

# RP 149(A)

ADVANCE REPORT, SISCOE MAP-AREA

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ADVANCE REPORT

SISCOE MAP-AREA

Province of Quebec, Canada

DEPARTMENT OF MINES

Honourable Edgar Rochette, Minister      L.A. Richard, Deputy-Minister

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BUREAU OF MINES

A.O. Dufresne, Director

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DIVISION OF MINERAL DEPOSITS

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ADVANCE REPORT

SISCOE MAP-AREA

by

P.E. Auger

QUEBEC

1940

P.R. No.149

## ADVANCE REPORT

### SISCOE MAP-AREA

by P.E. Auger

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The Siscoe map-area examined by the writer during the summer of 1939 includes the southern half of Vassan township and the northern part of Dubuisson, Abitibi county. The provincial highway from Amos to Val d'Or traverses the area, from north to south, passing close to the eastern shore of DeMontigny lake. The town of Val d'Or, on the Senneterre-Rouyn branch of the Canadian National railway, is about two miles south of the southeast corner of the map-area.

### GENERAL GEOLOGY

The southeast corner of the map-area is underlain by granodiorite and related rocks of the Bourlamaque batholith, which extends westward across the northern part of Dubuisson township from Flouin lake to DeMontigny lake. A small stock of granodiorite also outcrops on Siscoe island, about one mile from the eastern shore of the latter lake. Elsewhere, by far the greater part of the map-area is underlain by Keewatin rocks.

#### Keewatin

The Keewatin rocks are predominantly flows of andesitic composition, now represented largely by chlorite schists. Those in the eastern part of the area are less basic than those in the west. In places, particularly toward the west, the rocks have a well developed pillow structure. Locally, tuffs are interbedded with the flows. Occurrences of such rocks were found in range IV, Vassan township, northwest of Faucher lake.

In lots 39 to 45 along range-line III-IV, Vassan township, there are extensive outcrops of a massive rock composed of chlorite, serpentine, and talc, and the same rock is found farther north in the central and western part of the township and also to the south beneath DeMontigny lake between Siscoe island and the east shore of the lake. No contacts between this rock and adjacent formations have been seen, but it is thought to be an intrusive rock of Keewatin age, originally peridotite.

#### Post-Keewatin Intrusives

Two outcrops of granodiorite were seen in range X of Dubuisson township, one of them only 700 feet southwest of the

nearest Keewatin exposures. Accordingly, the contact between the latter and the Bourlamaque granodiorite batholith is placed tentatively about midway between these outcrops, with an east-west trend from Blouin lake to DeMontigny lake.

Highly altered granodiorite outcrops on the northern part of Siscoe island, with Keewatin rocks on the south; a shear-zone, the 'K' zone of the Siscoe mine, follows the contact. Underground development indicates that the west, north, and east limits of the granodiorite are not far distant from the shore of the island and that the mass is a small isolated stock. Somewhat similar rock is exposed on two or three small islands to the northeast of Siscoe island, and recent development indicates that these also represent small isolated stocks within the Keewatin. Granitic rock also outcrops on the eastern shore of the lake, just south of the causeway recently built by Siscoe Gold Mines, but these outcrops are definitely not a part of the Siscoe stock.

Dykes of feldspar porphyry are fairly numerous in the map-area, their strike being in general parallel to the east-west schistosity of the Keewatin rocks they intrude. Albitite and granodiorite dykes cut both Keewatin rocks and granodiorite in various parts of the area.

### Structure

The Keewatin rocks are for the most part schistose, with strike approximately east-west and very steep dip, either to north or south.

Structurally, the area is interpreted as the northern limb of a broad synclinal fold striking slightly south of east (1), in which case the tops of the formations would face south. Most of the determinations of the attitude of flows that could be made, either by grain size or by pillow structure, support this interpretation. At one locality, however, on lot 52, 400 feet north of the Vassan-Dubuisson township line, two outcrops of volcanics were observed in which the tops of the flows face north. Unfortunately, there are few other exposures in the vicinity and additional confirmatory evidence could not be obtained.

### ECONOMIC GEOLOGY

#### Siscoe Gold Mines, Limited

Ref: Que. Bur. Mines, Ann. Rept., Part C, 1930, pp.39-53  
Can. Min. Jour., Vol.57, No.10, October, 1936, pp.467-510  
Que. Bur. Mines, P.R. No.116, 1936, pp.51-52  
Unpublished thesis, McGill University, 1939. "The Geology of the Siscoe Gold Mines" by A.E. Moss.

(1) | Bell, L.V., Northern Dubuisson Area, Abitibi County;  
Que. Bur. Mines, Ann. Rept., Part B, 1935.

The property of Siscoe Gold Mines, Limited, comprises part of lake DeMontigny, with Siscoe island and several smaller islands nearby, also some adjoining claims on the mainland, on the eastern shore of the lake. Gold was discovered on the mainland claims in 1911 and three or four years later on Siscoe island, where sinking of the first shaft started in 1919. A mill was erected in 1929 and has been in continuous operation since that time. During the past three years it has treated between 560 and 600 tons of ore per day.

### Geology

The geology at the Siscoe mine has been revealed chiefly by underground development, the island being for the most part covered by heavy overburden. The few outcrops seen are of altered granodiorite in the northern part of the island, with Keewatin greenstone to the south. The granodiorite is highly chloritized and carbonatized, green in colour, and slightly schistose, and by early investigators it was classed as 'greenstone'. Its true character is more evident in the underground workings of the mine. Opalescent quartz 'eyes' are a characteristic feature of the rock, in which respect it resembles the granodiorite of the Bourlamaque batholith, with which the stock may be connected at depth.

The Keewatin rocks to the south of the granodiorite are the typical Keewatin 'greenstone' of the region - ellipsoidal and amygdaloidal lavas, highly chloritized and schistose. They strike a little south of east and have a nearly vertical dip.

Both the granodiorite and the greenstone are cut by dykes of albitite, andesite, and diorite (in order of intrusion), and also by dykes of syenite porphyry whose age relationship to the others is not well established.

The contact between the granodiorite and greenstone is faulted and sheared and contains the 'K' ore-zone of the mine.

The granodiorite presents several distinct facies. In the eastern section of the mine the rock is high in quartz and albite, whereas that in the western section is high in amphibole; both types are much chloritized. In the lower workings of the mine, the 'K' zone throughout its developed length is bordered on the north by a porphyritic facies of the granodiorite. In the upper levels, this porphyritic type is found only in the western workings.

### Ore-Zones

Nine distinct ore-bodies, or ore-zones, are recognized in the Siscoe mine. These are designated as follows: (1) 'K' zone; (2) Main zone; (3) Siscoe vein; (4) 'F' vein; (5) 'C' vein, (6) No.20 vein; (7) Stee vein; (8) 'N' zone; (9) No.21 and 'A' veins; Nos.2 to 6 are in the granodiorite; 'K' zone closely follows the

granodiorite-greenstone contact; and Nos. 7 to 9 are in the greenstone. At the present time, production is coming mainly from the 'K', Main, and Siscoe bodies. The others have either been abandoned or have been developed only to a minor extent.

#### 'K' Zone:

The 'K' zone is a major shear-zone which for most of its length, follows the faulted granodiorite-greenstone contact. Its general strike is N.65°W., but at both the western and the eastern end of its developed length it swings northward and divides into several branches. On the east, the zone continues to follow the contact, on the west, it passes into the granodiorite. The shear dips at 80°-85° north, and underground development has shown that it extends to a depth of at least 2,100 feet. Up to the present, however, it has been little explored on the lower levels of the mine.

Along the shear-zone, the greenstone and granodiorite have been converted largely to carbonatized schists, consisting chiefly of chlorite, talc, or actinolite, and within these, paralleling the shearing, are lenses, veins, and stringers of white, sugary and granular quartz. It is not uncommon to find two or three lenses side by side, separated by a few feet of schist. The lenses range from 25 to 350 feet long and 3 to 10 feet wide, and one of them has been developed for a continuous vertical depth of 500 feet.

The gold occurs in the quartz lenses, veins, and stringers, and also to some extent in the adjacent schists. Much of the ore is high-grade, and coarse free gold is frequently seen along fractures in the quartz and also in the talcose schists.

#### Main Zone

The Main zone has been by far the most important source of ore supply, being credited with about 60 per cent of Siscoe's total gold production to date. It is a composite vein system, at least in the upper levels of the mine.

The zone consists of a series of quartz-filled tension fractures which extend into the granodiorite for a distance of approximately 1,000 feet northward from the granodiorite-greenstone contact. Near the contact, the zone has an easterly strike, with dip to the south, but it swings northward and for most of its length the strike is about N.15°E. at surface, changing to due north at depth. The dip is to the east, at 58° in the upper levels of the mine but steepening to 70° below the 7th level. As it is followed downward, the zone decreases in length. It extends at least to the 14th level, where it has been developed for a length of about 200 feet. It has not yet been encountered in workings on the 15th and 16th levels.

The vein material is white quartz containing a very minor amount of tourmaline and sulphides. The gold occurs mainly as minute specks in the quartz, but along some sections of the zone, and particularly at its south end where it swings westward and takes the form of 'horsetail' stringers, pockets of spectacular high-grade ore have been found.

#### Siscoe Vein:

The Siscoe vein is a short distance west of the Main zone and follows a course approximately parallel to the latter, the strike swinging from due east to almost due north as the vein is followed eastward. Both systems occupy tension fractures in the granodiorite that extend northerly from the greenstone contact. The east-west strike of their southern portions may be due to minor movement parallel to the 'K' shear-zone.

Unlike the Main zone, the Siscoe vein is a more or less continuous single vein or series of lenses, and it has a known vertical extent of 1,475 feet. On the 100-foot level it has a developed length of 500 feet, with a general east-west strike and a dip about  $40^{\circ}$  south, and on the 600-foot level a length of 780 feet with the same strike but swinging to the north at the eastern end. This swing to the north becomes more pronounced in the workings on the lower levels, and at the same time the dip steepens to about  $80^{\circ}$  east. The vein material is white quartz containing sparse tourmaline, chalcopyrite, and pyrrhotite, and free gold.

#### 'F' Vein and No.20 Zone:

These veins occupy north-south tension fractures in the granodiorite. 'F' vein is in the hanging-wall (south side) of the Siscoe vein near its western end, and No.20 zone is in the hanging-wall (east side) of the Main zone near its northern end. Both dip to the east at  $50^{\circ}$  to  $60^{\circ}$ , resembling in this respect the Main zone and Siscoe vein. The vein material is white quartz containing sulphides in very minor amount and some visible gold.

#### 'C' Vein:

'C' vein was formerly the main producing vein of the Siscoe mine, but it is now almost completely mined out. It lies to the east of the Main zone, occupying a fracture that extends into the granodiorite for a length of 500 feet. It strikes northeast, about at right angles to the 'K' zone, and differs from all the other northerly-trending zones and veins in its dip, which is to the northwest, i.e., toward the Main zone, which it intersects on the 3rd level of the mine. Below this level, the 'C' vein practically disappears, but fractures and veinlets of the same type, with north-westerly dip, are found on lower levels, and in every case they cut

the Main zone and hence are of later age. Mineralogically, also, the 'C' vein is different from the others, consisting of glassy quartz and containing a relatively large amount of tourmaline, particularly at the margins of the vein. Where the vein is narrow, it may be composed mainly of tourmaline. The silver-gold telluride, petzite, has been reported accompanying free gold in this vein (1).

Stee, 'N' Zone, No.21, and 'A' Veins:

These veins are in the greenstone, south of the 'K' zone. The 'N' zone is a strong shear which has about about the same strike as the 'K' shear and an almost vertical dip. No.21 and 'A' veins are immediately south of it, striking northeast and dipping southeast. These three veins are due south of the 'C' vein. The Stee vein is southwest of the Siscoe vein, near the western shore of the island. It has a strike somewhat north of east, and it dips steeply to the south. In general, these veins consist of white, sugary quartz containing some sulphides, sparse tourmaline, and free gold. Development to date indicates that they are not so important as the ore-zones and veins in the granodiorite.

Structure

The vein fracture system at the Siscoe mine is related to, and the result of, the 'K' zone shear that follows the granodiorite-greenstone contact. According to O.L. Backman (2), the movement along the 'K' shear has been a combined upward and eastward displacement of the Keewatin greenstones against the granodiorite intrusive body to the north of them. He explains the northerly-trending zones and veins in the granodiorite as filling subsidiary tension fractures caused by this extensive east-west shearing. J.E. Gill (3), on the other hand, considers that all the north-south veins or portions of veins in the granodiorite follow minor shears, subsidiary to the 'K' shear-zone, and that the east-west veins and portions of veins, as for example the 'horsetail' fraying-out at the southern end of the Main zone, represent tension fractures caused by the north-south shearing. The fractures occupied by the 'C' vein system are apparently not related to these movements, since these veins are of later age.

(1) Hawley, J.E., Que. Bur. Mines, Ann. Rept., Part C, 1930.

(2) Backman, O.L., Geology of Siscoe Gold Mine; Can. Min. Jour., Vol.57, No.10, Oct. 1936, pp.467-475.

(3) Personal communication.

West Siscoe Gold Mines, Limited

Ref: Que. Bur. Mines, P.R. No.116, 1936, p.52.

This property is located west of the southern half of Siscoe island. It is composed of twelve claims adjoining Siscoe on the west. The company was incorporated in 1936 and the controlling interest is held by the Siscoe Gold Mines, Limited.

Several diamond drill holes driven from the ice indicated promising intersections in a mineralized zone about 1,000 feet long. A long cross-cut was driven from the west end of the Siscoe workings on the 450 foot level to reach this mineralized section. About 220 feet of drifting was carried out along the zone which is located alongside a northwest striking igneous dyke called: "the Thomson granodiorite dyke" on the company's maps. The values from the drilling results were found to be high but along the drift the assays were lower. Development in this part of the mine had stopped at the time of the writer's visit.

Siscoe Extension Gold, Limited

Ref: Que. Bur. Mines, Ann. Rept., Part C, 1930, pp.53-56.

" " " P.R. No.116, 1936, pp. 56.

" " " P.R. No.120, 1937, p.2.

This property is on the east shore of DeMontigny lake; its location is indicated by the numeral '2' on the accompanying map. In past years, diamond drilling aggregating many thousands of feet was carried out on the property, and from a shaft 750 feet deep a considerable amount of lateral work was done on two levels, at 350 feet and 725 feet. Late in 1938, however, all work was suspended, and at the time of the writer's visit the mine was flooded.

The property is underlain by basic Keewatin lavas, highly altered and serpentized and cut by numerous dykes of diorite and granite porphyry. Quartz veins carrying erratic gold values occur in the lavas and appear to be related to these dykes and, on the 725-foot level, to strong shear-zones.

Lateral work on the 350-foot level totalled 3,000 feet. A sulphide ore-zone which has been intersected in drill holes 347 and 348 from the surface was encountered in a drift to the southeast of the shaft, and within it were found three shoots of ore, assays of which gave values ranging from \$7.35 to \$12.35 in gold per ton.

Drifting and cross-cutting totalling 3,340 feet was carried out on the 725-foot level. The downward continuation of the sulphide ore-zone was not encountered on this level, but the work disclosed a large granitic dyke containing a number of quartz stringers and veins and, along its north side, a small ore-shoot with very

erratic gold values. East of the shaft, also, the workings cut a strong shear-zone in which there are numerous quartz lenses, in places forming small ore-shoots, assays from which ranged from \$6.42 to \$13.81 in gold per ton.

Material on the ore-dump indicates that the ore consists of pyrite, pyrrhotite, and chalcopyrite, in quartz and carbonate. Tourmaline is very abundant, most of the lumps of quartz seen contain this mineral, either massive or in thin, radiating needles. Several blocks of granite porphyry traversed by narrow quartz stringers carrying free gold were also observed on the dump.

Kiena Gold Mines, Limited

Ref: Que. Bur. Mines, Ann. Rept., Part C, 1930, pp. 74-76.  
" " " " " " B, 1935, pp.55-56.  
" " " P.R. No.116, 1936, p.48.  
" " " P.R. No.120, 1937, p.12.

This property is on Parker island, in DeMontigny lake. The mine has been developed by a shaft 455 feet deep, but underground work has been confined chiefly to the 430-foot level, with some 3,000 feet of lateral work, and to a sub-level at the 390-foot horizon.

The original discovery was a series of veins exposed on surface, but these did not prove of much importance where encountered on the 430-foot level. A considerable amount of diamond drilling was carried out from the surface, and several of the holes intersected a wide band of actinolite-rich rock and a parallel quartz vein carrying some gold values. This occurrence was explored in the 430-foot level and in the 390-foot sub-level northwest of the shaft.

In 1938, an ore-zone, designated No.21, was cut in a number of diamond-drill holes put down from the ice, adjacent to the island. The drill core shows a series of quartz veins in granodiorite and greenstone. A cross-cut was started on the 430-foot level to intersect this ore-zone. The zone is mostly in the south side of a large band of andesite which cuts the talc and chlorite schist formations. The zone had been encountered at about 2,400 feet northeast of the shaft, and good gold values are carried by a series of quartz veins located in the foot-wall portion of the andesite band which has a steep dip to the north. In the course of this work, three other gold-bearing quartz veins were intersected but could not be followed for a long distance. The rock exposed in the cross-cut is chiefly talc schist, with some granodiorite and greenstone in the vicinity of the ore-zone.

At present, the Company is carrying out an extensive programme of diamond drilling from the underground base on the north side of the zone, in the search for possible ore-shoots below.

Wisik Gold Mines, Limited

Ref: Que. Bur. Mines, Ann. Rept., Part B, 1935, p. 55.  
" " " P.R. No.116, 1936, p.50.  
" " " P.R. No.120, 1937, p.13.

The Wisik property is on Moccasin island, southwest of Siscoe island, in DeMontigny lake. In 1936, a three-compartment shaft was sunk to a depth of 325 feet, and levels were established at 200 feet and 300 feet. Early in 1937, following the completion of a diamond-drilling programme, all operations at the property were suspended. The surface rocks are Keewatin volcanic flows and breccia. Two small quartz veins, formerly exposed on the shore of the island, to the east of the shaft, are now concealed beneath the ore dump.

A quartz vein, encountered in diamond drilling by former holders of the property, was intersected in a cross-cut on the 200-foot level at 55 feet northeast of the shaft and was explored in a short drift. On the 300-foot level, the vein was followed for about 1,700 feet. It has an irregular, but general northwesterly, strike and is interrupted by numerous faults. The vein cuts Keewatin greenstone, but immediately bordering the vein is a peculiar brown-coloured alteration zone containing actinolite and biotite. At the western end of one of the drifts (No.304), the greenstone is cut by several porphyry dykes. The work on the 300-foot level is reported to have disclosed some ore-shoots with good gold values over limited sections.

Dorval Siscoe Mines, Limited

Ref: Que. Bur. Mines, P.R. No.116, 1936, p.54.  
" " " P.R. No.120, 1937, p.12.

This property consists of an island and adjacent water claims in DeMontigny lake, about  $1\frac{3}{4}$  miles northwest of Siscoe island. Diamond drilling prior to 1936 indicated the presence of a strong shear-zone with interesting gold values, and it was thought this might be the continuation of the 'K' zone of the Siscoe mine. Drilling was resumed in 1936 and late in the year sinking of a three-compartment shaft was commenced. In 1937, the shaft was completed to a depth of 343 feet and a cross-cut was started on the 300-foot level in a direction S.25°W. from the shaft with the object of intersecting the shear-zone indicated by the drilling. At 770 feet from the shaft, a 'break' was encountered in the cross-cut, and this was followed for several hundred feet in a northwesterly direction, then the working gradually turned west in the hope of intersecting the extension of three veins that had been cut in drill hole No.37. When the cross-cut had been driven a total length of 2,120 feet, through greenstone, basic intrusive, and diorite, a strong vein was encountered.

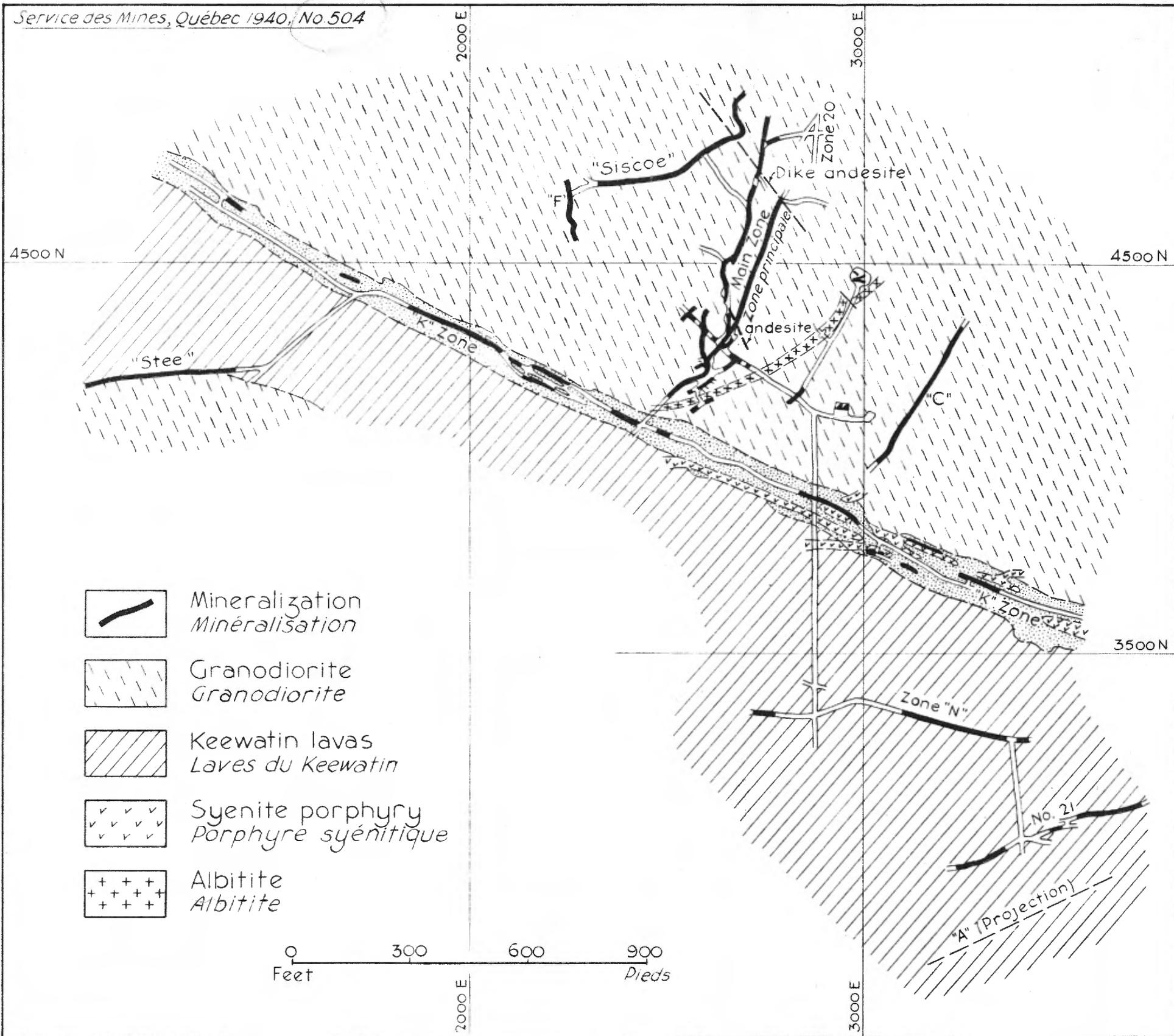
The vein has been developed by drifting for a length of 780 feet, and it has been cut in two drill holes at points beyond the eastern end of the drift. It has a very uniform strike at N.40°W., but the dip varies from place to place, being 50° to the south at the eastern end of the drift and almost vertical at the western end. At several places it is wider than the drift, and at such points it has been explored by short, flat holes put out at 10-to 20-foot intervals on both sides of the drift.

The vein is of white or milky quartz, and the wall rock is either greenstone or dioritic rock, the latter thought to be a contact facies of the granodiorite which forms a small stock to the south. In places, the wall-rock is highly albitized, especially adjacent to the vein or where it is brecciated. Mineralization is sparse and consists usually of disseminated pyrite.

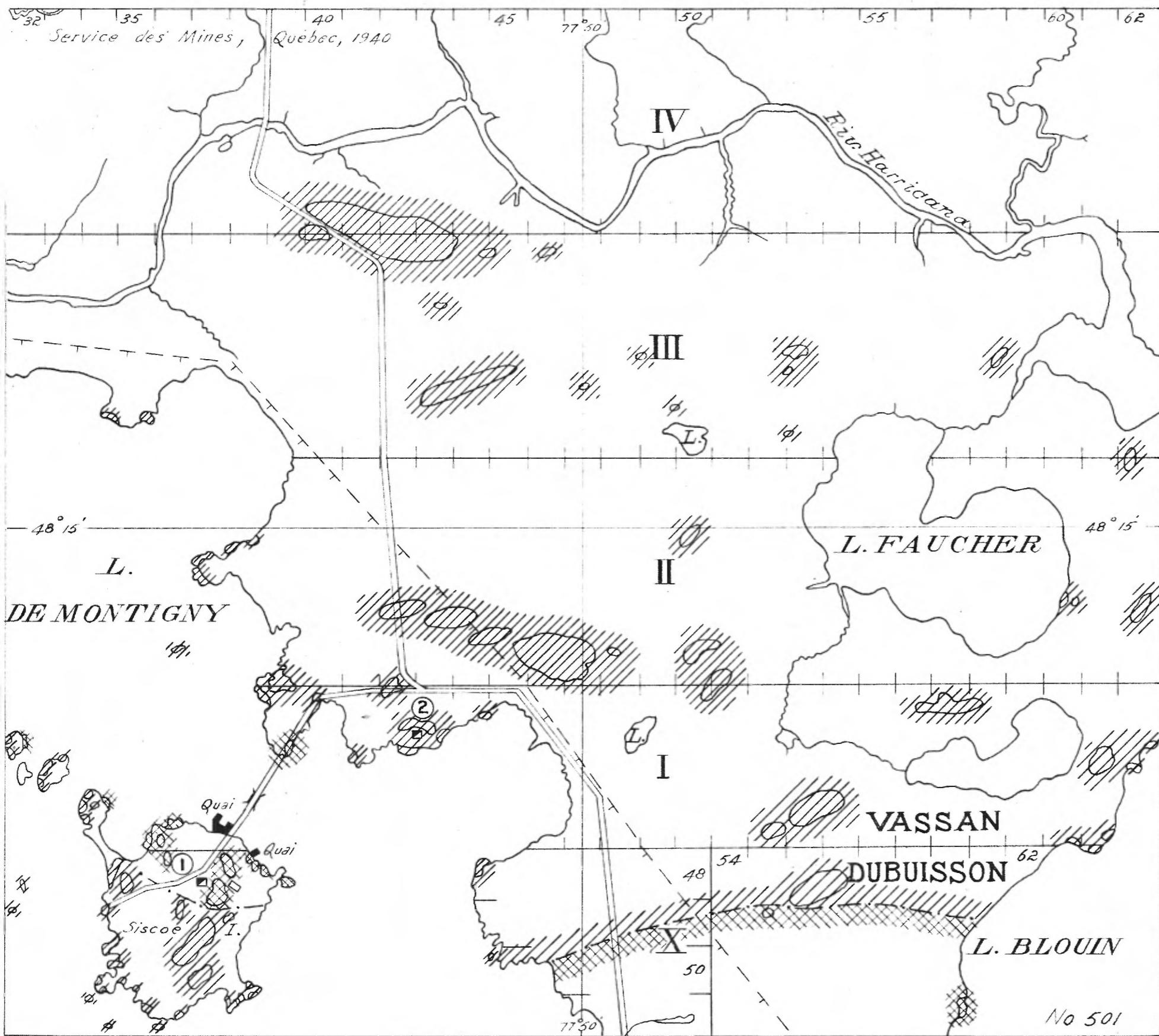
At a point 195 feet from the northwestern end of the drift, there is a widening of the vein, apparently the result of a 'roll' in the vein. A cross-cut driven southwestward across the vein here shows that the wall-rock is intensely silicified and that it contains abundant disseminated pyrite. Assays have yielded good gold values, ranging up to \$18 per ton. A few feet from the end of the drift, the vein splits into two branches, and the wall-rock on the southwestern side of the drift is very highly albitized.

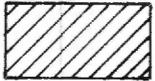
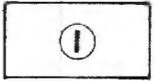
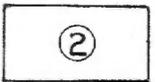
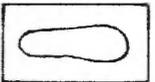
From the location and direction of diamond-drill hole No.37, it is calculated that this hole passed only a short distance to the west of these workings. It is believed by the management that the vein here described is the middle zone intersected by hole No.37. If so, the north zone would lie 170 feet northeast of the drift along this vein, and the south zone some 340 feet to the southwest of the drift.

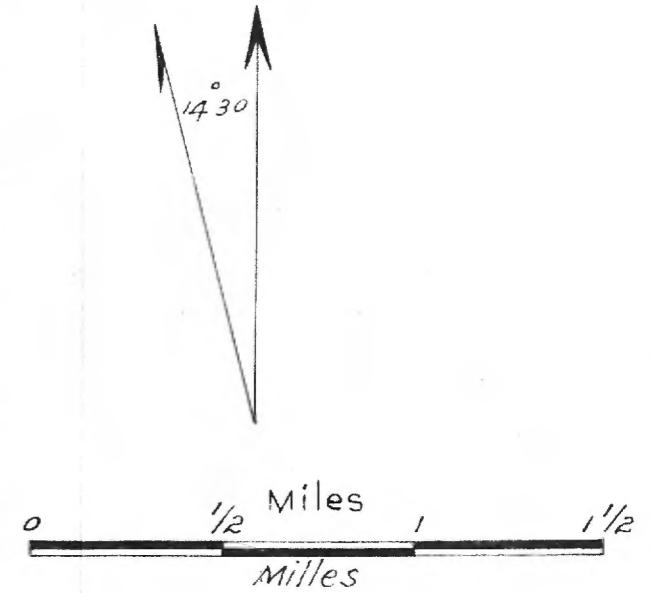
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— SISCOE AREA — RÉGION DE SISCOE —  
 (PRELIMINARY) (PRÉLIMINAIRE)  
 SISCOE MINE 2<sup>ND</sup> LEVEL MINE SISCOE 2<sup>ÈME</sup> ÉTAGE



-  Granodiorite  
*Granodiorite*
-  Keewatin volcanics and sediments  
*Roches volcaniques et sédimentaires du Keewatin*
-  Siscoe Gold Mines Ltd.
-  Siscoe Extension Holdings Ltd.
-  Group of outcrops  
*Groupe d'affleurements*



SISCOE AREA ——— RÉGION DE SISCOE  
 (PRELIMINARY) ABITIBI (PRÉLIMINAIRE)