(45) FINLAY POINT (Mill Brook)

U.T.M.G. - N-511071
E-61987

N.T.S. - 11K/3C (1:50,000)

This barite occurrence is situated north of Mabou Mines on Mill Brook, approximately 7.5 miles northwest of Highway 19 at Mabou (Fig. 128, and 129).

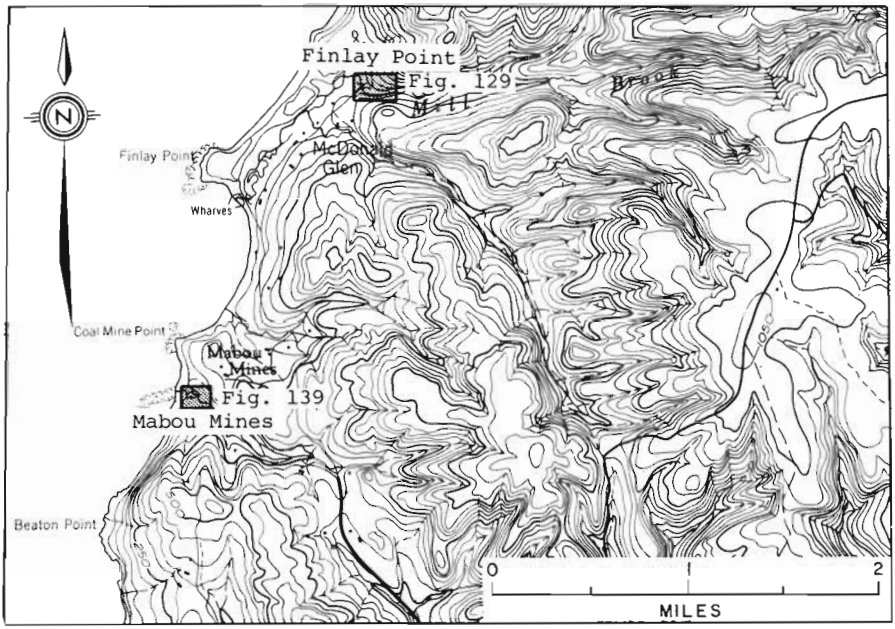


Figure 128

The showing was discovered in 1971 during the course of prospecting by Cuvier Mines Limited. During the same year this company conducted a geochemical soil sample survey, a horizontal loop electromagnetic survey and a V.L.F. electromagnetic survey in an attempt to delineate favourable target zones for a diamond drilling program. The following year the property was optioned to I.M.C. Drilling Mud Inc. which drilled three holes totalling 421 feet. Diamond-drill holes 2 and 3 did not penetrate to bedrock, and D.D.H. 1 encountered only minor, small barite

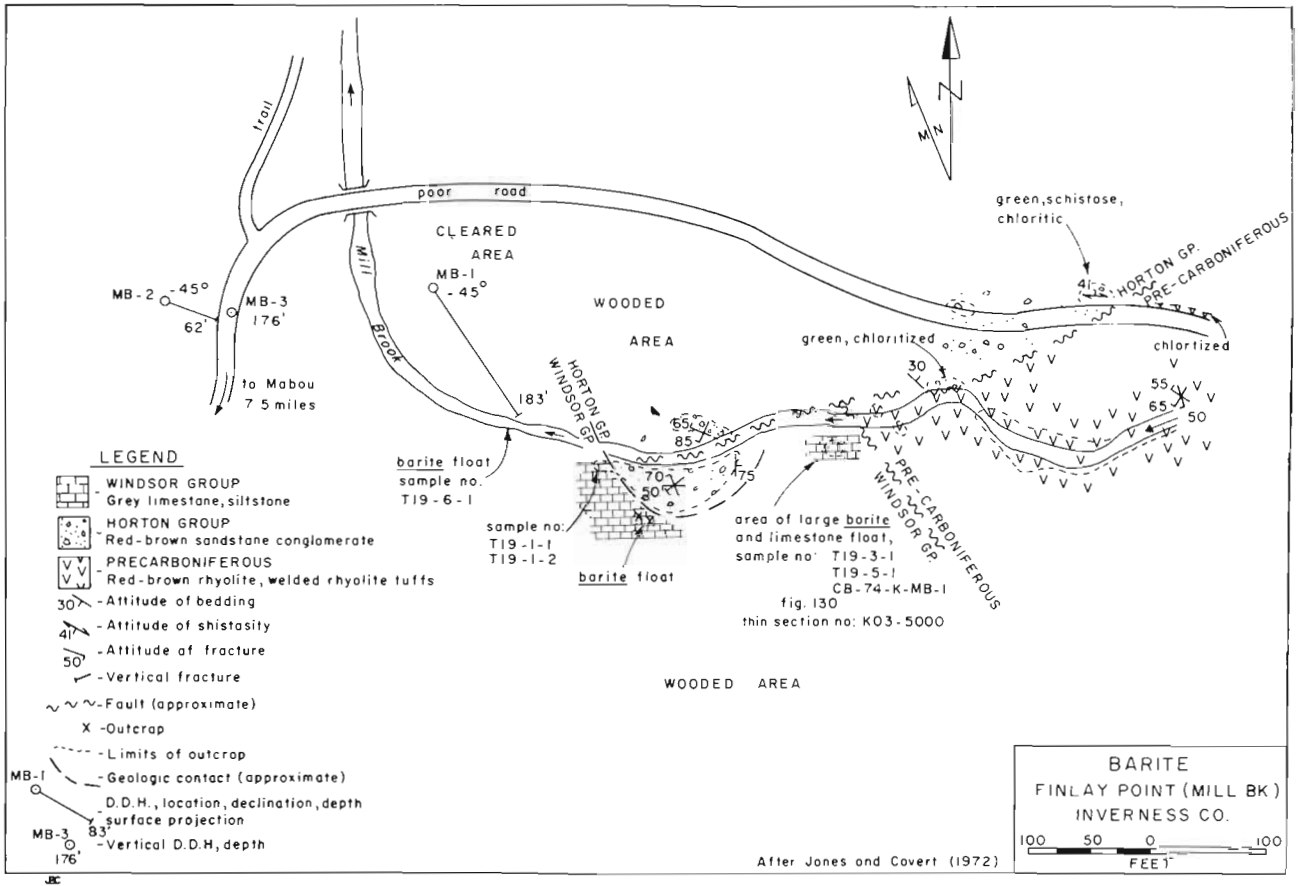
trail
poor road
CLEARED AREA
WOODED AREA
Mill Brook
MB-1 -45°
MB-2 -45° 62'
MB-3 176'
to Mabou 7.5 miles
183'
HORTON GP.
WINDSOR GP.
PRE-CARBONIFEROUS
green, schistose, chloritic
green, chloritized
chlortized
barite float sample no. T19-6-1
sample no: T19-1-1 T19-1-2
barite float
area of large barite and limestone float, sample no: T19-3-1 T19-5-1 CB-74-K-MB-1
fig. 130
thin section no: K03-5000
WOODED AREA
LEGEND
WINDSOR GROUP Grey limestone, siltstone
HORTON GROUP Red-brown sandstone conglomerate
PRECARBONIFEROUS Red-brown rhyolite, welded rhyolite tuffs
Attitude of bedding
Attitude of shistasity
Attitude of fracture
Vertical fracture
Fault (approximate)
Outcrop
Limits of outcrop
Geologic contact (approximate)
D.D.H., location, declination, depth
surface projection
Vertical D.D.H, depth
BARITE
FINLAY POINT (MILL BK)
INVERNESS CO.
100 50 0 100
FEET
After Jones and Covert (1972)

Figure 129

fragments in the overburden before intersecting the Windsor-Horton contact.

The deposit is situated in a fault block of Carboniferous sediments which has been downfaulted relative to the older (age uncertain) volcanic and clastic sedimentary rocks to the east. The Carboniferous rocks include sedimentary rocks of the Horton Group, evaporites, carbonates, and clastic sedimentary rocks of the Windsor Group (both of Early Carboniferous Age) and clastic sedimentary rocks of the Inverness Group (Late Carboniferous Age). Numerous faults in the region with strikes ranging from north, northeast, to northwest are believed to be a result of the Maritime Disturbance (Late Carboniferous and Permian time).

The barite was not observed in situ, but as angular boulders and cobbles in the south bank of the stream (Fig. 130). Consequently, it is not known for certain what the host rock may be, or what geological feature controlled the nature of the mineralization. However, it is believed to be a replacement type deposit hosted by limestone of the lower Windsor Group. This is suggested by:

(a) angular barite float generally restricted to areas of limestone float or outcrop,
(b) the close geographic proximity (Mabou Mines barite showing) of a replacement type occurrence hosted by lower Windsor limestone which is in many ways similar to this showing, and
(c) a thin section (no. K03-5000) of the mineralized rock which shows barite replacing limestone (Fig. 131).

Rock types found to crop out in the immediate vicinity of the barite float include limestone (Windsor Group), sandstone, conglomerate, minor mudstone (Horton Group) and rhyolite, welded rhyolitic tuff (Pre-Carboniferous). No evidence of mineralization was observed in any of these outcrop exposures. The Windsor-Horton Group sediments are in fault contact with the older volcanic rocks. In the immediate area of the fault, the sedimentary rocks display a schistose texture, and the presence of green chlorite in the volcanics indicates a very low grade dynamic metamorphism.

The barite varies in colour from pale grey, grey to pink-orange, and has a fine-grained crystalline texture. Minerals noted to be associated with the barite,

Figure 130 - Finlay Point. Angular boulders of barite in stream bank. Looking south.

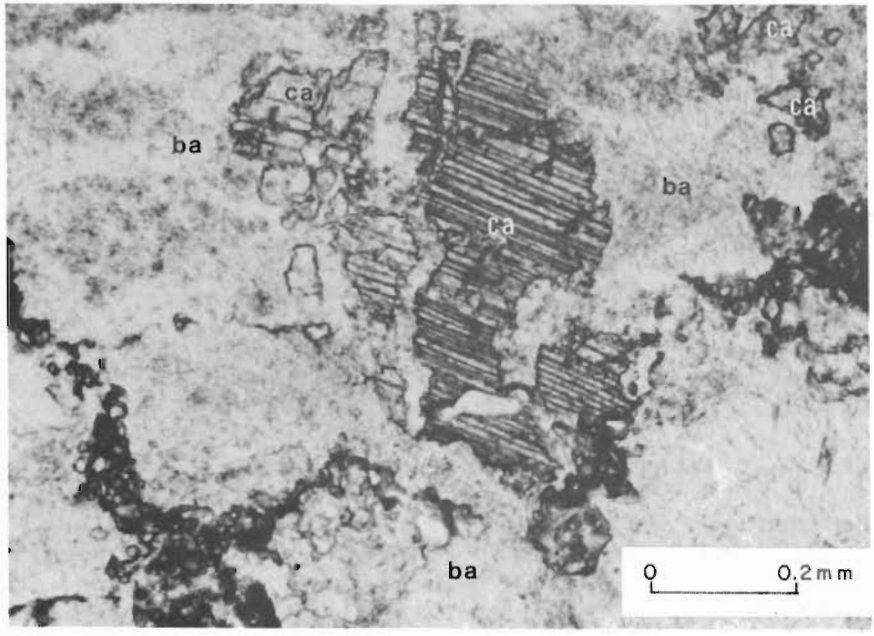


Figure 131 - Finlay Point. Barite replacing calcite. Note the uniform cleavage direction on the calcite fragments indicating that they were once all part of the same crystal. Plane polarized light, ba - barite, ca - calcite.

in order of decreasing abundance are: calcite, hematite, pyrite and traces of malachite. Weathered specimens of barite are pitted and vuggy, probably due to the dissolution of the calcite.

No samples for chemical analyses were collected by the writer, however the analytical results of samples taken previously by other members of the N.S.D.M. are presented below. The results of specimens collected by C. Kavanaugh (sample no. CB-74-K-MB-1) are also found in appendix III. The sample locations are indicated on Figure 129.

| Rock Type | Sample No. | Per cent | | | ppm | | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Barite | CB-74-K-MB-1 | 78.51 | 3.70 | .67 | 110 | 30 | 50 |

Chemical Analyses of samples taken by T. Covert (1972):

| Rock Type | Sample No. | Per cent | | | | |
|---|---|---|---|---|---|---|
| | | Ba | Sr | F | Cu | Pb |
| Limestone | T19-1-1 | .440 | .030 | .080 | .015 | .018 |
| Limestone | T19-1-1 | 2.98 | .150 | .080 | .009 | .022 |
| Siltstone | T19-2-1 | .260 | .030 | .081 | .005 | .003 |
| Barite | T19-6-1 | 42.30 | 1.75 | .095 | .005 | .010 |

It is not known conclusively whether the faulting in this area is of pre-mineralization and/or post-mineralization age. If the former is the case, these faults undoubtedly played a part in providing passageways for the mineralizing fluids and preparing the host rock (brecciation?) to more readily facilitate the replacement process.

Additional exploratory work is justified in this area for the following reasons:

(a) only one of three diamond-drill holes penetrated bedrock, thus failing to preclude the presence of significant barite.

(b) the following excerpt, extracted from a report by Hudgins (1971):

> "High-grade copper floats comprised of chalcopyrite, chalcocite, malachite and covellite were noted in the bed of Mill Brook near the barite mass. The mineralization replaces Windsor limestones and contains some barite. An assay from

one large float cobble assayed 39.0 per cent copper."

However, this float was not confirmed by the writer, and

(c) the following excerpt, extracted from a report by MacBeath (1972):

"The barite mineralization at Findlay Point is localized in the brecciated limestone beds in the yellow-grey sandstone. Two beds contain about 30 per cent mineralization. Of this portion the barite forms a variable 10-18 per cent. ... Two mineralized zones are present, each about 18 feet long and from 2 to 6 feet wide."

This barite occurrence referred to by MacBeath was not examined by the writer, but there is a distinct possibility that it is related to the showing on Mill Brook. The description of the location of this occurrence as reported by MacBeath is as follows:

"The barite occurrence is located 1350 feet south of the first group of fishing houses on the shore. The barite appears with calcite in a bed of brecciated, grey laminated limestone near the base of the Windsor strata. The cove in which the barite showing occurs is made noticeable by the presence of a sandstone chimney barely attached to the mainland. The barite is located just above the base of the cliff on the arm of the cove north of the stream running down the cliff at the center of the cove."

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1972: Barite and celestite occurrences, Cape Breton; N. S. Dept. Mines, open file report OFR 103.

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1972: Report on geological and geochemical investigations at Findlay Point, Inverness County, N. S., for David S. Robertson and Assoc. Ltd.; N. S. Dept. Mines, assessment file 11K/3C 06-J-20(01).

Sabina, A. P.
1965: Rocks and minerals for the collector, northeastern Nova Scotia, Cape Breton, and Prince Edward Island; Geol. Surv. Can., Paper 65-10, p. 19.

## (46) Lake Ainslie*

N.T.S.-11-K/3-A & D (1:50,000)

The Lake Ainslie barite-fluorite occurrence consists of a number of deposits and showings spread out over a region roughly 8.5 miles long and 3 miles wide. This region is situated in the uplands on the east and northeast side of Lake Ainslie (Fig. 132). The main areas of interest within this region are: (A) the Trout River Area, which includes the largest and most important mineralized zones, (B) the Twin Rock Valley Area, (C) the Scotsville Inlier Area, (D) the Mount Pleasant Brook Area, and (E) the Gillis Brook Area.

The mineral deposits in these areas have exploration histories dating back to 1890, in which a great deal of exploratory activity is documented. Therefore, a chart indicating only the highlights of past activity in the Lake Ainslie region is presented in Table 10.

The rocks comprising these areas range in age from Precambrian to Mississippian, and form a prominent north trending anticline. The crest of the anticline has been eroded in two locations, the Scotsville Area in the north and the Trout River Area in the south, exposing the Precambrian metamorphic rocks (George River Group) and Devonian igneous intrusive rocks, both of which form the basement to the Carboniferous rocks. The oldest Carboniferous rocks are volcanics (basalts, andesites, and welded rhyolitic tuffs) which belong to the Fisset Brook Formation and lie unconformably on top of the basement rocks. The welded rhyolitic tuffs of the Fisset Brook Formation are host to the most important barite-fluorite deposits. The Fisset Brook Formation is disconformably overlain by clastic sedimentary rocks of terrestrial origin belonging to the Horton Group. Where the Fisset Brook Formation is absent, the Horton Group rests

* Because of time limitations and the large volume of exploratory work and detailed studies previously undertaken by various companies and individuals, no investigations were undertaken by the writer in this region. The following information is a brief summary of the data compiled by these authors.

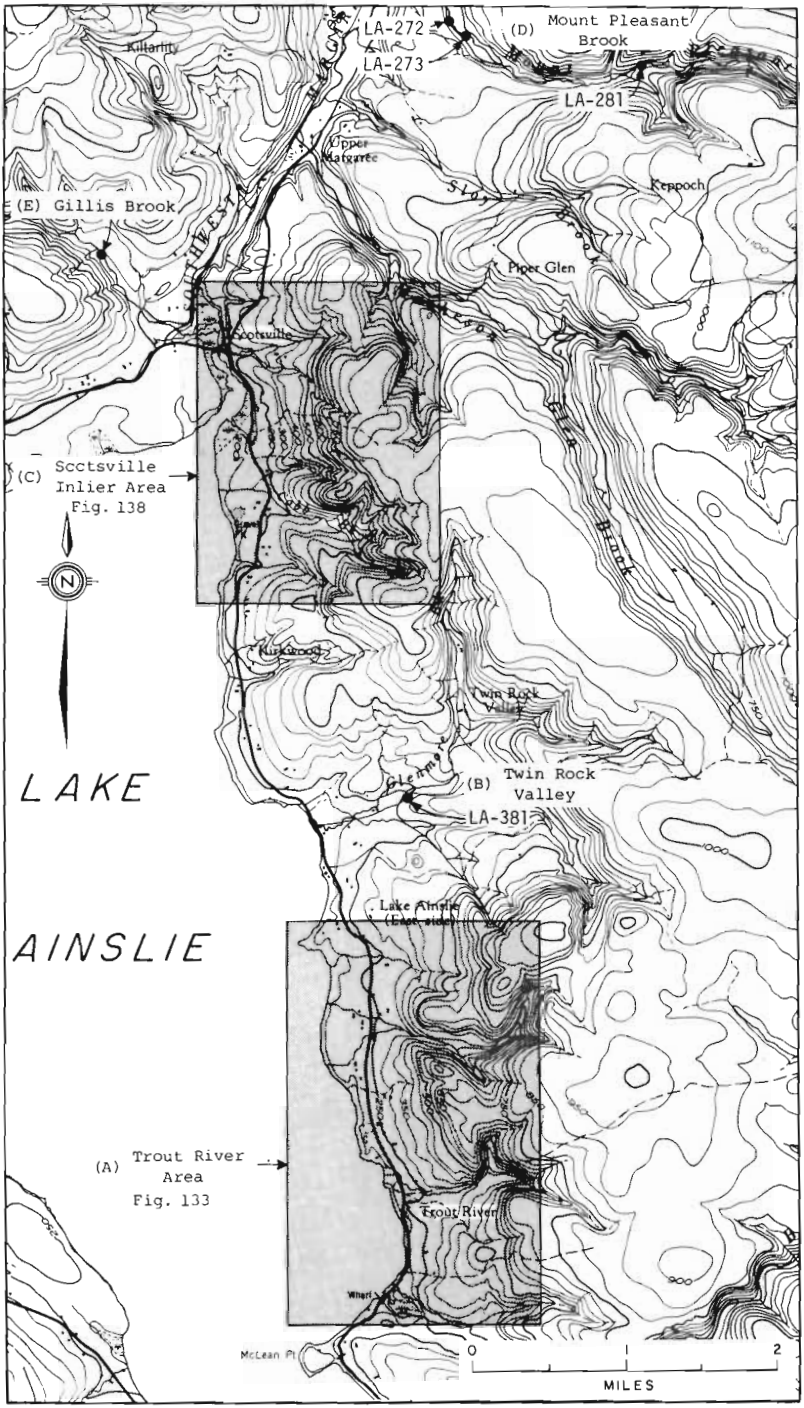

LA-272
LA-273
(D) Mount Pleasant Brook
LA-281
Killarity
Upper Matarree
(E) Gillis Brook
Keppoch
Piper Glen
Scotsville
(C) Scotsville Inlier Area Fig. 138
Kirkbrook
Twin Rock Valley
(B) Twin Rock Valley
LA-381
LAKE AINSLIE
Lake Ainslie (East side)
(A) Trout River Area Fig. 133
Trout River
McLean Pt
0
1
2
MILES

Figure 132

# Table 10

CHART SHOWING MAIN STAGES OF ACTIVITY IN THE LAKE AINSLIE REGION*

BARITE AND FLUORITE OCCURRENCES

| (A)-1 | 2 | 3 & 4 | 5 | 6 | 7 | 8 | 9 | (B) |
|---|---|---|---|---|---|---|---|---|
| | | --- NORTH - TOWARD SCOTSVILLE --- | | | | | | |
| MacKay-Evans | J.A.MacDougall | Lower Johnson&Upper Johnson | A.J.MacLean | Campbell | D.J.MacDougall | M.MacMillan | Moore | Scotsville |
| 1911-Discovery<br><br>1941-42 North American Mining and Chemical Corp. 150 ft. open cut -80 ft. inclined shaft -short adit driven<br><br>1965-(July), Dobieco -mapping, trenching<br><br>1965-(Sept.) Yale Lead & Zinc Mines Limited<br><br>1968-1972 International Mogul Mines Limited -geophysical geochemical surveys, diamond drilling | 1945-Short adit driven-Two test pits dug<br><br>1965-(July) Dobieco -mapping, diamond drilling<br><br>1965-(Sept.) Yale Lead & Zinc Mines Ltd.<br><br>1968-1972 International Mogul Mines -geophysical & geochemical surveys, diamond drilling. | 1890-discovery<br><br>1894-Henderson & Potts -Adit 250' long (Lower Johnson)<br><br>1920-few hundred tons extracted<br>1954-Fluor-Bar Mines -Diamond Drilling<br><br>1965-(July)-Dobieco -mapping, trenching<br><br>1965-(Sept.)Yale Lead and Zinc Miles Limited<br><br>1968-1972-Int. Mogul Mines Ltd. -geophysical & geochemical surveys, diamond drilling. | 1945-Trenching<br><br>1965-(July) Dobieco -mapping, trenching<br><br>1965-(Sept.) Yale Lead and Zinc Mines Limited<br><br>1968-1972 International Mogul Mines Limited | 1903 H.H.Harrison -discovery<br><br>1906-Barium Production Company Ainslie Mining Company -Adit driven 450 ft.<br><br>1938-39 H.M.Evans -Exploratory Work<br><br>1954-56 Fluor-Bar Mines Ltd. -diamond drilling<br><br>1965-(July) Dobieco -mapping, diamond drilling<br><br>1965-(Sept.) -Yale Lead & Zinc Mines Ltd.<br><br>1968-1972 International Mogul Mines Limited -geophysical & geochemical surveys, diamond drilling. | 1904-Gairloch Mining Co. Open Cut Adit Driven<br><br>1954-56 Fluor-Bar Mines Ltd. -diamond drilling<br><br>1965-(July) Dobieco -mapping, diamond drilling<br><br>1965-(Sept.) Yale Lead & Zinc Mines Ltd.<br><br>1968-1972 International Mogul Mines Limited -geophysical & geochemical surveys, diamond drilling | 1903 -H.H.Harrison shaft sunk 125 ft.<br><br>1939-North American Mining and Chemical Corp. -shaft entrance cleaned for for inspection of workings<br><br>1954-56 Fluor-Bar Mines - diamond drilling<br><br>1965-(July) Dobieco -mapping diamond drilling<br><br>1965-(Sept.) Yale Lead and Zinc Mines Ltd.<br><br>1968-1972 International Mogul Mines Ltd. -geophysical & geochemical surveys, diamond drilling. | There are no available dates or names associated with Moore's pit from which a small amount of high grade barite was recovered. | 1935- North American Mining Corp. - opencut -shaft sunk to slope depth of 110 ft.<br><br>1969-N.S. Dept. Mines, (Margaree Valley Project) -mapping. |

* an abbreviated summation of exploration and mining activity compiled by D. Kavanaugh, N.S. Dept. Mines, 1974.

Note: It is estimated that between 7,000 and 8,000 tons of barite have been shipped from Lake Ainslie. Relative percentages for each of the occurrences are not available.

unconformably over basement. Conformably overlying the Horton Group is the Windsor Group, comprising marine limestone, gypsum, shale, and sandstone. The latest deformation, which affected all of these rock units, is attributed to the Maritime Disturbance which occurred during late Paleozoic and early Permian time.

From an economic viewpoint, the most important barite-fluorite deposits occur in the Trout River area of the Lake Ainslie region. As the most significant deposits occur here, this area has been the subject of the most exhaustive exploratory efforts. Nine major mineralized zones have been outlined in the Trout River Area as a result of these studies. This include (from south to north, Fig. 133):

(1) Evans Vein
(2) J. A. MacDougall Vein
(3) Lower Johnson Vein
(4) Upper Johnson Vein
(5) MacLean Vein
(6) Campbell Vein
(7) D. J. MacDougall Vein
(8) MacMillan Vein
(9) Moore Vein

Of those nine veins, four have been designated by International Mogul Mines Ltd. (Zurowski, 1972), as being economically significant. These are (in order of highest indicated tonnages): (1) MacMillan Vein, (2) Upper Johnson Vein, (3) Campbell Vein, and (4) J. A. MacDougall Vein. A chart outlining the relevant statistics regarding ore tonnages and mineral (barite-fluorite) content are found in Table 11.

The following is a list of the five areas and the deposits and occurrences found in each of those areas:

(A) Trout River Area

The following descriptions of the deposits in the Trout River Area are given by D. Kavanaugh, 1974 (Cape Breton Mineral Resources Survey, N. S. Dept. Mines).

(1) Evans Vein (also known as the MacKay-Evans Vein)

"This barite and fluorite occurrence is found beside an old road approximately one thousand feet

TABLE 11

ORE RESERVES*: TROUT RIVER AREA, LAKE AINSLIE

| | ORE SHORT TONS INDICATED** | ORE SHORT TONS PROBABLE† | ORE SHORT TONS TOTAL (probable + indicated) | % $BaSO_4$ (average) | SHORT TONS $BaSO_4$ | % $CaF_2$ (average) | SHORT TONS $CaF_2$ |
|---|---|---|---|---|---|---|---|
| CAMPBELL VEIN | 385,902 | - | 385,902 | 36.70 | 141,612 | 23.23 | 89,665 |
| MCMILLAN VEIN | 2,353,507 | - | 2,353,507 | 28.68 | 674,958 | 19.67 | 463,018 |
| UPPER JOHNSON VEIN | 979,700 | - | - | 47.99 | 470,202 | 17.50 | 171,489 |
| | | 273,300 | - | 40.35 | 110,263 | 22.82 | 62,370 |
| | | 34,900 | - | 56.43 | 19,694 | 7.02 | 2,451 |
| | | 38,000 | - | 21.62 | 8,214 | 15.36 | 5,836 |
| | | - | 1,325,900 | - | - | - | - |
| J. A. MACDOUGALL VEIN | 358,840 | - | - | 37.63 | 135,039 | 8.83 | 31,683 |
| | | 64,600 | - | 51.00 | 32,946 | 13.70 | 8.843 |
| | | 102,600 | - | 71.14 | 72,985 | 16.04 | 16,461 |
| | | 73,200 | - | 60.00 | 43,920 | 16.80 | 12,297 |
| | | | 599,240 | | | | |
| TOTAL | 4,077,949 | 586,600 | 4,664,549 | - | 1,709,833 | - | 864,113 |

* Ore reserve figures after Int. Mogul Mines Ltd., 1972.
** - by diamond drilling (closely spaced holes), †- by diamond drilling (widely spaced holes)

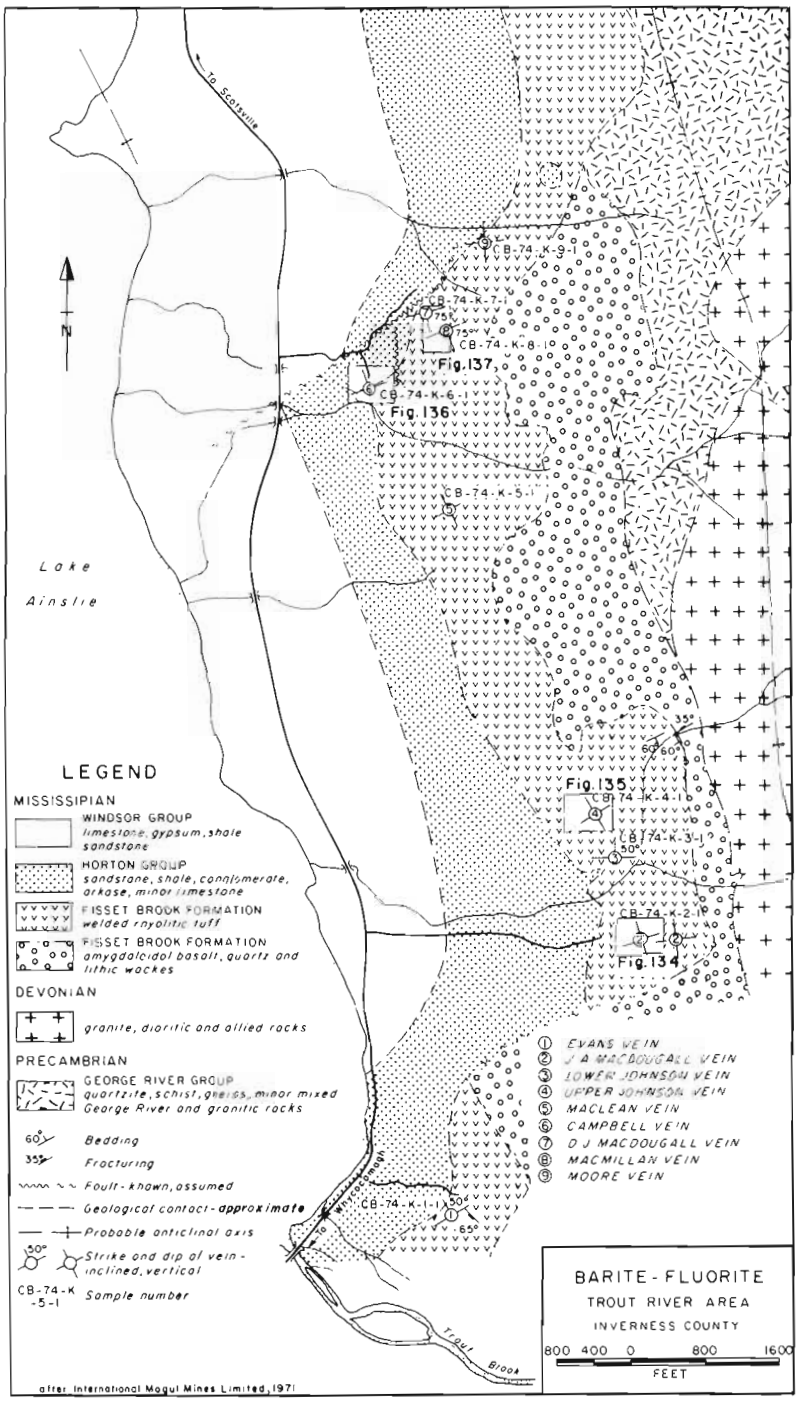

To Scotsville
N
Lake
Ainslie
CB-74-K-9-1
CB-74-K-7-1
CB-74-K-8-10
Fig. 137
CB-74-K-6-1
Fig. 136
CB-74-K-5-1
Fig. 135
CB-74-K-4-1
CB-74-K-3-1
CB-74-K-2-1
Fig. 134
CB-74-K-1-1
Mackenzie Brook
Trout Brook
LEGEND
MISSISSIPIAN
WINDSOR GROUP
limestone, gypsum, shale sandstone
HORTON GROUP
sandstone, shale, conglomerate, arkose, minor limestone
FISSET BROOK FORMATION
welded rhyolitic tuff
FISSET BROOK FORMATION
amygdaloidal basalt, quartz and lithic wackes
DEVONIAN
granite, dioritic and allied rocks
PRECAMBRIAN
GEORGE RIVER GROUP
quartzite, schist, gneiss, minor mixed George River and granitic rocks
Bedding
Fracturing
Fault - known, assumed
Geological contact - approximate
Probable anticlinal axis
Strike and dip of vein - inclined, vertical
CB-74-K-5-1 Sample number
1 EVANS VEIN
2 J A MACDOUGALL VEIN
3 LOWER JOHNSON VEIN
4 UPPER JOHNSON VEIN
5 MACLEAN VEIN
6 CAMPBELL VEIN
7 D J MACDOUGALL VEIN
8 MACMILLAN VEIN
9 MOORE VEIN
BARITE - FLUORITE
TROUT RIVER AREA
INVERNESS COUNTY
800 400 0 800 1600
FEET
after International Mogul Mines Limited, 1971

Figure 133

north of the Trout Brook Bridge (Fig. 133). The old workings consist of an inclined entrance to a shaft which is now caved and an open-cut which is for the most part slumped and grown over. The open-cut is 140 feet long running east from the shaft and the shaft is reported to have drifts at the 30 and 75 foot levels (G. V. Douglas, 1944, p. 144). It is assumed that the drifts also run eastward. The remains of the old crusher are still visible at this site.

"Due to the slumped condition of the open-cut no attitudes are available on either the vein or the rhyolitic tuff which is the host rock. However, Douglas (1944, p. 143) reports that the barite-fluorite vein strikes 060° azimuth, dips 50 to 60 degrees northwest, varies in thickness from 14 inches to 14 feet, and has been proven over a strike length of 330 feet. No information is available regarding the limits of the vein at either end. Both the barite-fluorite vein and the rhyolitic tuff exhibit varying degrees of shattering and fracturing. The fractures in the wallrock are perpendicular to the vein. Information to date suggests the mineralization to be occupying a fault zone."

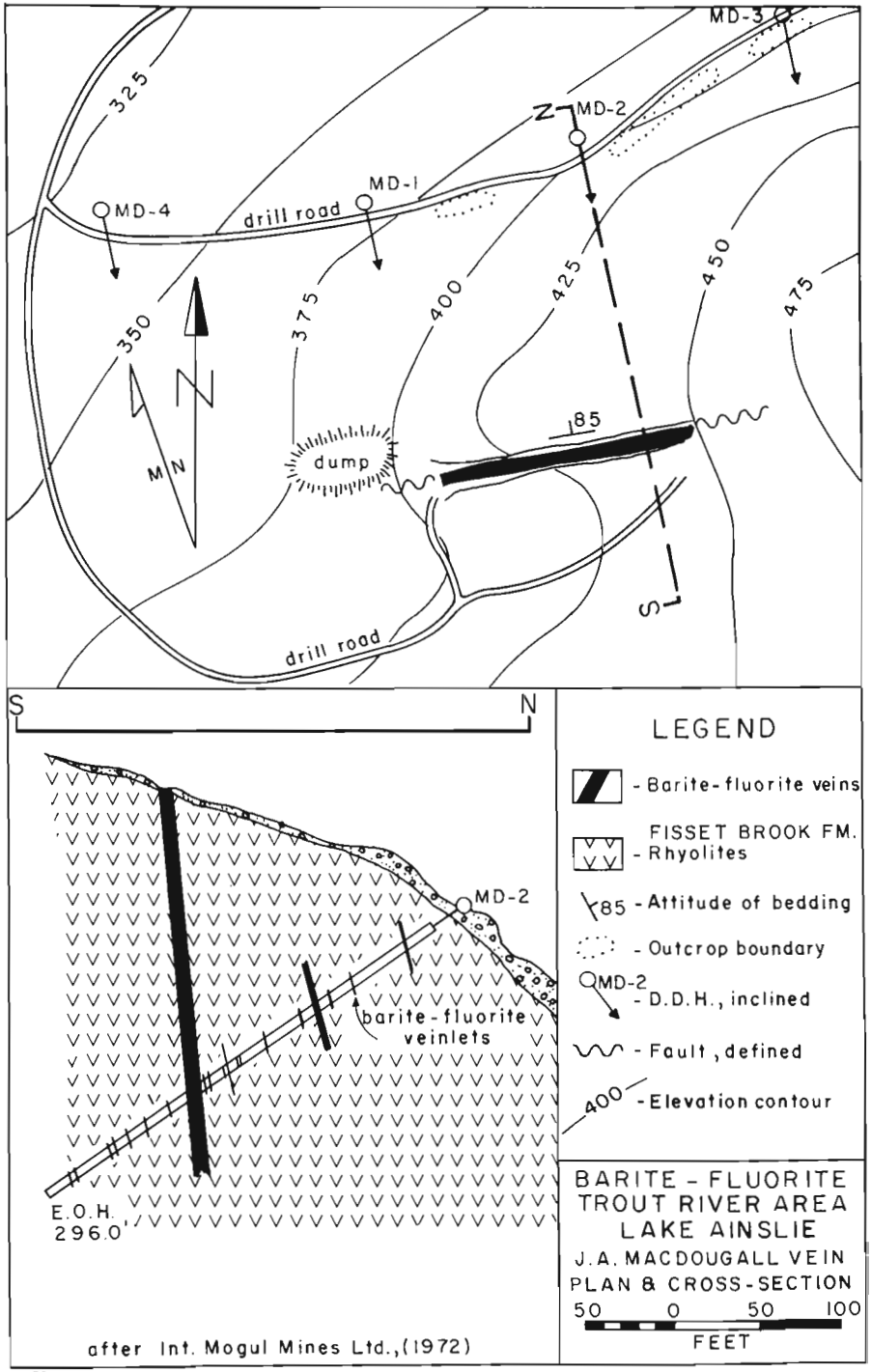
"The vein material has a higher fluorite content than other veins in the Trout River Area, with the fluorite occurring as bands in the barite."

A sample collected from the dumps was submitted for chemical analyses. The analytical results are found below and in appendix III.

| Rock Type | Sample No. | Per cent | | | ppm | | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Barite-fluorite-calcite | CB-74-K-1-1 | 93.05 | .57 | 2.94 | 20 | 10 | 20 |

(2) J. A. MacDougall Vein

"This occurrence is found on a track off a road which terminates at the main northern tributary of Trout Brook (Fig. 133, and 134). A very short adit was driven on the main vein occurrence at this




JBC

Figure 134

location. This vein has been proven over a length of 140 feet and is reported to have a thickness of up to nine feet. Another vein just below the adit to the west has been proven over 40 feet and its thickness has been described as varying between five and seven feet. The upper vein which is exposed by the adit, follows a fault plane which strikes 084° azimuth and dips vertically. The enclosing faulted rock is rhyolitic tuff and it appears that the north wall of the fault has been moved upward relative to the south wall. Lateral slip has also occurred judging by very large grooves and striations which are evident on the north wall. The south wall is highly fractured. The plane of the fault can be followed on the surface for approximately 150 feet. In addition to the barite and fluorite mineralization, traces of limonite, chalcopyrite and malachite are also found in the wallrock."

A sample taken from the dump at the western end of the vein was submitted for chemical analysis. The analytical results are found below and in appendix III.

| Rock Type | Sample No. | Per cent | | | ppm | | |
|---|---|---|---|---|---|---|---|
| | | $SaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Barite | CB-74-K-2-1 | 95.60 | 2.10 | .90 | 80 | 10 | 20 |

(3) Lower Johnson Vein

"The Lower Johnson workings are located roughly 750 feet northwest of the J. A. MacDougall site, on a hill beside the previously mentioned road which terminates at the main northern tributary of Trout Brook (Fig. 133). These workings consist of three adits which are in surprisingly good condition, though they are well hidden by the growth of spruce around them. Two of the adits are connected by a narrow underground passage. Virtually all the ore removed to date from this deposit came from the two connected adits.

"The mineralization occurs as a vein which attains a maximum thickness of ten feet; however where it is exposed at the entrance to the most northerly adit it is four feet thick. The host rock is rhyolitic tuff. The fault plane that

this vein follows strikes 090° azimuth and dips 64 degrees to the north. Apparently the adit was driven on the vein until the width increased at depth. The vein was then stoped to the surface. Parallel grooves and slickensiding on the south wall (footwall) of the fault suggests vertical and eastward lateral displacement of the north wall (hanging wall) of the fault. The economic minerals comprising the mineralization are barite and fluorite, with the latter occurring in bands close to the vein-wallrock contact. A good deal of manganese wad is found on the south wall (footwall) of the fault.

"The third, most easterly adit at this site, is very short and was driven on a vein of minimal width (1 foot). The fault associated with this vein occurrence strikes 017° azimuth and dips 58 degrees to the west. No metallic mineralization was observed at any of the three adits."

A sample collected from the vein exposed near the most northerly adit was submitted for chemical analysis. The analytical results are found below and in appendix III.

| Rock Type | Sample No. | Per cent | | | ppm | | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Barite fluorite | CB-74-K-3-1 | 76.13 | 1.80 | 10.80 | 110 | 10 | 20 |

(4) Upper Johnson Vein

"The Upper Johnson barite-fluorite occurrence is found farther up the hill, approximately 500 feet from the Lower Johnson site. A steep bull-dozed road climbs the hill and passes within a few feet of the long open-cut which marks the location of the Upper Johnson workings (Fig. 133, and 135). A few small pits may be found 200 feet below the open-cut, but they are now partially filled in and grown over. The open-cut is 125 feet in length and ranges in width from four feet minimum to eleven feet maximum.

"The vein generally follows a fault which strikes 064° azimuth and dips 85 degrees NW to vertical, and has been traced over a strike

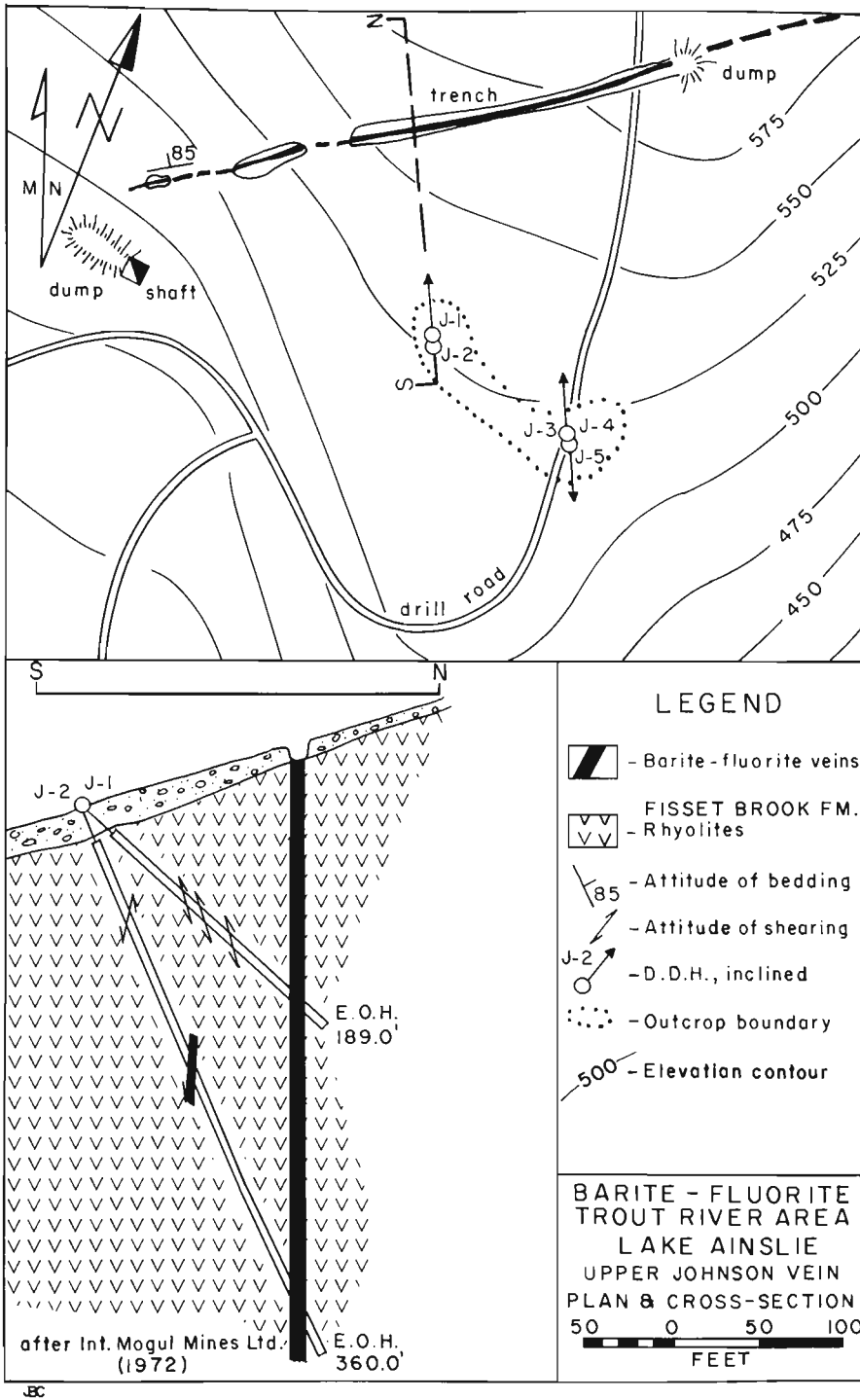

N
trench
dump
185
M N
dump
shaft
575
550
525
500
475
450
J-1
J-2
J-3
J-4
J-5
S
drill road
S
N
J-2
J-1
E.O.H.
189.0'
E.O.H.
360.0'
after Int. Mogul Mines Ltd.
(1972)
LEGEND
- Barite-fluorite veins
FISSET BROOK FM.
- Rhyolites
185 - Attitude of bedding
- Attitude of shearing
J-2 - D.D.H., inclined
- Outcrop boundary
500 - Elevation contour
BARITE - FLUORITE
TROUT RIVER AREA
LAKE AINSLIE
UPPER JOHNSON VEIN
PLAN & CROSS-SECTION
50 0 50 100
FEET
JBC

Figure 135

length of 400+ feet. As was the case at the J. A. MacDougall site, the south wall of the fault, (hanging wall), is highly fractured. The north wall, (footwall), was mostly intact and smoothly slickensided northeast to southwest along the plane of the fault. Very coarse crystalization of the barite-fluorite was noted at this occurrence and flecks of chalcopyrite, pyrite and malachite were noted in the wallrock. Manganese wad is also found in cavities in the vein material."

A sample of mineralized rock was collected from this site and submitted for chemical analysis. The analytical results are listed below and in appendix III.

| Rock Type | Sample No. | Per cent | | | ppm | | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Barite-fluorite-calcite | CB-74-K-4-1 | 80.67 | 1.60 | 5.40 | 160 | 30 | 20 |

(5) A. J. MacLean Vein

"This barite-fluorite occurrence is located on a hill just south of Bald Mountain at Lake Ainslie, above the property of A. J. MacLean (Fig. 133. A few small pits had been dug in the area but only one short trench on the vein remains visible. The attitude of this vein has been reported as striking 062° azimuth and dipping vertically (Creed, 1968, p. 103). The vein attains a maximum thickness of three feet and has been proven over a strike length of 230 feet. The host rock to the mineralization is rhyolitic tuff.

Creed (1968, p. 103) reports textural and compositional banding within the vein material."

A sample of mineralized rock was taken from this site and submitted for chemical analysis. The results of the analyses are found below and in appendix III.

| Rock Type | Sample No. | Per cent | | | ppm | | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Barite-minor fluorite | CB-74-K-5-1 | 91.50 | 2.20 | 1.60 | 80 | 10 | 15 |

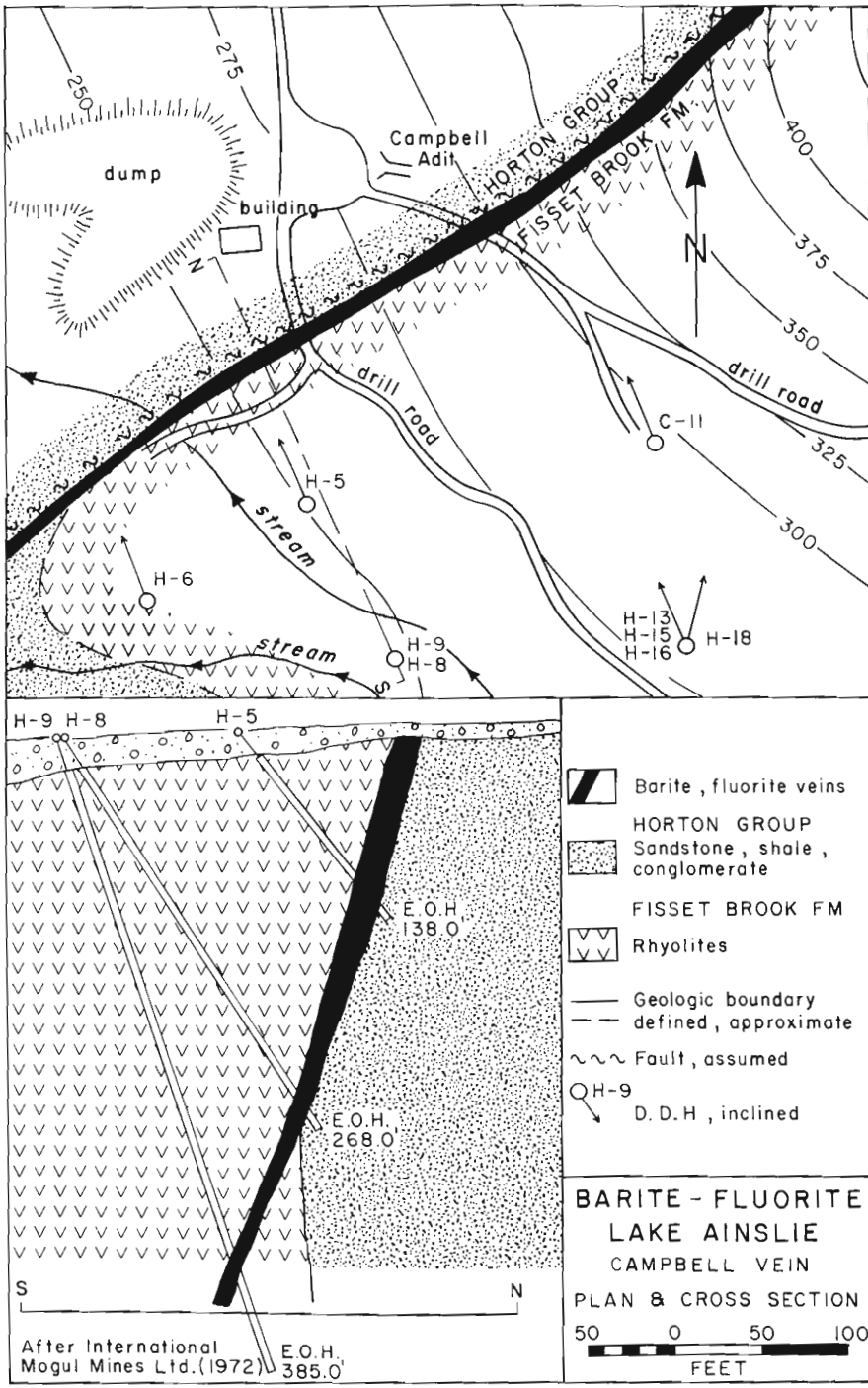
(6) Campbell Vein

"The Campbell Mine site is located at the foot of Bald Hill, or Bald Mountain, as it is more often referred to by local residents (Fig. 133 and 136). The old entrances to two adits are visible at this occurrence but they have both caved preventing entrance to the old underground workings. Both of the adits were driven west to east. Old Nova Scotia Department of Mines survey maps indicate the south adit to be 450 feet in length and the north adit 230 feet in length.

"The mineralization occupies a fault zone which strikes 071° azimuth and dips vertically. The northwest wall is a downfaulted block of Horton Group sediments and the southeast wall is composed of rhyolitic tuff. Recent work by Int. Mogul Mines Ltd. (Zurowski, 1972), indicates that the vein is connected to the MacMillan Vein to the northwest, and that the two are actually one vein. Both the southwest extremity of the Campbell Vein and the northwest extremity of the MacMillan Vein are terminated by faulting. Samples of the vein material obtained from the dump exhibit grooves and slickensiding.

"The mineralization consists primarily of barite and fluorite with significant quantities of calcite. Cavities in the ore were also observed to contain manganese wad and tar-like globs of hydrocarbon. Creed (1968, p. 103) indicates that the barite is very coarsely crystalline, often occurring in plates over four inches in length and oriented in a radiating manner."

A sample of the ore collected from the dump was submitted for chemical analysis. The analytical results are listed below and in appendix III.




P.G.B

Figure 136

| Rock Type | Sample No. | Per cent $BaSO_4$ | Per cent $SrSO_4$ | Per cent F | ppm Cu | ppm Pb | ppm Zn |
|---|---|---|---|---|---|---|---|
| Barite-fluorite-calcite | CB-74-K-6-1 | 47.25 | 1.41 | 18.32 | 80 | 30 | 30 |

(7) D. J. MacDougall Vein

"Farther up the hill approximately 600 feet northeast of the Campbell adits is the site of the D. J. MacDougall workings (Fig. 133, and 137). An open cut 110 feet long and trending in a northwesterly direction, marks the site of the old workings.

"Very little mineralization was seen in situ in the open cut; however that which was observed, is hosted by rhyolitic tuff. The rhyolitic tuff exhibits slickensiding and large grooves.

"The only visible undergound work at this location is a short adit, approximately 15 feet in length, which may be slumped or caved inside. At the entrance to the adit the barite-fluorite vein has an observable thickness of 4 1/2 feet; however at the adits end, the exposure of vein material narrows to 18 inches. The attitude of the vein at this location is 100° azimuth/63° south. The wallrock to the mineralization is rhyolitic tuff which exhibits small scale flow banding. The wallrock adjacent to the vein has slickensided surfaces and is extensively fractured.

"The vein mineralogy is predominantly barite-fluorite with cavities containing various amounts of manganese wad. There is a distinct banding evident between the pale white barite and green fluorite, the latter of which forms a prominent band adjacent to the wallrock."

A grab sample collected from the vein material near the adit was submitted for chemical analysis. The analytical results are found below and in appendix III.

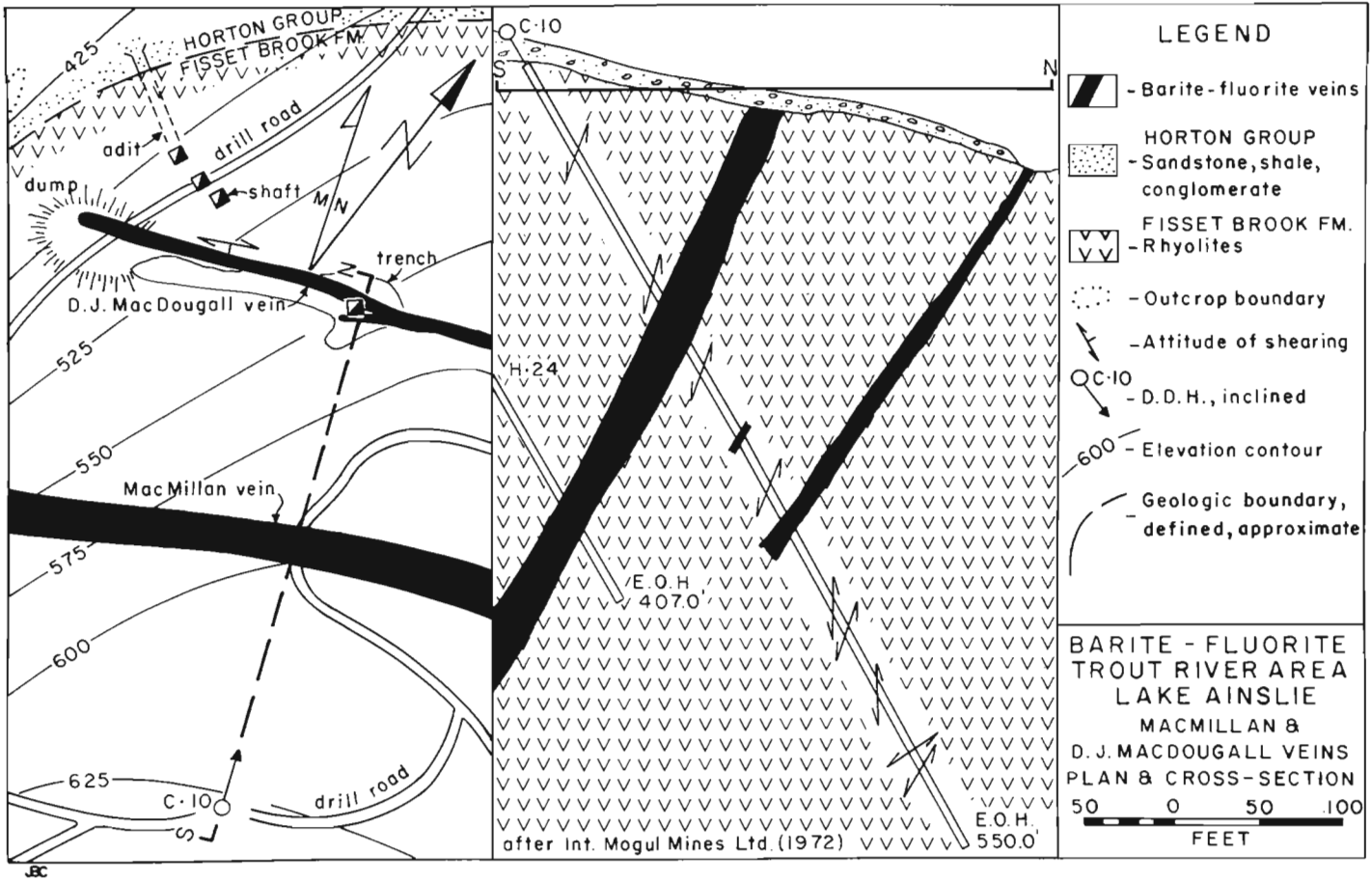

HORTON GROUP
FISSET BROOK FM.
425
adit
drill road
dump
shaft
M
N
trench
D.J. MacDougall vein
525
550
MacMillan vein
575
600
625
C-10
S
drill road
C-10
S
N
H-24
E.O.H.
407.0'
E.O.H.
550.0'
after Int. Mogul Mines Ltd. (1972)
LEGEND
- Barite-fluorite veins
HORTON GROUP
- Sandstone, shale, conglomerate
FISSET BROOK FM.
- Rhyolites
- Outcrop boundary
- Attitude of shearing
C-10
- D.D.H., inclined
600
- Elevation contour
- Geologic boundary, defined, approximate
BARITE - FLUORITE
TROUT RIVER AREA
LAKE AINSLIE
MACMILLAN &
D.J. MACDOUGALL VEINS
PLAN & CROSS-SECTION
50 0 50 100
FEET
JBC

Figure 137

| Rock Type | Sample No. | Per cent | | | ppm | | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Barite, minor fluorite | CB-74-K-7-1 | 92.05 | 2.08 | 2.50 | 40 | 10 | 50 |

(8) MacMillan Vein

"This occurrence is found close to the top of Bald Mountain approximately 200 feet east of the D. J. MacDougall site (Fig. 133, and 137). The workings consisted of a long, wide, opencut with high walls and a shaft at the northeast end. Mine records state that the shaft is inclined 70° south, has a total length of 125 feet and has drifts at the 50 foot and 125 foot levels.

"A good exposure of the mineralization is evident in the open cut, which shows evidence of the barite-fluorite filling a fault zone (Creed, 1968, p. 105). The wallrock is rhyolitic tuff which is slickensided and fractured. The vein attains a thickness of up to 50+ feet; however the thickness generally varies between 20 and 40 feet. It strikes 070° azimuth, dips 75° southeast, and can be traced on the surface along strike for 290 feet. Drilling has extended the strike length to 700 feet, shows the vein to be connected to the Campbell Vein to the southwest and indicates the northeast extremity to be terminated by faulting.

"Mineral phases present in the vein material are barite, calcite and fluorite. As in some of the other veins in the Trout River Area, concentrations of fluorite close to the wallrock is common. Banding of the barite-fluorite is well developed here, with individual bands of barite attaining thickness of up to .5 metre (1.6 feet) (Creed, 1968, p. 105)."

A grab sample collected from the mineralized zone was submitted for chemical analysis. The analytical results are found below and in appendix III.

| Rock Type | Sample No. | Per cent $BaSO_4$ | Per cent $SrSO_4$ | Per cent F | ppm Cu | ppm Pb | ppm Zn |
|---|---|---|---|---|---|---|---|
| Barite-fluorite-calcite | CB-74-K-8-1 | 73.92 | 2.19 | 12.20 | 80 | 30 | 30 |

(9) Moore Vein

"This occurrence is 800 feet southeast of the fork in the stream which is immediately north of Bald Mountain (Fig. 138). All that is visible is a trench which is approximately ninety feet long.

"Douglas (1944, p. 147) indicates that the vein could be traced for a strike length of 12 feet and pinched out at a depth of only six feet. He also reports that the vein strikes 093° azimuth and dips vertically. Apparently the vein was predominately barite with very little fluorite or calcite. It is also reported that some 35 tons of barite were removed from the vein some time prior to 1944."

A grab sample collected from float in the trench was submitted for chemical analysis. The analytical results are listed below and in appendix III.

| Rock Type | Sample No. | Per cent $BaSO_4$ | Per cent $SrSO_4$ | Per cent F | ppm Cu | ppm Pb | ppm Zn |
|---|---|---|---|---|---|---|---|
| Barite | CB-74-K-9-1 | 96.60 | 2.48 | .37 | 10 | 10 | 20 |

(B) Twin Rock Valley Area

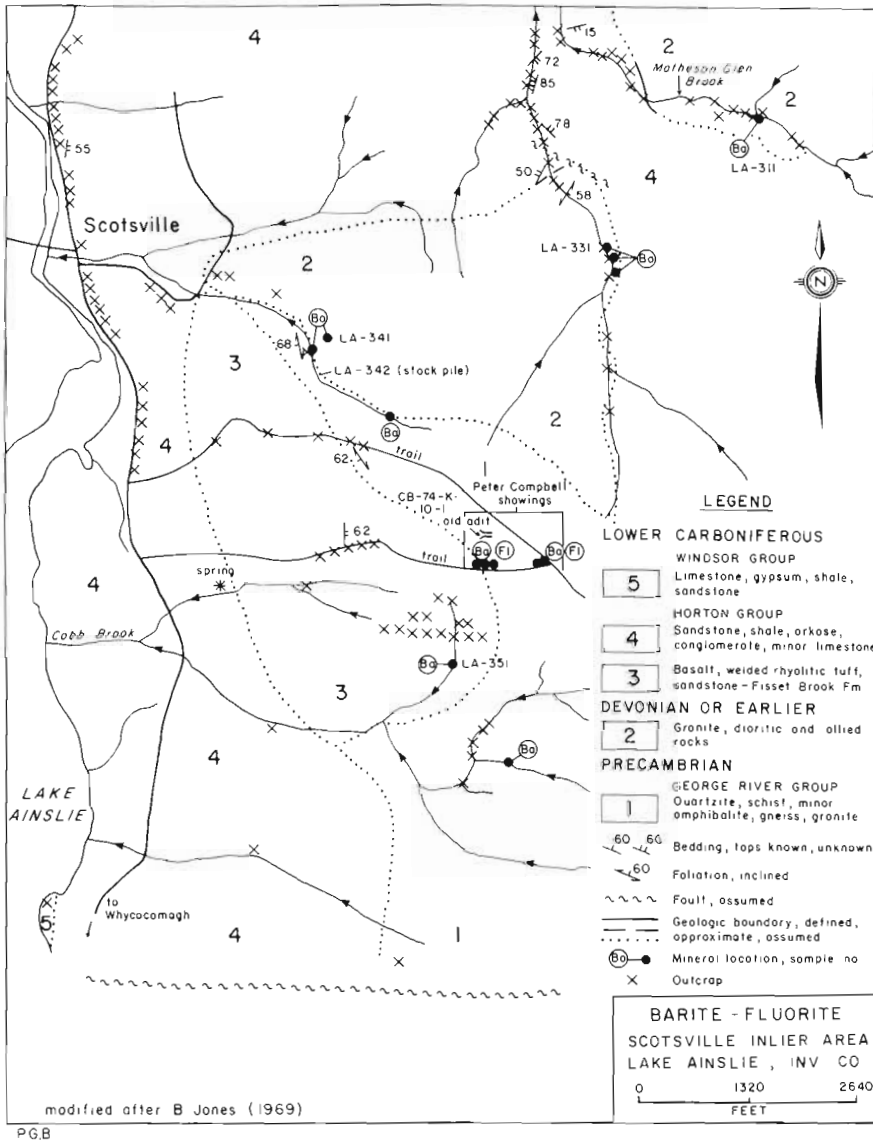
This showing is located on the Twin Rock Valley Road approximately 3800' (0.7 mile) east of the highway that skirts the east side of Lake Ainslie (Fig. 132).

The following description is abstracted from Jones, 1969:

LA-381 - Long: 61°08'07"-Lat: 46°08'45"

"The sample is of light coloured pyroclastic rhyolite which carries visible pale green, deep blue, and deep violet fluorite as fracture coatings and cavity fillings."

"The sample was sent for standard fluorite analyses. Results: 5.25% F."




PG.B

Figure 138

Additional exploratory work is warranted for this area to determine the possibility and the extent of additional deposits.

(C) Scotsville Inlier Area

There are a number of projects in this area, some of which have been worked to a small degree in the past in conjunction with the workings in the Trout River Area. Since that time all the workings have slumped or collapsed. Locations of these showings are indicated on Figure 132 and 138.

The host rocks are predominantly rhyolitic tuffs of the Fisset Brook Formation, with Devonian or earlier dioritic rocks and quartzitic rocks of the Precambrian George River Group hosting the remainder of the deposits. The deposits differ slightly from those to the south in the Trout River Area in that there is a much wider range of vein orientations (from northeast to southeast), and that the barite/ fluorite ratio is greater in the Scotsville Area. Major similarities include banding of the ore minerals, lack of wallrock alteration and texture of the ore.

The following descriptions are taken from Jones, (1969, p. 28, 29). The numbers LA-311, LA-331, LA-341, LA-342, and LA-351 refer to locations of showings on Figure 138, with LA-311 being the most northerly and LA-351 the most southerly one.

"LA-311 - Long: 61°07'30"-Lat: 46°25'04"

"Several one inch to 1 1/2 inch veins of white barite with minor pale green fluorite cut sheared diorite on Matheson Glen Brook. The sample locality is approximately 7,500 feet northeast of Scotsville. Due to overburden, the veins could not be traced beyond the limits of the stream bed.

"The sample was sent for standard analyses for barite and fluorite. Results: $BaSO_4$ - 92.12%; $CaF_2$ - 2.38%."

LA-331 - Long: 61°07'30"-Lat: 46°11'15"

"The sample consists of chips from several large rounded boulders of white barite with minor fluorite. The boulders occur in the bed of a stream

which is tributary to Matheson Glen Brook. The approximate location is 2200 feet east of Scotsville.

"The sample was sent for standard analysis for barite and fluorite. Results: 53.0% Ba, 0.2% F."

LA-341 - Long: 61°08'45"-Lat: 46°11'15"

"Several grab samples were taken from the edges of an old pit that is presently filled with mud and debris. There are abundant large blocks of very coarsely crystalline pale pink barite with some pale green fluorite. The digging represents either part of the old Scotsville workings, or a prospecting trench. The host rock appears to be a pink coloured, medium grained granitic rock. The location is 1/4 mile east along an old road from MacKay's cabins, near Scotsville.

"The sample was sent for standard analyses for barite and fluorite. Results: 57.5% Ba; 0.04% F."

LA-342 - Long: 61°08'45"-Lat: 46°11'05"

"Several pieces were taken from a stockpile of white crystalline barite with pale green fluorite that was found near an old loading platform. Presumably this material came from one of the old workings. The location is slightly over 1/4 mile east along a trail from MacKay's cabins, near Scotsville.

"The sample was sent for standard barite and fluorite analyses. Results: 52.1% Ba; 0.70% F."

LA-351 - Long: 61°08'45"-Lat: 45°10'40"

"This is a grab sample taken from several boulders (1' x 1' max.) of coarsely crystalline pale pink barite with pale green fluorite. The boulders lie on what appears to have been an old wagon road, and it is probable that they are spillage from barite ore mined further north or east. The old workings were not found. The sample location is on a north tributary to Cobb Brook, 1/2 mile east of the Lake Ainslie Road.

"The sample was sent for standard barite and fluorite analyses. Results: 52% Ba; 0.50% F."

The Peter Campbell Showings are located on a good trail approximately 1/4 mile north of showing no. LA-351 (Fig. 138). The following description is given by D. Kavanaugh, 1974.

> "This occurrence consists of several veins which have all been explored by pits, trenches or underground workings. All of these trenches and underground workings are slumped, caved and overgrown, consequently very little bedrock is exposed.
>
> "The adit shown north of the trail was driven on a vein striking 030° azimuth and dipping 50° southeast. The wallrock to the vein is rhyolitic tuff of the Fisset Brook Formation. The mineralization constituting the vein appears to be high grade barite with little or no fluorite present. The barite is a very pure white in colour.
>
> "One hundred and forty feet south of this adit a large deep pit (20 feet) exposes a large face of metasandstone, chloritized sediment and basalt. There is also some small scale folding and crenulations containing barite veinlets in the chloritized sediment. Remnant bedding appears to strike at 020° azimuth and dip 53° southeast. Further south, old workings expose a metasandstone similar to the one observed in the large pit. Fragments of barite found in these workings are unusual in that they are very impure, some resembling dark grey microcrystalline limestone. Fragments of limestone were found in the area though no outcrops were located. Minor chalcopyrite (mineralization) was observed in the basalt and metasandstone."

A grab sample collected from the vein near the adit was submitted for chemical analysis. The analytical results are given below and in Appendix III.

| Rock Type | Sample No. | Per cent | | | ppm | | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Barite | CB-74-K-10-1 | 94.73 | 2.62 | 1.30 | 10 | 10 | 20 |

(D) Mount Pleasant Brook Showings

These showings are situated northeast of the Scotsville Inlier Area, on Mount Pleasant Brook (Fig. 132). Host to these occurrences are clastic sedimentary rocks of the Horton Group. The locations of the showings are indicated on Figure 132 by the numbers LA-281, LA-273, and LA-272. The following descriptions beginning with the easternmost occurrence, LA-281, are given by Jones, (1969, p. 27).

LA-281 - Long: 61°13'-Lat: 46°06'

"The sample was taken from a 1/2 inch vein of suspected barite and celestite in an outcrop of grey arkosic sandstone of Horton age. (The location is on Mount Pleasant Brook, 1/2 mile north of Keppoch.)

"The sample was sent for the standard barite and celestite analyses. The analysis showed: 76.0 per cent $BaSO_4$; 1.50 per cent $SrSO_4$."

LA-273 - Long: 61°07'34"-Lat: 46°13'05"

"The sample consists of several pieces broken from a large float boulder of grey arkosic sandstone veined with suspected barite. The float was found on Mount Pleasant Brook, about 7,000 feet northeast of Upper Margaree.

"The sample was sent for standard barite analysis. Results: 18.8 per cent Ba."

LA-272 - Long: 61°07'42"-Lat: 46°13'10"

"The sample consists of several pieces of float of dark grey sandstone carrying veins which may be barite. The sample location is on Mount Pleasant Brook, approximately 7000 feet northeast of Upper Margaree.

"The sample was sent for the standard barite analysis. The results show 29.5 per cent Ba."

(E) Gillis Brook Area

The Gillis Brook showing is situated approximately one mile northwest of Scotsville on Gillis Brook.

The following excerpt from a report by Douglas, (1944, p. 148, 149) is the most recent information with regard to the location of the showing.

> "This mineralization is to be seen on the western side of Gillis Brook between 3,000 and 3,500 feet above the farm of M. D. D. MacGregor.
>
> "The fluorspar can be seen in a five inch vein in a shallow adit which was driven into the bank only a few feet above the level of the bed of the brook."

The nature of the deposit and the host rock is described by Kelley, (1961, p. 71), who states:

> "One small diorite dyke on the north side of Lake Ainslie cuts the lower part of the Horton group. It contains calcite, fluorite, barite, pyrite and chalcopyrite that fill small cracks or joints in the dyke."

It is also reported by Douglas, (1944, p. 148), that a sample of the mineralized rock analysed 62.5 per cent $CaF_2$.

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Whyslouzil, D. M. and McCarthy, J.
1972: Reports on metallurgy of Lake Ainslie barite-fluorite, by Lakefield Research Can. Ltd. for International Mogul Mines Ltd.; parts 1-12, N.S. Dept. Mines A.F.R. 11-K/3-A 06-J-31(14).

## (47) MABOU MINES

U.T.M.G. - N-510814
E-61850

N.T.S. - 11K/3B (1:50,000)

The barite occurrence is found at Mabou Mines Brook, 300 feet east of the old Mabou coal mines shaft, approximately 5.5 miles northwest of the village of Mabou (Fig. 128 and 139).

The first reported exploratory work for barite was conducted in this area by the Milmor Syndicate in 1971. The property was then optioned in 1972 to I.M.C. Drilling Mud Inc., who put down four diamond-drill holes totalling 726 feet. Barite was intersected only in D.D.H. 3. The locations, depths, declinations and directions of these holes are plotted on Figure 139. This prospect has been idle since that time.

The deposit is found in a fault block of Carboniferous Age sediments. These rocks include clastic sedimentary rocks of the Horton Group (Early Carboniferous Age), evaporites, carbonates, and clastic sedimentary rocks of the Windsor Group (Early Carboniferous Age), and clastic sedimentary rocks of the Inverness Formation (Late Carboniferous Age). The Horton-Windsor Groups are fault bound by pre-Carboniferous rocks to the east, Horton Group rocks to the south and Inverness Formation rocks to the west. The major faults strike northerly and northeasterly. This faulting is a result of movements attributed to the Maritime Disturbance.

The barite is found in large boulders of angular float in the bed stream and the north bank of the stream (Fig. 140). Remnants of small fragments of fine-grained, grey limestone are occasionally found with the barite. Examination of thin section K03-5001 suggests that:
(a) the host rock is limestone of the Lower Windsor Group,
(b) the barite showing is a replacement type of deposit (Fig. 141). This also appears to be substantiated by I.M.C. Inc. drill log for D.D.H. 3 which reads in part:

| "Depth Feet | Formation |
|---|---|
| 229-239 | Breccia, grey marly calc. matrix, angular fragments of buff limestone, few small fragments of barite, core recovery 90%. |
| 239-247 | Porous broken limestone, rare specks of pink barite. |
| 247-251 | Sandstone, grey, argillaceous, fine grained, blocky and broken. |
| 251-259 | Only 13" of core, 6" of massive pink barite, 7" of limestone with specks of pink barite. |
| 259-260 | 4" pebbles, pink barytized limestone. |
| 260-261 | 3" pebbles, pink barytized limestone. |
| 261-265 | 6" pebbles, 3" of pink barytized limestone, rest red Horton sandstone." |

This report places the barite zone at the Horton-Windsor contact and also indicates the barite deposit to be faulted and collapsed.

The only rocks found to crop out in the immediate vicinity of the barite float are fine-grained, buff, red-brown, grey sandstone and shale to the west and a red, coarse-grained, conglomeratic sandstone to the east. The former are part of the Inverness Formation and the latter are part of the Horton Group. In this area the Inverness Formation generally strikes in an east-west direction and dips 55° towards the north, and the Horton Group appears to strike in a northeast-southwest direction with a steep dip towards the northwest.

No barite was noted in the upper Carboniferous rocks.

The barite ranges in colour from brick red, orange, pale pink to white, and except for the white variety, has a cryptocrystalline texture. The white variety occurs in minor quantities as small (1/8 inch), tabular crystals lining small vugs within the massive, cryptocrystalline variety of barite. A colloform texture

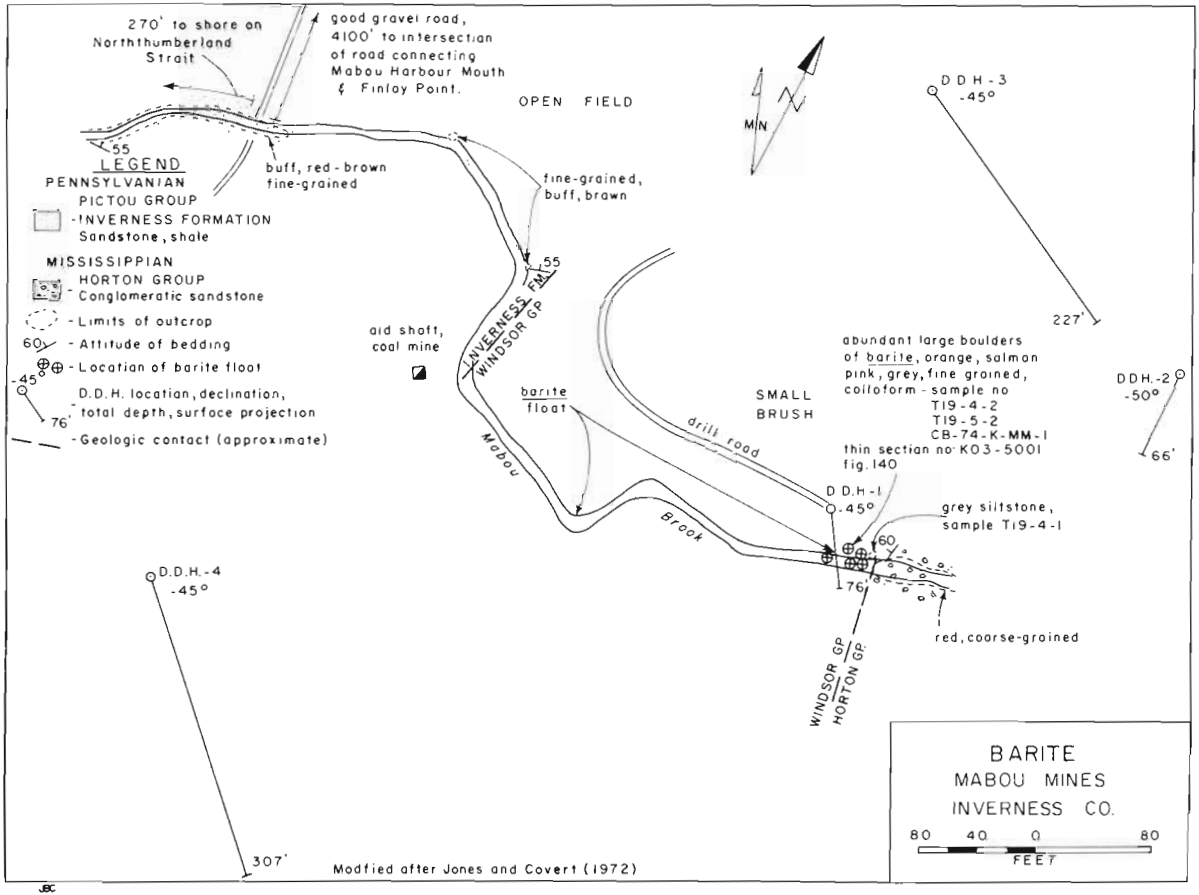
270' to shore on Norththumberland Strait
good gravel road, 4100' to intersection of road connecting Mabou Harbour Mouth & Finlay Point.
OPEN FIELD
MIN
D D H - 3 -45°
227'
55
LEGEND
PENNSYLVANIAN
PICTOU GROUP
-INVERNESS FORMATION
Sandstone, shale
MISSISSIPPIAN
HORTON GROUP
- Conglomeratic sandstone
- Limits of outcrop
60 - Attitude of bedding
- Location of barite float
-45 D.D.H. location, declination,
76' total depth, surface projection
- Geologic contact (approximate)
buff, red-brown fine-grained
fine-grained, buff, brown
FML
55
INVERNESS
WINDSOR GP
aid shaft, coal mine
barite float
SMALL BRUSH
abundant large boulders of barite, orange, salmon pink, grey, fine grained, colloform - sample no
T19-4-2
T19-5-2
CB-74-K-MM-1
thin section no K03-5001 fig. 140
DDH.-2 -50°
66'
drill road
Mabou
Brook
D D.H.-1 -45°
grey siltstone, sample T19-4-1
60
76'
red, coarse-grained
WINDSOR GP
HORTON GP.
D.D.H.-4 -45°
307'
Modfied after Jones and Covert (1972)
JBC
BARITE
MABOU MINES
INVERNESS CO.
80 40 0 80
FEET

Figure 139

Figure 140 - Mabou Mines. Large angular barite boulders in stream bed and bank. Looking north.

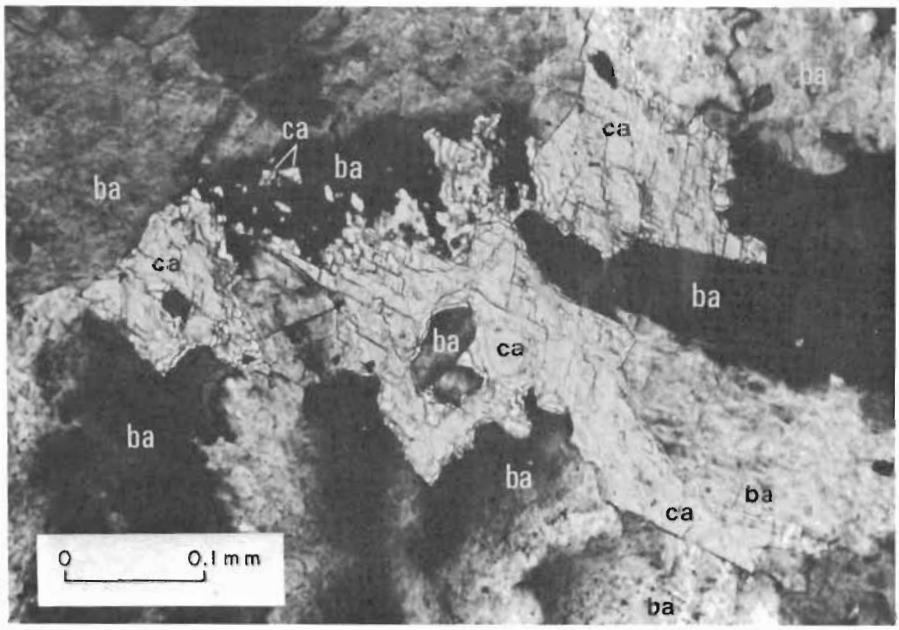


Figure 141 - Mabou Mines. Barite replacing calcite. Note the relict nature of the calcite crystal. Crossed Nicols, ba - barite, ca - calcite.

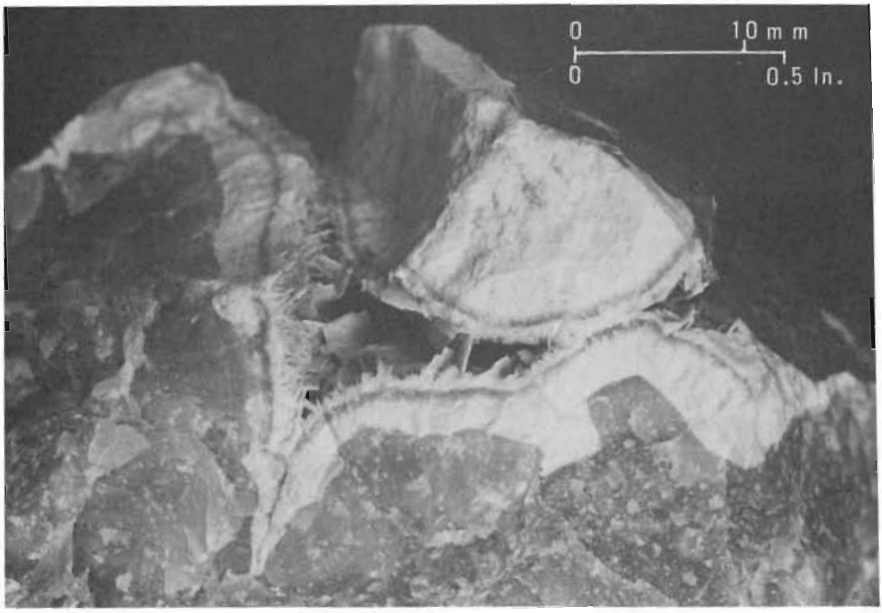


Figure 142 - Mabou Mines. Cryptocrystalline, colloform barite (light portion pink barite, dark portion orange barite). Note small blades of white barite lining vug.

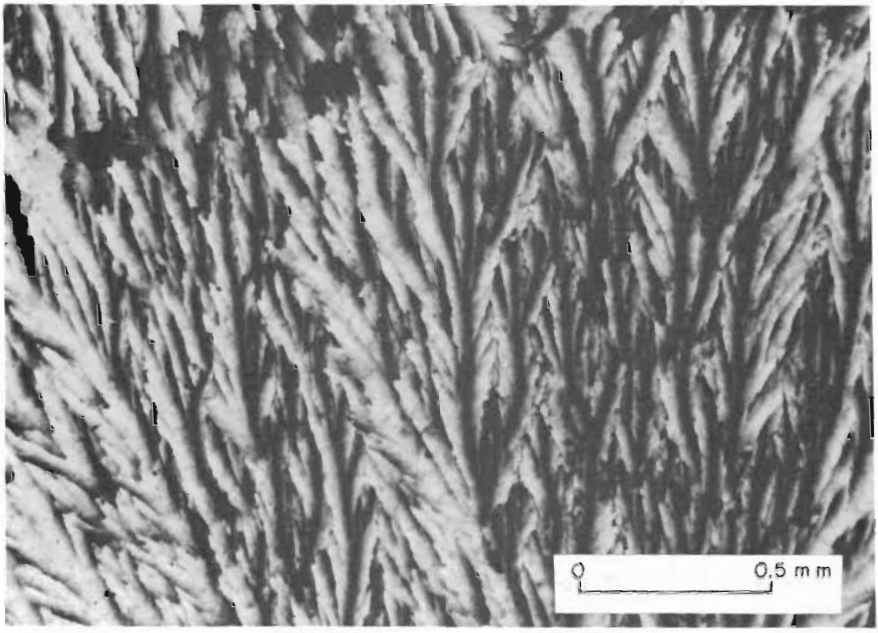


Figure 143 - Mabou Mines. Cryptocrystalline barite exhibiting plumose texture and associated feathery extinction pattern. Crossed Nicols.

is often displayed by the orange and pale pink barite (Fig. 142). In thin section (No. K03-5001) the barite displays a feathery extinction pattern (Fig. 143). Other minerals noted to occur with the barite include calcite and hematite. The calcite is found as small clumps of fine-grained material sporadically distributed throughout the brick red and orange variety of barite. The hematite occurs as very fine-grained material mixed with the barite, and is responsible for the colouring imparted to the barite.

No samples for chemical analysis were collected by the writer, however analytical results of specimens previously collected by other members of the Nova Scotia Department of Mines are presented below. The results of sample no. CB-74-K-MN-1 is also given in appendix III. The sample locations are shown in Figure 139.

| Rock Type | Sample No. | Per cent | | | ppm | | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Barite | CB-74-K-MN-1 | 88.64 | 3.28 | .63 | 10 | 15 | 30 |

Chemical Analyses of samples taken by Jones and Covert (1972):

| Rock Type | Sample No. | Per cent | | | | |
|---|---|---|---|---|---|---|
| | | Ba | Sr | F | Cu | Pb |
| Siltstone | T19-4-1 | 1.05 | .030 | .070 | .005 | .012 |
| Barite | T19-4-2 | 47.00 | 1.10 | .095 | .005 | .003 |
| Barite | T19-5-1 | 46.0 | 1.88 | .080 | .009 | .003 |

The close proximity of this barite showing to the Horton-Windsor contact suggests that future exploratory work should be concentrated in attempting to delineate the contact in this area, and then testing it for additional barite.

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Norman, G. W. H.
1935: Lake Ainslie map-area, N. S.; Canada Dept. Mines, Mem. 177, Map 282A.

(48) MELFORD

U.T.M.G. - N-508031
E-63406

N.T.S. - 11F/14B (1:50,000)

The barite is found in situ at the base of a rather steep escarpment, in a brook 0.68 mile northwest of Trans Canada Highway 105 at Melford (Fig. 144, 145 and 146).

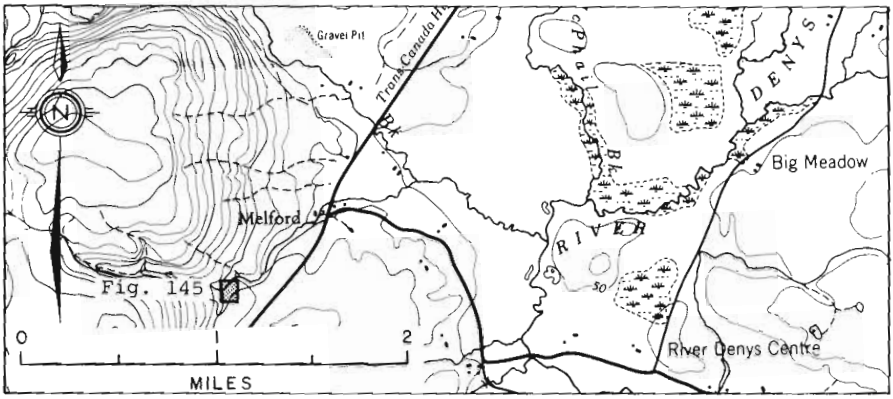


Figure 144

The showing was first documented by Kelley (1967).

The barite occurs in Early Carboniferous Age clastic rocks which unconformably overlie the Precambrian Age George River Series. Other than tilting of the beds, no significant deformational features are evident in the Carboniferous rocks.

The host rock is a red-brown, poorly sorted conglomerate striking north and dipping 30° towards the east. This rock is part of the uppermost Ainslie Member of the Horton Group (Kelley, 1967).

Approximately 20 feet east of the barite deposit a slumped, grey, fine-grained, thinly laminated Windsor limestone is found to crop out of the north bank of the stream. This rock is part of the basal member of

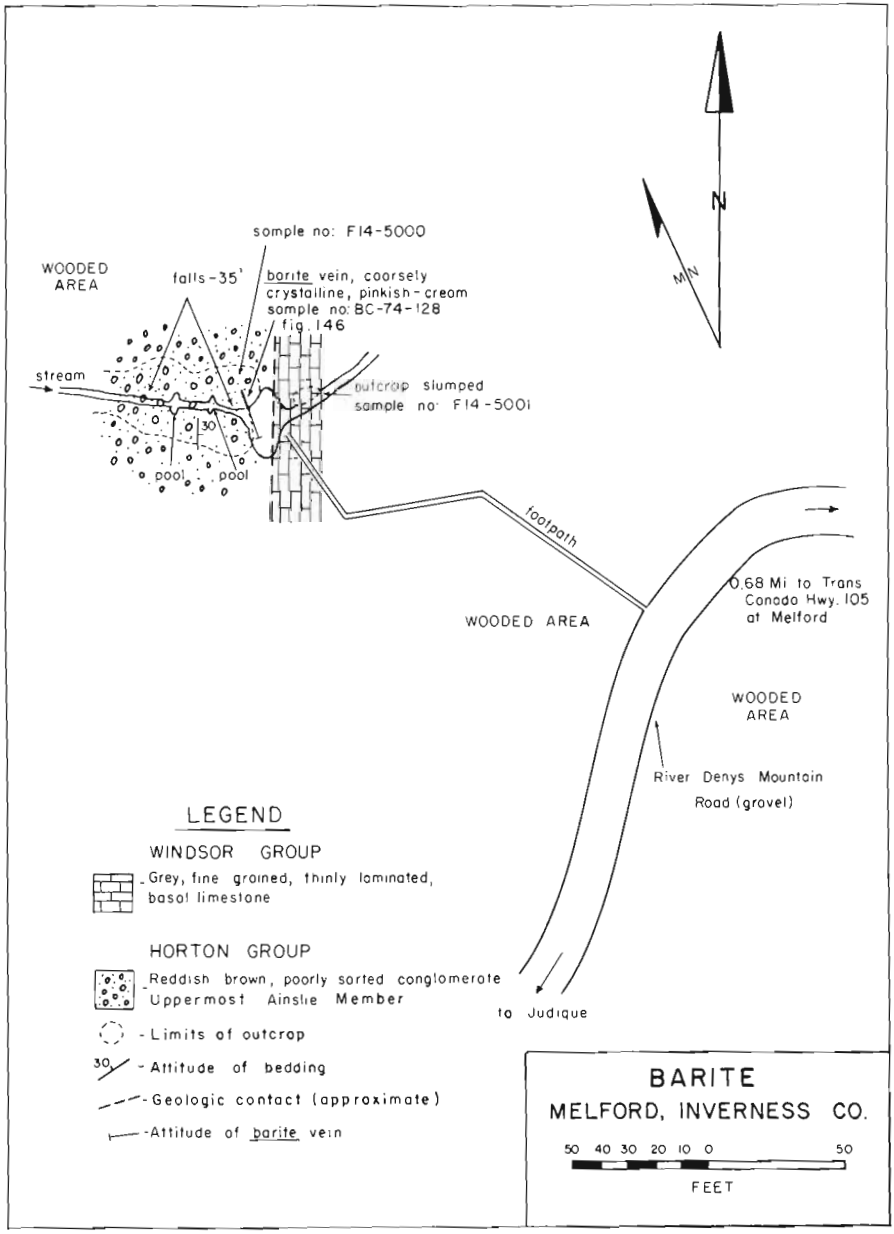
N
M/V
sample no: F14-5000
WOODED AREA
falls-35'
barite vein, coarsely crystalline, pinkish-cream
sample no: BC-74-128
fig. 146
stream
outcrop slumped
sample no: F14-5001
30
pool
pool
footpath
WOODED AREA
0.68 Mi to Trans Canada Hwy. 105 at Melford
WOODED AREA
River Denys Mountain Road (gravel)
to Judique
LEGEND
WINDSOR GROUP
- Grey, fine grained, thinly laminated, basal limestone
HORTON GROUP
- Reddish brown, poorly sorted conglomerate Uppermost Ainslie Member
- Limits of outcrop
30 - Attitude of bedding
- Geologic contact (approximate)
- Attitude of barite vein
BARITE
MELFORD, INVERNESS CO.
50 40 30 20 10 0 50
FEET
P.G.B.

Figure 145

the A-subzone. The contact between the limestone and the conglomerate is not visible, but Kelley (1967) reports the contact to be conformable to disconformable in the Melford-Upper River Denys area. No barite was found in the limestone at this location.

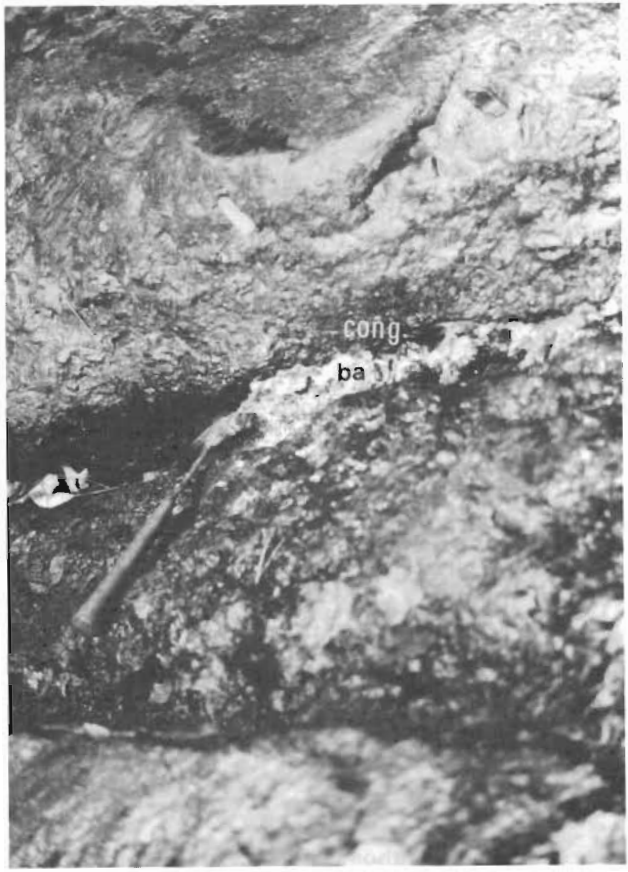


Figure 146 - Melford, white barite vein cutting Horton Group conglomerate. Looking west. ba - barite, cong - conglomerate.

The mineralization was structurally controlled, with barite occupying a small fracture approximately three feet in length, two inches in width, and with an attitude of 157° azimuth and a vertical dip. Post-mineralization as well as pre-mineralization tectonism is evident at this deposit. This is indicated in hand specimen by:

(a) bent aggregates of tabular barite resulting in open spaces among the blades of barite.

(b) brecciated aggregates of tabular barite encrusted and cemented with barite,

(c) aggregates of tabular barite cut normal to the (001) planes of perfect cleavage by tabular barite, and

(d) aggregates of tabular barite cut by a small fracture (approximately 1/32 inch wide) healed with coarsely crystalline barite.

This would also indicate that there were at least two periods of mineralization, although it is quite probable that no significant time gap occurred between them. The contact of the barite vein and the host rock is sharp, with no replacement of the host rock by barite apparent in hand specimen.

The barite is generally pink-cream in colour and coarsely crystalline in texture, with a distinctly tabular habit. The only mineral observed to be associated with the barite is hematite, which is found in very minor quantities as coatings on crystal faces and cleavage planes. The hematite is responsible for the pinkish colour of the barite.

Grab samples were taken from the barite vein, the host rock and the limestone, and chemically analysed. The locations sampled are indicated on Figure 145, and the analytical results are found below and in appendix III.

| Rock Type | Sample No. | Per cent | | | | ppm | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Barite | BC-74-128 | 96.30 | 3.07 | .04 | 50 | 40 | 40 |
| Conglomerate | F14-5000 | 1.19 | .07 | .03 | 10 | 40 | 50 |
| Limestone | F14-5001 | .32 | .11 | .08 | 10 | 170 | 140 |

Although this showing by itself has little merit as a possible prospect, it lends positive support to this Horton-Windsor contact area as potentially favourable for additional barite deposits.

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## (49) PRESQUILE-CORNEY BROOK AREA

U.T.M.G. - N-517235
E-65576
&
N-517621
E-65825

N.T.S. - 11K/10C (1:50,000)

Poole, (1907) and Spence, (1922) indicate that there are numerous barite-fluorite showings in the region between Presqu'ile and Corney Brook. However, because these occurrences are situated in the Cape Breton Highlands National Park, and thus inaccessible to exploration companies, very little time was spent in the area. Three showings were briefly examined, two in close proximity to Corney Brook, and one at Presqu'ile.

### Presqu'ile

The barite-fluorite showing is located along the shore approximately 500 feet west of the Cabot Trail (Fig. 147).

No exploratory work for barite or fluorite has been conducted in this area since it was proclaimed part of the Cape Breton Highlands National Park.

This occurrence is situated in a small exposure of clastic sedimentary rocks of the Horton Group (Early Carboniferous Age), which is in fault contact with pre-Carboniferous quartzite, slates and schists.

The host rock is a very coarse grained arkosic sandstone of the Horton Group, which strikes 038° Az and dips 35° N. In thin section (No. K10-5000) alteration in the form of minor hematization, sericitization and some kaolinization of the feldspar is evident. A few quartz grains show stress induced cracks and the mica grains are occasionally bent. These features, along with slickensiding observed in outcrop suggest that these rocks were subjected to shearing stresses.

The minerals at this locality consist primarily of fluorite with minor associated calcite, quartz, barite, pyrite and hematite. Calcite is the most abundant gangue

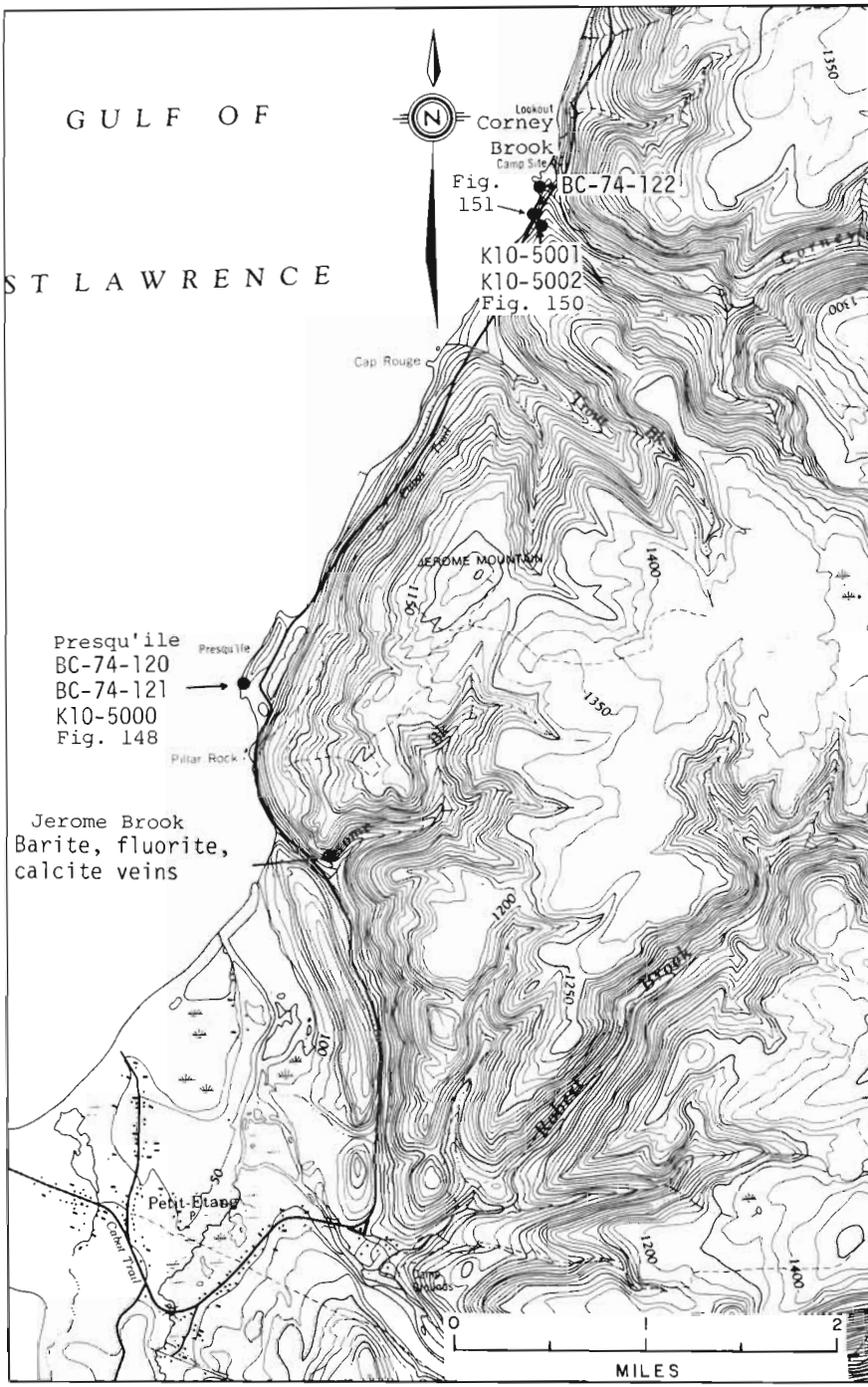
GULF OF
ST LAWRENCE
N
Lookout
Corney
Brook
Camp Site
Fig.
151
BC-74-122
K10-5001
K10-5002
Fig. 150
Cap Rouge
Cap Rouge Trail
JEROME MOUNTAIN
Presqu'ile
BC-74-120
BC-74-121
K10-5000
Fig. 148
Presqu'ile
Pillar Rock
Jerome Brook
Barite, fluorite,
calcite veins
Petit-Etang
Camp grounds
0
1
2
MILES

Figure 147

mineral. The mineralization was structurally controlled, with fluorite filling fractures ranging up to eight inches in width (Fig. 148). The majority of the veins vary in strike from northeast to northwest, and are steeply dipping. In most cases the calcite occupies the center portions of the veins and the fluorite occupies the portions of the veins adjacent to the wall rock (Fig. 149). This indicates that the calcite post-dates the majority of the fluorite. The pyrite occurs as sparsely disseminated blebs throughout the fluorite. The hematite is generally found as thin coatings in hairline fractures and particularly at the fluorite-wall rock interface. This probably represents an alteration product of the host rock. The contacts between the fluorite veins and the host rock are sharp.

The fluorite ranges in colour from transparent, pale green, turquoise, pale purple to deep purple, and is coarsely crystalline in texture. The barite is pale white in colour and has a coarsely crystalline texture. It constitutes only a minor part of the deposit.

Three grab samples collected from the mineralized veins and the host rock were chemically analysed. The sample locations are shown on Figure 147, and the analytical results are found below and in Appendix III.

| Rock Type | Sample No. | Per cent | | | ppm | | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Fluorite | BC-74-120 | 5.50 | .62 | 21.30 | 50 | 100 | 30 |
| Fluorite | BC-74-121 | 3.80 | .16 | 7.75 | 30 | 100 | 300 |
| Arkosic sandstone | K10-5000 | .20 | .04 | .06 | 10 | 20 | 40 |

## Corney Brook

The barite and barite-fluorite showings are found in situ in road cuts on the northwest and southeast side of the road respectively, approximately 1,000 to 1,500 feet southeast of Corney Brook (Fig. 147).

Although some barite veins in this area were worked to a minor extent around the turn of the century, these particular showings were uncovered during construction of the Cabot Trail.

The host rock is a dark grey, strongly sheared mudstone and phyllite (pre-Carboniferous Age). The

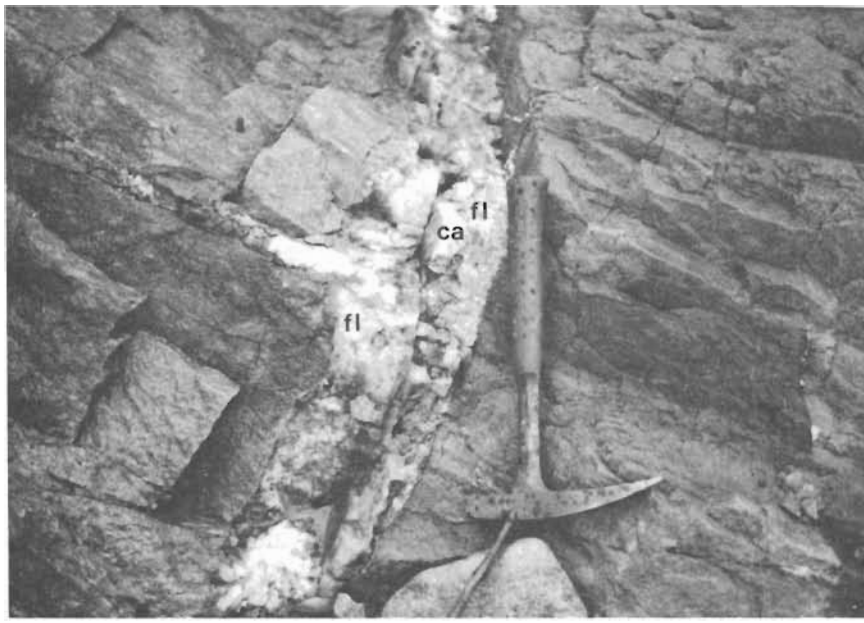


Figure 148 - Presqu'ile. Fluorite - calcite veins cutting Horton Group conglomerate. Looking east, southeast, ca - calcite, fl - fluorite.

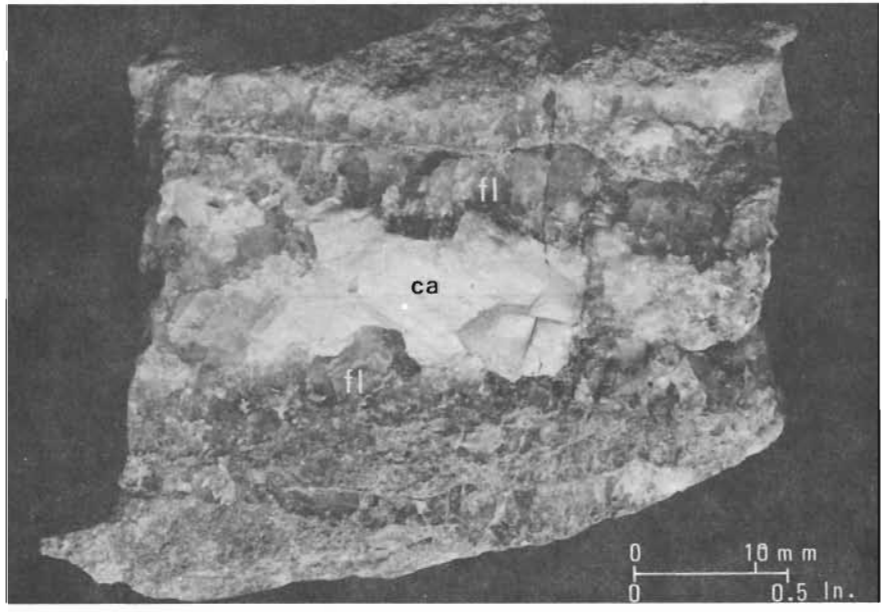


Figure 149 - Presqu'ile. Sample across fluorite-calcite vein (length of photo parallel to strike of vein). Fluorite forms the outer portions of the vein, calcite the center portion, fl - fluorite, ca - calcite.

numerous contortions and small folds give evidence to the extensive deformation processes to which the original sedimentary rock has been subjected. The principal plane of schistosity is generally striking in a northeasterly direction and dipping steeply towards the northwest.

The mineralization was structurally controlled, with barite and fluorite filling fractures and shear zone cavities, which are irregular in shape and pinch out over a distance of a few feet (Fig. 150 and 151). The disruptions and offsetting of the barite-fluorite vein indicate that tectonism was active both prior and subsequent to the time of mineralization.

The contacts between the barite-fluorite veins and the wall rock are sharp. No hydrothermal alteration of the wall rock was evident in hand specimen.

The barite is white to pale pinkish white in colour and has a coarsely crystalline texture. The fluorite is pale green in colour, and also has a coarsely crystalline texture. Barite is the most abundant of the two mineral phases, with the fluorite occurring as small masses sporadically distributed throughout the barite. Other minerals observed to be closely associated with the barite-fluorite include calcite, pyrite and chalcopyrite. The pyrite and chalcopyrite are found only as sparse disseminations, never accounting for more than 0.5 per cent of the mineral deposit.

Grab samples collected from the mineralized zone, the host rock and a quartz vein in a biotite granite northeast of the showing were submitted for chemical analysis. The sample locations are indicated on Figure 147, and the analytical results are listed below and in appendix III.

| Rock Type | Sample No. | Per cent | | | ppm | | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Phyllite | K10-5001 | .56 | .03 | .03 | 20 | 25 | 60 |
| Barite, phyllite | K10-5002 | 33.36 | .61 | .03 | 120 | 600 | 365 |
| Quartz | BC-74-122 | .80 | .12 | .05 | 30 | 20 | 15 |

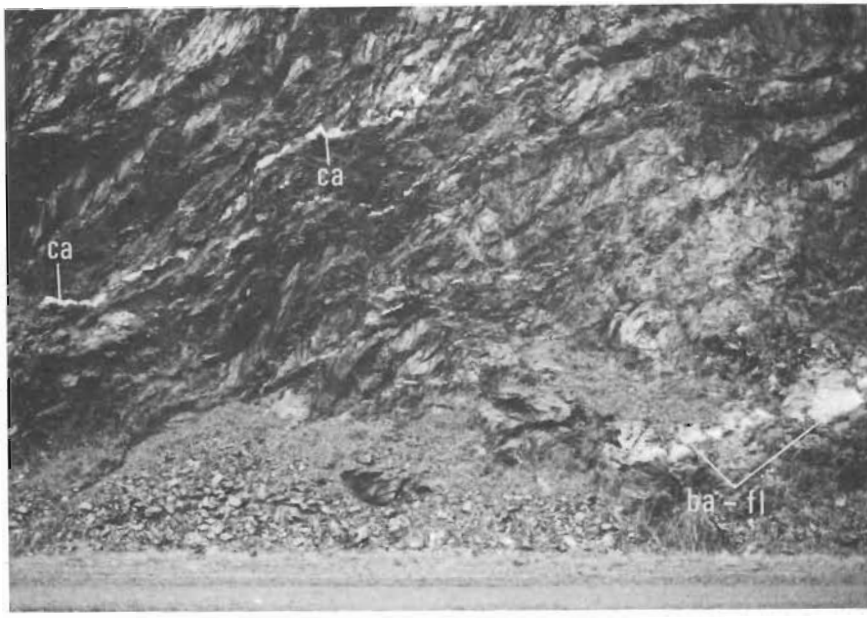


Figure 150 - Corney Brook. Disrupted barite-fluorite vein (lower right hand corner) in badly contorted phyllite (George River Group, Precambrian). ba - barite, fl - fluorite, ca - calcite.

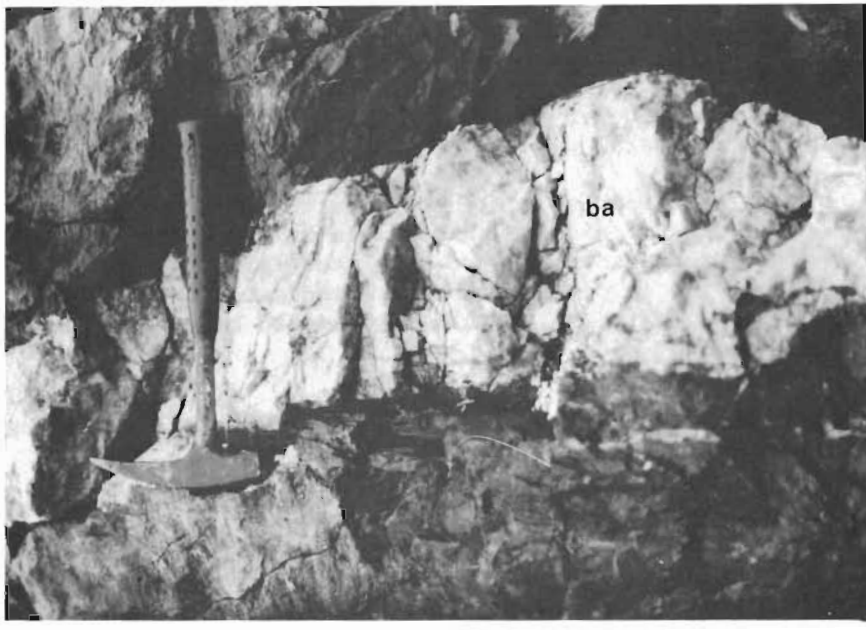


Figure 151 - Corney Brook. White barite lens cutting phyllite. Looking northwest, ba - barite.

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## (50) REAR JUDIQUE SOUTH

U.T.M.G. - N-507913
E-62217

N.T.S. - 11F/14C (1:50,000)

This barite occurrence is found immediately north of a small stream, approximately 1.9 miles east of Highway 19 at Judique. The last portion of the road is only passable with a four-wheel drive vehicle during periods of dry weather (Fig. 152 and 153).

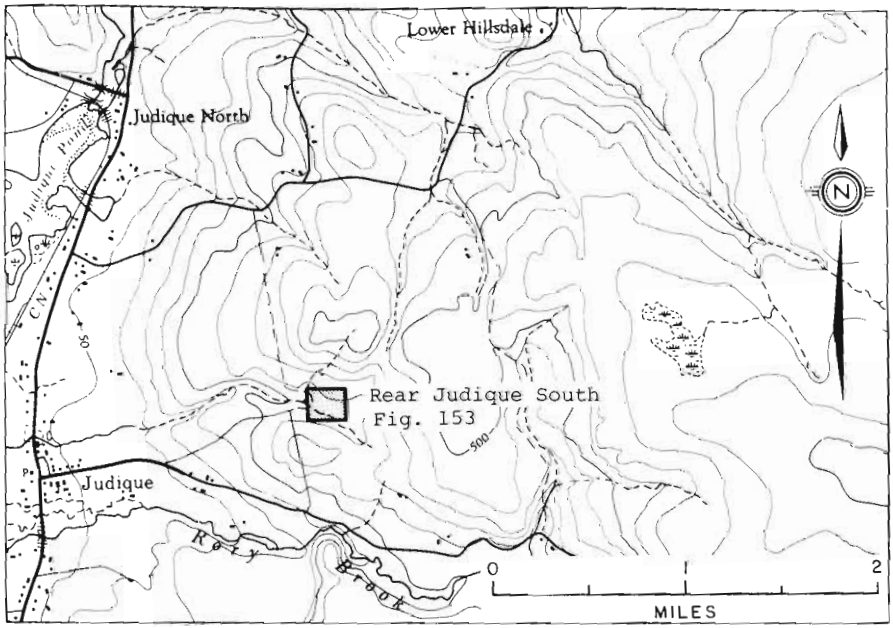
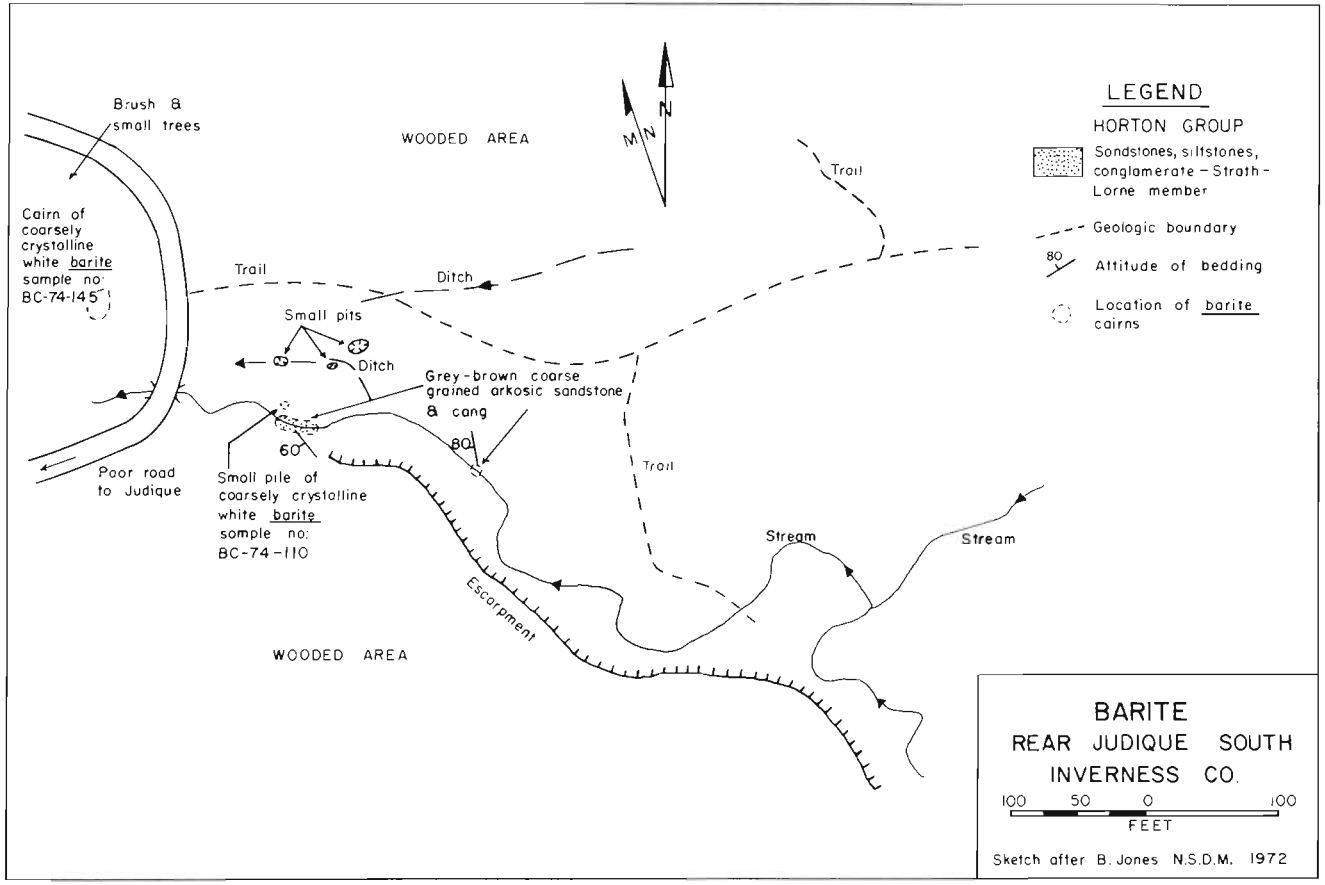



Figure 152

The barite was first reported by Fletcher (1881), who indicated that a deposit was opened here by a Mr. Brown of Port Hastings. However, only a small quantity was proven and none was actually mined. The occurrence has received sporadic attention since that time, with the majority of the exploratory work consisting of trenching and digging of small test pits. Some diamond drilling was reported to have been undertaken here, but no information on the drilling could be located.




PG B

Figure 15?

The most recent work here consisted of a reconnaissance hydrogeochemical survey and a VLF-EM-16 survey by David S. Robertson & Associates Limited for CERA Ltd. in 1971. The geochemical survey indicated a small anomalous zone for fluorine and the EM-survey defined a fault zone striking approximately 100° azimuth and dipping south. No additional barite, nor any fluorite was uncovered.

The barite was not observed in situ; however, reports indicate it to be structurally controlled, occupying discontinuous fractures and small faults. It has been suggested that the barite is associated with an east trending fault just to the south of the occurrence (Kelley, 1967). Specimens of barite found in the dumps suggest the thickness of the veins to be at least one foot. Although no dump specimens were found that had portions of wall rock adhering to barite, the dumps did contain rubble composed of grey-brown, coarse-grained arkosic sandstone and pebble conglomerate. Two small outcrops found in the stream immediately south of the small, slumped pits and pile of barite rubble are composed of similar rock types and it is probable that these are the host rocks to the barite veins. These rocks are found to have attitudes varying from 140°/60° southwest and 170°/80° west, and are part of the Strathlorne member of the Strathlorne-Ainslie Formation, Horton Group.

The barite is pink-white to white in colour and is coarsely crystalline in texture, with a well developed tabular habit. No minerals were found to be associated with the barite though reports indicate that specimens have been found that contained minor amounts of pale green fluorite.

Two grab samples taken from the small barite dumps were chemically analysed. The sample locations are indicated on Figure 151, and the results of the chemical analyses are listed below and in appendix III.

| Rock Type | Sample No. | Per cent | | | | ppm | |
|---|---|---|---|---|---|---|---|
| | | $BaSO_4$ | $SrSO_4$ | F | Cu | Pb | Zn |
| Barite | BC-74-145 | 93.72 | 4.40 | .03 | 10 | 10 | 20 |
| Barite | BC-74-110 | 96.33 | 3.54 | .03 | 10 | 40 | 20 |

The extensive cover of overburden and sparsity of outcrop renders it almost impossible to undertake any form of geological mapping in this area. However, it is

felt that in view of the scant amount of information obtained to date on this deposit, further exploratory work such as trenching, geochemical surveying, geophysical surveying and possibly diamond drilling is warranted to test the thickness of the veins, the continuity of the veins and for the presence of fluorite.

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