-south strike of the magnetite are the only evidence of previous prospecting to be located in the course of my field work. *shown in map?*

Numerous exposures of magnetite along the summit *shown in map* and side of Barn Mountain represent a very remarkable uniformity of grade. In addition to the volume of ore comprising this mountain, however, the topography indicates excellent possibilities for continuity along a ridge that is in the shape of a semi-circle having a total length of six to eight miles.

It is going to take some time and some walking over very tough country to determine whether or not iron ore is represented by a horizontal line that marks the maximum elevation along this great ridge. The massive ore forming Barn Mountain shows a northeast strike; about two miles farther east the strike swings north. At the south end the strike swings west for about half the length of Matonipis Lake at a point about five miles south of the surveyed property. This area I have ~~not~~

not been able yet to examine, due to the heavy ice field at the south end of Matonipis Lake up to June 2, when we moved our base camp farther west to the north end of Matonipi Lake.

A promising possibility for good continuity on this new deposit of magnetite is seen in the rather uniform height of the hills forming this conspicuous semi-circular range, of which Barn Mountain has been the first summit to be examined. It was selected as being the most easily accessible from our No. 5 Camp on Lac Larocque, but several of the other summits are just as high and have rather similar profiles. (Another somewhat similar ridge that strikes north-south parallels the west shore of Matonipi Lake, where the most conspicuous peak has been named Iron Mountain. No examination has been possible up to this time. Iron Mountain is located about sixteen miles west of Barn Mountain.)

shown on map?
222

Barn Mountain is accessible from a small bay at the extreme southeast corner of Lac Larocque. We have made an irregular line of blazes and the three axe men are working at present to clear out a good trail from the southeast corner of Lac Larocque all the way to the summit of Barn Mountain, a distance of about three miles. The gradual slope of the lower part of the mountain is covered with a heavy growth of spruce and large white birch, deep moss forming a ground cover that does not allow any exposures of bedrock. The elevation of the rectangular-shaped summit above Lac Larocque is probably 600 to 800 feet. It is proposed to stake as large an area including Barn Mountain as Miner's Certificates are available.

In the course of my preliminary field work I used eight of the Miner's Certificates that I had with me for staking 1,600 acres to cover part of a very extensive deposit comprising both hematite and magnetite and located close to the west shore of Matonipi Lake. On my return to the property it is proposed to stake additional claims in that area, as well as in the vicinity of Barn Mountain and also near the portage connecting Matonipis and Matonipi Lakes.

The geology of this area comprises gneiss and pegmatite. The most abundant variety of gneiss is pink in color, which varies from red to light gray. Orthoclase, the most abundant mineral, sometimes appears as hornblende granite, but usually shows gneissic foliation and collects in bead-like masses between laminae of hornblende and mica. *shown in map*

Pegmatites are stated to be genetically related to the hornblende-granites, which, together with the mica-gneisses and the anorthosites, they are commonly found intersecting. Orthoclase in coarsely crystalline masses is the most abundant mineral in these pegmatite dikes. Quartz, hornblende, and mica are next in abundance, together with black tourmaline and red garnet. The pegmatite often occurs as lenses and veins having a wide range in both width and strike. Portage Mountain, which lies across the portage connecting Matonipi and Matonipis Lakes, generally parallel to the magnetite deposit where prospect trenches have been opened, is the largest development of pegmatite to be seen in the course of the field work completed to date. *shown in map*

Mica-gneiss of Grenville age varies from coarse-

grained, well crystallized gneiss to the fine texture of mica-schist. These rocks are composed of pink to white orthoclase, quartz, biotite, and a small percentage of hornblende. In great areas along the Manicouagan River garnetiferous gneiss is reported to be common, sometimes grading to impure garnetiferous quartzite. These gneisses and schists are frequently associated with bands of crystalline limestone.

Large diabase dikes have been reported intersecting the gneisses. Hornblende schist has been found resembling altered dikes of diabase and diorite, which cut beds of mica schist.

Glacial geology in the Matonipi Lake area offers abundant material for study, but is mentioned here only as it affects problems of prospecting and geological mapping. All hills within this district, between Pletipi Lake and the Riviere aux Outardes on the west and the Mushalagan River on the east, show well rounded outlines and a gentle curve. Rock outcrops are common on many of the hills, but with great irregularity. Boulder ridges that appear to be composed entirely of glacial debris sometimes disclose large outcrops of bedrock, particularly along the west side of Matonipi Lake. No outcrops are seen on other ridges where heavy timber and a deep carpet of moss conceal the bedrock, which might be exposed by stripping if favorable dip-needle readings were secured.

The direction of ice movement indicated by striae and the numerous eskers, varies from southeast to southwest. The glacial drift forms low ridges that traverse the country and interrupt the preglacial drainage system by damming back streams to form lakes. Evidence of arrested drainage can be seen in many

localities. The large lakes as well as those of smaller size appear to be generally shallow, and boulders are visible above the water in many places. Regarding the source of glacial boulders, Low states that more than 75 per cent are from the immediate neighborhood, although he found some erratics that were 150 miles from the nearest outcrop.

V

FIELD WORK NOW IN PROGRESS

For the first time our work was arranged so that all of us did not sleep in the same camp when, on May 22, three axe men started on a five-day trip for the purpose of extending our baseline four miles west, as far as Little Matonipi Lake. The work included cutting a series of six north-south traverses, each three-quarters of a mile in length, to the north boundary. Chaining along the north boundary was also done to tie-in all the north-south traverses. (The fly of our sleep tent was carried and used in making camp, which was used four nights. The food included egg powder, milk powder, rolled oats, ham, bacon, corned beef, bread, butter, peanut butter, tea and coffee, sugar.)

Only one trenching and sampling project had been undertaken up to June 20, although a large number of rock samples have been collected and grab samples for assay were secured from the following localities:

- HEMATITE: 4 samples of hematite from hill west of the large magnetite outcrops one-half mile west of the south-west end of Matonipi Lake.
- MAGNETITE: 5 samples from Portage Mountain, 4200 feet east of Matonipis Lake (the only deposit where old prospect trenches were found.)
- 6 samples from outcrop on the west shore of Matonipi Lake, 50 feet above the water (75 feet wide and 900 feet long, now exposed).
- 6 samples on portage to Little Matonipi Lake (referred to by Low.) Strike of ore east-west, 370 feet long and 280 feet wide, 6,550 feet north of Matonipi Lake:
- 3 samples of high-grade magnetite from outcrops over length of one mile north-south, located 500 feet east of hematite hill.
- 6 samples of high-grade magnetite from Barn Mountain, three miles southeast of Lac Laroque.

Location shown on map.

Our working schedule up to April 27, when the breakup started, was from 6 a. m. to 4 p.m. for seven days a week. In this period when the ground was concealed by a heavy snow cover our work was concentrated on cutting lines and taking dip-needle readings.

After the breakup working hours were changed to 7 a. m. to 5 p. m., although several trips were made when it was 9 p. m. or later before we returned to the base camp. Draughting and office work were done on the table in the sleep tent on stormy days when it was too wet to leave camp. The axe men on such days would work around the camp cutting wood, washing and mending, or baking and cooking a supply of food. In addition to the usual camp duties and line cutting, each of the axe men is experienced in digging trenches and stripping bedrock. It would be hard to find men better equipped than they proved to be for this type of work.

VI

BASELINE AND NORTH-SOUTH TRAVERSES

Thousands of readings have been made with the dip needle at stations located at 100-foot intervals along the miles of line that we have cut out and chained. These various lines form a pattern which is clearly shown on my series of detail maps.

In carrying on this program of line-cutting and dip-needle readings our preliminary work has included as much detail as time allowed. Before the breakup we concentrated on the large area between Lac Larocque (Lac aux Roches) on the east and our No. 2 Camp north of Matonipi Lake, on the Cohen River. After this we worked west as far as Matonipi Lake and the Little Matonipi River. Our move to the No. 3 Camp at the north end of Matonipi Lake permitted line-cutting to the west and allowed us to complete our prospecting over the area surrounding Little Matonipi Lake. Prospecting was also extended three miles north of the boundary and five miles to the south, in the area lying west of Matonipi Lake.

In the first two months of systematic field work, both surveying and exploratory prospecting were carried on with a thoroughness that ultimately made it possible for making discoveries that are believed to have very important possibilities in undertaking the exploitation of this area. The methods used in carrying on all work systematically lead me to believe that no evidence of iron-ore deposits has been overlooked in the ground that has been covered to date. All outcrops

have been plotted on the geological maps accompanying this report. Detailed notes have been prepared on localities examined both to the north and south of the surveyed boundaries of this large group of claims. 7

Good possibilities for ore deposition in the following areas are indicated in Dr. Low's report:

1. Little Matonipi Lake and south along the portage to Matonipi Lake.
2. West of Little Matonipi Lake to the Riviere aux Outardes, and to the north.
3. East of Lac Larocque to the Mushalagan River, and south of Lac Larocque along the strike of Barn Mountain.

If time is available this summer for investigating these areas it is planned to undertake systematic prospecting and to prepare outcrop maps to show the location of any discoveries of iron ore. It is also proposed to carry on exploration south of Matonipi Lake and to the north of Little Matonipi Lake, where outcrops of magnetite were seen from the plane.

VII

DIP NEEDLE AND MAGNETOMETER RECORDS

Dip Needle readings gave strong indications of magnetic attraction in only one section within the surveyed boundaries of the property, along the portage to Little Matonipⁱ/_A Lake. To the south of the property boundary a strong magnetic attraction was shown along the portage between Matonipis and Matonipi Lakes and near the southwest corner of Matonipi Lake over outcrops of the extensive bodies of magnetite.

As a result of the large number of dip needle records secured, the normal readings were found to range from 68° to 75° . In the course of readings at 100-foot intervals along the baseline, high values were secured when I first worked over an area extending west from the west shore of Lac Larocque for a length of 1,100 feet. The sixty-two highest readings (82° plus) over this ground were viewed with suspicion, in strong contrast to the great majority of the "normal" values of 75° or less. It was decided to check all readings in excess of 82° . I then used the dip needle a second time for readings at identical stations where distortion, due to unknown causes, seemed to account for the erratic values.

Definite and positive dip needle records were secured along thirteen sections of line in the vicinity of Lac Larocque, following the baseline. Each section represents two to ten setups with the instrument at 100-foot intervals. The original readings made and the several locations are listed below:

Baseline SF traverse 66+00 (see No. 7 Map Sheet)

1 mile plus 800 feet	85° and 82°
1 mile plus 1500 feet	85, 82, 82
1 mile plus 2000 feet and 28000 feet	85, 82, 85, 85
1 mile plus 3000 and 3300 feet	85, 87, 83, 85
1 mile plus 3500 and 4400 feet	90, 90, 90, 87, 87, 85, 85, 90, 90, 90, 85, 90
1 mile plus 5100 to 5200 feet	90, 85
2 miles plus 40 to 440 feet	85, 90, 85, 88, 90
2 miles plus 840 to 1440 feet	90, 82, 90, 90, 85, 85, 90, 85
2 miles plus 1700 to 2000 feet	90, 90, 90, 88
2 miles plus 2400 to 2900 feet	90, 90, 90, 88
2 miles plus 3100 to 3200 feet	
(200 feet west of west shore of Lac Larocque)	
Station "A"	85, 88
N-S traverse to south shore of Lac Larocque	
1200 to 1300 feet south of Station "A"	86, 82
2100 to 2285 feet south of Station "A"	90, 90, 85

An explanation for these high readings is something I am not prepared to offer. When I used the dip needle a second time over approximately the same ground, with setups placed along a special grid, a uniformly low reading of 70° was secured at every station without exception. At the time the first readings had been taken the ground was covered with about four feet of snow, which had almost completely disappeared when I went back for the check readings. Wherever examined in this area, the bedrock is found to be composed of feldspar, quartz, and mica. The typical biotite-gneiss was found to make up several large outcrops near the baseline west of Lac Larocque, where these conflicting readings were made. The high dips that had been recorded while the snow was on the ground had encouraged me to expect an important concentration of magnetite. In my report on the Matonipi

Lake area (see Mo. 4 Map Sheet) are shown dip needle readings representing the magnetite outcrops found along the portage to Little Matonipi Lake. This set of readings I believe to be the only indication of iron-ore concentrations found within the surveyed claims.

VIII

PREPARATION OF MAPS

A series of maps accompanies this report on reconnaissance work and the dip needle survey conducted over the surveyed property. This set of maps has been traced by J. E. Roy, draughtsman on the staff of Canadian Industries Limited. It is proposed to add further details to the fourteen map sheets that have now been prepared, as information is made available by our continued field work. This set of maps may be described as follows:

- No. 1: Location Map showing the 40-square mile property of Quebec Explorations Limited (12 x 12 inches; scale: 8 miles to 1 inch.)
- No. 2: West Half of Property, showing the baseline, north-south traverses, and camp sites, the six detail maps being indicated by key numbers (20 x 30 inches; scale: 2640 feet to 1 inch.)
- No. 3: East Half of Property, showing baseline, north-south traverses and camp sites, the six detail maps being indicated by key numbers and ground to the south proposed for staking being shown (20 x 30 inches; scale: 2640 feet to 1 inch.)
- No. 4: Block Two Miles Square at West End of Property, showing geology, dip needle readings, and topography (30 x 30 inches; scale: 400 feet to 1 inch.)
- No. 5: to No. 13: Each map shows a block two miles square, including two blocks at the east end of the property where it is proposed to stake 128 additional claims (30 x 30 inches; scale: 400 ^{feet} to 1 inch.)

No. 14: Block Four Miles Square south of property boundary, showing Barn Mountain magnetite (30 x 30 inches; scale: 800 feet to 1 inch.)

No. 15 and No. 16: Map sheets projected (scale: 800 feet to 1 inch) showing location of Iron Mountain hematite and magnetite deposits, west of Matonipi Lake, and the Portage Mountain magnetite deposit east of Matonipi Lake. The preparation of additional map sheets will be undertaken where necessary as the field work continues.

The Pletipi sheets of the National Topographic Series, corrected to April 1, 1947, has been used for regional controls in the map work indicated above. The Topographic Series uses a scale of eight miles to the inch. The block of surveyed claims is shown on a series of four maps (brown line prints) issued by the Quebec Department of Mines and dated January 19, 1948 (scale: $\frac{1}{2}$ mile to 1 inch.) The four townships in which the surveyed property is located are designated by the numbers *BLANCHIN, PINET, DIDON* *SENECAL* 2144, 2145, 2045, and 2046. Matonipis and Matonipi Lakes are shown (but not named) on the geological map dated 1929 representing the New Quebec Territory, formerly District of Ungava, on a scale of 35 miles to 1 inch.

IX

RESULTS OF FIELD WORK

Under postwar conditions affecting both labor and supplies, the search for iron ores, as well as other materials, has favored the development and production of orebodies of large size, whether or not of good grade. Large properties have the far superior advantages over small mining operations of

- (1) low requirements of labor per unit of output; and
- (2) chances to amortize the excessive capital requirements. Both conditions apply with special significance to the Matonipi Lake district, due to its isolated location and the heavy expenditures to be involved in arriving at the production stage.

My field work on this very large property has not reached the stage where ore dimensions can be even approximated. The success so far attained is regarded as offering excellent promise for the results awaiting the continued study of this whole Matonipi-Pletipi district. Information to guide intelligent prospecting efforts should consist of locating surface exposures of iron ore within this general area, to follow the detail geological mapping which will show the kind of rocks and their boundaries and attitudes and major structures. My field party has not been able to travel very far afield during the few weeks since the breakup, but the experience gained can be used as the basis for certain recommendations that should prove of considerable value to the New Quebec Explorations Limited. It is my belief that an important beginning has been made for a project having possibilities that are very great.

Among the purposes of the program being

conducted in the Matonipi Lake area the following are mentioned briefly:

1. The preparation of reasonably accurate topographic-geologic maps on a scale of 400 and 800 feet to the inch, tied-in to survey lines that form the outside boundaries, and a baseline running through the central portion of this 40-square mile property. Our first attempt has made it possible to make an excellent start on the mapping, which should be continued in as much detail as possible at least until October 1.

2. I have not yet been able to secure any information on previous work attempted in this new mineralized district except for the rapid reconnaissance referred to previously. On this basis I feel quite confident that my own observations of stratigraphy, structure, and igneous history of this region are probably the most detailed yet to be made, and should be useful as a starting point for a serious test of the commercial chances, as discussed below.

3. Throughout this iron-ore district it should be the purpose of our detailed studies to describe (1) rock relationships; (2) ore structure; and (3) genesis. The geological investigation I have started should have the following practical objectives: (1) Testing known ore occurrences. (2) Tracing their continuity laterally and at depth, by means of diamond drilling. Next winter there should be undertaken a microscopical study of the ore minerals found here. This would provide information on ore grade, and on the successive milling ^{and} metallurgical products which may be available. At present, ore minerals collected consist of a series of twelve samples of high-

field work.

In addition to the outcrops of iron ore located within the last three weeks, our program included chaining a baseline and a series of north-south traverses for the purpose of tying-in the surveyed claims that comprise this property. Thousands of dip-needle readings have been completed to date. The heavy snow averaged about four feet in depth, which made it impossible for me to locate bedrock except in one locality only, to the north of Cohen Lake. In the subsequent breakup period, ice-bound lakes and flood water in the swift-running streams severely restricted our work from May 10 to about June 1.

On June 15 and 30 the Norseman plane from Roberval took me on flights over the surveyed claims where our lines had been run, and I was able to detect no outcrops that had been overlooked in the course of my ground mapping. In my opinion, the surveyed ground has been mapped in sufficient detail to permit locating all outcrops within the surveyed boundary of these claims. The large number of dip-needle readings was adequate to detect any magnetite deposits that might be concealed by overburden. Considerable work was carried on outside the property boundaries, both to the north and south. Promising areas not yet investigated lie to the east as far as the Mushalagan River and to the west as far as Pletipi Lake and the Riviere aux Outardes.

The maps submitted with this report were based on geological work performed up to June 20. Dip-needle data were secured along a large number of traverses at 400-foot intervals, supplemented after May 10 by observations that were made along the baseline, along the north and south boundaries, and by retracing many of the north-south traverse lines.

grade magnetite ore from Barn Mountain, Iron Mountain, ^oPortage Mountain, and the Little Matonipi Lake portage localities in the vicinity of Lac Larocque and Matonipi Lake. A series of hand specimens of gneiss and pegmatite was also collected.

4. Structural study, which in Canada and the United States "unquestionably has found more ore to date than all other phases of geological work combined", is required in the Matonipi Lake district to determine areas of permeable rocks where channelways have been developed. In hunting for ore within this section, in studying the problems of ore occurrence, it will be important to include chemical, mineralogic, petrographic, and mineralographic studies.

5. Examination and appraisal of these extensive iron-ore prospects will depend on surface trenching and stripping away the moss over an area as large as possible. My first work at Barn Mountain has indicated where very useful information can be secured by means of a series of diamond drill holes. It would be reasonable to expect that such a method will lead to blocking out high-grade portions of the orebody at Barn Mountain and also in the ore deposits to the west of Matonipi Lake. If our work can be continued through the summer there is an excellent chance that other deposits can be brought to light.

I believe the Barn Mountain and Iron Mountain discoveries on ground located to the south of these surveyed claims will give sufficient encouragement, following detail work and sampling, to speculative capital for undertaking the financing of a development program on the substantial scale that is going to be required in exploiting this area in a methodical

manner. Within three months it should be possible for me to secure additional information of value in appraising the commercial possibilities of this area.

The hematite and magnetite deposits discovered to date in considerable volume were the result of prospecting activities carried on for a period of only three weeks, following the breakup. There are indications that ore occurrences will be found to be much more extensive, as this program continues, since the maximum length so far inspected covers a length of less than twenty miles compared with the total length of forty miles, as mentioned by Dr. Low.

Transportation from this area presents no difficulties for railroad construction. Climate and other conditions are more favorable than the conditions prevailing in Labrador.

A market for iron ore is believed to be assured on the St. Lawrence River and on the Atlantic coast of the United States, with possible market outlets available in Western Europe. Construction of the St. Lawrence Deep Waterway would also open a large market in the central United States. The distance from Comeau Bay to Lake Erie ports is less than 100 miles greater than from Lake Superior iron-ore district; ^{this} might provide the most important potential outlet for the Matonipi ores. High-priced ore imported from Sweden and Brazil is not expected to be a competitive factor for ore produced either in Matonipi or Labrador.

In view of the successful results secured from this preliminary field work, and the favorable possibilities for discovering very substantial additional iron ore, I would recommend

that New Quebec Explorations Limited concentrate without delay in securing full information on the potential iron-ore resources of this Matonipi-Pletipi area. Should results continue to prove favorable, it might be possible to advance work to the stage where ore production might be secured by the time shipments of the new Labrador iron-ore can be made available at tide water.

The Kennecott Copper Corporation presents a competitive factor in its plan for a \$50 million program to develop the titanium-bearing magnetite twenty-five miles north of Havre St. Pierre, with a processing plant and blast furnaces to be erected near Three Rivers. This major iron-ore and titanium project must be considered in drawing up plans for proceeding with the Matonipi-Pletipi program, although it is possible that additional field work will show the Matonipi area to offer advantages surpassing those of both Labrador and Havre St. Pierre. Railroad construction north from both Seven Islands and Havre St. Pierre is expected to be stated ^r next year. The competitive position of the Matonipi area will be strengthened if exploratory work can be advanced with all possible speed.

X

RECOMMENDATIONS

First: Additional staking at the east end of the property should be done for the purpose of protecting the assumed strike north of the Barn Mountain iron-ore deposits for a length of another two miles. This would extend the property to within about four miles of the Mushalagan River, in the vicinity of the section described by Low as follows:

"Large masses of similar ore were also seen on the Mouchalagan River, so that it appears that this deposit may be traced more than 40 miles along the strike...The quantity of ore seen is very great, as the band is more than 100 feet wide."

Additional staking is also warranted for a length of at least three miles to the southeast of Lac Larocque to include all of Barn Mountain and as much additional ground as possible. Staking is also warranted from the portage between Matonipis and Matonipi Lakes along the west side of Portage Mountain. It may be found advisable to stake additional ground south of the hematite-magnetite deposits near the base of Iron Mountain. A large number of Miner's Certificates will be required if these recommendations are to be carried out.

Second: Several deposits of magnetite and one large hematite deposit are known to occur within the belt of rock that extends west from the Mushalagan River to a point probably not more than ten miles to the north of Pletipi Lake. It is my purpose in this program now in progress to locate and study as many of these deposits as time permits, the information to serve as a guide to additional staking and to preparing recommendations for additional

Third: Rugged topography in the Mushalagan River area and westward across this property makes it essential to extend the field season this year as long as possible. As now planned, the exploratory work will include extending our preliminary survey across the entire length of 40 miles, from the outcrops of iron ore on the Mushalagan River, as Low reports, and westward to the "burning mountain." It is estimated that this mountain is located about 20 miles west of Matonipi Lake and near the Riviere aux Outardes, at a point about ten miles north of Pletipi Lake.

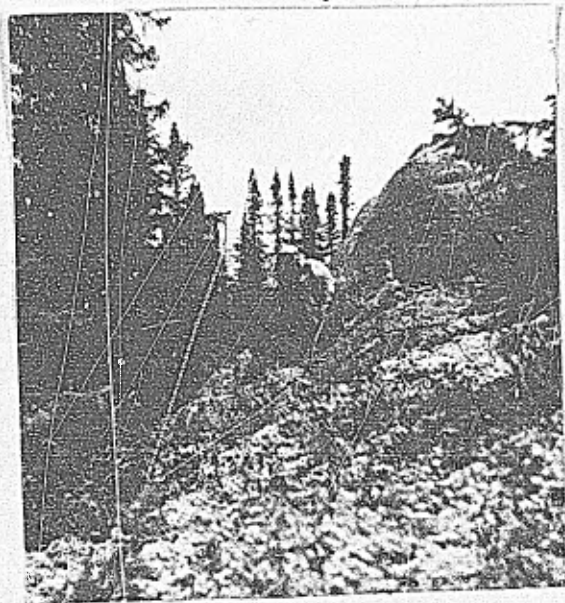
By concentrating until October on reconnaissance mapping and sampling all mineralization located, it will be possible to check the various ore deposits that have already been discussed.

Fourth: The geological staff that should be organized to carry on this exploratory effort in 1949 and subsequent years would embrace the following objectives: (1) Undertake mapping procedures. (2) Use the dip needle over a large area, supplemented by the magnetometer. An airborne magnetometer would offer probably the most attractive possibility for discovering any major orebody that may not be found exposed on surface. The use of an airborne magnetometer in this scantily known region would have the added advantage of returning information rapidly and dependably.

To allow time adequate for carrying on an undertaking of such importance, it is possible that the Quebec Department of Mines would cooperate by withdrawing ground from staking over a considerable area adjoining the 25,647 acres now held under license by the New Quebec Explorations Limited. Such withdrawal from staking might be for a period of two years in order to permit the interpretation of magnetometer results and

for acquiring additional ground, either as mining claims or as a mining concession.

Fifth: The recent discovery of high-grade magnetite and hematite in what are believed to be very extensive deposits has been described in some detail above. I believe the location of this series of deposits, so close to the area originally described by Low and yet apparently unknown until now, strengthens my recommendation for an airborne magnetometer survey over as large an area as might be protected by the New Quebec Explorations Limited.



1 - 3 Magnetite outcrops along the two-mile portage from
Matonipi Lake to Little Matonipi Lake, as discussed
in the 1895 report by Dr. A. P. Low.



4 - 6 Barn Mountain (top, left, seen on skyline at left).

Stripping moss from magnetite and taking samples

100 feet below the summit of Barn Mountain. Lower

left is view northeast from the summit of Barn Mountain.



7 - Iron Mountain, west of Matonipi Lake.



8 - Iron Mountain seen from the north end of Matonipi Lake, at the No. 3 Camp.

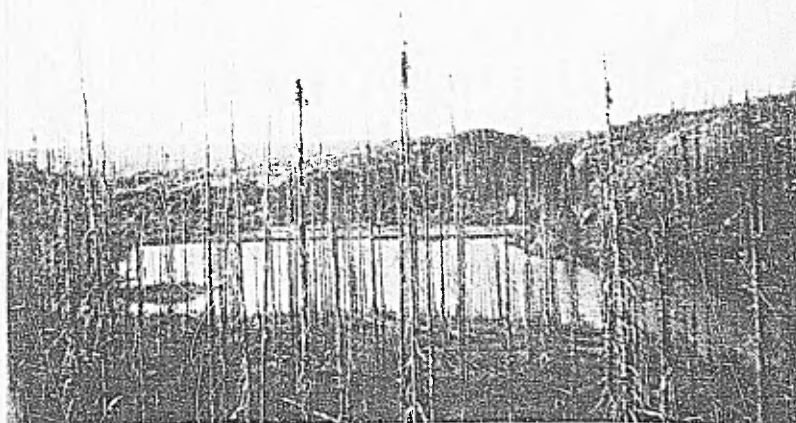


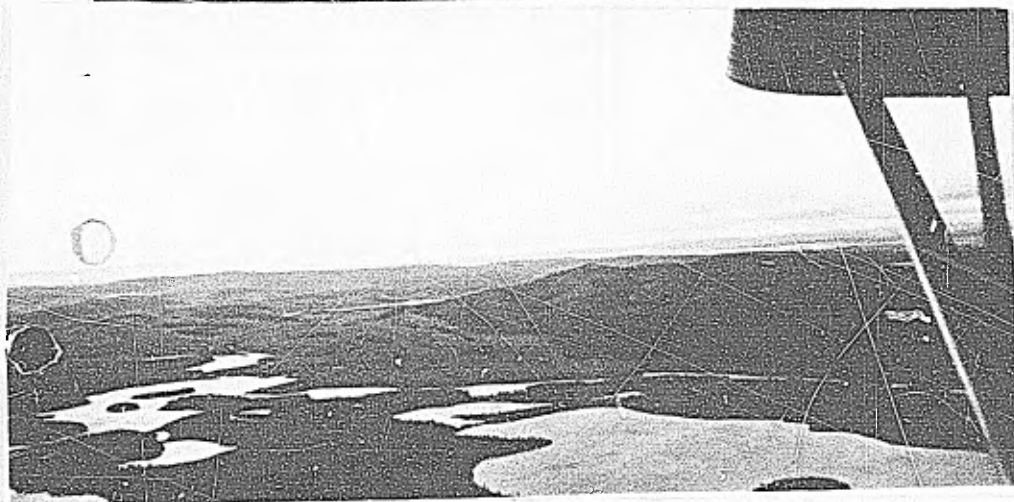
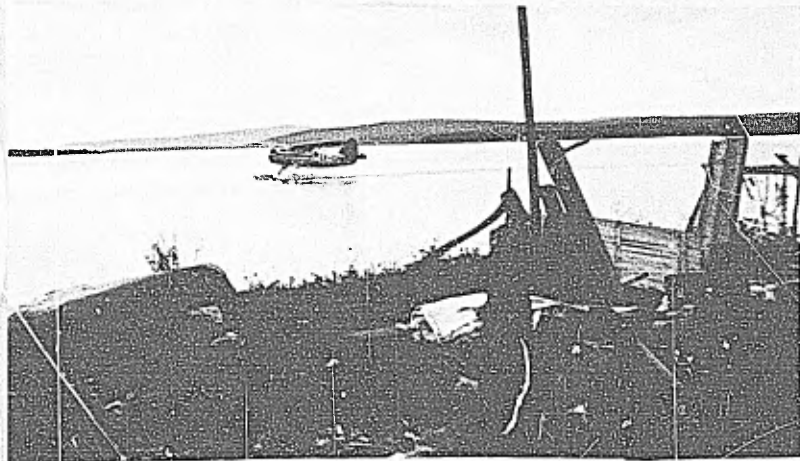
9 - Iron Mountain seen from the canoe on Matonipi Lake.



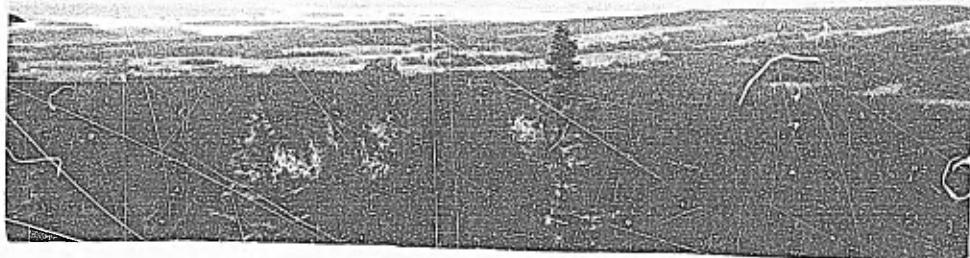
10 - Iron Mountain seen from the old portage at north end of Matonipi Lake.

11 - Outcrop of magnetite near the base of Iron Mt., looking south from the south boundary.

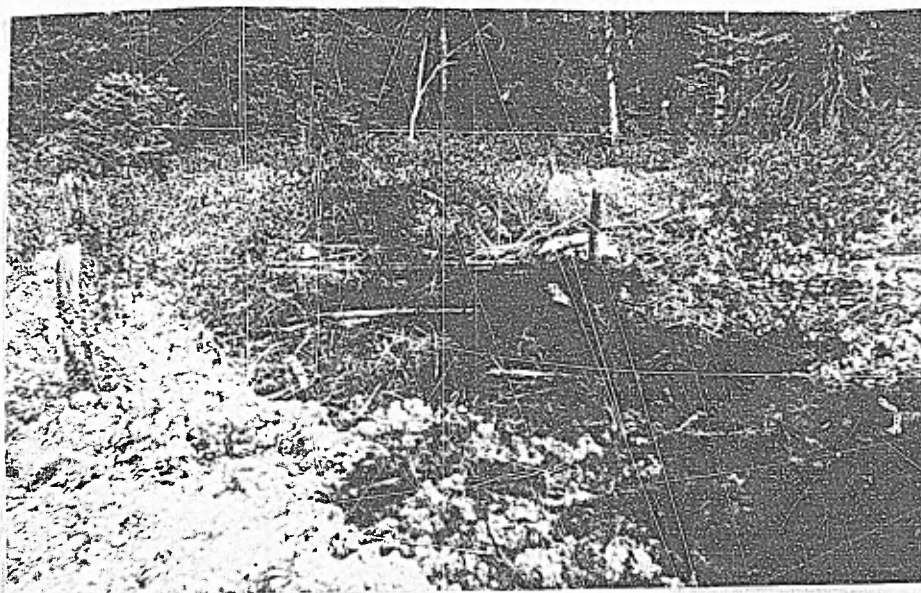




12 - 16 Plane landing at the
No. 3 Camp, Matonipi
Lake. Air views of
Matonipi Lake.

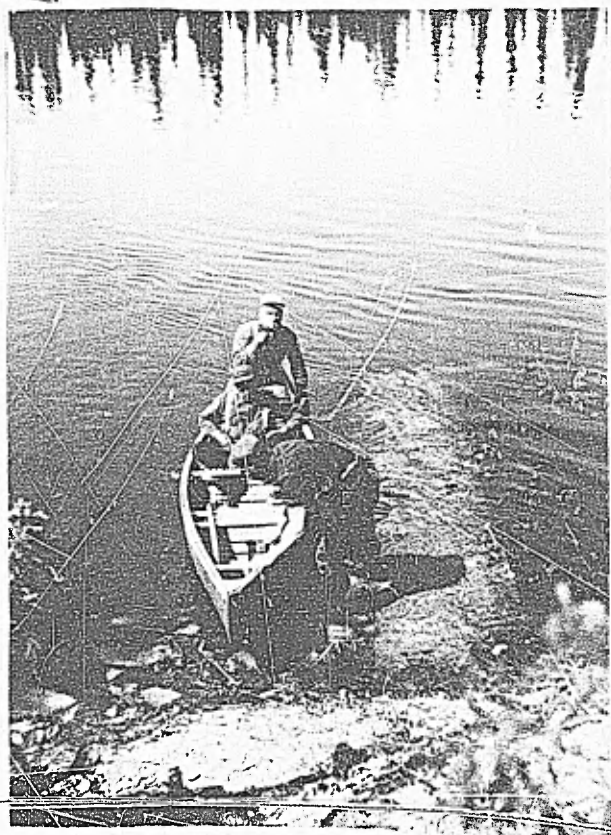
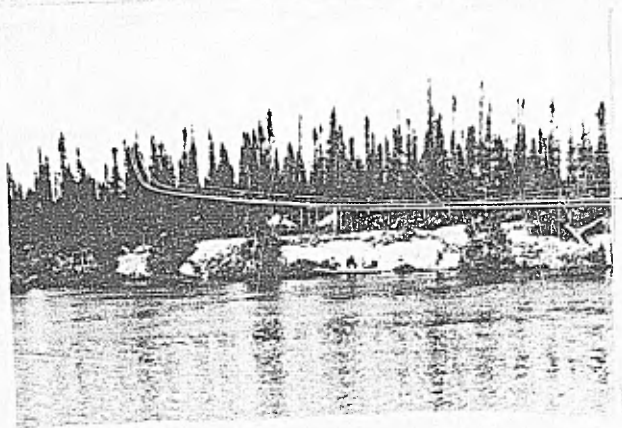
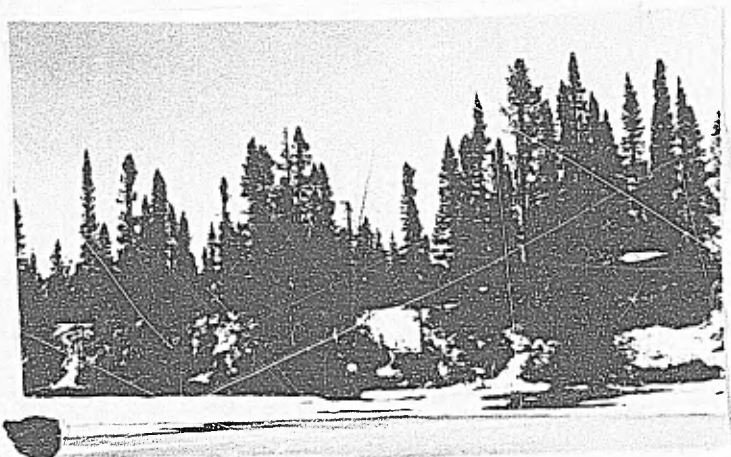


17 - 19 Lac Larecque, looking
east from the property
boundary. Views of
Indian camp sites, 25 to
50 years old.

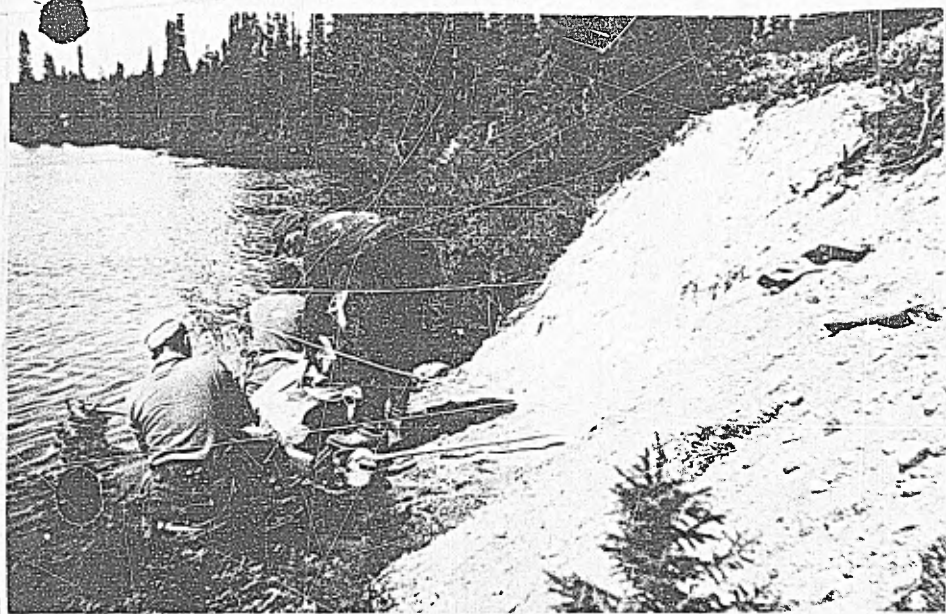


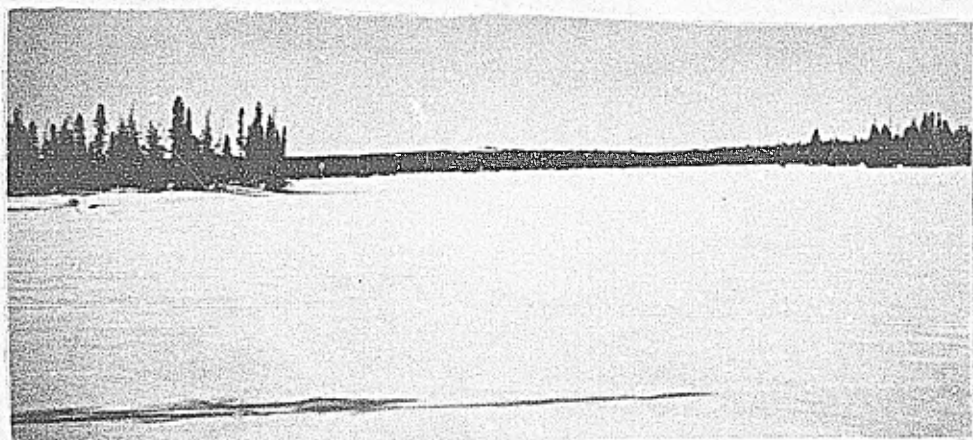


20 - 23 Trenching and stripping bedrock (mica-gneiss), near the north boundary of the property (top). Gneiss outcrops (center and bottom). Cutting the baseline through a heavy growth of spruce.



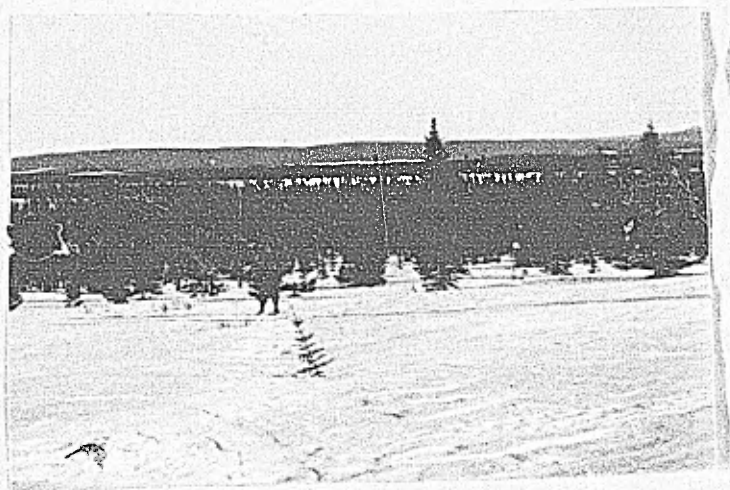
39 - 43 The No. 2 Camp
on the Cohen River.
Loading the canoe for
our move to Matonipi
Lake.





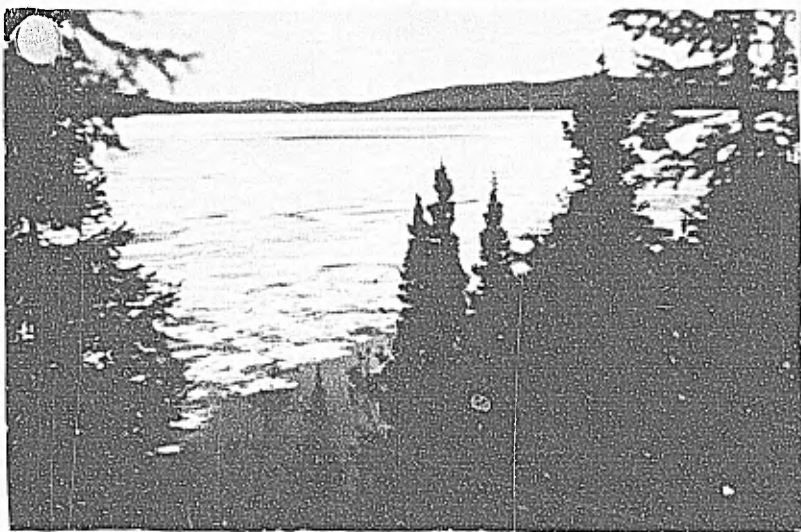
- 47 Views of Lac Larocque
while the dip-needle
survey is in progress,
March, 1948.





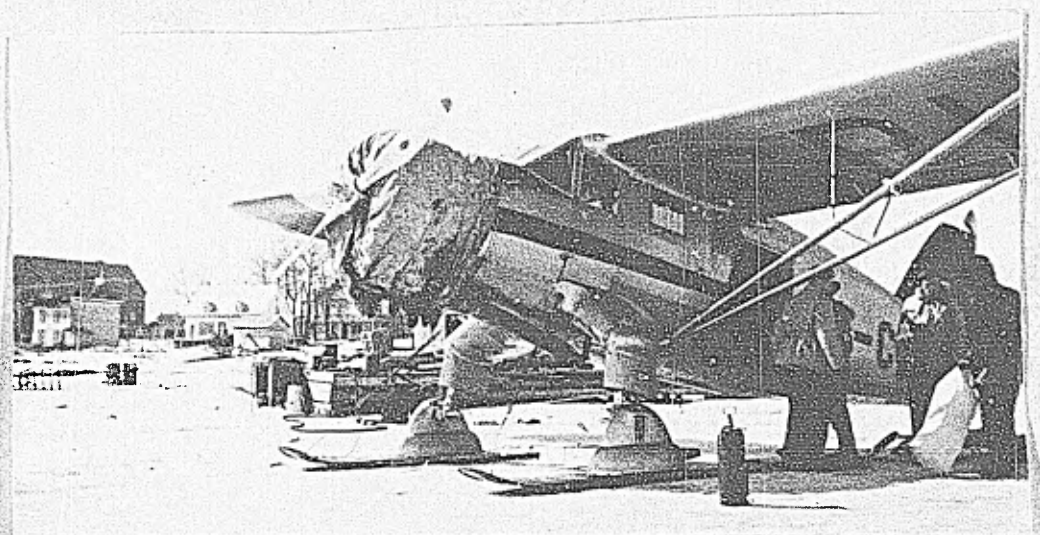
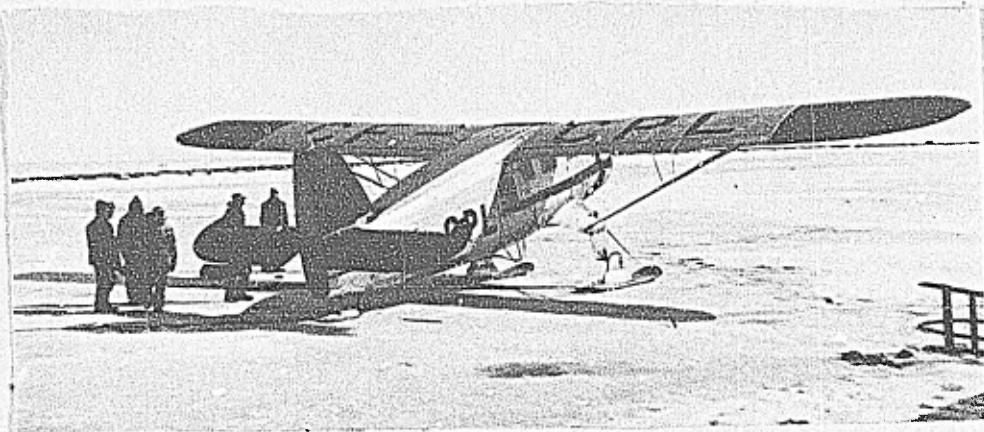
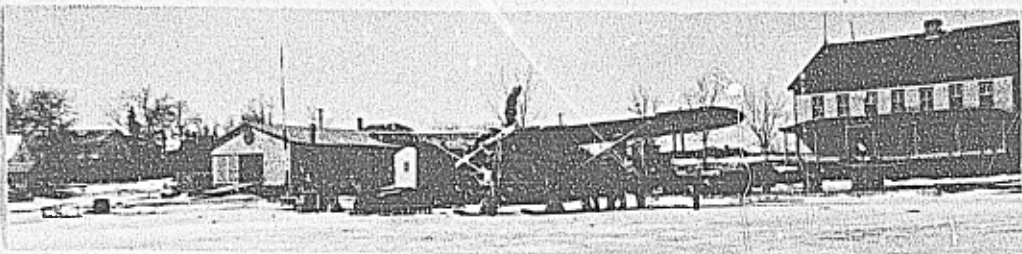
48 - 51 Men cutting the
~~XXX~~ baseline preliminary
 to taking dip-needle
 readings.



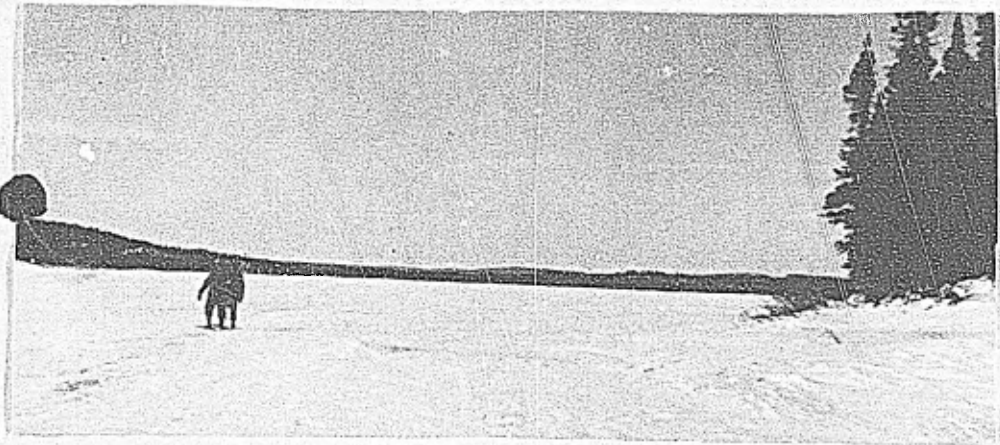


52 - 55 The breakup on the
Cohen River (May 10 to
June 2, 1948). Ice in
Matonipis and Matonipi Lakes.

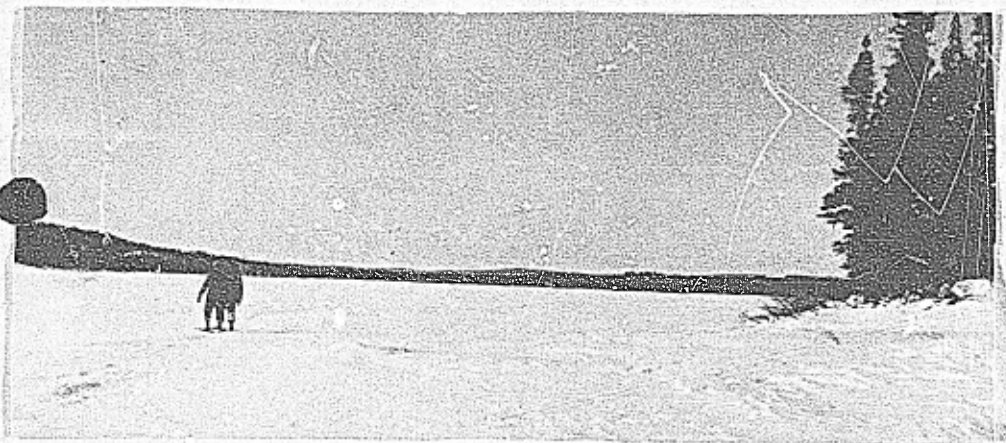




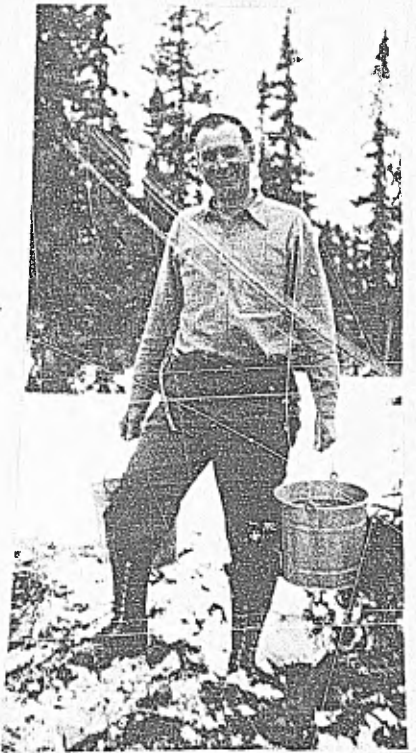
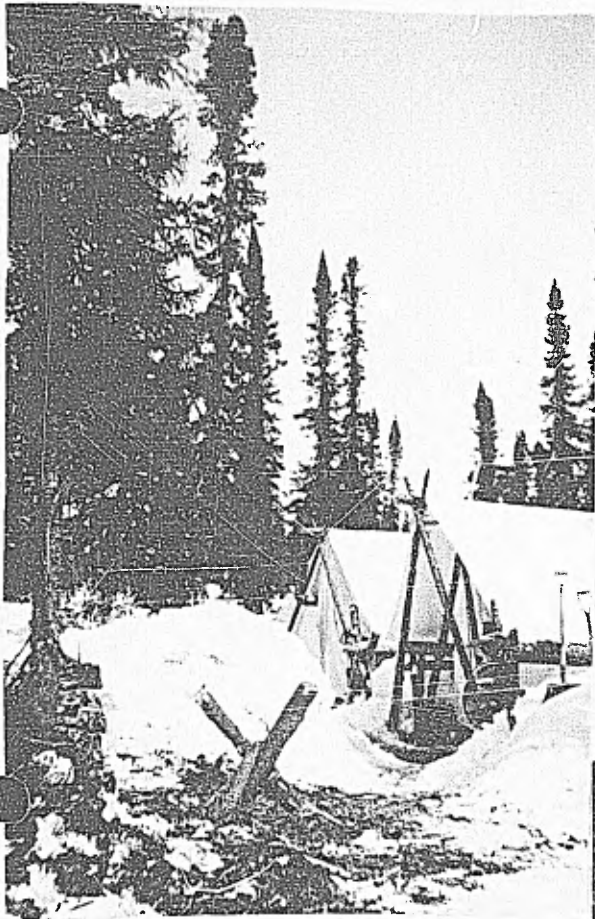
24 - 27 Roberval airbase, of Mont Laurier Aviation Company Ltd.,
views winter and summer of 1948. "Red" Lymburner, president,
in shirt sleeves (bottom).



28 - 30 Freight landed by plane at the No. 1 Camp on the north shore
of Matonipis Lake. The snowshoe trail leading up the Cohen
River to the No. 2 Camp (bottom view).

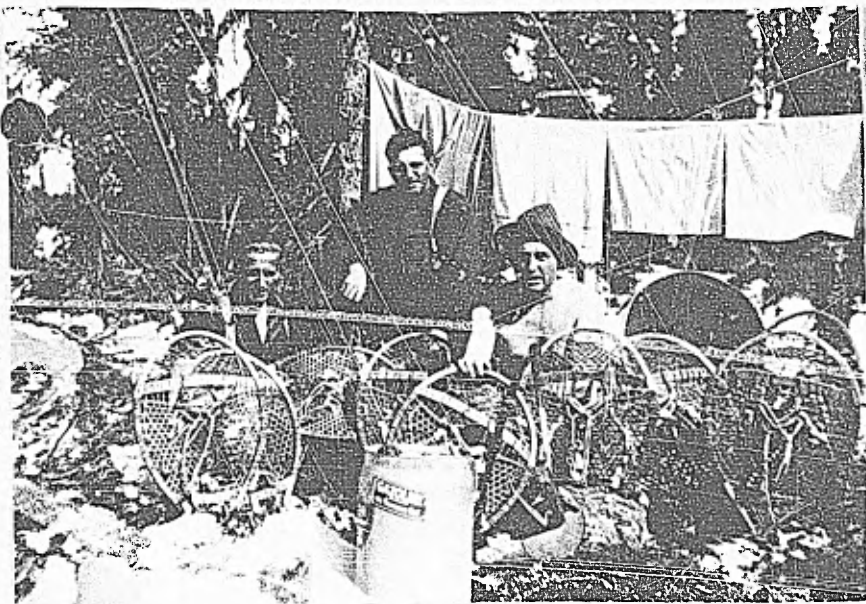


28 - 30 Freight landed by plane at the No. 1 Camp on the north shore
of Matonipis Lake. The snowshoe trail leading up the Cohen
River to the No. 2 Camp (bottom view).



31 - 34 The No. 2 Camp on the
Cohen River. Sleep tent (left)
and cook tent.





35 - 38 Views of the No. 3
Camp, water hole on the
the Cohen River, and the
first open water,
May 5, 1948.

