

(56) BRIDGEVILLE

U.T.M.G. - N-503115

E-53138

N.T.S. - 11E/7D (1:50,000)

This occurrence is located in Bridgeville on the Wm. Grant Brook. The barite was not found in situ but as float in the stream bed and in the vicinity (Fig. 162 and 163).

This location has a lengthy history as an iron producing district, dating back to 1823. Reports indicate that approximately 188,000 tons of iron ore were removed from the mines between the years 1828 and 1904. Shortly thereafter all mining operations ceased and only sporadic exploration has been carried out in an effort to delineate new profitable ore bodies. The last study was made in 1955 by Stratmat Limited which undertook 1,465 feet of diamond drilling in three holes. The results proved discouraging, however.

No attempts have been made to recover barite from the iron ore as a commercial venture.

The showing is situated in metamorphosed sedimentary rocks of the Arisaig Group (Silurian Age). These rocks are unconformably overlain by carbonates and clastic sedimentary rocks of the Windsor Group (Early Carboniferous), which are in turn conformably overlain by clastic sedimentary rocks of the Canso Group (Middle Carboniferous Age). Major faults in the region strike east, northeast and northwest. The northeast and northwest striking faults primarily affect the pre-Carboniferous rocks.

Because the barite was not observed in outcrop, it is difficult to ascertain the character of the host rock and the nature of the structure embodying the barite. However, in all float specimens examined, barite and goethite were found together in red-brown and buff coloured fragments of metasiltstone and shale but not in fragments of grey limestone. The metasiltstone and shale belong to the Arisaig Group and the limestone to the Windsor Group. Structural control of the mineralization is indicated in most specimens, with the goethite-barite

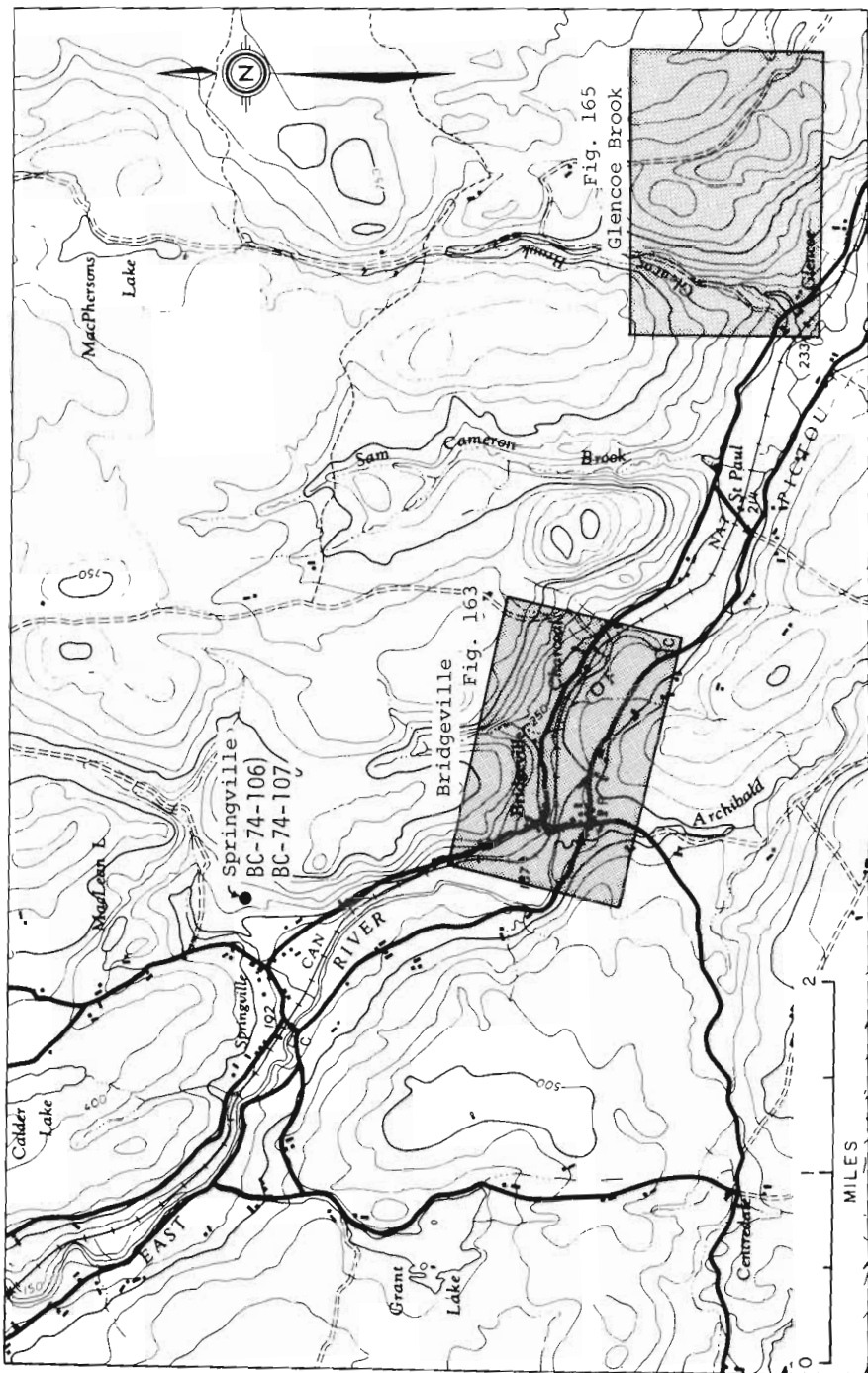


Figure 162

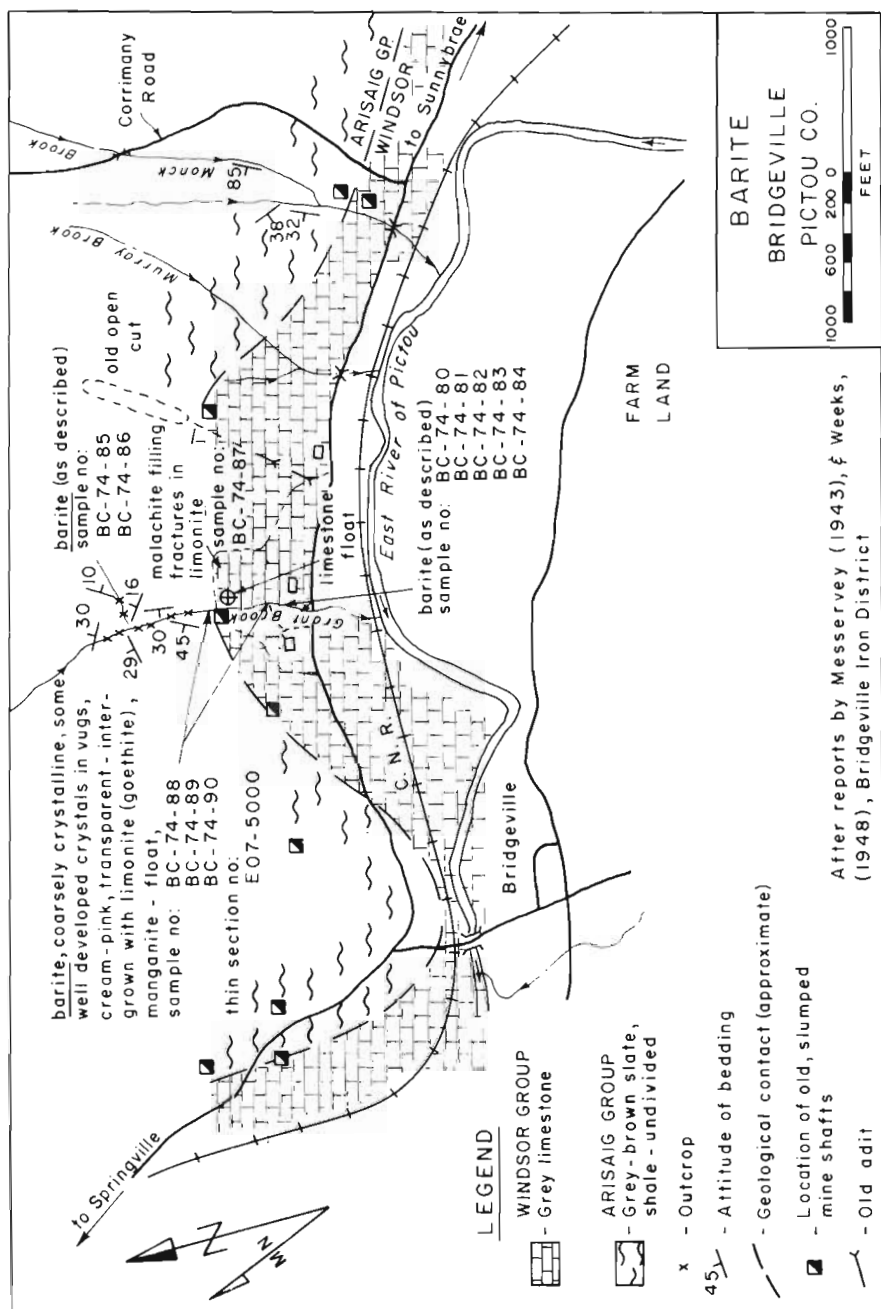


Figure 163

filling fissures and cementing brecciated zones. No replacement of the metasiltstone and shale by the barite or goethite was observed.

The following extract from a report by Carlson (1900) gives an indication of the barite quantities encountered during the mining operations:

"The ore is a limonite, carrying from 50 to 56 per cent of iron, and rather free from silica, but carrying a great deal of barium sulphate. Ordinarily, the ore will carry from 4 to 10% of barium sulphate and it has been known to carry as much as 25%."

It is quite evident that a close relationship exists between the goethite and barite; thus, any observations and conclusions pertaining to the iron ore would also be applicable to the barite. With this in mind, the following statements are made by Weeks (1948, p. 124-125), concerning the iron ore deposits of this area:

"The observed facts may be listed as follows:
 (a) the ore occurs at or close to the contact of Windsor limestone with pre-Carboniferous rocks;
 (b) the contact is not a fault, but is an unconformable overlap (Fig. 163)."

" limonite occurred as pockets in pre-Carboniferous shales and slates and that it was more plentiful near the contact with the Windsor limestone than farther from it."

"The possibility exists that their (ore minerals) deposition took place on and below the pre-Carboniferous land surface, and if this is true, bodies of ore might be found at any depth along the contact."

"It is to be expected that the ore bodies will be pockety and consequently, that no continuity from one body to another can safely be anticipated."

The barite examined at this locality is transparent, white and pink in colour, and is very coarsely crystalline, often lining vugs as perfect euhedral crystals up to 0.5 inch in size. Other minerals associated with the barite are limonite, goethite,

hematite, calcite, quartz, manganite, specularite and minor malachite. Limonite and botryoidal goethite comprise the major portion of the minerals present, with the remaining minerals present only as accessories.

Some paragenetic relationships between the more abundant minerals as observed in hand specimens are:

- (i) euhedral crystals of barite encrusted with botryoidal goethite.
- (ii) botryoidal goethite forming a vug within which is encrusted euhedral crystals of barite.
- (iii) botryoidal goethite coated with manganite.
- (iv) botryoidal goethite encrusted with barite, which in turn is coated with manganite.
- (v) euhedral crystals of white barite embedded within a vein of goethite. Approximately normal to the vein are small fractures (0.5 to 1 mm in thickness) which cut both the goethite and the euhedral barite crystals and filled with crystalline, transparent barite (Fig. 164).

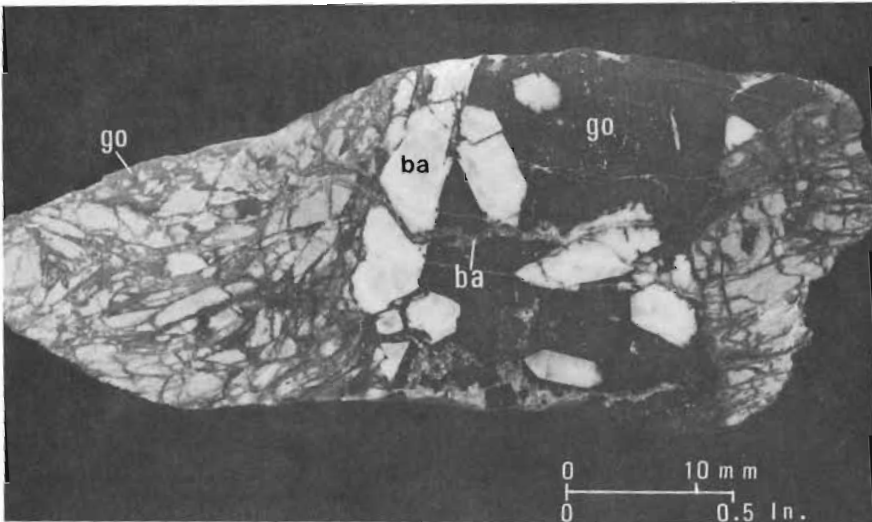


Figure 164 - Bridgeville. Euhedral crystals of white barite embedded within a vein of goethite. Note the barite veinlet cutting through both the goethite and the larger barite crystals. ba - barite, go - goethite.

The above relationships render it impossible to synthesize an overall paragenesis encompassing all the

minerals without observing them in situ. However, the presence of a barite vein cutting barite suggests at least two periods of barite mineralization.

Grab samples were collected from float in the streams and overburden, and submitted for chemical analysis. The sample locations are shown in Figure 163, 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
Limonitic barite	BC-74-80	89.50	1.55	.03	25	20	20
Limonitic barite	BC-74-81	69.80	.78	.04	20	10	350
Limonitic barite	BC-74-82	59.50	.50	.04	50	10	75
Limonitic barite	BC-74-83	88.10	2.07	.04	15	15	15
Limonitic barite	BC-74-84	47.60	.57	.03	60	25	80
Limonitic barite	BC-74-85	62.95	.83	.04	15	25	10
Barite	BC-74-86	94.90	1.13	.04	10	25	85
Metasiltstone, minor malachite	BC-74-87	1.15	.12	.05	11030	40	2060
Limonitic barite	BC-74-88	80.10	1.00	.03	10	1012	15
Barite	BC-74-89	94.90	1.00	.03	20	10	15
Limonitic barite	BC-74-90	83.90	1.10	.03	20	10	20

It is possible that the mineralized float found in the streams represents the rejected portion of the iron ore because of the high barite content. Although the goethite-barite is hosted by the Arisaig Group, the spatial relationship between the mineralized area and the Arisaig-Windsor Group contact is noteworthy. An exploratory program is warranted to test this region for additional barite and possible associated sulphides.

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(57) GLENCOE BROOK

U.T.M.G. - N-502976
E-53419

N.T.S. - 11E/7E (1:50,000)

This occurrence is located on Glencoe Brook, approximately 3,000 feet north of the Glencoe schoolhouse (Fig. 162 and 165).

Barite was first reported here by Maehl (1961) but no exploratory work has been undertaken since that time.

The barite was only observed as float in the stream and could not be traced to its source. The float specimen consisted of barite in sharp contact with quartzite, suggesting that the mineralization was structurally controlled. No hydrothermal alteration of the quartzite was noted.

Maehl (1961, p. 98) gives the following description of the barite in situ:

"Veins of barite and calcite are present, filling a fault zone 20 feet wide on Glencoe Brook 3,000 feet north of Glencoe schoolhouse. Formational mapping indicates that this fault extends 4,000 feet to the southwest, and an indefinite distance to the northeast." See Figure 165.

The northeast striking transverse fault horizontally displaces rocks of the Browns Mountain Group (Ordovician) and the Beechhill Cove and Ross Brook Formations, Arisaig Group (Silurian). The rocks of these formations are composed of mudstones, tuffs, sandstones, quartzites and andesites which have a general strike of 160° azimuth and dip 45° to 50° towards the southwest. The barite-quartzite specimen probably represents mineralization in the fault at the point where it intersects the quartzites of the Beechhill Cove Formation at Glencoe Brook (Fig. 165).

In hand specimen the barite is white and coarsely crystalline. The only associated mineral noted is calcite.

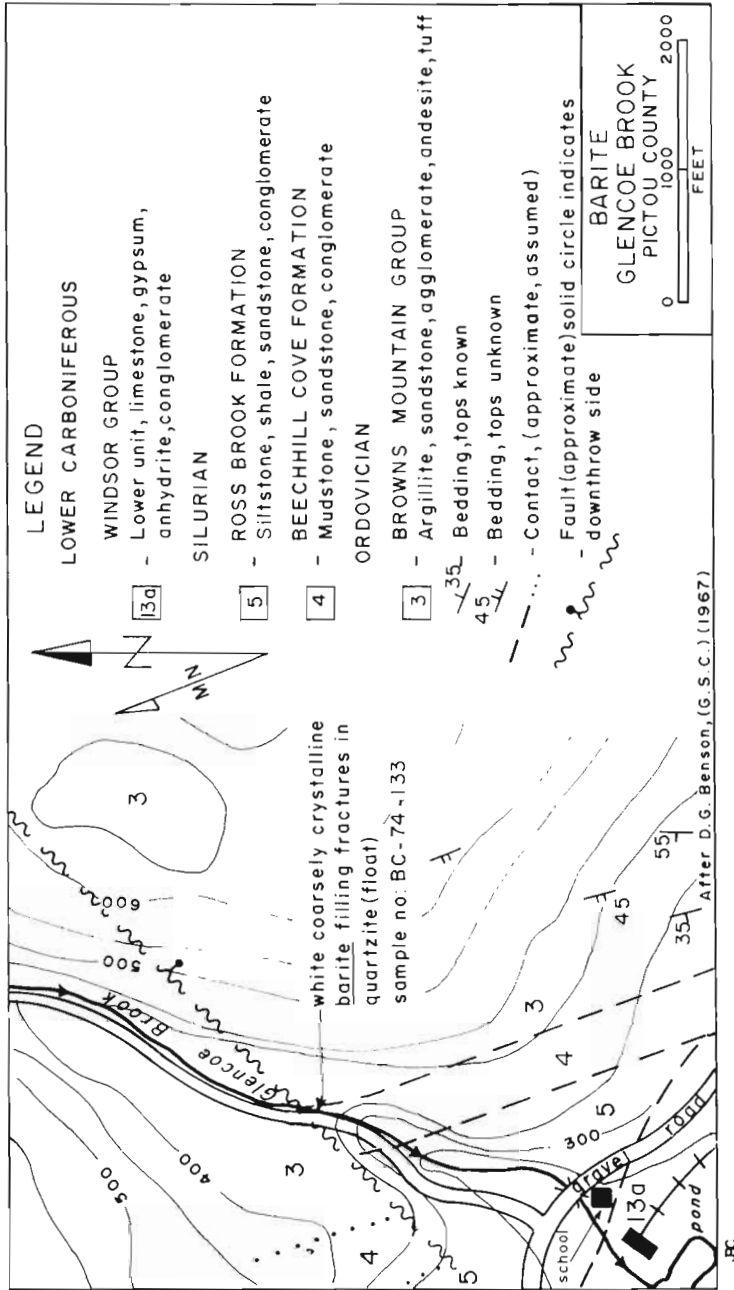


Figure 165

A grab sample of the mineralized float was collected and chemically analysed. The sample location is indicated in Figure 165, 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
Quartzite, barite	BC-74-133	12.60	.26	.08	20	20	20

The width and length of this fault zone is of sufficient size that significant quantities of barite may be present should the mineralized rock persist along strike and to a reasonable depth. However, it would also be necessary for the barite to occupy a substantial portion of the fault's width and not just as veins associated with calcite as indicated by Maehl (1961).

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(58) HODSON

U.T.M.G. - N-5065265

E-502380

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

This prospect is located in Hodson on property belonging to Eastern Farms (Fig. 166 and 167).

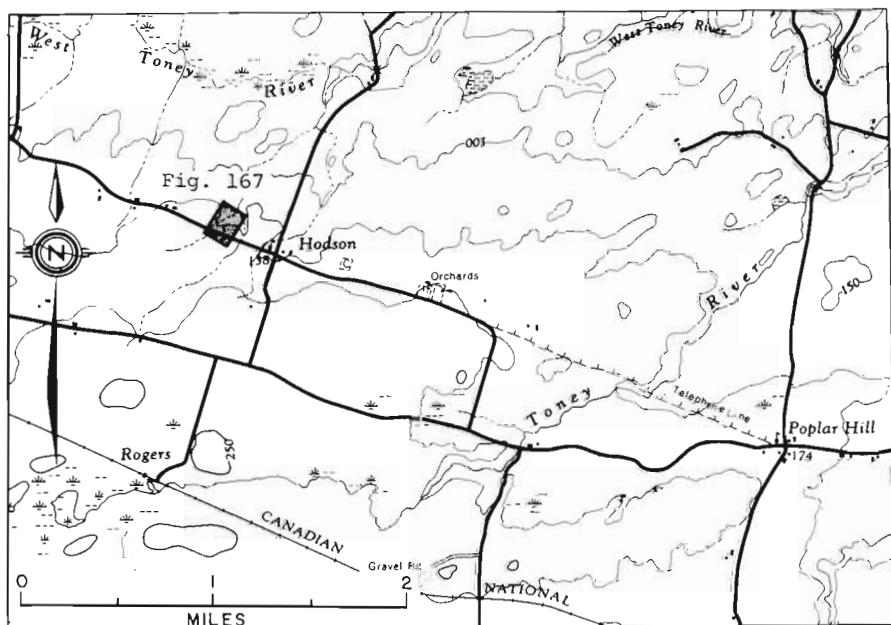


Figure 166

The barite deposit at this location has a lengthy history dating back to the 1870's. The earliest work was carried out by a Mr. Prendergast who sunk a 50 foot shaft and is reported to have removed some 480 tons of barite. In 1900, a new shaft, north of the old one, was sunk to a depth of 40 feet by a Mr. Patrick. Only a minor tonnage of barite was removed at this time (Fig. 168 and 169).

The deposit did not receive any further attention until 1940 when a Mr. Wallace and Mr. Gladwin dewatered the old workings and carried out some tests. No barite is reported to have been mined at that time.

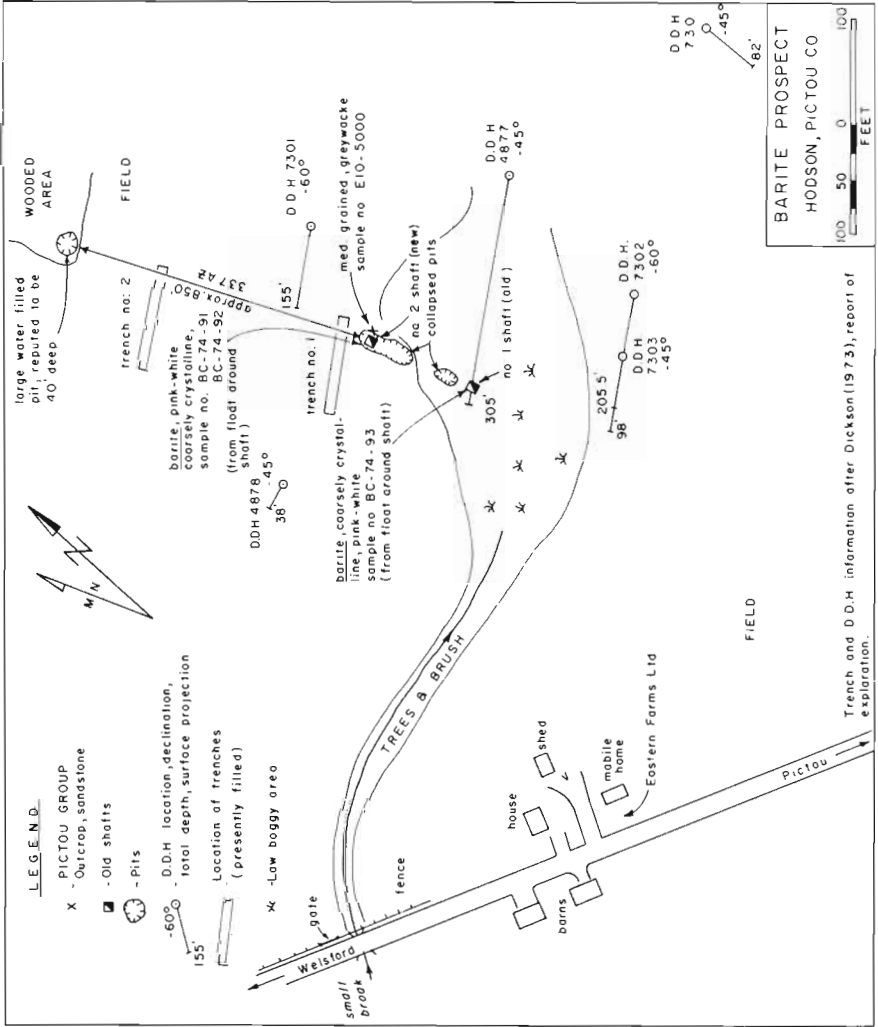
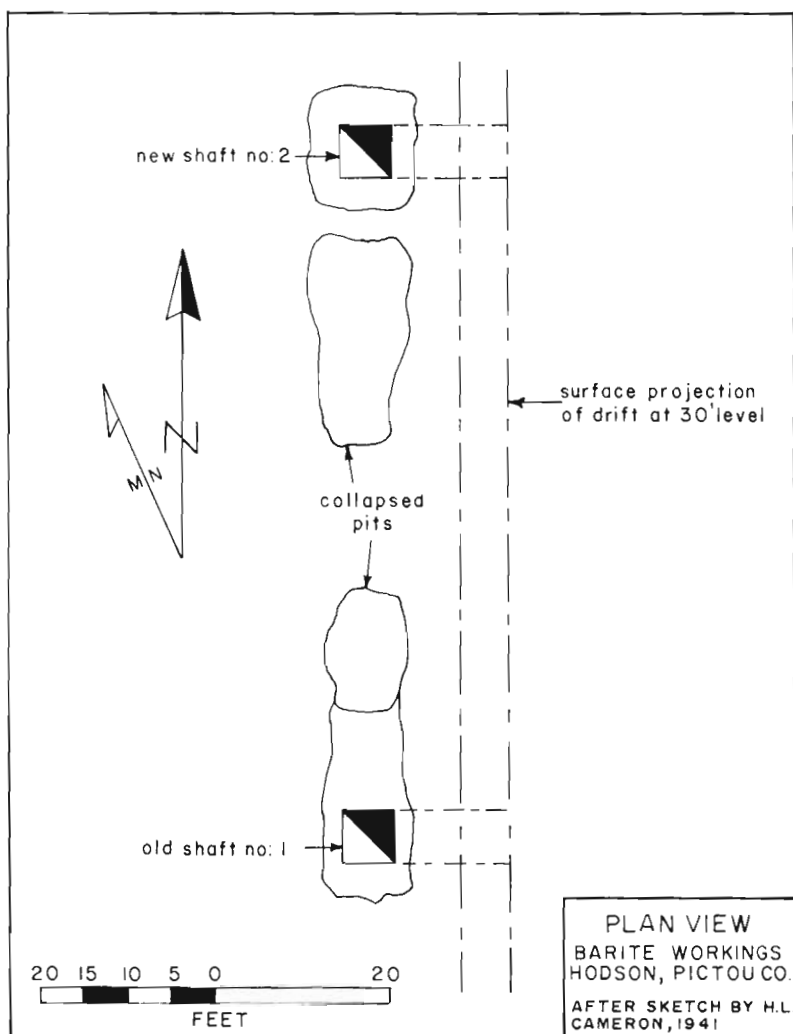


Figure 167



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Figure 168

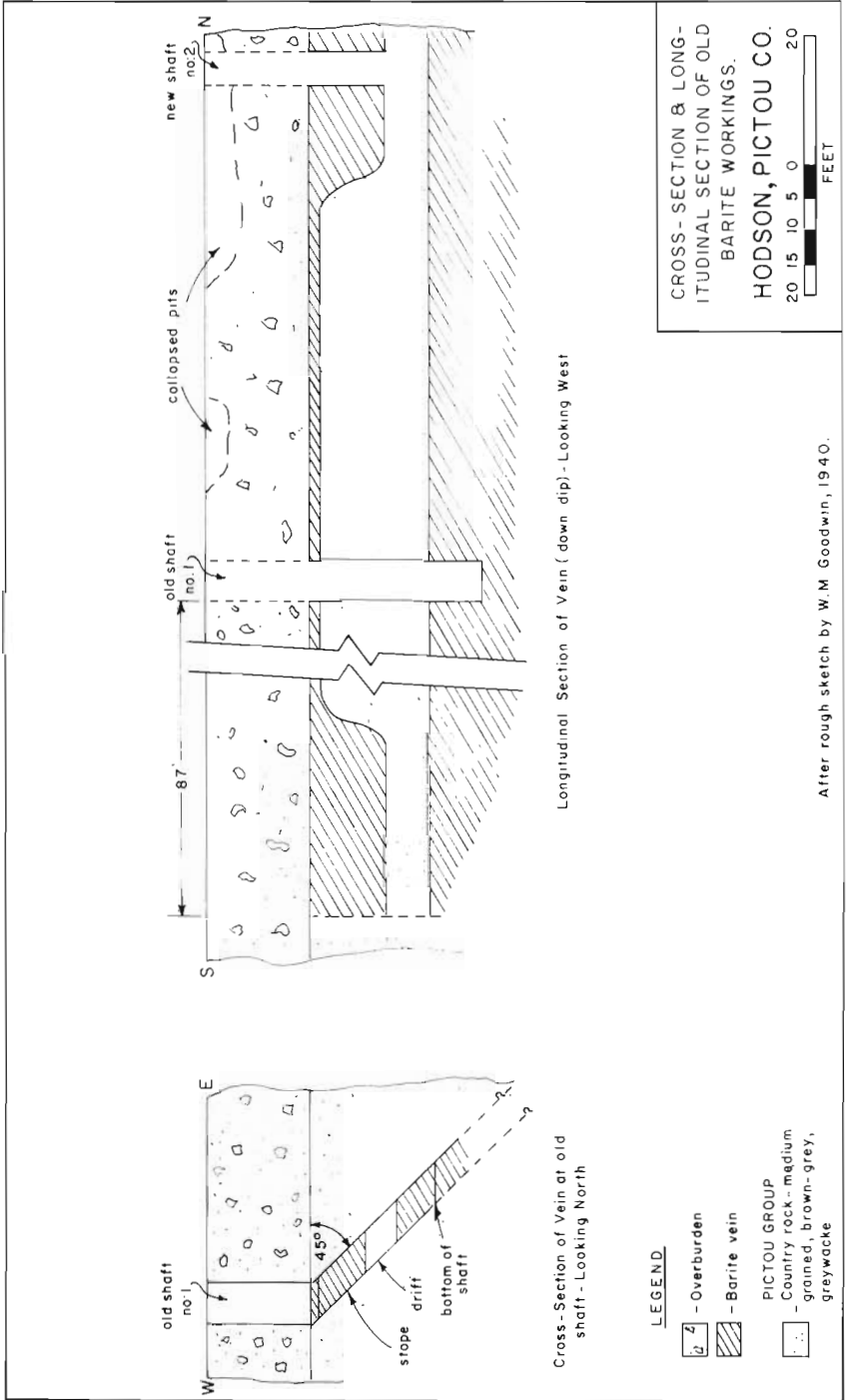


Figure 169

Reports on work carried out by the above mentioned people indicate the barite vein to be four to seven feet in width, discordant to the enclosing country rock, and striking approximately north and dipping 45° towards the east. The workings also disclose the southerly limit of the vein, having terminated in country rock (Fig. 169).

In 1945 Campbell investigated the prospect for Maritime Exploration Limited and concluded that the deposit did not possess any economic potential. He gives the following reasons for his conclusions:

"(i) the barite occurs in very impermeable, hard sandstone and is evidently of a fissure type, as such it would, in all probability, consist of lenses unpredictable in length, width and depth.

(ii) If the veins were following a strong fracture system some evidence of their presence should be visible in the School Brook where outcrops of the country rock are fairly numerous.

(iii) If the width of the vein is 4-7 feet wide, it is not a mining width."

The prospect again lay idle until 1972 when David S. Robertson and Associates Limited undertook exploratory work for Cera Corporation. The work consisted of a brief geological survey and a geochemical survey, on the results of which were based recommendations for more geochemical surveying and also a geophysical survey. On completion of the recommended work, the property was optioned to Baroid of Canada Limited which in 1973 undertook a trenching program as well as 1,783.5 feet of diamond drilling in six holes (Fig. 167).

The results of the drilling were not encouraging having encountered only insignificant amounts of barite in small veinlets. Consequently, the option was dropped and no further work recommended on this prospect.

The host rock is a medium-grained greywacke belonging to the Pictou Group (Late Carboniferous Age) and forming part of the south limb of the Tatamagouche Syncline in this area. This rock outcrops on the west side of the pit surrounding shaft no. 2, but the exposure is of insufficient size to obtain an accurate strike and dip. A similar rock type outcropping on the School Brook immediately southeast of the prospect, is found to strike 065° azimuth and dip 12° towards the northwest. With the

exception of the outcrop in this brook, very little is evident in the immediate vicinity of the prospect.

The mineralization was structurally controlled with the barite occupying a dilatant zone which attains a maximum width of seven feet and appears to be striking north and dipping approximately 45° towards the east. A hand specimen found around the perimeter of shaft No. 2 showed the barite to be in sharp contact with the host rock. No alteration of the wall rock is visible.

In hand specimen the barite is coarsely crystalline and pinkish white in colour. The pink colouration is due to minor iron oxide (hematite) staining on the cleavage planes and crystal faces. No other minerals are found associated with the barite.

Grab samples of the mineralized rock and the host rock were collected and submitted for chemical analysis. The sample locations are indicated on Figure 167, 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
Greywacke	E10-5000	.48	.21	.04	10	30	45
Barite	BC-74-91	96.50	1.35	.03	10	15	10
Barite	BC-74-92	94.00	1.80	.03	10	20	15
Barite	BC-74-93	83.95	1.05	.03	55	25	10

It is interesting to note that the attitude of the barite vein at this prospect is almost identical to that of the small barite veins found to the west of Hodson at Welsford, Pictou County.

Drilling has indicated the barite deposit to pinch out to the north as well as at depth, thereby delineating a barite body of limited size. The only possibility of more barite being found here is: (a) if additional lenses occur in a boudinage-like manner along the strike of the known lens, or (b) if additional lenses occur in fractures en echelon to the known lens.

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(59) SPRINGVILLE

U.T.M.G. - N-503351
E-52991

N.T.S. - 11E/7D (1:50,000)

This barite deposit is found in the old Springville limestone quarry which is located in Springville on a farm belonging to E. Hamleton. It can be reached by a trail which starts at the barn on the farm and ends 700 feet to the north, at the south end of the quarry (Fig. 162).

This occurrence does not have a history as a barite prospect though a fair amount of limestone was removed from here for agricultural purposes.

Six diamond-drill holes totalling 1,371 feet were put down in close proximity to the quarry by the Nova Scotia Department of Mines in an effort to determine the extent of the limestone deposit.

The showing is situated in carbonate rocks of the Windsor Group (Early Carboniferous Age) which unconformably overlies metamorphosed sedimentary rocks of the Arisaig Group (Silurian Age). Major faults in the region strike northeasterly and northwesterly, and primarily affect the pre-Carboniferous rocks.

The host rock is limestone and dolomitic limestone believed to belong to the upper part of the Windsor Group. This rock varies in colour from dark grey to brown, has poorly developed bedding (it appears to be striking north with a dip of 15° to 20° towards the west), and in hand specimen appears to be unfossiliferous.

The mineralization was structurally controlled, with barite filling small, discontinuous fractures and vugs. The cavities containing the mineralization are probably related to a number of faults evident in the quarry. The attitudes of these faults are $173^{\circ}/065^{\circ}\text{E}$, $153^{\circ}/065^{\circ}\text{NE}$, and $046^{\circ}/33^{\circ}\text{SE}$. The greatest quantities of barite are found to occur in the strongly limonitic zones at the south end of the quarry. It is possible that the limonite is derived from the oxidation of siderite which was originally part of a primary mineral assemblage that

included barite and siderite. No replacement of the host rock by barite was observed.

The barite is creamy pink in colour and is coarsely crystalline, often showing small, well developed tabular crystals. Associated minerals include calcite, limonite, minor malachite and azurite, and a mineral which appears to belong to the zeolite group--clear, acicular crystals found occurring in a radiating manner (natrolite?).

Grab samples collected from the mineralized portions of the host rock were chemically analysed. The sample location is indicated on Figure 162, and the results of the chemical analyses are found below and in appendix III.

Rock Type	Sample No.	Per cent				ppm	
		BaSO ₄	SrSO ₄	F	Cu	Pb	Zn
Baritiferous Limestone	BC-74-106	14.90	.49	.04	540	60	100
Barite, limestone	BC-74-107	52.20	.97	.04	860	50	80
Barite, limestone	BC-74-108	66.05	.84	.03	400	50	80
Limestone, minor malachite	BC-74-109	1.68	.05	.03	1900	76	160

Because the barite at this location is restricted to small cavity fillings, it is unlikely that any significant quantities of barite will be found to occur. It is possible, however, that given a more favourable depositional site (e.g. the Arisaig-Windsor Group unconformity), additional larger barite occurrences may be hosted by the Windsor Group in the surrounding area.

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(60) WELSFORD

U.T.M.G. - N-506335
E-49592

N.T.S. - 11E/11D (1:50,000)

This occurrence is situated on the northwest bank of River John, approximately 1,350 feet upstream of the bridge at Welsford (Fig. 170 and 171).

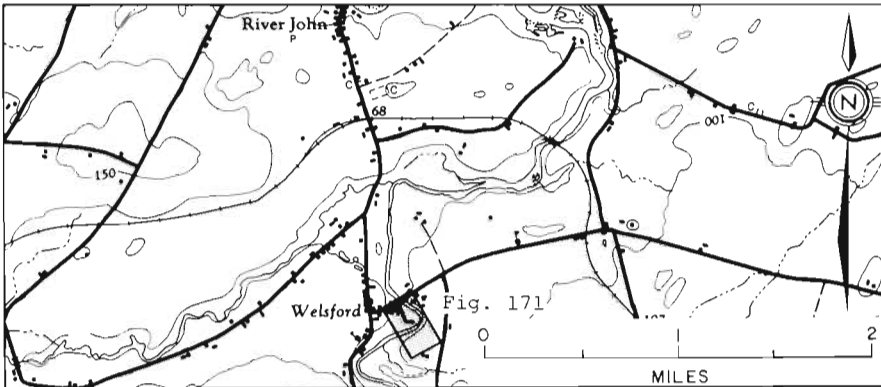
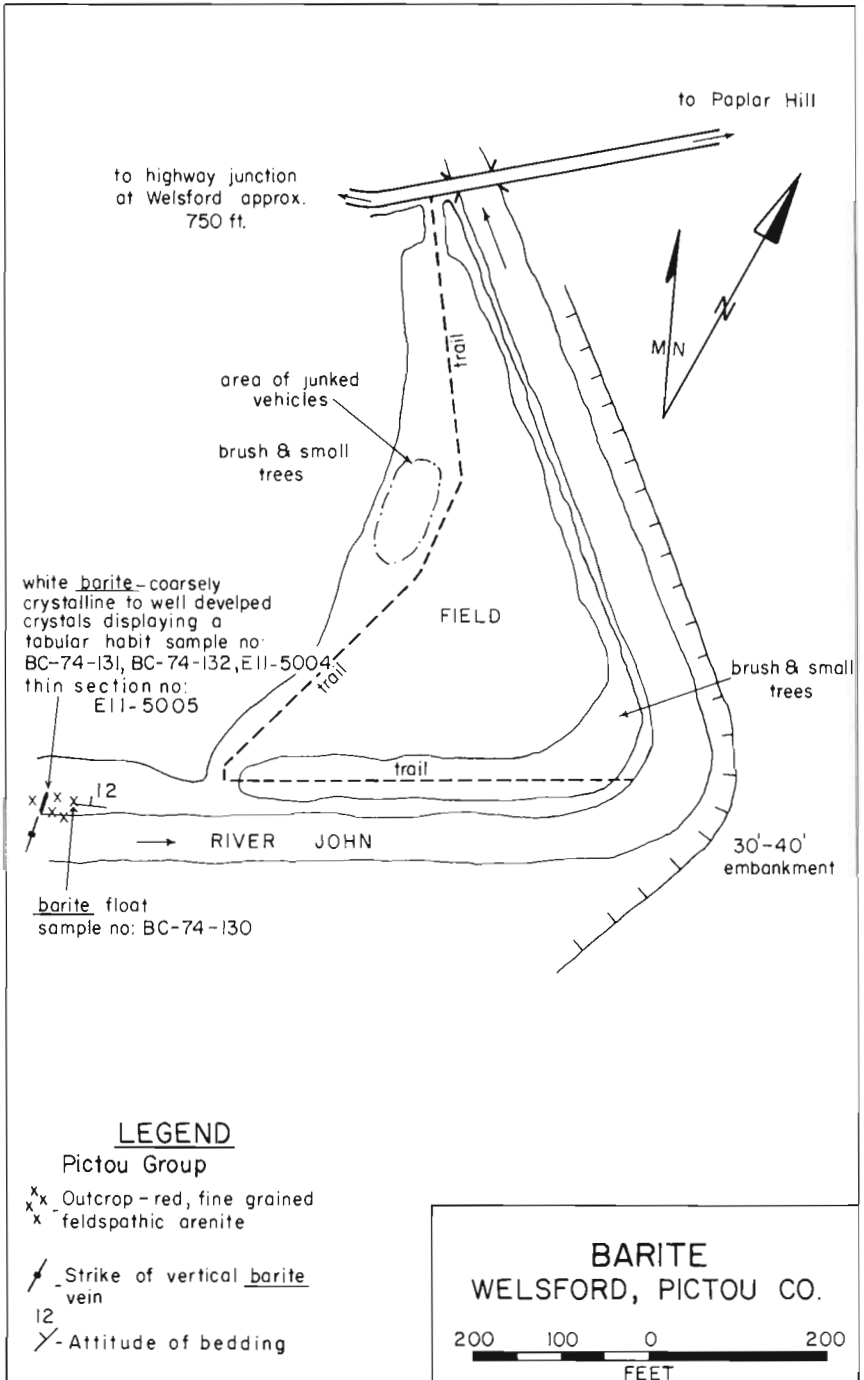


Figure 170

The barite at this locality was first reported by Faribault and Fletcher on the Geological Survey of Canada Map Sheet No. 46. Beyond some trenching done many years ago, no significant exploration work has been carried out here. The only reported work undertaken at this location was by Maritime Industries Limited who conducted a brief geological survey.

The host rock is primarily a fine to medium-grained, red feldspathic arenite, and minor medium-grained, grey, greywacke striking 065° azimuth and dipping approximately 12° northwest. This rock belongs to the Pictou Group (Late Carboniferous), and forms part of the south limb of the Tatamagouche Syncline in this area.

The mineralization was structurally controlled with the barite filling small fractures. The largest vein is approximately 1.5 inches in thickness and strikes 172° azimuth.



P.G.B.

Figure 171

No alteration of the wall rock which could be attributed to the barite mineralization was noted in hand specimen. Kaolinization of the feldspars is evident; however, this is probably due to weathering.

The barite is coarsely crystalline, often displaying a tabular habit with a well developed orthorhombic cleavage, and it is white, translucent white, and slightly pinkish in colour. The bladed type of barite is sometimes found occurring in a radiating manner to give a plumose texture. The slightly pinkish colours are due to minor amounts of iron oxides (hematite) staining the crystal faces and cleavage planes. No other minerals are found associated with the barite.

Grab samples were collected from the mineralized zone and the host rock adjacent to and submitted for chemical analysis. The sample locations are indicated on Figure 171, 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
Barite	BC-74-130	96.40	2.67	.04	40	70	40
Barite	BC-74-131	95.36	3.72	.03	20	20	110
Barite, feldspathic arenite	BC-74-132	53.60	1.62	.08	20	40	50
Feldspathic arenite	E11-5004	.93	.10	.03	10	20	60

Noteworthy similarities between this occurrence and that at Hodson include:

(a) the barites at both prospects are mineralogically very much alike (the only impurity being hematite), (b) they both occur in a similar host rock of similar age, (c) the host rocks to both showings form part of the Tatamagouche Syncline, (d) they both strike in the same direction, and (e) they are in close geographic proximity to each other.

It is not likely, however, that any significant amounts of barite will be found at this particular showing. The only possibility would be for the existence of larger veins or lenses similar to the one at Hodson, and related to the same fracture system but hidden underneath a cover of overburden.

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