CANADA

DEPARTMENT OF MINES

AND

TECHNICAL SURVEYS

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GEOLOGICAL SURVEY OF CANADA

PAPER 50-29

# PERTH MAP-AREA

## LANARK AND LEEDS COUNTIES

## ONTARIO

(REPORT AND MAP)

By

J. Dugas

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OTTAWA

1950

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Paper 50-29

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# LANARK AND LEEDS COUNTIES,

# ONTARIO

(Summary Account)

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Illustration


Preliminary map -- Perth, Ontario .................. In envelope

## PERTH MAP-AREA, ONTARIO

## LOCATION

Perth map-area lies in the province of Ontario, between longitudes 76°00' and 76°30' west and latitudes 44°45' and 45°00' north. It includes most of Lanark and part of Leeds counties. The area is well served with roads, and is traversed by the main line of the Canadian Pacific Railway from Montreal to Toronto.

## PREVIOUS WORK

Following some work by Alexander Murray of the Geological Survey of Canada, summarized by Logan (1)[1] in his "Geology of Canada" (1863), H. G. Vennor (2) spent five field seasons in the general area of Frontenac, Leeds, and Lanark counties. R. W. Ells (3) published a report on parts of Renfrew, Addington, Frontenac, Lanark, and Carleton counties in 1904, and a report by Baker (4) covers part of the map-area in Leeds county.

In 1930, M. E. Wilson of the Geological Survey surveyed much of the Palaeozoic area east of Perth and some of the Precambrian terrain to the south of this area, adjoining the Westport map-area. The results of this work have not been published, but are partly incorporated in the geological map accompanying this report.

The geological map of the adjoining Prescott area (Map 710A) to the east of Perth map-area was published in 1940, and is included by Alice E. Wilson (5) in her later memoir on that and adjoining parts of the Ottawa-St. Lawrence Lowland. The present writer has continued her nomenclature of the Palaeozoic formations in this report.

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[1] Numbers in parentheses are those of references listed at end of this report.

## PRESENT WORK AND ACKNOWLEDGMENTS

The present account is based in part on field work by the writer in 1948 and 1949, and in part on previous surveys by M. E. Wilson, mainly within the area of Palaeozoic rocks. The writer wishes also to acknowledge guidance received from Dr. G. P. Crombie of the Geological Survey during progress of field work in 1948, and the collaboration of his own assistants, Messrs. K. Knox, B. Sanford, and G. Carrière, during the 1949 field season.

## PHYSIOGRAPHY

The area of Palaeozoic rocks and, to a lesser extent, the eastern edge of the Precambrian terrain are essentially flat except for ridges of glacial material deposited in Pleistocene time.

The remainder of the area of Precambrian rocks is more rugged, but rarely rises more than 200 feet above the level of the Palaeozoic plain. This variation in the topography is probably largely the result of differential weathering.

## GENERAL GEOLOGY

The bedrock in the map-area is about half of Precambrian and half of Palaeozoic age. Roughly, the Palaeozoic boundary (See Inset figure on accompanying map) follows a sinuous line from east of Mississippi River to Balderson, Perth, Rideau Ferry, and Otter Lake, with arms of Palaeozoic strata extending west of Perth to Christie Lake and Stanleyville. In addition, outliers of Palaeozoic rocks and inliers of Precambrian rocks are common.

The geology of the Precambrian terrain is extremely complex, and on the scale adopted it is not possible to plot all rock types nor to draw well-defined boundaries between the various selected map-units.

TABLE OF FORMATIONS

| | | |
|---|---|---|
| CENOZOIC | Quaternary | Recent: peat, marl, sand, clay<br><br>Pleistocene: boulders, sand, gravel, till |
| | | Unconformity |
| PALAEOZOIC | Lower Ordovician (Beekmantown) | Oxford formation: dolomitic limestone<br><br>March formation: transitional sandstone |
| | Cambrian or Ordovician | Nepean formation: sandstone |
| | | Unconformity |
| PRECAMBRIAN | Intrusive rocks | Pegmatite, lamprophyre<br><br>Granite<br><br>Syenite, quartz syenite, diorite<br><br>Diorite, anorthosite |
| | Migmatitic rocks | |
| | Grenville series | Amphibolite<br><br>Paragneiss: mainly biotite-garnet gneiss; biotite gneiss, feldspar-biotite gneiss, biotite-hornblende gneiss; granitized gneiss<br><br>Quartzite<br><br>Crystalline limestone and dolomite; some garnet gneiss; metamorphic pyroxenite |

## GRENVILLE SERIES

### Crystalline Limestone and Dolomite

The largest band of limestone follows the line between Dalhousie and Bathurst townships. It attains a width of about 3 miles on a strike of about north 45 degrees east. Typical of this limestone is its highly siliceous character. East of Sheridan Rapids, all limestone outcrops show tremolite needles oriented along the bedding planes.

Another, thin band of limestone can be followed from Balderson to McGowan Lake, with a branch extending through Christie Lake and south to Farren Lake.

Still another band of coarsely crystalline, richly graphitic limestone, no more than half a mile wide, extends north-easterly from south of Crosby and Little Crosby Lakes along the Westport road to north of Stanleyville.

The region east of Rideau Lake contains irregular bands of limestone, and a belt of similar rock, interbanded with garnet gneiss, extends from Black Lake and Black Creek northeastward to the Palaeozoic boundary.

Minor limestone bands are found elsewhere within areas of Precambrian, Grenville rocks.

A particular feature of the limestone is the common inclusion of fragments of younger rocks, around which the limestone has moulded itself as in a plastic flow.

The common accessory minerals in the limestone are phlogopite, diopside, and graphite.

## Metamorphic Pyroxenite

Metamorphic pyroxenite, a rock described by M. E. Wilson (6) as "mostly composed of green pyroxene, massive or granular, in which masses of feldspar pegmatite are included" and formed from limestone by the action of siliceous emanations from igneous intrusions, nowhere occurs in large bodies. It is inferred later in this report that some of these bodies may be of igneous origin.

## Quartzite

Quartzite is generally found associated with biotite-garnet gneiss. It is interbedded with, and commonly forms lenses within, the gneiss. In some places what is mapped as sedimentary gneiss could as well be mapped as quartzite, both rocks being equally important. South of Otty Lake, between Noble Bay and Long Lake, quartzite is particularly abundant.

Quartzite alone does not occupy large areas. Just east of Otter Lake, it is fairly abundant, and inliers of it break through the Palaeozoic cover east of Bass Lake and north of Smiths Falls on lot 28, con. VII, Montague township. The quartzite shows little evidence of bedding and is nearly pure, light grey to white, with diopside and feldspar (microcline and plagioclase) as the main impurities. Microscopic sillimanite needles are not uncommon in the quartz grains.

## Sedimentary Gneiss

Under this name are included biotite-garnet gneiss, biotite gneiss, feldspar-biotite gneiss, biotite-hornblende gneiss, and granitized gneiss. Biotite-garnet gneiss is the most abundant, the others forming only minor constituents.

Most of the garnet gneiss occurs just south of Perth on the north shore of Otty Lake; thence it extends as a band about 2½ miles wide around Long Lake, Noble Bay, Round Lake, and Black Lake. The gneiss is closely folded and is associated with thin bands of limestone. This belt also contains the most important mica and apatite deposits of the map-area. Garnet or biotite gneiss also occurs on the south shore of Pike Lake, but elsewhere almost no gneiss was observed. Rusty weathering gneiss, however, occurs as small lenses in limestone, as for example along the road north of Bennett Lake from Fallbrook to Zealand (beyond the map-area), north of Christie Lake, and in many scattered localities. This gneiss commonly contains graphite.

## Amphibolite

A lens-like body of amphibolite, with a maximum width of about 1 mile, extends northeastly from south of Fagan Lake to north of Lower Mud Lake. North of Bennett Lake it is paralleled by a smaller lens of the same rock about 1½ miles long.

The rock shows good banding throughout, and is intermixed with granite to such an extent that in places granite predominates. The amphibolite is a fairly dark, gneissic rock, in places closely folded. Hornblende, with some biotite, is the principal dark mineral. Feldspar, about oligoclase ($An_{15}$), is the common felsic mineral, but a little quartz was observed here and there in the rock. Sphene, apatite, and pyrite are accessory minerals. Thin sections show extreme poikiloblastic texture, hornblende crystals being in most instances full of irregularly shaped feldspar grains.

The associated granite, which is most abundant in a band trending east between lots 9 and 14, con. IX, Bathurst tp., is composed of orthoclase and quartz, partly chloritized biotite, apatite, and magnetite.

In lots 13 to 20, con. X, Bathurst tp., the amphibolite is composed of coarse-grained hornblende, which forms about 80 per cent of the rock, with fairly abundant calcite. It is cut by granite and pegmatite.

## MIGMATITIC ROCKS[1]

Rocks of migmatitic character cover almost half of the Precambrian terrain of the map-area. They have been grouped on the accompanying map, though the host rocks may be of very diverse character: limestone, paragneiss, and in many places syenite gneiss. On a more detailed map, migmatite might be divided according to the character of the host rock, but this would lead to extreme complication. Some of the rocks mapped as sedimentary gneiss are migmatitic in part, but they are separated where the nature of the host rock is obvious.

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[1] Rocks that have been reworked and chemically reconstituted by a magmatic phase (silicate melt) are herewith defined as migmatites. Such rocks are distinguished from metamorphic rocks, which are reconstituted by aqueous, residual, post-magmatic solutions. Lit-par-lit injection is typical of the migmatic process, and granitization may be considered as extreme migmatization.

## POST-GRENVILLE INTRUSIVE ROCKS

### Diorite and Anorthosite

Diorite is exposed north of Christie Lake, on the border of the map-area around Silver Lake. It is intimately mixed with granite, which forms irregular bodies not differentiated on the map. The diorite, which has anorthositic phases, particularly between the road to Maberley and the north end of Silver Lake, is composed of medium-grained hornblende and feldspar in about equal amounts. The feldspar is andesine ($An_{48}$) and is partly sericitized. The granite is composed of potassic feldspar, biotite, and quartz, with some magnetite.

### Syenite, Quartz Syenite, and Diorite

Syenite is the main intrusive rock of the region. It comprises four principal bodies, one of which crosses the northwest corner of the map-area in a northeastly direction. This body forms a band about 13 miles long within the map-area, and maintains a width of a little more than a mile. A second body is exposed northeast of Bathurst station; it is concealed beneath Palaeozoic strata south of the railways, but judging by the local magnetic anomaly it extends south as far as Dewitt Corners, and altogether forms an irregularly shaped body about $2\frac{1}{2}$ miles square. A third body lies between Christie Lake on the northwest and Crosby and Pike Lakes on the southeast. This body is lens-like in plan, with a maximum width of a little less than 3 miles. Finally, a fourth lens-shaped body lies between Pike Lake and Black Lake; it has a maximum width of not more than a mile.

These four syenite bodies have distinctive characteristics, and even vary in composition or structure within the same body, but are undoubtedly related to each other and constitute various facies of the same body. Their principal, common characteristics may be summarized as follows: (1) the rock is commonly pink, though it may grade to grey or more commonly brown where magnetite is most abundant; (2) the rock is variable in grain size and may be porphyritic; (3) biotite or hornblende is the predominant mafic mineral, pyroxene being only a minor constituent; (4) high magnetite content, though not uniformly distributed; (5) accessory minerals are mainly apatite and sphene, the latter commonly forming a rim around magnetite crystals; (6) the feldspars are microcline and oligoclase (about $An_{15}$); (7) foliation is generally prominent near the margins of the bodies; and (8) a migmatitic complex of granite and syenite is common along the margins of these larger syenite masses.

Smaller masses of syenite are numerous throughout the map-area. One of them forms a fold in North Burgess township west of Rideau Lake. The fold is composed of two types of syenite both different from the syenite described above in having pyroxene (diopside) as a principal constituent mineral. One type is richly biotitic, and the other almost devoid of biotite. Microcline and oligoclase antiperthite constitute the feldspathic minerals. At the end of the road between lots 11 and 12, con. VII, Bathurst tp., a diorite body intrudes the syenite. The composition of this rock does not differ much from that of the syenite except that andesine ($An_{40}$) is the common feldspar and magnetite is more abundant. The diorite is coarse grained and contains abundant hornblende.

## Granite

Though granite is an important rock in the Perth map-area, it does not comprise large bodies, and most of it is in the form of migmatite or granitized sediments.

A massive granite body, not much more than a mile long, is exposed in con. V, Bathurst tp., between lots 15 and 18, and an even smaller body is well exposed in lots 1 and 2, con. II, Bastard township. The granite rock is a medium-grained rock with few dark minerals. The principal feldspar is a perthite, containing albite blobs. Quartz is abundant, and biotite and magnetite are minor constituent minerals.

Besides these two small bodies, a very gneissic and highly quartzose granite follows the southeast shore of McGowan Lake.

## Pegmatite and Lamprophyre

Numerous pegmatitic intrusions are scattered through the map-area. Some occur as typical dykes a few inches to many feet wide; others are irregular bodies. Many are concordant, sill-like intrusions.

An important zone of pegmatite bodies about 3 miles wide strikes northerly between Bell Corners and Fallbrook; it extends west to Bennett Lake, and terminates to the south between Brooke and Bathurst station. Almost all of the larger feldspar deposits of the map-area are confined to this zone, and the pegmatite bodies reach a width of as much as 100 feet; most of them strike north to slightly east of north.

All the pegmatite intrusions have about the same mineral composition; the principal constituents are feldspar (microcline and albite) and quartz.

Fine-grained biotite lamprophyres occur as small dykes throughout the region; none is more than 2 feet in width. Some of them cut, and others are cut by, the pegmatite.

Meta-diabase(?)

Larger bodies, probably of meta-diabase and with a suggestion of ophitic texture, occur along Dalhousie township line, cons. VI-VIII, and farther north on the road from Playfair to McDonald Corners.

CAMBRIAN OR ORDOVICIAN

Nepean Formation

Nepean sandstone is found everywhere around the edge of the Palaeozoic basin. It forms two arms, one extending from the Scotch Line southwest to Christie Lake and the other from just south of Perth to Stanleyville. The sandstone also outcrops between Otty Lake and Rideau Lake from the North Elmsley township line to Beveridge Locks, thence along the same township line south of Rideau Lake to Bass Lake, and from there as numerous outliers extending in a direction about south 30 degrees west. Finally, it appears for some distance on both sides of the boundary line between Kitley and Bastard townships. All the minor Palaeozoic outliers of the map-area are also composed of Nepean sandstone.

At the base of the Nepean formation is a conglomerate composed, for the most part, of rounded or slightly angular pure quartz boulders in a matrix of sandstone.

Most of the sanstone is composed of rounded quartz grains, 0.1 to 0.5 mm. in diameter, in a mainly siliceous matrix.

Ripple-marks are common, and peculiar cylindrical or conical structures may be seen in places.

## ORDOVICIAN

### March Formation

The March formation is transitional between the Nepean sandstone and the Oxford dolomite. It ranges from a rock composed largely of sand, with dolomitic cement, to almost pure dolomite with recognizable sand grains. At its base, the formation is interbedded with pure sandstone, so that its contact with the Nepean is difficult to define. For mapping purposes, the transitional sandstone was differentiated from the underlying pure sandstone where sandy dolomite begins to appear.

This formation occupies most of Drummond, Beckwith, and North Elmsley townships. It outcrops also in Montague township in an area adjacent to North Elmsley township and in South Elmsley township southeast of Rideau Lake. Here and there Nepean sandstone or Oxford dolomitic limestone breaks the continuity of the formation.

### Oxford Formation

Sandy dolomite of the March formation grades gradually upward into the typical dolomitic limestone of the Oxford formation. The latter is a grey rock much resembling the sandy dolomite except that it carries no sand grains.

The Oxford formation outcrops at the northwest edge of the map-area in Montague township and in South Elmsley and Kitley townships, south of Smiths Falls. Patches of it also appear east of Richardson, around Beveridge Locks, and south of Rideau Ferry.

## PLEISTOCENE AND RECENT DEPOSITS

Superficial deposits conceal much of the bedrock in the map-area. They may be separated into three classes:

1. Pleistocene deposits of glacial origin are composed in part of ground moraine that exhibits little or no sorting. Thick deposits of till can be observed in Dalhousie township and around Balderson. Sand deposits are exposed east of McGowan Lake, and irregularly stratified drumlins, with flat tops, north of Smiths Falls, trend about south.
2. Thin beds of well-stratified clays, deposited by the Champlain Sea, occupy part of the lowland region.
3. Recent deposits of peat are forming in the swamp areas, and marl, sand, and clay are accumulating elsewhere where conditions are favourable.

## STRUCTURE

### FAULTS

Faults are nowhere conspicuous in the map-area, although it is evident that the contained formations, particularly those of Precambrian age, have been under stress at various times. Minor faults, showing displacements of 1 inch to 1 foot, are by no means rare, but none extends far in either direction from the point of maximum displacement. Nor do they follow any definite trend, but appear to be of local development and unrelated to a major force.

The only fault of importance recognized in the area is the Christie Lake fault. It can be followed southeasterly from McGowan Lake for about 5 miles, and is well marked topographically by a straight valley, across the general formational strike, on both sides of Christie Lake.

Presumably, another fault exists along the southern part of Rideau Lake. The fault has been traced by M. E. Wilson in the adjoining

Westport map-area, and in the Perth area seems to cut off the fold southeast of Black Creek at Rideau lake.

Other minor faults probably occur at the following localities: lots 4 and 5, con. I, South Burgess tp.; lots 2,3, and 4, con. VIII, Dalhousie tp.; and lots 1 to 5, cons. III and IV, South Burgess township.

The most important faults in the region seem to be normal, high angle faults, with minor horizontal displacement.

## JOINTS

Most joints are discontinuous and seem to have no definite trend in the formations of the Precambrian terrain.

Southeast of Rideau Lake, a system of joints in Palaeozoic strata comprises one set striking about north 20 degrees west and another at about right angles to this, both sets dipping almost vertically. The joints are particularly well developed in the transitional sandstone of the March formation, for example, in lot 29, con. I, Kitley township.

## FOLDS

Most of the Precambrian formations of the map-area are closely folded in a general northeasterly direction, but locally the structures are very complex. Much of the folding seems to be associated with the intrusive masses, as if the intrusions had pushed aside overlying formations to make room for themselves. Such movements appear to have taken place around the Silver Lake, Crosby Road, Bathurst, and Pike Lake syenite bodies. Other folds do not seem directly related to large intrusions, and these normally present the most intricate pattern. For example, in the area of the mica-apatite deposits south of Perth, in cons. V to IX of North Burgess tp., garnet gneiss, limestone, and migmatitic material are inextricably folded together. However, some major folds may be recognized, as, for instance, in lots 4-6, cons.

VIII and IX, North Burgess tp., northwest of Otty Lake, and on the road from Perth to Rideau Ferry, in lots 25 and 26, con. IX, North Elmsley township. These two folds pitch in opposite directions. A small fold is exposed north of Long Lake in lots 8 and 9, con. VI, North Burgess township. South of Tay River, near Perth, in lot 3, con. X, North Elmsley tp., a fold is suggested but is concealed beneath Palaeozoic formations.

## GEOPHYSICAL DATA

The airborne magnetometer survey of Perth map-area, checked by a ground instrument, proved to be most reliable so far as large structural elements are concerned. The general trend of these elements is easily discerned, and outlines of intrusions plainly shown. All the major anomalies are due to syenite and quartz syenite intrusions, which have a fairly high magnetite content. The anomalies fade in the presence of rocks of sedimentary or migmatic origin, even though syenite be the migmatitic host rock.

The long syenite band from McGowan Lake to Lanark shows an irregularity in magnetism, some parts being poorly magnetic.

Minor anomalies may be due to the presence of amphibolite or granite.

## ECONOMIC GEOLOGY

### FELDSPAR

Feldspar is, at present, the most important economic mineral in the Perth area. In 1949, only one quarry, that of Bathurst Feldspar Mines Limited, was producing. It is situated on lots 15 and 16, con. VIII, Bathurst tp., has been in operation since 1926, and produces about 10 tons of feldspar daily. The feldspar is part of a light pink pegmatite body.

Another quarry, owned by the Laurentian Feldspar Company, was worked in the winter of 1947-1948. It is situated on lots 12 and 13, con. VIII, Bathurst township. From information gathered from nearby residents, eight carloads of feldspar were shipped, and there are prospects of the quarry being worked again.

About half a mile from this last quarry, in concession IX, another pit was worked for 10 years by T. H. Craig and for 1½ years by Consolidated Spar, but was abandoned many years ago. The production to 1931 was 9,000 tons. Another quarry producing good-grade feldspar and fairly well equipped, on lot 9 of the same concession, was abandoned in the autumn of 1947.

Other quarries now abandoned are situated on lots 19-22, con. IX, lot 8, con. IX, and lots 2 and 3, con. VII, Bathurst tp., and on lot 22, con. VII, South Sherbrooke township.

Many other small pits could be mentioned, but none of these is important. However, the possibilities of working feldspar deposits of good grade are not exhausted, and good prospects were observed.

## MICA AND APATITE

Mica and apatite are usually associated minerals in the Perth map-area. In fact, most of the mines were formerly worked for apatite, but as the market for this mineral decreased, due to new discoveries of phosphatic beds in the United States, the same deposits were later worked for mica.

Mica and apatite deposits are mostly confined to the limestone-garnet gneiss formations south of Perth. The most important mining areas are all situated in North Burgess township, as follows:

1. The McLaren group, on lots 4, 5, and 6, con. VIII, which includes more than one hundred pits on the southeast limb of a fold in quartzite and garnet gneiss.

2. The area of the Hanlon and Antony Mines, in lots 10-13, con. VI, where more than sixty pits have been dug in gneisses injected with abundant pegmatite.

3. The Silver Queen Mines area, in lots 12 and 13, con. V.

Minor deposits occur in North Burgess township on the shore of Rideau Lake, in lot 3, con. V, and on the shore of Pike Lake, in lot 17, con. IX, and in South Burgess township, in lot 1, con. III.

All the mica and apatite deposits are more or less similar in occurrence and mineralogical composition. They occur in somewhat elongated, lenticular shapes, at most 10 feet wide, and show a preferred concordant relation with the enclosing rocks.

A green pyroxene, pink calcite, apatite, and phlogopite, the last commonly showing asterism, are the constituent minerals. Where limestone is the host rock, serpentine, brown pyroxene, and tourmaline occur and apatite is scarce or missing. These deposits are commonly associated with metamorphic pyroxenite.

That the mica-apatite deposits are veins may be deduced from the following facts:

1. They crosscut older formations in many places. Their preferred orientation along the strike of the enclosing rocks is easily explained by structural control, and even where apparently concordant, the deposits may give off lateral branches that cut across the strike of the formations.
2. Drusy cavities are common as in ordinary veins.
3. Some deposits exhibit crustification.
4. Angular fragments of the wall-rocks have been observed by Osann (7) in some deposits.
5. The walls are in some places polished and striated, as in the case of vein deposits formed along fault fissures.

The origin of the pyroxenite host rock is more doubtful, but it may be noted that this rock is not everywhere associated with mica-apatite deposits, and that some pyroxenite bodies are devoid of mica or apatite. It is inferred that at least some of the pyroxenite is of intrusive origin, that it has been reworked by metamorphic processes, and that such places constituted favourable loci for the deposition of mica-apatite veins. The fluidity of a solution containing much mineralizers allowed its intimate penetration into the pyroxenite, and this, with in some cases the lack of definite fissure openings, has resulted in irregularly shaped deposits.

## HEMATITE

### Dalhousie Mine

A deposit of hematite iron ore was opened for the first time in 1866 on the east half of lot I, Dalhousie township. The ore occurs as a lens-shaped body enclosed in a band of crystalline limestone, and may reach a thickness of 9 feet. The deposit was worked for about 500 feet, almost to the shore of Mississippi River, and some 11,100 tons were mined between 1866 and 1871. No ore has been produced since. The ore averaged about 57 per cent iron.

## MAGNETITE

Many small magnetite deposits are scattered over the Precambrian region of the map-area. The following are a few of the more important of these:

1. In South Sherbrooke township:

   Fournier mine, lot. 14, con. I

   Christie Lake mine, lots 18, 19, and 20, con. III

   Silver Lake mine, lot 16, con. IV

2. In North Crosby township

Allan's mine, lot.27, con. IV

3. Bathurst township:

Foley mine, lots 10 and 11, con. VIII

The deposits are all very irregular and of no considerable size. Dip-needle surveys made on most of them showed their lack of continuity.

## GRAPHITE

Graphite is one of the few minerals that have been mined in the Perth district. The principal deposit, situated on lots 21 and 22, con. VI, North Elmsley tp., was worked intermittently from 1870 to 1919. The orebody occurs in silicated limestone, at the crest of a steeply pitching fold.

A small pit has been dug in a highly graphitic limestone in lot 4, con. I, South Burgess township.

## BARITE

Barite has been found in a few places in the Perth area. One occurrence is on lot 20, con. X, North Burgess township. Others have been found on lot 2, con. VIII, North Burgess tp.; lot 1, con. VI, North Burgess tp., lot 12, con. VI, Bathurst tp.; and lot 1, con. VII, North Burgess township.

## RADIOACTIVE MINERALS

Radioactive minerals were detected by a geiger counter at a few places around a small feldspar pit in lot 21, con. IX, Bathurst township. There, a black, dull mineral is altered to a greenish yellow oxide.

Weaker indications were recorded on lots 8 and 22, con. IX, Bathurst township.

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