

# GM 00408

REPORT ON THE FENIMORE IRON MINES CONCESSION

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**PUBLIC**

REPORT ON THE FENIMORE IRON MINES (NEW QUEBEC) CONCESSION

Ministère des Richesses Naturelles Québec  
SERVICE DES GITES MINÉRAUX  
No GM- 408

21st October, 1948.

G.W. MOORE  
MINING ENGINEER  
TORONTO, Ontario

REPORT FOR 1948

ON THE

FENIMORE IRON MINES LIMITED CONCESSION

NEW QUEBEC

LOCATION (Refer to Map No. F-4)

The Fenimore Concession is located in the northern part of New Quebec and is composed of two blocks of land which are approximately sixty and ninety miles south-west of Ungava Bay.

The western block, called Block "A" is approximately 325 square miles in size and lies along the Larch River. The eastern block, called Block "B" covers an area of approximately 123 square miles and lies along the Koksoak River.

The tide runs up the Koksoak River to a small rapids less than six miles from the eastern boundary of Block "B".

The two Fenimore Blocks are separated by the northern portion of a Concession now being explored by The Quebec-Labrador Development Company.

Fort Chimo is the nearest habitation and is a small Hudson's Bay Company Post on the Koksoak River about 47 miles north-east of the Fenimore Block "B". The population of Fort Chimo is around 200, and is composed mainly of Eskimos and Indians who live in tents. About five miles upstream from Fort Chimo is a small U.S. Air Force Base where about 200 Air Force personnel are stationed.

TOPOGRAPHY

The country is composed of a succession of barren ridges running inland north-west and south-east from the main river valleys. The hills on Block "B" are higher and more rugged than those on Block "A". The two main rivers are the Koksoak (Eskimo for Big River) which averages three quarters of a mile in width, and is normally eight to ten feet deep, and the Larch River, about one quarter of a mile wide and averaging two to three feet in depth. These rivers have a current of about five miles an hour and the Larch especially has many gravel shoals that make navigation difficult.

Both rivers lie in flat sandy valleys with the shores sloping inland gradually for one half to one mile, after a fairly steep river bank twenty-five to fifty feet high. The land then rises quite abruptly for five hundred to one thousand feet, then flattens off on the barren highlands. The going on this higher open county is usually very good.

TOPOGRAPHY (Cont'd)

The valleys are well-wooded with many small spruce and tamarack (Larch) trees up to six inches in diameter; also a few scattered balsam poplars.

Very few swamps occur on Block "B", but on Block "A", particularly on the south side of the Larch River, there are many large wet swamps.

Rock outcrops are abundant over about one half of the Concession.

CLIMATE

The weather this season was certainly good with very few days work lost through rain. The days were generally bright and clear with occasional scattered showers. The nights were cool (45 - 50°) with the temperature dropping to 30° at the end of August.

From general reports considerable cool misty weather can be expected especially in the spring and fall, but the overall precipitation is evidently not great. The winters, while reported to average 10 - 12° below zero in January and February do not evidence the extreme low temperatures found further south in other parts of Canada. The snowfall is not likely to be heavy judging by the rainfall, but no data is available on this at present.

The summer prospecting season is short as the ice does not leave the lakes until towards the end of June. Around the middle of September the weather generally turns bad and snow arrives on the hills to stay. One can, therefore, count on a maximum of three months for prospecting field work. It is however, believed that more advanced mining operations could be carried on satisfactorily the whole year through.

FISH AND GAME

The small rivers abound in fair sized brook trout and the larger rivers have many large speckled trout which are delicious eating. A few ouaniniche (land locked salmon), pike and suckers are also present. A record was kept of the length of some of the speckled trout caught and thirty-six of them averaged twenty inches in length and would probably weigh four pounds.

Caribou, moose and deer are not seen in this area. The barren land caribou evidently changed their feeding grounds about fifty years ago.

There are considerable ptarmigen (partridge) on the higher barren lands and a few ducks are usually seen along the larger rivers. One flock of twelve Canada Geese was seen this summer and stayed about a week some ten miles down the river from the Koksoak Camp.

FISH AND GAME (Cont'd)

Only two bears were seen this season, although there were many tracks in evidence. A few otter, mink and wolverines are present but the trapping would not appear to be good. The black flies, mosquitos, and deer flies were bad in July, but were not very bothersome the rest of the season.

HISTORY

Attention was drawn to this section of the country by statements made by Canadian Government geologist, A.P. Low, in his 1896 report on the Labrador Peninsula. In this report, Low states the following concerning the "jaspilite" boulders he found on the Larch River:-

"Among the angular blocks, the largest and often most numerous, are composed of jasper and iron ore; in many, the jasper is not abundant and the blocks are almost pure magnetite or a mixture of magnetite and hematite forming a valuable ore, very similar in character and composition to that of the extensive areas found on the Kaniapiskau and Hamilton Rivers."

An expedition was carried out by the Labrador-Ungava Prospectors Limited under the direction of Cyril Knight in 1929-30-31. They concentrated their efforts almost entirely on four large sulphide bodies which are located north-west of the Fenimore Block "B". The nearest sulphide body is two miles north of the Fenimore Concession.

The following are some figures concerning these sulphide bodies given in Cyril Knight's 1931 report:-

<u>Length</u>	<u>Average Width</u>	<u>Assay Results</u>
3,700 '	60 '	54 grabs averaged .73% Cu., nil Au., and Ag.
10,000 '	60 '	1 grab ran .73% Cu., .01% Au., and nil Ag.
2,000 '	60 '	no assays.
2,000 '	75 '	2 grabs averaged 1.17% Cu., .01% Au., and nil Ag.

The Labrador-Ungava Company considered that the deposits were too low grade to be of economic importance at that time, but they thought that the deposits would be "further investigated when the price of copper improves".

HISTORY (Cont'd)

Such proved to be the case and the Frobisher Exploration Company examined these deposits and also discovered others in this area during the summer of 1945. Their assay results were uniformly low grade and would possibly average as follows:-

Au. - .01oz., Ag. - .02oz., Cu. - .05%, Zn. - .45%.

The conclusion arrived at from this work was that the grades were too low to be of economic importance. It was considered, however, that any slight change in the mineralization either laterally or at depth might change these zones into commercial ore bodies.

Prior to the exploration of the iron formation done by Fenimore in 1948 no attempt had been made to investigate the iron formations in this area.

AERIAL PHOTOGRAPHY (Refer to aerial photographs in appendix A)

The entire Concession was photographed from the air towards the end of June by the Photographic Air Survey Limited, of Toronto. The photographs are on a scale of one inch to two thousand feet and first sets of prints were obtained at Fort Chimo on July 19th. An excellent job was done on these photographs and they proved to be of inestimable value for the following reasons:-

1. Traverses could be planned ahead and swamp or drift covered areas avoided, thus eliminating much unnecessary and difficult traversing of these areas.
2. Field mapping was greatly facilitated by carrying prints of the photographs and plotting geological information, etc., on sheets of tracing paper over the prints. Ordinarily, much surveying would have been done in establishing traverse control. It was very easy by using these photographs to pinpoint positions on the traverses from time to time and thus plot traverses and rock locations accurately.
3. It was possible to compile fairly accurate area maps from laydown mosaics (groups of photographs).
4. By using a stereoscope it was possible to bring out and study topographical features. Many of these features are shown on the accompanying area maps, No's. F-1 and F-2.

OBJECT OF THE SEASON'S WORK

1. To explore and map the entire Fenimore Concession in a preliminary fashion with the aid of aerial photographs thus determining whether the interesting iron formations found further south occur on this property.
2. To locate "jaspilite" boulders mentioned by A.P. Low in his 1896 report and to try to discover their source.
3. To explore and sample the sulphide bearing sediments in the western part of Block "B" in the hope of obtaining higher copper, zinc and possibly nickel values than those found to date in the sulphide bodies to the north-west of Block "B".

PERSONNEL

The Fenimore crew was composed of the following:-

- 2 Experienced prospectors.
- 2 Student assistants.
- 1 Cook.
- 1 Handyman.
- 1 Engineer in charge.

The field exploration was carried out in pairs, a prospector with each student assistant.

The handyman accompanied the writer on his trips and the cook, an experienced bushman, also helped out on these traverses.

The use of a cook for this small party proved to be highly advantageous as the men were able to spend more time on the important field explorations.

FIELD EXPLORATION AND GEOLOGY

Work was carried on from June 27th to September 6th. The shortness of the prospecting season was necessitated by the late "break-up" and early "freeze-up" that occur in this particular part of the country. The Fenimore crew was flown to the Koksoak River by Canso Aircraft from Roberval on Lake St. John, Quebec. The trip covered 650 air miles and took about five hours. It was hoped to land on the Larch River and start work on the western Block "A" but the water was found to be too shallow for the Canso to land. Work was therefore started on Block "B" along the Koksoak River and preliminary traverses were run there until July 21st when the party was moved up the Larch River and work commenced on Block "A". The exploration work done on Block "A" will be described first due to the important iron formation discoveries made there this season.

Exploration of Block "A"

A preliminary reconnaissance flight was made over this area on July 7th and showed "gossans" (heavily oxidized areas) to be present on both sides of the Larch River. When field exploration was started on this area, the information gathered from this flight was instrumental in the quick discovery of iron formations.

The "jaspilite" boulders on the Larch River found by A.P. Low in 1896 and mentioned under "History" earlier in this report, were located soon after starting work on Block "A". These boulders occurred mainly along the south shore of the Larch River close to a rapids, now called Camp Rapids due to its proximity to our Larch River Camp. (See map No. F-1 for the location of these boulders).

The "jaspilite" is a mixture of banded jasper, hematite and some magnetite and is similar to the "hard ore jasper" of the Marquette Iron Range.

The next objective was the determination of the source of these "jaspilite" boulders. Accordingly, a hill about one and one half miles south-west of Camp Rapids was visited. "Gossans" were observed on the south side of this hill from the air and it is now called Gossan Hill.

Examination of this hill proved a large area of iron formation to be present on the southwest part of the hill. This iron formation consisted mainly of siderite with bands of chert all much broken and weathered. In this iron formation are also many bands of "jaspilite", similar to the boulders found around Camp Rapids. These bands of "jaspilite" vary in width up to at least one hundred feet and are much distorted by intense folding. As can be seen by referring to map No. F-1, the iron formation has a horizontal width of at least 1,000 feet and is exposed for a length of over 4,000 feet along the side of Gossan Hill. No idea can be given at present of the true width of the iron formation as it runs into overburden on the south and west sides of the hill. The intense folding also complicates the determination of true width. The rest of the hill is composed of white quartzite which apparently dips quite flatly to the east.

The next hill to be examined was two and one half miles south of Gossan Hill and here again wide iron formation was found on the west end of the hill. The iron formation here consisted mainly of siderite and banded chert with a little jasper. Only traces of hematite were seen in this preliminary examination. The remainder of the hill, now called "Old Red" is composed of red sandstone and quartzite.

The iron formation of these two hills is most likely the same band. It was not possible to trace this formation north of the Larch River due to the scarcity of rock outcrops in that area.



Exploration of Block "A" (Cont'd)

Another iron formation was explored which is located about ten miles east down the Larch River from the main Larch Camp. As can be seen by referring to map No. F2 this iron formation was traced right across the Concession. This iron formation apparently occurs along a contact between dolomite and shales.

There are many iron formation outcrops on the north side of the Larch River. These consist mainly of a low grade siderite with banded silica and their width varies from a few hundred to around one thousand feet. There are scattered piles of broken oxidized material along this iron formation which should be further investigated by the digging of pits. Interesting "soft iron ore" conditions have been found on the Concessions further south by digging pits in these piles of oxidized "rubble".

East of this iron formation right to the eastern boundary of Block "B", the rock consists of shales and there are many outcrops. These shales are mostly comparatively flat dipping but in one place near the eastern boundary the dip steepens to around  $80^{\circ}$ .

Upon comparing the rock sequence found on Block "A" with those occurring on the Concessions further south it is possible that the two iron formation occurrences may be a repetition of the same band caused by large scale folding. It can be seen by referring to map No. F-2 that a wide fold (syncline) occurs on the most easterly band of iron formation north of the Larch River.

The granite areas on the western part of Block "A" and the eastern part of Block "B" were examined in a few scattered places. Nothing of any economic interest was seen in this granite but there are considerable small pegmatite dikes in the eastern granite which may warrant a little further examination.

Exploration of Block "B"

The rocks on Block "B" were found to be a succession of diabase and greenstone forming ridges which slope flatly to the east but steeply on the western side. This diabase and greenstone is underlain by mineralized shales and graphitic schists that weather to a light brown color. This weathering stands out clearly and is probably caused by the oxidation of finely disseminated pyrite and fine mica. These sediments outcrop usually on the steep west slopes of the ridges. The formations dip generally to the east at an average dip of  $45^{\circ}$ . These sediment bands were explored in a preliminary fashion and local lenses of heavy sulphides were found in parts, especially south of the Koksoak River. These sulphides consisted of pyrite, marcasite, also considerable pyrrhotite. A little scattered chalcopyrite was seen, also traces of bornite and covellite.

Exploration of Block "B" (Cont'd)

The largest sulphide lense found to date is exposed on the south shore of the Koksoak River about one mile east of the main Koksoak Camp. Here an outcrop of heavy sulphides about thirty feet long and fifteen feet wide is exposed. This sulphide bed runs into overburden on three sides so its actual size is unknown. The rock exposed on the west side of this bed shows more alteration and folding than is usual in this area. Assays of grab samples from this exposure showed traces of nickel and copper and small amounts of zinc (.04, .05, and .15%). No gold or silver was present. The presence of nickel suggests that further field tests for nickel should be made on these sulphide bodies.

There are some small scattered quartz veins but these show only a few specks of chalcopyrite and malachite and are not considered to be of economic interest.

An area carrying considerable limonite was found a few days before the end of the season about five miles north-north-east of the main Koksoak Camp. Very little is known about this area to date. Some assay results are shown under "Sampling" and this area should be further investigated.

SAMPLING

Grab samples were taken of mineralized zones in various parts of Blocks "A" and "B". The assay results are noted below:-

1. Grabs from limonite area five miles north-north-east of Koksoak Camp ran 48.8%, 38.2%, and 25.5% iron.
2. Selected samples of "jaspilite" ran as follows:
  - (a) "Jaspilite" in place on Gossan Hill, Fe. - 63.4%, Si. - 3.4%, P. - nil, and S. - .04%.
  - (b) "Jaspilite" boulder from Camp Rapids on the Larch River, Fe. - 49.5%, Si. - 9.8% P. - nil, and S. - .03%.
3. Four sulphide grab samples of heavy sulphides from zones on Block "B" all carried traces of nickel; no gold or silver were present and only traces of copper, and zinc. One grab sample from a large sulphide body two miles north of Block "B" ran, Cu. - .27%, Ni. - .02%, and Zn. - .03%, but no gold or silver. This was from the most southerly Cyril Knight discovery mentioned under "History".

*Bands of red-jasper alternating with bands of black hematite*

SAMPLING (Cont'd)

4. Three grab samples of heavily mineralized graphitic schist carrying considerable pyrrhotite as well as pyrite all gave traces of nickel. One of these samples also ran, Zn. - .15%.

Notes on Assay Results

1. This limonite area was only discovered a few days before the end of the season and the samples were pieces picked quickly at random. The assay results are interesting enough to warrant careful examination of this area.
2. "Jaspilite" samples were selected from small higher grade hematite bands, and are not representative of the "jaspilite" as a whole. The absence of phosphorus and the low sulphur assays are good indications.
3. & 4. The fact that all the heavy mineralized and sulphide samples carried traces of nickel is interesting. More tests for nickel should be carried out on these sulphide beds that are scattered over the western part of Block "B".

PROPOSED PROGRAM OF WORK

The iron formation bands discovered in 1948 on Block "A" should be thoroughly examined. This will necessitate detailed ground examination including close exploration of all stream beds in the vicinity of the iron formations. (The iron ore usually occurs in the lower valleys which are often drift covered. Indications of iron ore and occasionally small outcrops of "soft iron ore" formations are sometimes found in the stream beds running through these valleys.)

The digging of test pits in piles of oxidized material occurring along these iron formations should be carried out. Should the examination of stream beds show promise of interesting iron formation conditions, pits should be dug in this area.

It is considered that some geophysical work should be done to advantage on this iron formation in drift covered areas. More detailed geological mapping should be done in the vicinity of the interesting iron formations with special attention being paid to the dip and strike of the rocks.

Further examination of the sulphide bodies occurring on the western portion of the Block "B" is recommended. Tests for nickel should be continued whenever pyrrhotite appears in any quantity.

PROPOSED PROGRAM OF WORK (Cont'd)

Limonite areas found in the 1948 season on Block "B" and mentioned elsewhere in this report should be further investigated.

CONCLUSION

The exploration work done this season has proven that the important iron formations run across Block "A" of the Fenimore Concession. This is definitely the northern extension of the same iron formations in which the extensive Hollinger iron ore bodies are being found.

The iron formations have only been tested in a preliminary fashion to date on the Fenimore Concession. Much more detailed work will be necessary on the areas carrying the iron formations in order to explore the possibility of important iron ore bodies occurring on this property. Work done on the Concessions further south, including Hollinger Concessions, shows definitely that intensive exploration work is necessary in order to uncover iron ore.

The results of the exploration work done on the Fenimore Concession in 1948 are considered sufficiently encouraging to warrant more intensive prospecting and detailed mapping being done on the property.

Should increasingly promising results be obtained from the work planned for next season, the program would have to be expanded. This would include still more intensive prospecting and geological mapping, also detailed geophysical work followed up by diamond drilling.

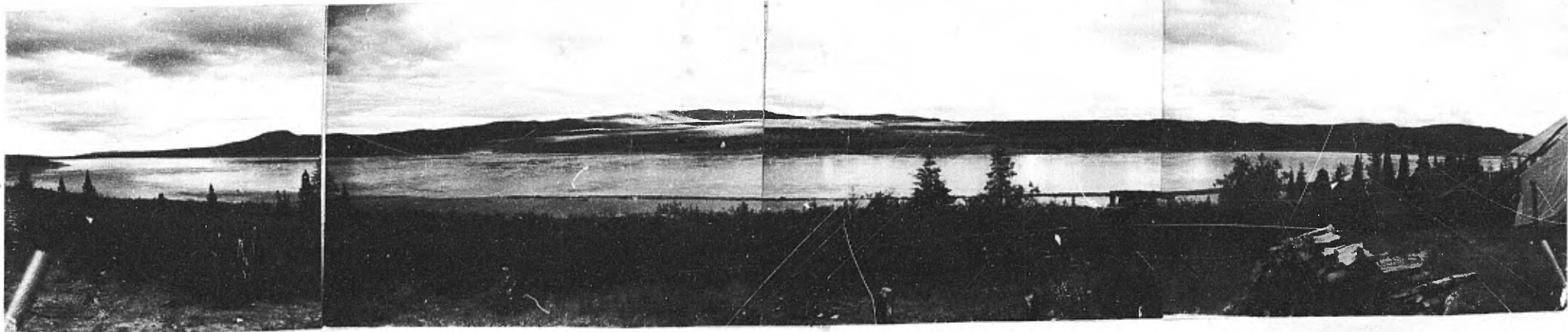
In addition it is suggested that the Company apply for some part of the open ground to the south of Block "A" of the Fenimore Concession. The wide bands of iron formation discovered on Block "A" during 1948 would indicate that this formation extends to the south into what is now open ground. It is therefore strongly recommended that every effort be made to secure a Block of this open ground for the Fenimore Company.

Respectfully yours,

*Gordon W. Moore*

Gordon W. Moore, B.Sc., P.Eng.

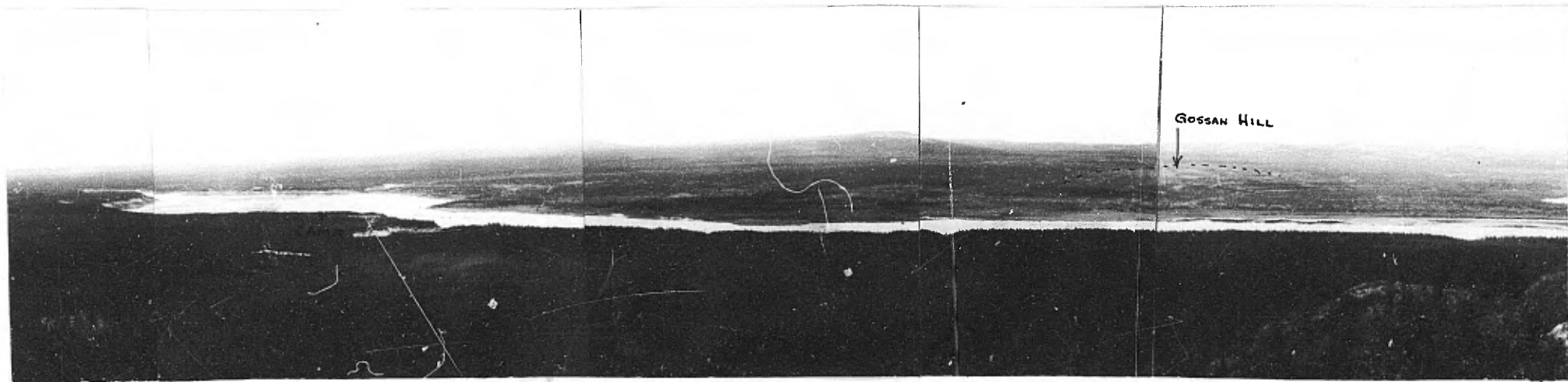
Engineer in Charge  
Fenimore Iron Mines Limited



PANORAMA OF PART OF KOKSOAK RIVER.

Taken from Koksoak main camp.

Bright spots across river are caused by sun shining on trees.

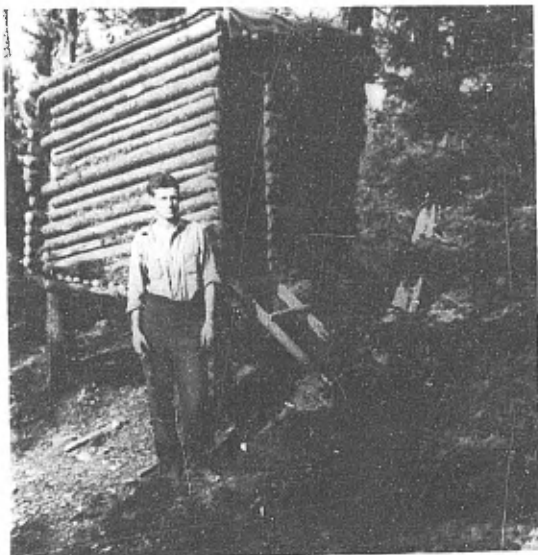


PANORAMA OF PART OF LARCH RIVER.

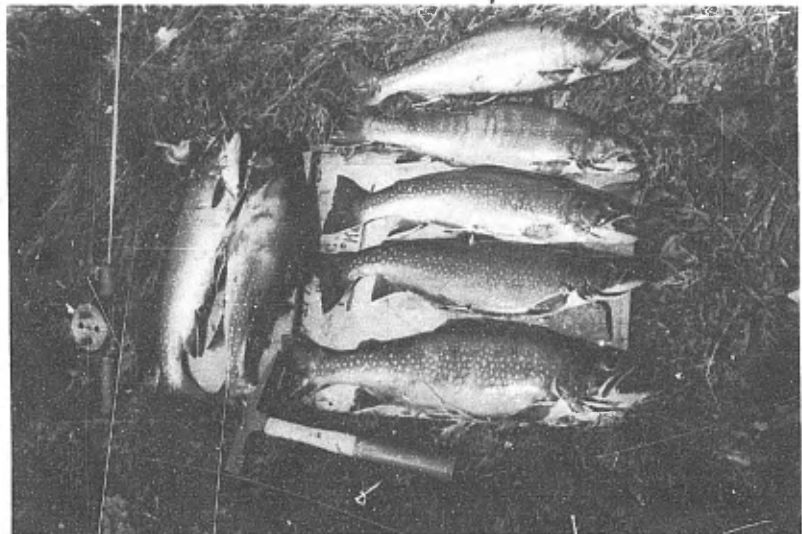
Taken from Dolomite Hill north of Larch main camp.

Gossan Hill shows faintly at right across river

Camp Rapids and large sand bar showing at left of picture.



LARCH MAIN CAMP CACHE.  
Supplies and equipment stored here.



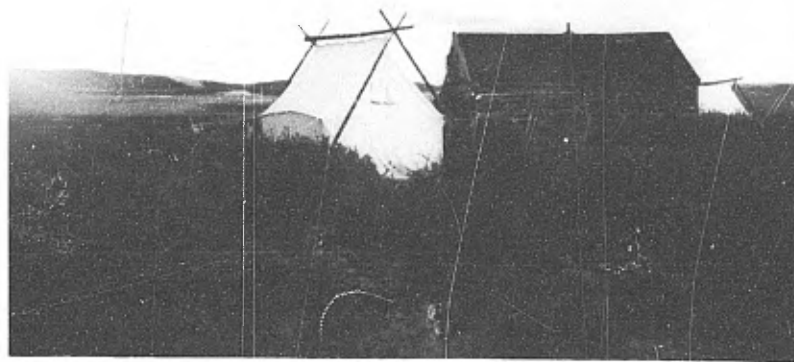
KOKSOAK RIVER SPECKLED TROUT.  
Caught Aug. 29th 1948.  
Average length 21".



UPPER LARCH RIVER FROM DOLOMITE HILL.  
Western granite hills in background.



START OF MOVE FROM LARCH TO KOKSOAK CAMP.  
Two 17' canoes and 5H.P. Motors.



KOKSOAK MAIN CAMP

Showing old abandoned Hudson's Bay Co. cabin.  
Fenimore supplies and equipment are stored in this cabin.



KOKSOAK MAIN CAMP

Taken from sand bar on Koksoak River.

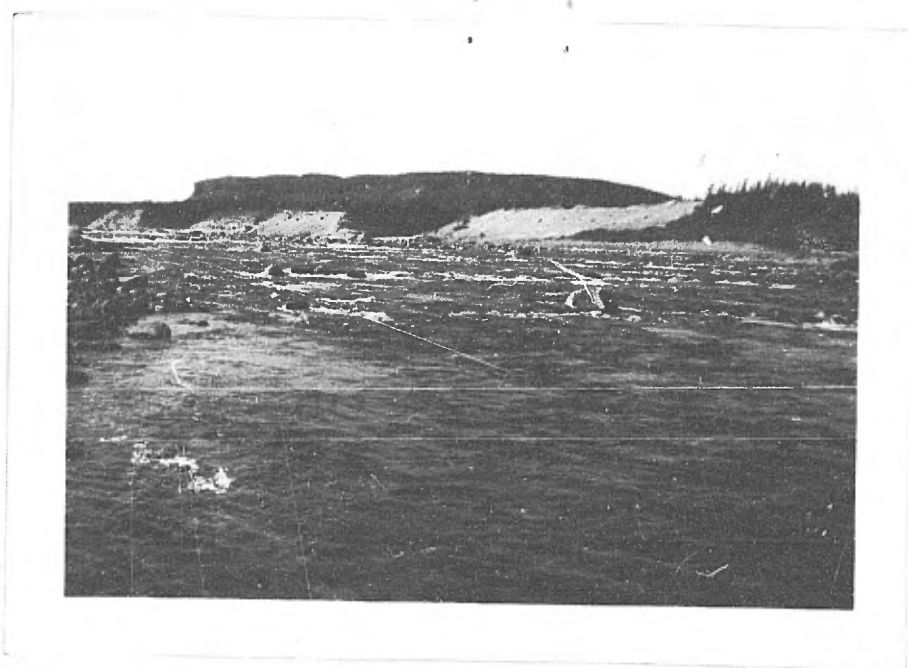


VIEW FROM KOKSOAK MAIN CAMP.

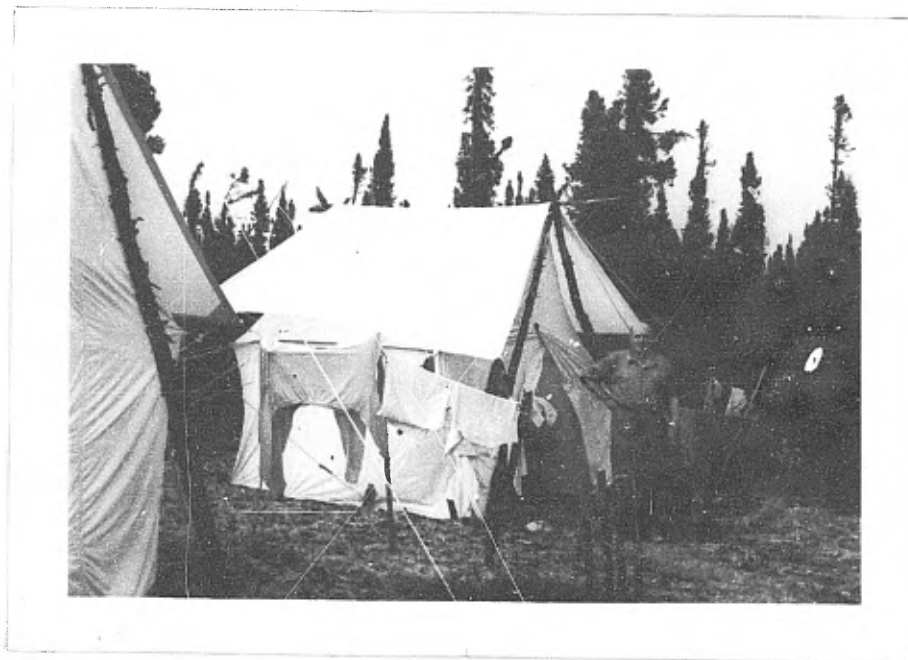
Looking east down Koksoak River.  
Good speckled trout pool beyond last  
sand bar at left.



CAMP RAPIDS, LARCH RIVER.  
Larch Main Camp in background.  
Some of boulders in foreground are "jaspilite".



CAMP RAPIDS, LARCH RIVER.  
Dolomite Hill in background.



SCENES AROUND LARCH RIVER MAIN CAMP.





IRON FORMATION ON GOSSAN HILL, BLOCK "A".

Mostly broken siderite, east end Gossan Hill.

Siderite with jaspilite bands  
Note folding on top of outcrop.



Eastern iron formation band. Red Knob Hill.  
Typical pile of oxidized iron formation "rubble".

Banded siderite and chert.  
South slope of Gossan Hill.



U.S.A.A.F. Base at Fort Chimo.  
Note hangar, left background.  
Air Force dock, front centre.



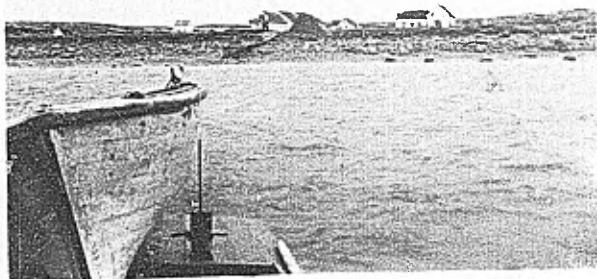
U.S.A.A.F. TUG, Fort Chimo.  
High tide.

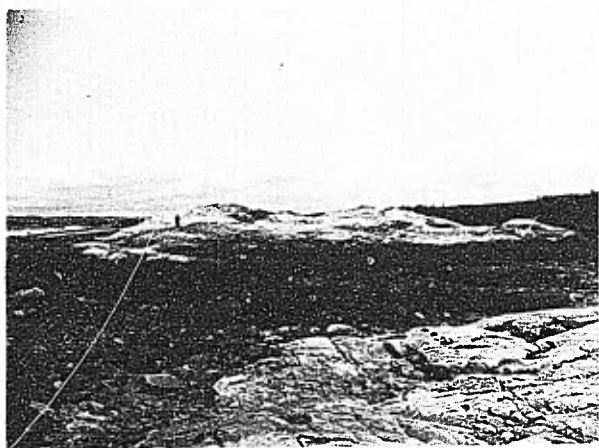


FORT CHIMO INDIANS.  
Transporting supplies to Larch Camp.  
22' Hudson Bay freighter canoe.



U.S.A.A.F. TUG, Fort Chimo.  
Low Tide.





PILE OF KOKSOAK RIVER ICE.  
Trip to Fort Chimo, July 20th.  
Note man standing on ice.



BARREN WESTERN GRANITE AREA.  
Upper Larch River.  
Caribou moss in foreground.



LARGE JASPIILLITE BOULDER.  
Camp Rapids, Larch River.  
Note jasper bands.



PUP TENT AND C.I. STOVES.  
Used in preliminary traversing



ICE LEFT IN KINNE CREEK VALLEY.  
Reconnaissance trip July 7th.

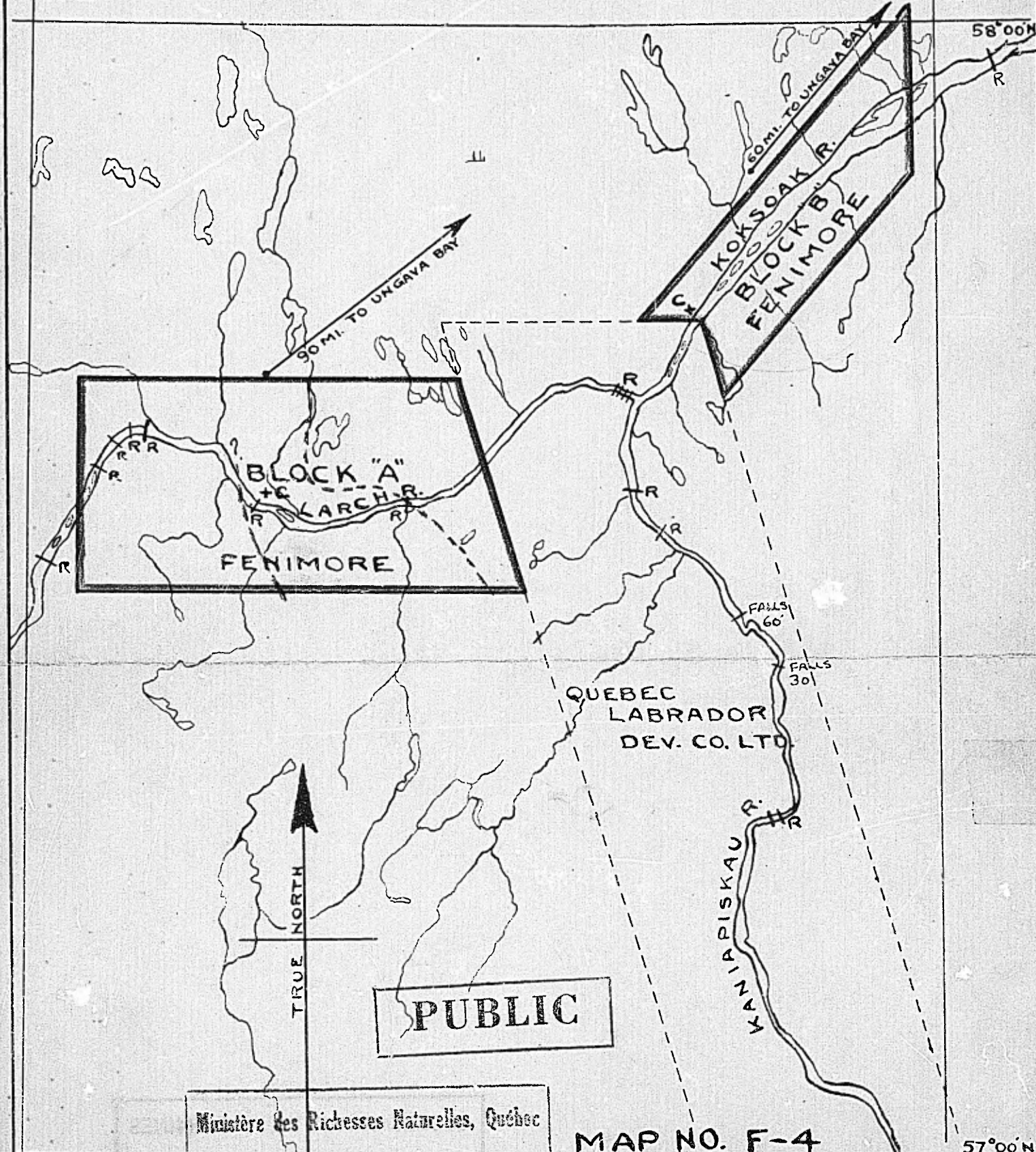


BIG GRANITE HILL.  
Upper Larch River.

70° 30' W

69° 00' W

58° 00' N



Ministère des Richesses Naturelles, Québec

SERVICE DES GITES MINÉRAUX

No GM- 408

NOTES:

XR = RAPIDS

+C = MAIN BASE CAMPS

MAP NO. F-4

57° 00' N

FENIMORE IRON MINES LTD.  
SKETCH MAP

SHOWING  
FENIMORE NEW QUEBEC CONCESSION  
SCALE 1" = 8 MILES

19 OCT. 1948

*E.W. Moore*

# Labrador and Iron

Important discoveries of high grade iron ore in the Labrador regions of Quebec and Newfoundland have attracted widespread interest.

The rapid decline of quality reserves of iron ore in the Lake Superior ranges has, at an opportune moment, diverted attention to these virgin areas.

Fenimore Iron Mines, Ltd., has secured from the Quebec Government a concession of 448 square

miles and has deposited \$25,000 as evidence of good faith.

On this concession Dr. A. P. Low of the Canadian Geological Survey years ago reported the finding of "valuable ore" in the form of angular blocks close to their original source.

Early this Spring exploration of this big concession will begin. Geologists and prospectors will be flown in before "break-up" and serviced by plane and radio.

This work will be financed by

## RISK CAPITAL

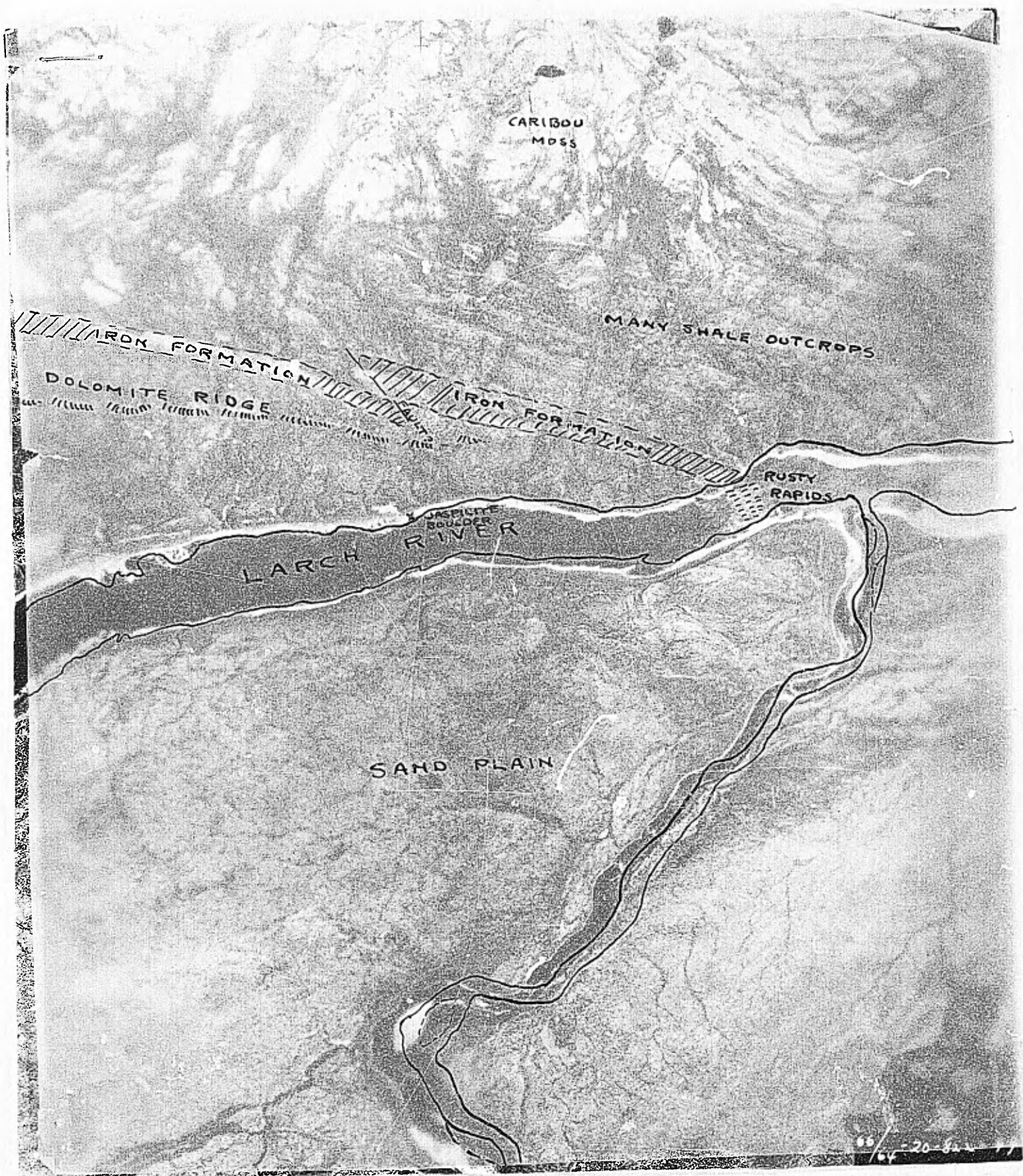
In this new venture we are offering participation at:  
35c a share

*For further particulars of property, plans, finds, regional developments, climate, transportation — write or telephone, without obligation.*

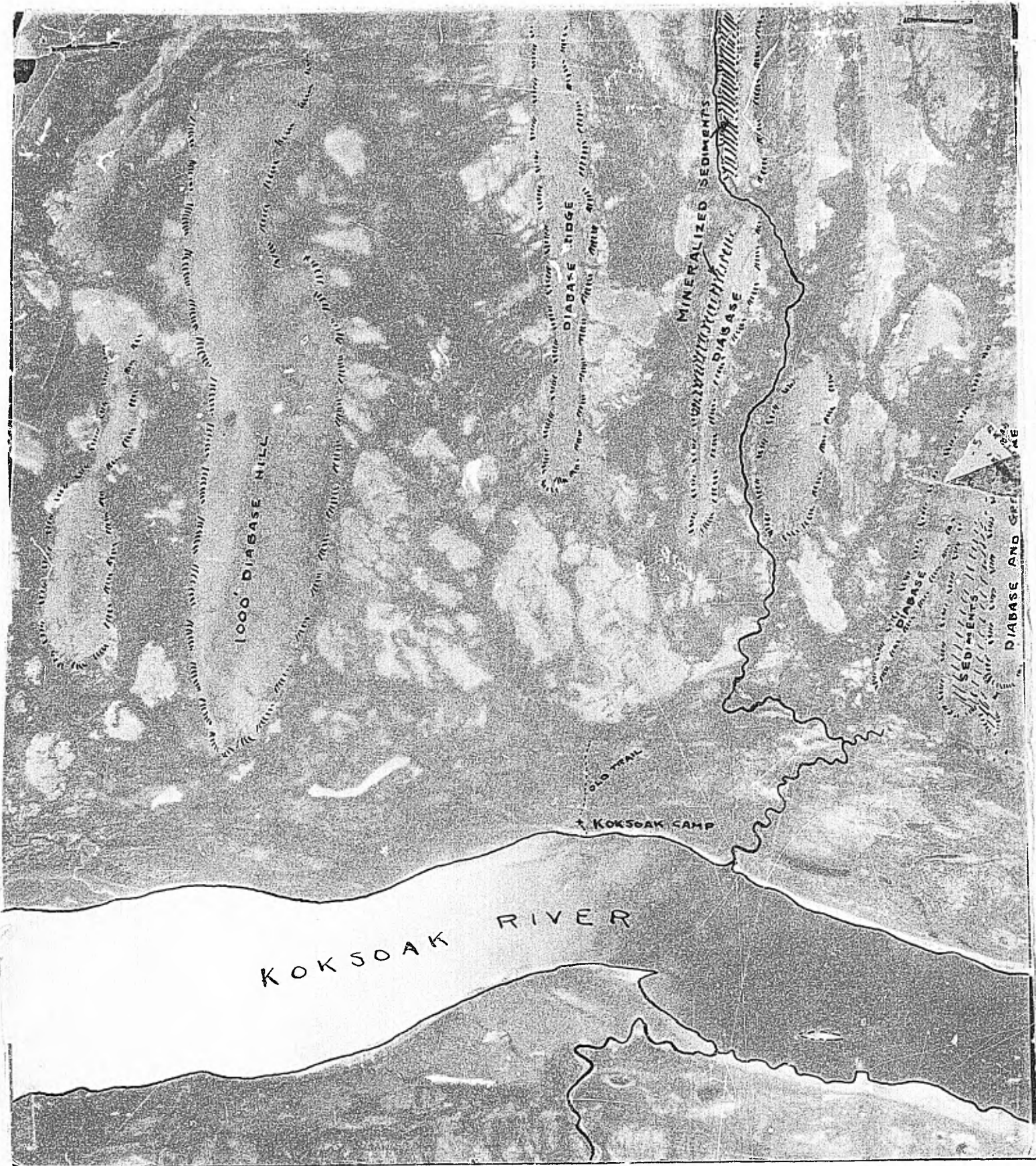


# BREWIS & WHITE LIMITED

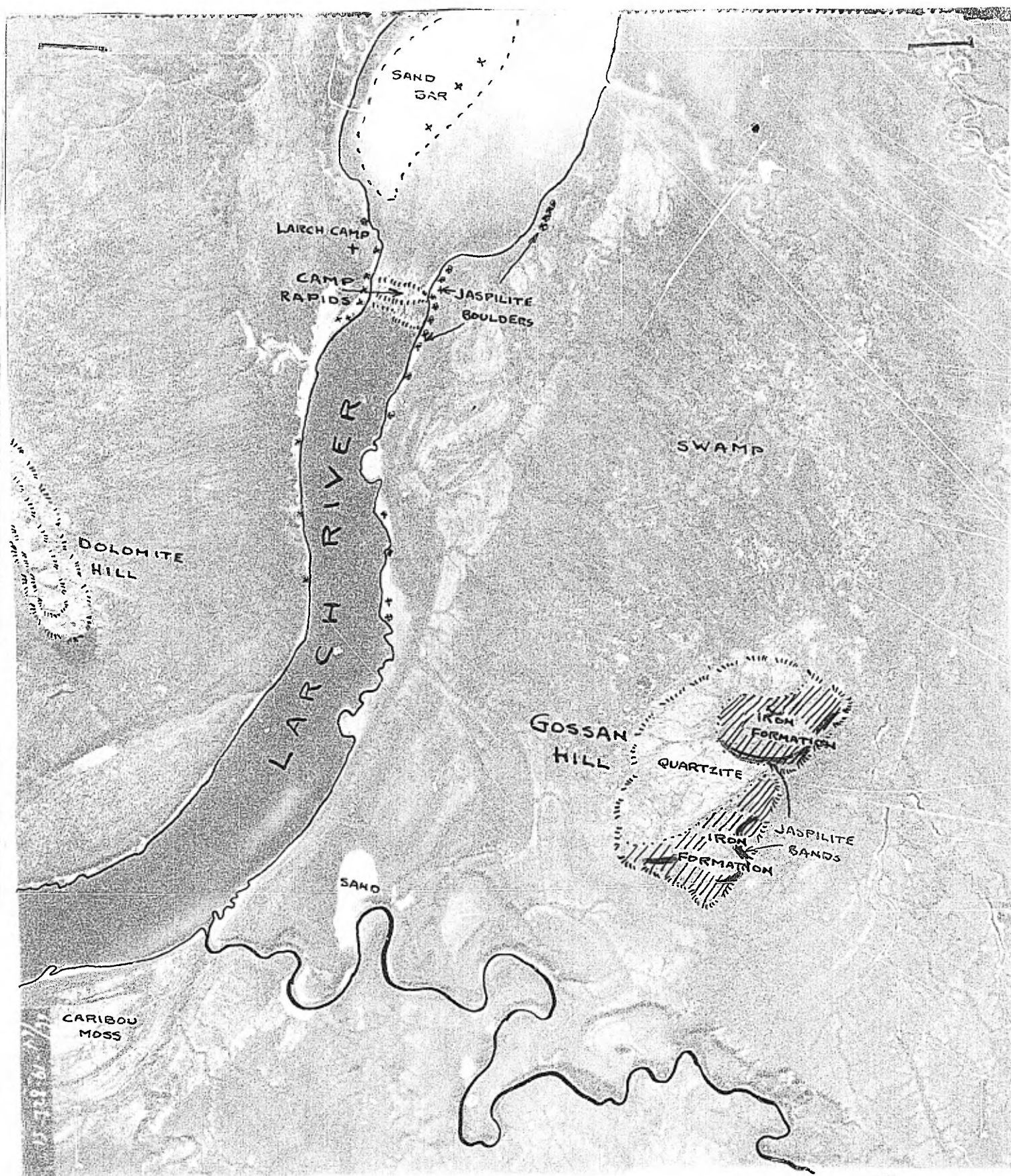
40 ADELAIDE STREET WEST, TORONTO 1 — ELGIN 7225



PART OF LARCH RIVER, GENERAL PORTION OF BLOCK "A".  
Aerial Photograph taken from 12000' height.  
Scale 1" equals 2000'.  
Showing eastern iron formation, dolomite and shales.



PART OF KOKSOAK RIVER, NORTH WEST PART OF BLOCK "B".  
Aerial Photograph, taken from 12000' height.  
Scale: 1" equals 2000'.



AERIAL PHOTOGRAPH OF PART OF LARCH RIVER.  
Showing iron formation on Gossan Hill.  
Photograph taken at 12000' height.  
Scale: 1" equals 2000'