

# RG 006(A)

WEST PART OF VAUQUELIN TOWNSHIP, ABITIBI TOWNSHIP

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BUREAU OF MINES

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DIVISION OF MINERAL DEPOSITS

BERTRAND T. DENIS, *Chief*

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GEOLOGICAL REPORT No. 6

WEST PART OF  
VAUQUELIN TOWNSHIP

ABITIBI COUNTY

by

Carl Tolman



QUEBEC  
RÉDEMPTI PARADIS  
PRINTER TO HIS MAJESTY THE KING

1940

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**WEST PART OF  
VAUQUELIN TOWNSHIP  
ABITIBI COUNTY**

*by Carl Tolman*

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## WEST PART OF VAUQUELIN TOWNSHIP

### ABITIBI COUNTY

*by Carl Tolman*

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### INTRODUCTION

#### GENERAL STATEMENT

During the 1938 field season, the west half of Vauquelin township, Abitibi county, was geologically mapped and the mineral deposits of the area studied. For some years a variable amount of prospecting and development work has been carried on within the area, but in the summer of 1937 interest was considerably heightened as a result of the discovery of impressive surface showings of gold by the McDonough Mining Syndicate, Limited, on a property which was later transferred to the newly organized Maniwaki Mines, Limited. It was in response to this increased interest and consequent activity that the geological work of the 1938 field season was undertaken in this area.

Approximately three months were spent in the field. The areal geological mapping was compiled on the scale 1 inch equals 1,000 feet on a base-map supplied by the draughting division of the Bureau. Some mining properties and other local areas of significance were mapped on larger scales. Certain trails, roads, and details of drainage were surveyed by plane-table or by compass and tape. Additional control for geological mapping was obtained in places by chaining picket lines. Generally, positions of rock outcrops and other geological features were determined by pace-and-compass traverses. Areas of outcrop or probable outcrop were traversed in detail. The traverses elsewhere were variously spaced, but generally at intervals not greater than 2,000 feet.

#### LOCATION AND ACCESS

The northern boundary of the area lies about 17 miles due south of Senneterre, a town on the Quebec-Cochrane line of the Canadian National railway. From Senneterre, the Senneterre-Mont-Laurier highway leads southward and passes through the eastern part of Louvicourt township at or near the Vauquelin boundary. Access to the area by canoe is best made from the highway bridge over Louvicourt river. This river joins the Bell river, which traverses the area north-south and, with the associated Simon, Villebon, and Guéguen lakes, affords convenient means of access to most parts of the area.

A winter road has been cut from the Senneterre-Mont-Laurier highway eastward through the area to the McDonough (Maniwaki) property and beyond to the west shore of Matchi-Manitou lake. Another winter road leads northeastward from Bruell Gold Mines and connects with the winter road from Senneterre to the Lacoma Gold Mine property. Both of these roads were made by the Quebec Bureau of Mines with money obtained through the agreement between the federal and provincial governments to provide facilities for transportation to the mining areas.

### GENERAL CHARACTER OF THE DISTRICT

The map-area lies near the eastern margin of the clay belt of northern Ontario and Quebec, about ten miles north of the height-of-land between Hudson Bay and Saint-Lawrence drainage. It is characterized by low relief, with a general elevation between 1,050 feet and 1,150 feet, and includes some large sections that are poorly drained and in part swampy. The most extensive rock outcrops are found south of Guéguen lake and in a belt trending eastward from the south end of Simon lake. Elsewhere, outcrops are in general sparse and rise inconspicuously above the glacial or swamp deposits. Only at the northern shore of Simon lake were laminated glacial clays noted.

The area is wholly within the Bell River drainage basin, and included within it are Simon lake, the northern part of Villebon lake, and the western part of Guéguen lake. There is a difference in elevation of about 44 feet between Villebon and Simon lakes, taken up by rapids and a chute in the connecting stream, which is the site of a small dam and power plant, rated at 540 h.p. and owned by the Cournor Mining Company, Limited.

Green bush of variable quality covers the area throughout. Some good stands of black spruce are included, but, so far, logging has been confined to the vicinity of the Louvicourt and Bell rivers, in the western part of the area.

A few families of Indians are permanently settled on the shores of Simon lake and have cleared a small acreage of land suitable for cultivation. Generally, elsewhere in the area, the distribution of coarse glacial drift and the presence of flat, poorly drained or swampy stretches render the land unfavourable for agriculture.

### PREVIOUS WORK

The earliest geological observations within the area were those of Robert Bell and his assistants, made in connection with reconnaissance surveys passing down the Bell river, first in 1887 and later in 1895 and 1896 (1). The results of this field work were compiled by Robert Bell in 1900 into a report and map which included the present map-area (2). Further observations were made within the area by M. E. Wilson in connection with his extensive reconnaissance geological work in the general region (3).

The area is also included in the large region examined in a reconnaissance manner by G. W. Bain in 1924 (4). L. V. Bell and A. M. Bell (5),

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(1) BELL, ROBERT, Geol. Surv. Can., Ann. Rept., Vol. III, 1887-88, pp. 24-25A; Vol. VIII, 1895, p. 74A; Vol. IX, 1896, p. 64A.

(2) BELL, ROBERT, *The Basin of the Nottaway River*; Geol. Surv. Can., Ann. Rept., Vol. XIII, Part K, 1900.

(3) WILSON, M. E., *A Geological Reconnaissance from Lake Kipawa via Grand Lake Victoria to Kanikawinika Island, Bell River, Quebec*; Geol. Surv. Can., Summ. Rept., 1912, pp. 315-336.

*Ibid.*, *Temiskaming County, Quebec*; Geol. Surv. Can., Mem. 103, 1918.

(4) BAIN, G. W., *Barrute Area, Abitibi County, Quebec* (map only, No. 2057); Geol. Surv. Can., Summ. Rept., 1924, p. 126C.

*Ibid.*, *The Geology and Mineral Deposits of the Harricanaw and Bell River Basins*; Bull. Can. Inst. Min. and Met., Feb., 1927, pp. 201-247.

(5) BELL, L. V., and BELL, A. M., *Bell River Headwaters Area*; Que. Bur. Mines, Ann. Rept., Part B, 1931, pp. 59-123.

in 1931, systematically mapped a large area in the region of the headwaters of the Bell river which included the present map-area. In this valuable work, the general distribution of the major rock units is well indicated.

#### ACKNOWLEDGMENTS

The writer wishes to express his appreciation of numerous courtesies extended to him by prospectors and mining men in the region. Particular mention should be made of Mr. J. B. McConnell, Maniwaki Mines, Limited, Mr. Andrew Meyer, Bruell Gold Mines, Limited, and Mr. J. R. Dallaire, Consolidated Mining and Smelting Company of Canada, Limited, for their generous co-operation in furnishing essential information regarding properties under their management.

Edgar Bérubé rendered capable assistance in the field.

#### GENERAL GEOLOGY

The consolidated rocks of the area are all of Precambrian age. They include a thick series of the type generally referred to the Keewatin, consisting of volcanics with closely related intrusives; a series of sedimentary rocks of Temiscamian-type; and a variety of younger intrusives.

TABLE OF FORMATIONS

PLEISTOCENE AND RECENT	Unconsolidated Material	Sand, gravel, boulder clay, lake clay, muskeg and swamp deposits
PRECAMBRIAN	Intrusives	Gabbro
		Granite, quartz monzonite, granodiorite, diorite, quartz diorite, and their porphyries; quartz albite porphyry
		Hornblendite
	Temiscamian-type	Greywacke, arkose, conglomerate, and altered equivalents
	Keewatin-type	Acid to basic lava flows and associated tuffs, agglomerates, and intrusives; a complex of diorite and of igneous fragmentals (all variously metamorphosed)

#### KEEWATIN-TYPE

Rocks of the Keewatin-type, so widespread in western Quebec, predominate in the western and north-central part of the area. They display the general features of such rocks as described in nearby areas and consist largely of volcanics of intermediate and basic composition with some more acidic types such as rhyolite, together with tuffs and breccias of various kinds. Also, there are bodies of dioritic composition, some being thick, relatively coarse flows, and others sill-like intrusions; but in most of the dioritic outcrops it is not clear which of these types is represented. An area consisting dominantly of dioritic rock representing a component of the complex of diorite and of igneous fragmentals occurs near the eastern border of the map-area. Elsewhere, outcrops do not indicate masses sufficiently large to be mapped separately.

These rocks tend to be severely altered, particularly the intermediate to basic varieties. This alteration has generally resulted in the formation of sericite, carbonate, and chlorite, with saussuritization of the calcic plagioclases, and it may to a large extent obscure the original textural features of the rock. However, such structures as vesicles, amygdules, various flow and rounded structures, and pillows, commonly persist in spite of the alteration and were noted in a number of places. Pillow structure is not widely developed. In fact, only in two localities were well developed pillows noted—both in basic lavas—one near the township line west of the south end of Simon lake, the other south of Guéguen lake.

The complex of diorite and of igneous fragmentals is the most distinctive feature of the assemblage mapped as Keewatin-type rocks within the area. It is represented by a band about 4,000 feet wide characterized by exceptional development of igneous fragmentals, largely dioritic in appearance, as well as some true dioritic bodies. The band stretches east-west across the area just south of Simon lake and extends through the McDonough syndicate group of claims and the northern part of the Quemartic group. In it there are some thin beds of laminated tuff, but the most prevalent and characteristic material is more massive and coarser in grain and is locally termed 'diorite tuff', a name which, though not petrographically sound, is descriptive of the grain size and general appearance of the rock in its present altered condition. Commonly, this rock contains variable amounts of angular to subangular fragments of andesitic or dioritic material up to several feet in diameter and so would be best described as a breccia. In this zone, also, there are some thick, coarse andesitic flows and sill-like dioritic intrusions both characterized by the presence of included coarse fragments of the same material as is present in the prevailing type of breccia. These appear to be flow breccias, and in many places it is difficult to differentiate them from some thoroughly fragmental types. The general lack of clean outcrops adds to this difficulty. Of subordinate development are dioritic bodies containing no inclusions.

The most instructive exposures of Keewatin-type rock are found in the western part of the area, on Felix creek near the rapids, where trenching and stripping has exposed a number of slightly off-set sections aggregating about 250 feet in width. More than 90 per cent of the rock so exposed shows coarse fragments. Laminated tuffs are present in minor amount. In an exposure at the water's edge just above the rapids, the coarse fragmental rock is banded and coarsely laminated. Elsewhere in the exposure, such structure is poorly developed or not evident. The fragments, which typically make up less than 50 per cent of the rock, appear (as far as observation went) to be of very closely related rock types. They are now composed mainly of secondary sodic plagioclase together with a variable amount of such high-lime minerals as epidote, zoisite, and calcite, suggesting that the original feldspar of the rock was an intermediate to calcic plagioclase. The original texture of these rocks apparently ranged from aphanitic to fine grained, but they are now commonly porphyritic, with plentiful phenocrysts of the secondary plagioclase. The matrix of this breccia is also highly feldspathic and has the same general grain-size as the larger fragments, but it is more greenish in colour, as a consequence of the greater development within it of chlorite and epidote. This matrix, as stated before, has an altered dioritic appearance. The rock appears undoubtedly to be a volcanic breccia.

Volcanic breccia predominates in the Keewatin band eastward to and just beyond the main exploratory workings on the Maniwaki property. In the neighbourhood of the workings some flow breccias are present as well as dioritic bodies devoid of fragments. Farther east, the flow breccia predominates and much of the rock is particularly massive and dioritic in appearance, the included fragments being for the most part almost indistinguishable except in a freshly uncovered outcrop. The rocks in the northern part of the Quemartic property are mainly of this type and have been indicated separately on the map as composed dominantly of diorite.

#### TEMISCAMIAN-TYPE

Clastic sedimentary rocks are found in two parts of the area. One occurrence is in the north and would appear to represent the westward extension of a band, less than one mile wide, mapped to the east, in eastern Vauquelin and in Pershing township, by L. V. Bell and A. M. Bell (1); the other, in the southern section of the area, represents the northern part of an extensive series of these rocks that extends to the south, beyond the limit of the map-area.

In both occurrences, these sedimentary rocks are mainly greywacke but they include conglomerate, arkosic varieties, and some slate. They have been subjected to considerable metamorphism which has converted them, and particularly the fine to medium grained varieties, into hornblende, mica, and garnetiferous schists. The conglomerates are distinctive. They were noted in two localities, one in the southern part of the area, on the Blue Grass claims, the other on the Aurora property and representing part of the northern sedimentary band. The distribution of pebbles and cobbles, or roundstones (2), in the conglomerate is characteristically sparse and somewhat erratic. As a consequence of this feature, and also of inadequate outcrop, precise delimitation of the conglomerate horizons is not possible. The 'roundstones' in the conglomerate are generally well rounded and consist largely of granitic rock-types with a few of felsite. An interesting feature is their uniformity of size, between two and three inches. Only rarely is one encountered smaller or larger than this. At the Blue Grass property, the conglomerate is especially well exposed (see Map 480). It is in the lower part of the series, in the region of the contact between the sediments and the underlying volcanics. The conglomerate on the Aurora property, in the northern band of sediments, is exposed only to a very limited extent in some stripping and, as observed, is represented by a few granitic roundstones, averaging three inches in diameter, in a greywacke matrix. Greywacke outcrops a short distance to the north, followed by black and green slates which give way to undoubted volcanics, while to the south there is a wide, low-lying swampy area of no outcrop, beyond which the rocks encountered are volcanics.

Reference to the map will show the presence of two bands of Keewatin-type rocks apparently interbedded with the Temiscamian-like sediments on the Blue Grass Option property in the southern part of the area. Lack of outcrops prevents following these rocks along their trend and the more definite determination of their relation to the sediments.

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(1) *Op. cit.*

(2) General term applied to the rock fragments in a conglomerate, whether they are pebbles, cobbles, or boulders.



### GRANITIC INTRUSIVES

The southwestern end of the Vauquelin-Pershing intrusive mass lies within the east-central part of the area, and the Pascalis-Tiblemont intrusive extends for a short distance within the northeastern corner. Dykes related to these masses are found farther afield in the area.

The work of L. V. Bell and A. M. Bell has shown that the Vauquelin-Pershing mass is composed principally of quartz monzonite, with earlier, more basic facies (1). Within the present map-area, the intrusive outcrops in the vicinity of the southwest shore of Guéguen lake. Typically it is a dark rock of dioritic aspect, evidently representing an early phase of the intrusive. It is obviously much altered and in thin section it is seen to consist largely of secondary minerals. The original plagioclase feldspar has been completely saussuritized and is now represented largely by zoisite, epidote, and albite. In one section, oligoclase (Ab78) was noted, but it, likewise, appeared to be a product of the breaking down of a more calcic plagioclase. Secondary hornblende, chlorite, and, rarely, biotite are present in variable amount. As already noted, the abundance in the saussurite of the high-lime minerals, zoisite and epidote, suggests that the original plagioclase was quite calcic, and that, before alteration the rock was probably a basic diorite or a gabbro. Cutting this rock are less basic varieties, with and without quartz, usually porphyritic, but otherwise showing considerable range in texture. The most prevalent type is grey, medium grained, and not conspicuously porphyritic. Some have the general composition of granodiorite but most commonly they are quartz-monzonites or monzonites, in that appreciable quantities of potash feldspar are present.

In some dykes, such as one at the Maniwaki property, the original plagioclase is quite sodic and the rock would be classified as sodic syenite or, when quartz is present, as sodic granite. In addition to these types there is a particularly striking variant, a quartz monzonite, occurring as dykes usually cutting the earlier basic phase of the intrusive and consisting of a fine to medium grained groundmass containing conspicuous coarse phenocrysts of quartz, plagioclase (commonly with pronounced zoning), and orthoclase.

The southern margin of the Pascalis-Tiblemont mass is exposed only at one point, in a trench on the Vauquelin-Tiblemont township-line, the northern boundary of the map-area, but small intrusives that are exposed farther southwest, on the Bruell and Aurora (Avocalon) properties, are probably related to the main body. This intrusive mass extends far to the north, where it consists mainly of soda granite, but with more basic differentiates (2). The rock seen in the trench referred to is considerably sheared and is of two types, a granite or quartz monzonite and a more basic dioritic rock. The intrusive material on the Bruell and Aurora properties is mainly a coarse, conspicuously porphyritic, sodic granite, or quartz-albite porphyry, with some associated finer grained granitic dykes.

North of the Louvicourt river and just east of the Louvicourt-Vauquelin township-line is a small intrusive mass, of, predominantly, granodiorite. It is probably related to a larger body of similar rock to the west, in Louvicourt township.

(1) *Op. cit.*

(2) BELL, L. V., and BELL, A. M., *Senneterre Map-Area, Abitibi District; Que. Bur. Mines, Ann. Rept., Part B, 1933, pp. 28-32.*

### HORNBLENDITE

Between Bell river and the Vauquelin-Louvicourt township-line, a body of hornblendite and closely related rock is exposed in trenches. Its relationship to the other igneous rocks of the area is not clear. Probably it represents an early, basic phase of the igneous activity that gave rise to the larger, granitic masses in the region. It appears to be at or near the contact of volcanics (to the south) and clastic sediments, predominantly greywacke and arkose, to the north. Rock of this general character may be either igneous or a product of metamorphism of a variety of rock types. That the body here referred to is igneous, though altered by metamorphism, is indicated by the occurrence of small dykes of related rock cutting clastic sediments and rocks of the general Keewatin-type.

One conspicuous variety is crowded with rather stout phenocrysts of hornblende up to half an inch in length which, under the microscope, are seen to contain numerous inclusions of magnetite and well-formed crystals of augite and apatite. The groundmass is medium grained and consists largely of augite and biotite, with minor amounts of hornblende, apatite, magnetite, and epidote. Other varieties are equigranular, medium to coarse grained, and made up principally of hornblende with a variable amount of biotite and, less commonly, augite; in all of them, apatite and magnetite are conspicuous accessories.

### GABBRO

The latest igneous activity in the area is represented by some relatively unaltered gabbroic dykes. They can probably be correlated with the 'later gabbro' dykes that occur elsewhere in western Quebec. Four of these dykes were especially noted: one on the west shore of Simon lake, two just west of Villebon lake near the southern boundary of the area, and one on Portage island, Guéguen lake. All are less than 250 feet in width. One of the dykes west of Villebon lake cuts Temiscamian-type sediments; the three others cut volcanics. As regards strike, that of one of the Villebon Lake dykes is northwest, the other northeast; the Portage Island dyke strikes east-west; and the strike of the Simon Lake dyke is indeterminate. All are rather typical gabbros, consisting of labradorite and augite, the latter replaced in varying degree by amphibole. The rocks at Simon lake and Portage island show well developed diabasic texture. All these dykes contain a very minor amount of quartz, either late magmatic or an alteration product.

### PLEISTOCENE AND RECENT

Throughout the map-area, bedrock is largely concealed beneath glacial débris and swamp or muskeg accumulations, so that rock outcrops are not very abundant. Large, flat swampy sections are entirely devoid of outcrop and, even though the overburden may be thin, trenching is difficult on account of water.

The glacial material consists largely of boulder clay. There are some areas of sand plain, and on the north and east shore of Simon lake varved clays were noted. Gravel or cobble-boulder ridges occur in various parts of the area and range from narrow imperfect esker-like forms to large

ridges, some of which probably have a rock core. They tend to be elongated in the direction of ice movement, which, as indicated by glacial striae, was southwestward. The position of some of the ridges is indicated on the map.

## STRUCTURE

The volcanics and sedimentary rocks of the area are in some measure schistose, although in many places schistosity is only locally developed. As reference to the map will show, the general structural trend is about N.80°W., with the strike of the schistosity corresponding fairly closely to that of the beds. Dips are everywhere steep.

The Pascalis-Tiblemont batholith lying to the north, and the Vauquelin-Pershing batholith lying to the east, and both extending only a short distance into the map-area, undoubtedly are important structural elements. The intrusion of these masses of relatively greater competency would bring about a deviation in the structural trend of the weaker surrounding rocks. Also, in the vicinity of the contacts, regional stress might be most effectively relieved, resulting in relatively strong shears and fractures. This reasoning is borne out by the discovery, at such contacts, of some fairly strong 'breaks', variously mineralized, but recognition of such structural features in much of the area is seriously hindered by scarcity of outcrops.

Sizeable bodies of diorite regarded as part of the Keewatin-type assemblage may likewise have structural significance. In different parts of Quebec important mineralization has been found in close areal association with such bodies, either within the rock itself or closely adjoining. The mineralization within the complex of diorite and of igneous fragmentals may be mentioned in this regard. Although some occurrences of mineralization may be genetically related to this igneous activity, more probably in most cases the localization of the mineralization is a consequence of the structural behaviour of the dioritic bodies. The diorite may be more competent than the surrounding rocks and on deformation yield fractures more favourable to the passage of mineralizing solutions than those developed in the weaker surrounding rocks. Furthermore, under certain conditions of rock association and stress relations, the presence of a relatively resistant diorite body acting as a local buttress may result in exceptional fracturing or shearing of the adjoining rocks of the type favourable for the localization of mineralization. Most of the igneous fragmentals of the complex of diorite and of igneous fragmentals, including the so-called 'diorite tuff', are strong, compact rocks and would behave structurally in a similar manner to the diorite.

Scarcity of outcrop also interferes with the adequate study of folding in the volcanics and sedimentary rocks. A reasonably good sequence of pillow lavas south of Guéguen lake, and one west of Simon lake, indicate in each instance that the tops of the flows face south. A determination farther south in the sediments, based on the gradation in grain in arkosic bands, suggests that the beds have a similar attitude. Thus a monoclinical structure, with the sediments lying stratigraphically above the volcanics, is indicated in the southern part of the area. Whether the monoclinical relationship persists northward through the area cannot be said definitely because of the lack of structural observations that can be regarded with

confidence. There is some suggestion of an anticlinal axis, possibly of minor character, near the south end of Guéguen lake. Bearing on this is a poor determination indicating tops facing north based on gradation in grain in banded sediments on the property of Wisewill Gold Mines, west of the Bell river. Whether the northern band of sediments overlies the volcanics in a downfold or is interbedded with them cannot be determined until more data are available.

No structural discordance was noted between the volcanics and the sediments, either in the southern or the northern part of the area; rather, the data suggest a gradational relationship in each case. Bands of volcanics were found within the lower part of the sediments in the southern part of the area. As regards the northern sedimentary band, outcrops are lacking in the vicinity of the presumed contact between the sediments and the volcanics to the south of them, but northward, the clastic sediments of Temiscamian-type seem to give way to black and green slaty rocks, probably at least partly of tuffaceous origin, and finally to undoubted volcanics.

### ECONOMIC GEOLOGY

By reason both of the general geology and structure, the map-area may be considered favourable for significant mineralization. In particular, two bodies of batholithic rock extend into, and terminate within, the area, and both are of the type to which mineral deposits have been shown to be genetically related. Also regarded favourably is the presence as components of the Keewatin-type rocks of bodies of diorite and other rocks of similar competency. Significant mineralization in this part of Quebec has been found in close association with this type of rock, probably as the result of structural influence. Such rock bodies and the areas closely surrounding should therefore receive consideration in prospecting. Bodies of mappable size are largely restricted to the complex of diorite and of igneous fragmentals.

Mineralization is widespread. It includes quartz veins, commonly tourmaliniferous and barren, or nearly so, of sulphides; and shear-zones, variously carbonatized and silicified, and in most places containing appreciable amounts of sulphides. However, over large parts of the area, effective prospecting is seriously hindered by scarcity of outcrops.

During the summer of 1938, Maniwaki Mines, Limited, Bruell Gold Mines, Limited, and the Consolidated Mining and Smelting Company of Canada, Limited, were all actively engaged in prospecting and exploration within the area.

#### McDONOUGH MINING SYNDICATE, LIMITED (MANIWAKI MINES, LIMITED)

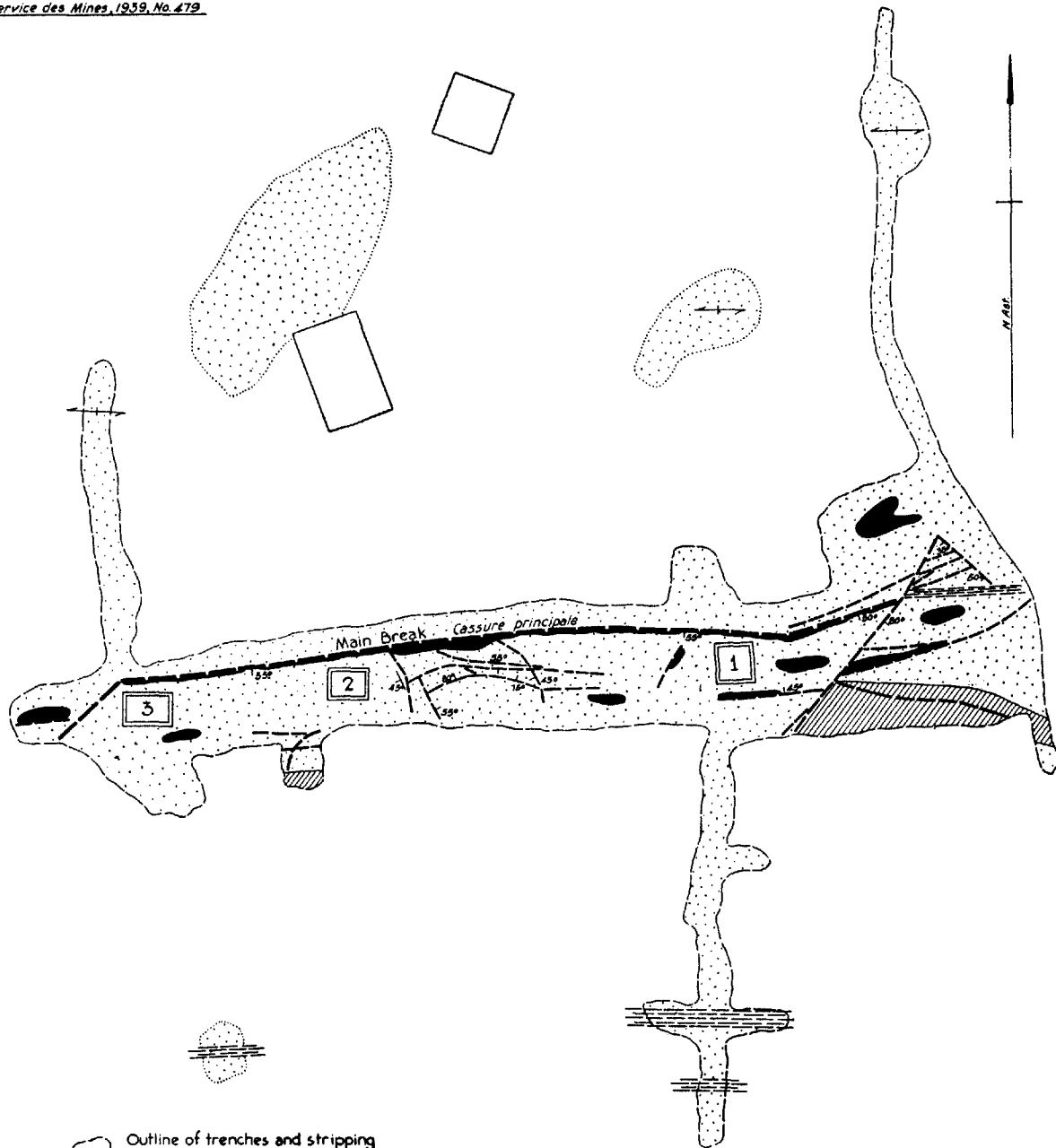
This group of 25 surveyed claims, bearing numbers A-66010-24, 66035-39 and 71068-72, is in the southwestern quarter of Vauquelin township. The group was staked by McDonough Mining Syndicate, Limited, in the fall of 1936. In June, 1937, interesting gold showings were discovered and shortly afterward Maniwaki Mines, Limited, was formed to take over the property. This Company carried on exploration, including the sinking of test pits and diamond drilling, until August,







1938, when work was suspended. The property was later acquired by Playsafe Mines, Limited. Some permanent camp buildings have been constructed which are reached by a road from the southeast corner of Simon lake, three-quarters of a mile distant. Passing through the property, also, is a winter road which extends eastward from the Senneterre-Mont-Laurier highway to the west shore of Matchi-Manitou lake.




In the region of the discovery, on claim 66010, an area about 300 feet long east-west, approximately parallel to the general strike of the formations, and ranging from 30 to 75 feet wide, was completely stripped of overburden. Some cross trenches were made farther east along the strike, and it was in the course of prospecting along a picket line representing the supposed strike of a 'break' exposed in these trenches that the mineralization was found. On the showing, three prospect pits were put down, No. 1 to a depth of 23 feet, No. 2 to 46 feet, and No. 3 to 24 feet (see accompanying sketch-map No. 479), and material taken from these was bulk sampled. Previously, some diamond drilling had been done with the object of intersecting the showing, and its assumed extension along the strike, at depth.

A band of volcanics, made up largely of a remarkable development of igneous fragmentals, traverses this part of the area and the prevailing country rock of the mineralization is a coarse tuff containing sparsely distributed, relatively large fragments of coarse andesite, uniformly low in dark minerals. The large fragments are generally elongated, with subangular to angular outline, and range up to a number of feet in longest dimension. The rock as a whole is highly feldspathic and has been much altered, with formation of epidote, zoisite, albite, carbonate, and chlorite, the last named largely confined to the matrix which, as a consequence, has a slightly deeper green colour than the fragments. The main structural feature of the deposit is a conspicuous fracture within the tuff, striking S.83°W. and dipping 55° south, and extending uninterruptedly for about 200 feet. A discontinuous, somewhat lens-like, acidic porphyry intrusion, with a maximum exposed width of 15 feet, parallels the fracture on the south, about 30 feet distant from it. Under the microscope, this porphyry is seen to have plentiful phenocrysts of both sodic plagioclase and orthoclase in a fine grained groundmass. It is heavily carbonatized and, except for a few shreds of chlorite, contains no dark minerals. The rock may be classified as a sodic syenite porphyry. The same body was encountered in drill holes both to east and west of its exposed limits, and a small amount of similar rock is exposed in prospect pit No. 2. The distribution of this rock is irregular, probably due largely to faulting, but the fact that it was intersected in the drill holes suggests that the displacements are small. Coarse andesite or diorite is exposed by a trench and was also encountered in some of the diamond-drill holes. Due to similarity in mineral composition, this rock is difficult to distinguish from the tuff.

The main fracture is mineralized to a maximum width of two feet with quartz, plentiful tourmaline, sparsely distributed pyrite, and a little chalcopyrite, sphalerite, and ankerite. Along its hanging-wall side there are fairly numerous intersecting fractures, generally involving little displacement and containing narrow lenses of quartz with variable amounts of tourmaline; and both ends of the main fracture, as exposed in the stripping, appear to become dissipated or fray out into such subor-



-  Outline of trenches and stripping  
*Délimitation des tranchées et du décapage*
-  Outcrops  
*Affleurements*
-  Fault, with dip, mineralized  
*Faïlle minéralisée, montrant l'inclinaison*
-  Shear zone  
*Cisaillement*
-  Strike of schistosity, dip vertical  
*Direction de la schistosité, pendage vertical*
-  Pits  
*Puits*

-  Quartz or areas rich in quartz  
*Quartz, ou étendues riches en quartz*
-  Acid porphyry  
*Porphyre acide*
-  Tuff or breccia, some dioritic material  
*Tuf ou brèche, quelques roches dioritiques*

Scale of feet  
50  
100  
*Echelle de pieds*

Map No. 479.—Main showing, McDonough Mining Syndicate, Limited.

dinate fractures. The most conspicuous of the fractures are shown on the sketch-map (Map No. 479). In addition, there are cross-stringers of quartz only a few inches wide. Generally, they are of clean-looking white quartz, with no tourmaline. The major cross-fractures are later than, and displace, the main fracture and other east-west fractures. The irregular nature of the minor fractures is well seen in the prospect pits, and in them, also, the conspicuous main fracture does not seem to maintain the strength it has on the surface.

Relatively coarse gold was found on surface in the small, inconspicuous cross-fractures. Gold values were also obtained in assays of material from some of the more conspicuous cross-fractures and from parts of the main fracture. Quartz, tourmaline, carbonate, and feldspar, in order of abundance, are the non-metallic vein-forming minerals. The carbonate, as indicated by its yellow, iron-stained appearance, may be ankerite. The feldspar is alkalic and some, at least, is albite. It is sericitized to some extent. Quartz is far the most prevalent vein material and its deposition seems to have been recurrent throughout the period of mineralization. The earliest quartz, small in amount, is associated with relatively coarse alkali feldspar, the whole having a somewhat pegmatitic appearance. Carbonate is later, but it is seamed by quartz which, in turn, is earlier than the tourmaline. The bulk of the quartz, a white variety, is later than the tourmaline. The latter is a very conspicuous vein material, especially in the main fractures and in some of the major cross-fractures where, in places, it is practically massive; elsewhere, variable amounts occur disseminated in the quartz. The sulphides were introduced later than any of the gangue minerals, in the order, pyrite, chalcopyrite, sphalerite. However, it is only locally that they appear in appreciable amounts. The conspicuous free gold that has been found was unaccompanied by other metallic minerals, occurring in minute, late fractures, generally in quartz. Gold also occurs closely associated with sphalerite, and the management states that, generally, gold values increase with the sphalerite. Polished sections confirm this close relationship of gold and sphalerite, for their mutual contacts suggest no age difference. Thus the gold definitely has two modes of occurrence and ages, one with the sulphides, the other independent of them and occupying late fractures.

The accompanying sketch-map (Map No. 479) shows the geological relations at the main discovery. Trench No. 1 is the discovery trench, which was opened along the projected strike of a sparsely mineralized shear that had been exposed in a trench over a quarter of a mile to the east. Trench No. 2 was then opened, and it also revealed a striking development of free gold. Thereupon, the general stripping and diamond-drilling programme was undertaken. When the results from the drilling near the showing proved disappointing, three pits were sunk and the material obtained from them bulk sampled. The best bulk-sampling results were obtained from pit No. 1, particularly between 8- and 10-foot depths, just above the intersection of the main break with a similarly mineralized fracture striking in the same direction but with opposite dip. Sphalerite and other sulphides were relatively abundant at this point. Pit No. 2 gave poor assay results throughout, although some native gold was observed; quartz related to cross-fractures was not plentiful, and sulphide mineralization was practically absent. Near the bottom of this

pit, a thickness of about ten feet of acid porphyry was passed through. In pit No. 3, only the first few rounds gave interesting gold assays; also, some free gold was noted here. In all the pits, there seemed to be a decrease in quartz with depth. Material from a number of places on the surface was bulk sampled but the assay results indicated that gold values were very spotty.

A total of 677 feet of diamond drilling has been carried out on the property in 30 holes, of which two failed to reach bedrock. These holes were designed to intersect the showing, and its possible extension to east and west, at shallow depths. Core assays failed to reveal ore. The drilling indicated that the acid porphyry mass south of the showing has reasonable, though irregular, continuity. Quartz and other mineralization was intersected by the drilling, but it was difficult to distinguish the main break or to correlate in any way from hole to hole.

The property seems advantageously situated from the standpoint of areal geology and structure. In view of the fact that the surface mineralization is so attractive, and that exploration to date has been largely confined to the close vicinity of the surface indications, further exploration to determine more fully the general structural relations and to seek other zones of mineralization appears to be warranted.

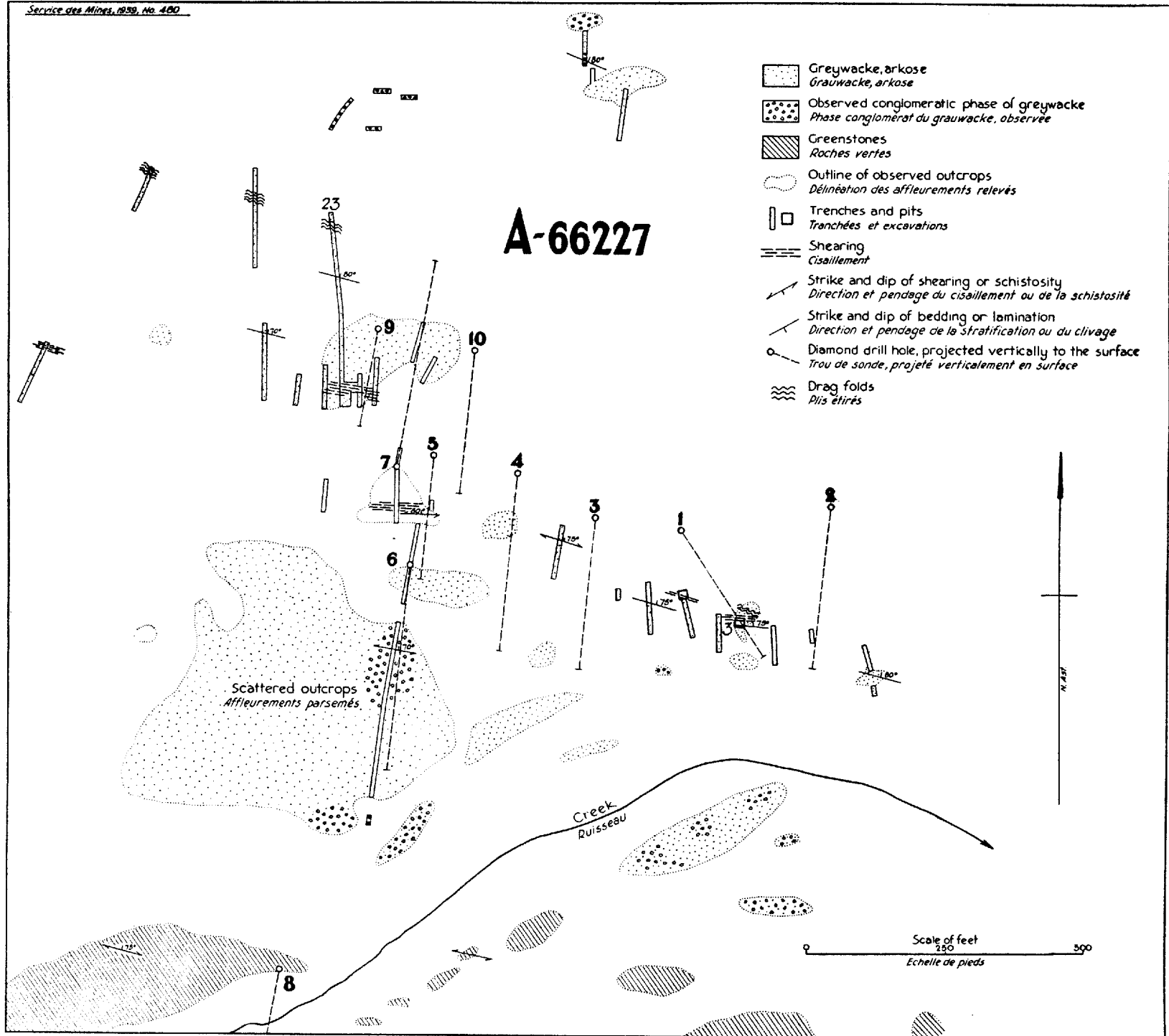
#### LEBLANCQ GROUP (BLUE GRASS OPTION)

This group of claims, lying south of the McDonough Syndicate group and west of Quemartic, has been actively prospected by the Consolidated Mining and Smelting Company of Canada under option. The option was allowed to lapse in the summer of 1938. In the fall of 1938, the group was optioned by Raymond Tiblemont Gold Mines, Limited, and during the winter they did some work on the property. The writer has no first-hand knowledge of the results of this work.

The work by the Consolidated Mining and Smelting Company consisted of general prospecting, with trenching of overburden at promising localities, the drilling (jointly with Quemartic Mines) of two holes at the eastern boundary of the property, and a concentration of trenching, pitting, and diamond drilling on two adjacent and roughly parallel mineralized shear-zones on claim A-66227.

The showing on claim A-66227 (see Map No. 480) occurs in sediments of Temiscamian-type near their contact with volcanics to the north. Some bands of volcanic material occur also within the sediments south of the showing. The prevailing country rock is greywacke, which is conglomeratic in places and includes also some fine-grained beds that are almost slaty. All types have been metamorphosed and are now represented by mica and hornblende schists, in which, however, such primary structures as bedding and lamination have not been completely obliterated. Most of the greywacke is coarsely bedded, but some is characterized by lamination as fine as one-tenth of an inch. The general strike ranges from due west to N.80°W. and the dip is steep, generally to the north. Gradation of grain in a number of laminae in sequence indicates that the tops of the beds face south. Bedding is absent or little developed in the conglomerate. The rock is characterized by a very sparse distribution of 'roundstones' in a fine greywacke matrix, the average in most places being, perhaps, one per square yard of surface, although there may be many square yards





Map No. 480.—Main showing, LeBlanc group (Blue Grass option).

with only the odd one. The roundstones are mainly granitic rock, but some are felsitic rock-types. They are usually well rounded and rarely above three inches in diameter—the largest observed was twelve inches.

The original discovery was made at pit No. 3, in which is exposed a shear, five or six feet wide, sparsely mineralized with fine to coarse arsenopyrite and pyrite, in schistose laminated greywacke. Free gold has been reported here. A very minor amount of feldspar, partially sericitized, was noted in the shear. Carbonatization is general. The strike of the laminae of the greywacke is N.85°W., with dip 75° north, and this trend is closely paralleled by the schistosity and shearing. Some irregular cross-fracturing is to be seen in the rocks exposed in the pit, and nearby are some conspicuous drag-folds with amplitudes up to one foot and pitching 45° at N.80°E. This shear, sparsely mineralized and not particularly strong, has been exposed in trenches adjoining the pit, and gold values are reported in material taken from these openings. Diamond-drill holes, as shown on the sketch-map, were put down to intersect the mineralization at depth but they failed to indicate an ore-body. Interesting gold assays were obtained only in one hole.

Further mineralization was encountered in the south end of trench 23, in banded, and in part laminated, greywacke, which strikes N.85°W. and dips 80° north. Here, a carbonatized shear, about 30 feet wide, is sparsely mineralized with quartz, a little coarse alkali feldspar, and some arsenopyrite and pyrite. Native gold has been observed here. The shear is exposed in adjoining trenches but in these it does not appear as strongly developed. It has been diamond-drilled, as shown on the sketch-map, but the assay results from the drill cores were not significant. The greywacke in the north end of trench 23, and nearby in other trenches to the west, shows conspicuous, small drag-folds, pitching about 65°N.E., but, apart from some narrow quartz veinlets, no mineralization is associated with them.

The possibility that the drag-folding near trenches 3 and 23 is an indication of structural elements that have influenced the localization of the mineralization might be pointed out. The most significant gold mineralization is near these drag-folds. Their orientation is not such as would ordinarily result from movement, between beds, attending the regional folding; it has been determined, rather, by some cross-structure, such as a fault or subsidiary fold. Since such structural conditions are sometimes important factors in the localization of mineralization, more extended lateral exploration at these two localities, in order to obtain additional structural data and to search for significant mineralization, seems warranted.

#### QUEMARTIC MINES, LIMITED

Quemartic Mines, Limited, owns a group of 30 claims at the east boundary of the map-area. The property is immediately east of the Blue Grass group and south of the easternmost claims of the McDonough Syndicate. Following the discovery of gold on the latter property, the Quemartic claims were actively prospected, the work including considerable trenching and rock-pitting, and the boring of two diamond-drill holes. Some permanent camp buildings were erected on claim A-63449 and a winter road was cut from them northward to join the government

winter road that passes through the McDonough property. Work was suspended in the spring of 1938.

The northern part of the property lies within the band of diorite and igneous fragmentals that crosses the area just south of Simon lake. In this locality, the band contains more diorite or coarse andesite, with the usual numerous inclusions, than it does farther west; also, narrow granitic dykes are fairly plentiful. A number of conspicuous quartz veins are exposed, and work has been done on some of them, but they appear generally barren.

To the south, in greenstone volcanics but near their contact with the sediments, considerable trenching has been done on approximately east-west shears, mineralized with quartz, carbonate, and sulphides. Two main zones are indicated, both on claim A-63449. The more northerly is well exposed in trenches 3a, 4, 5, and 6, about 500 feet east of the western boundary of the property. It strikes about S.70°W. and, beyond the trenches at both ends, it passes beneath heavy overburden. Where seen in the trenches, the zone is sparsely mineralized with milky to vitreous quartz and very little pyrite. Native gold is reported from trenches 5 and 6.

The other zone is about 400 feet south of that just described and, as far as could be seen, it strikes approximately east-west. On the west, it appears to be cut off by a diagonal fault, seen in trench 23, about 350 feet east of the western boundary of the property. Eastward from here about 25 feet, it was picked up in trench 24, which was filled with water at the time of the writer's examination. Beyond this, the zone is concealed beneath heavy, swampy overburden. It has an exposed width of about 6 feet in trench 23. The shearing is coarse and contains veinlets of bluish and milky quartz, with very little pyrite, pyrrhotite, and arsenopyrite. Fairly coarse gold is reported, particularly along subsidiary northeast fractures. About 500 feet eastward along the projected strike of this zone, on higher ground, a trench has exposed a coarse shear in which there are white quartz stringers.

At the western boundary of the property, two drill holes were put down jointly by Quemartic and the Consolidated Mining and Smelting Company, who held the adjoining LeBlancq (Blue Grass) property under option. The two holes, 441 feet and 662 feet, respectively, and dipping 30° due south, were designed to cross-section and explore the extended line of strike of the two mineralized zones just described. No encouraging gold assays were obtained from the core, but some strong shearing, mineralized with quartz and sparse sulphides, was encountered. The southernmost hole, and the lower part of the other, appear to be in sediments that are dominantly slaty or tuff-like.

#### BRUELL GOLD MINES, LIMITED

This property comprises a group of 18 claims in the northwest part of Vauquelin township, a short distance east of Bell river. It is immediately north of Aurora Mines. The camp is connected to the river, 4,000 feet distant, by a tractor road. Also, a recently-cut government winter road leads from the property to the Senneterre-Lacoma winter road. Work on the property in former years has included trenching, test pitting, and the sinking of two shafts to depths of 45 feet and 85 feet, respectively.

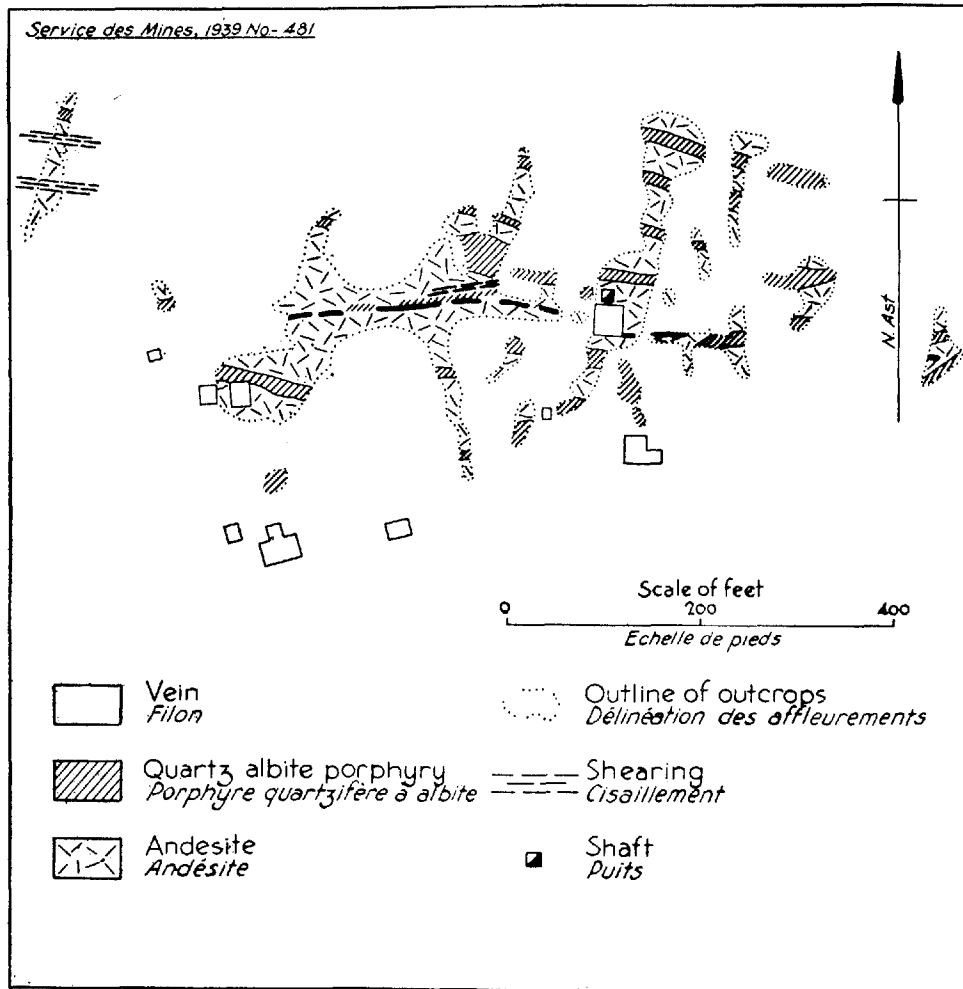


Figure 1.—Surface geology near discovery vein, Bruell Gold Mines, Limited.

The equipment includes a small mining plant. At the time of examination by the writer, a programme of diamond drilling was in progress, but operations were suspended in the fall of 1938.

The mineralization is in volcanics, predominantly andesites, which at this locality are intruded by a number of dykes of quartz-albite porphyry and by a small elongated boss of similar rock. The texture of the quartz-albite porphyry ranges from conspicuously porphyritic, with very coarse phenocrysts of quartz and albite in a coarse grained groundmass, to fine grained, with few and inconspicuous phenocrysts. All the larger intrusions, and some of the small ones, are of the coarse type. In the region of the discovery vein, the two extremes of texture may be seen in the same dyke.

The principal deposits are of two types: (1) Lenticular occurrences of quartz, usually tourmaliniferous and with associated pyrite, which follow steeply-dipping east-west fractures; coarse visible gold is reported in the deposits of this type and some high, though erratic, assays have been obtained. (2) Carbonatized and silicified shear-zones mineralized with pyrite and ranging up to several tens of feet in width.

Mineralization of the first type is dominant in the vicinity of the camp buildings and is represented by a number of lens-like quartz veins (see sketch-map, Figure 1). The most persistent of these is the 'discovery vein,' which is exposed intermittently for several hundred feet along its strike, almost due east-west, largely by trenching and test-pitting. Shaft No. 1, 45 feet in depth, was sunk on this vein, and it has also been explored by diamond drilling. A narrow quartz-albite porphyry dyke follows the vein for part of its exposed length. The vein contains tourmaline, very little pyrite, and some specularite. Native gold, some of it quite coarse, is reported to have been found in the vein at a number of points.

Most of the carbonatized shear-zone type of mineralization lies to the east of the discovery vein. It has been revealed largely by diamond drilling in an area of swamp. Beginning about 1,200 feet east of shaft No. 1, such mineralization has been intersected eastward for some 3,000 feet by variably spaced diamond-drill holes. Shaft No. 2 is in this zone, about 1,500 feet east of shaft No. 1. A carbonatized zone (vein No. 6) about 400 feet north of the discovery vein is possibly a western extension of this mineralization. Zones up to several tens of feet in width were intersected in the drilling. Some of them contain lenses of tourmaline-bearing quartz. Low but interesting gold values over considerable widths have been reported from these drill cores. However, closer drilling is needed to establish the degree of continuity of the mineralization. Throughout the belt there are many narrow intrusions, generally parallel to the structure, of quartz-albite porphyry, usually very coarse in grain but in places quite fine. Their continuity is variable. Also, roughly parallel to the belt of mineralization and about 400 feet to the south of it, is a large mass of coarse quartz-albite porphyry having a maximum thickness of about 1,000 feet and trending somewhat north of east. Correlation of diamond-drill cores suggests that the general east-west trend in the region of the discovery vein changes around the nose of this large intrusion to about N.20°E. at shaft No. 2, then gradually back through east-west to somewhat south of east at the east end of the belt as indicated by drilling. Generally, the dip is very steep to the south. This change in trend may be related to the shape of the large intrusion, but the diamond-drill data and sparsely distributed outcrops are inconclusive on this point. It is in the region of this change in trend near the east end of the belt that the greatest development of the carbonate replacement mineralization appears to occur. All of which suggests that, from present indications, this is the most favourable section of the property for further exploration, and it was here that the recent diamond drilling was concentrated.

#### AURORA MINES, LIMITED

This property consists of a group of 36 claims in northwestern Vauquelin township, immediately south of Bruell Gold Mines. The property formerly belonged to the Avocalon Mining Syndicate, Limited, and

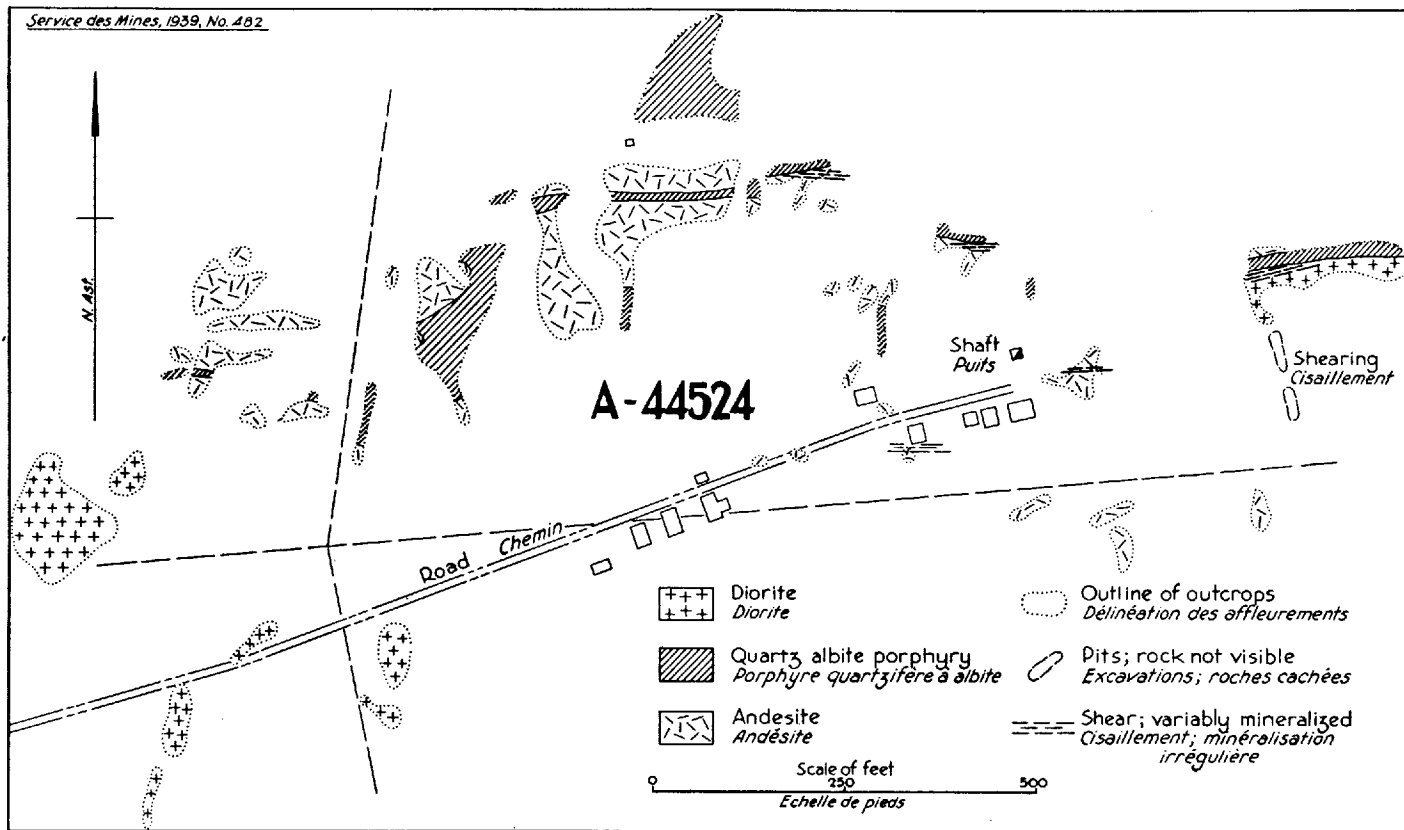


Figure 2.— Surface geology of shaft area. Aurora Mines, Limited.

was taken over by the newly-formed Aurora Mines, Limited, in 1938. Twenty of the claims have been surveyed into blocks of four claims each. A road leads from the camp to the Bell river, and another to the Bruell property, where connection is made with the government winter road to Senneterre.

The property has been explored by trenching, test-pitting, and diamond drilling, and by means of a shaft, reported to be 121 feet deep with about 900 feet of lateral work on the 100-foot level. Also, a geophysical survey has been made on the property. Some surface work and diamond drilling was carried out in the spring and early summer of 1938. Operations were suspended at the time of the writer's examination and the underground workings were not accessible.

The country rock (see Figure 2) is of the Keewatin-type, principally diorite and andesite, some of which is pillowed. Intruding these are a number of dykes of quartz-albite porphyry, generally paralleling the structure. To the northwest, on the adjoining Bruell ground, is the elongated boss of similar rock referred to in the description of that property. Less than 1,000 feet south of the shaft, green slate, probably a tuff, is exposed, followed by darker coloured slates. Yet farther south, about half a mile from the shaft, there are coarse clastics, including conglomerates of the Temiscamian-type. Except in the neighbourhood of the main showing, outcrops are not plentiful on the property.

The accompanying sketch-map (Figure 2) indicates where mineralization has been found on the property. Native gold has been reported at a number of points, both on the surface and underground. In two outcrops north of the shaft, vein material is exposed at the south contact of a porphyry dyke with the Keewatin-type country rock. Probably they are separate quartz lenses, but they could represent the faulted parts of a single lens. Test-pitting here has exposed a maximum width of 12 feet of carbonatized greenstone, traversed by stringers of milky to vitreous quartz which contain a little pyrite. The greenstone strikes due west, with vertical dip. About 100 feet east of the shaft, a pit, filled with water at the time of examination, has been opened in some vein material showing tourmaliniferous quartz and a little pyrite. Another shallow pit, about 180 feet southwest of the shaft and near one of the camp buildings, exposes a three-foot width of mineralization consisting of quartz, tourmaline, chlorite, and a little pyrite. Strong shearing is indicated in rock trenches about 340 feet east of the shaft and there appears to be some quartz-tourmaline mineralization; detailed examination was prevented by water. Considerable drilling has been done in the vicinity of the shaft, but the writer has no information on the results obtained. The work carried out in the spring and early summer of 1938 consisted of trenching and diamond drilling in a low-lying area about a quarter of a mile east of the shaft. The results of this work are not known to the writer; the drilling data were not accessible to him, and at the time of his visit the trenches were filled with water.

#### RUSSIAN KID GROUP

This property covers a large acreage south of the western arm of Guéguen lake, in the eastern part of the map-area. The claims were staked in 1924, and among those who carried out early exploration work on them was Nipissing Mines Company, Limited. In 1937, some diamond

drilling on a gold discovery was done under option by Ventures, Limited. The option was allowed to lapse and since that time the owners, Frank Mytto and associates, have done some stripping and test-pitting on a number of mineralized zones.

The property is in the region of the contact between the Vauquelin-Pershing intrusive mass and the volcanics. The underlying rock is either volcanic or the dioritic, early facies of the intrusive. Cutting both are a number of granitic dykes.

Surface work following the diamond drilling has indicated two parallel zones of mineralization about 1,000 feet south of the west arm of Guéguen lake. The zones are about 200 feet apart, striking N.50°W. and dipping steeply northeast. The country rock is diorite with much injected granitic material. The more southerly zone has been exposed for 60 feet along the strike, where, over a width of about 15 feet, it is heavily injected with milky quartz containing very little tourmaline. There is some disseminated pyrite, but it is largely within the country rock. The other mineralized zone is similar, with white quartz lenses up to six feet wide which pinch quickly along the strike. The quartz is vuggy and pegmatitic in places, showing a little coarse feldspar and biotite. The pyrite tends to be medium to coarse grained, and gold is reported to occur with it rather than with the quartz.

About 1,000 feet southwest of the western part of the west arm of Guéguen lake, a copper-zinc showing has been exposed by trenching and pitting. The country rock appears to be a basic volcanic, metamorphosed and soaked by igneous emanations so that much of the rock contains considerable amounts of fine-grained brownish garnet and secondary green amphibole. Exposed for about 140 feet is a tight shear, about two feet wide, with rather widely spaced, blocky fracturing in the adjoining rock. The metallic mineralization consists of sphalerite, chalcopyrite, and a little pyrite, and appears largely as small discontinuous veins in the shear and fractures. Massive mineralization up to three inches wide was noted. However, due to the relatively wide spacing of the appreciably mineralized fractures, the bulk metallic content would be low. The heaviest mineralization is at the west end of the exposure, where it passes under swamp.

About three-quarters of a mile south of the west arm of the lake, some zinc-silver mineralization has been exposed. It is in a narrow band of tuff (strike N.65°W., dip 80° northeast) interbedded with greenstone. A short distance both north and south are granitic dykes trending parallel to the general strike. Trenching in the tuff has exposed a sphalerite stringer about two inches wide for 15 feet. The sphalerite is brown in colour and is accompanied by a little pyrite, chalcopyrite, and native silver. Silver is also found lining fractures adjoining the stringer. The sphalerite gives high silver assays. The rock has been stripped clean around the showing, but there is no indication of an extension of the mineralization.

About 400 feet north of the zinc-silver mineralization considerable stripping and test-pitting has been done on approximately east-west shears in greenstone which are mineralized with quartz and carbonate and a little pyrite and chalcopyrite. Some significant assays for gold are reported. Three grab samples taken by the writer assayed 0.022 oz., 0.305 oz., and 0.020 oz. of gold per ton, respectively.



### MISCELLANEOUS PROPERTIES

During the summer of 1938, the Consolidated Mining and Smelting Company of Canada, Limited, in addition to its work (already described) on the Blue Grass option, carried on systematic prospecting, with trenching at favourable localities, on the *Portage Island Group*, north of the McDonough Syndicate holdings. They also did some similar work on the *E.F.M.* group, adjoining the Bruell on the east, which they held under option for a short time.

Early in the summer, some prospecting, trenching, and pitting was done on the *Wisewill Gold Mines, Limited*, group of claims which adjoin the western boundary of the map-area, due west of the Aurora Mines property. This work was largely confined to a locality about 1,000 feet south of the camp, where a shear, striking N.25°W., in an intensely carbonatized feldspar porphyry is mineralized with quartz, some pyrite, and nests of galena and chalcopyrite. In the past, considerable trenching and pitting had been done farther north, in the neighbourhood of a body of hornblendite and related rocks intrusive into clastic sediments. Some mineralized shears were exposed.

During the winter of 1937-38, the *Inspiration Mining and Development Company, Limited*, carried out a programme of diamond drilling on the Pieu group of claims, adjoining the McDonough Syndicate holdings on the west. The drilling was done along the supposed strike of the McDonough mineralization.

*Quebec Eureka Gold Mines, Limited*, hold ten claims just east of Bell river, near the northern boundary of the map-area. A small amount of diamond drilling was done early in 1938 to intersect at depth a fracture, in massive andesite, containing narrow lenses of white vitreous quartz accompanied by a little tourmaline, chlorite, and very little sulphide. The fracture appears to be vertical and strikes N.80°W. Some green tuffs outcrop nearby. Previously, a shaft had been put down on the mineralized fracture to a reported depth of 32 feet.

During 1938, *Nubell Gold Mines, Limited*, who hold some surveyed claims west of the south end of Simon lake in both Vauquelin and Louvicourt townships, put down two short drill holes near the township-line, one in claim A-68956 and the other in claim A-69430, to intersect a carbonatized and silicified shear sparingly mineralized with pyrite. The shear is in andesite near its contact with a porphyry dyke. Most of the earlier work, consisting of trenching, pitting, and diamond drilling, had been farther north, on claim A-68958 in Vauquelin and claim A-69429 in Louvicourt, on a similar type of mineralization as well as on some large quartz veins or lenses essentially barren of sulphide mineralization.

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