CHAPTER 3

Descriptions of the deposits

(1) ARISAIG POINT

U.T.M.G. - N-506771
E-56435

N.T.S. - 11E/16A (1:50,000)

This occurrence is located on Arisaig Point, 0.5 mile west of Highway 245 (Fig. 7 and 8).

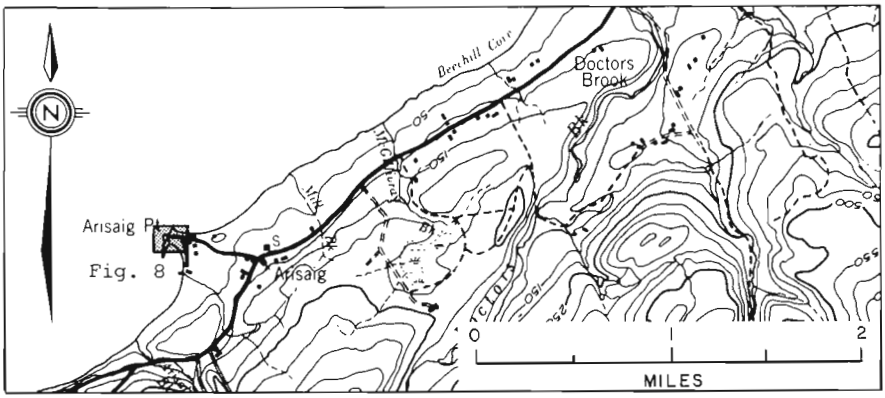

Figure 7

No exploration work has been undertaken in this area.

The host rocks are rhyolite and welded rhyolitic tuff, buff red in colour and flow banded. It is strongly fractured; the attitudes of the major fractures being 020°-025° azimuth/40° west, 020°-025° azimuth/45° west and 020°-025° azimuth /60° west. The majority of these fractures are filled with quartz and calcite. Benson (1974, p. 24) gives the following description of the rhyolite:

> "The rhyolite is typically porphyritic and has distinct flow banding in shades of red, yellow, green, and blue. Well-developed parting, parallel

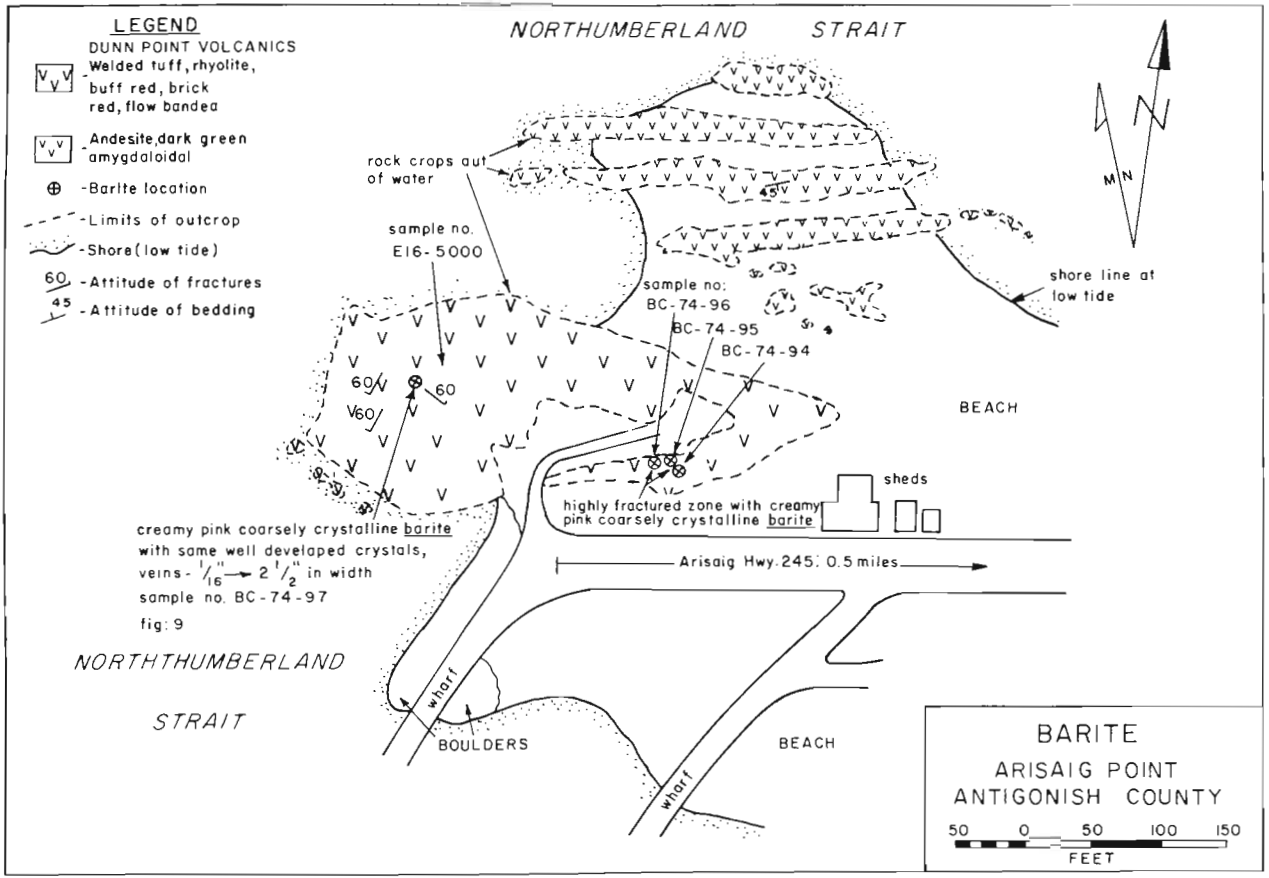
LEGEND
DUNN POINT VOLCANICS
Welded tuff, rhyolite, buff red, brick red, flow banded
Andesite, dark green amygdaloidal
-Barite location
-Limits of outcrop
-Shore (low tide)
60 -Attitude of fractures
45 -Attitude of bedding
NORTHUMBERLAND STRAIT
rock crops out of water
sample no. E16-5000
sample no: BC-74-96
BC-74-95
BC-74-94
shore line at low tide
BEACH
sheds
highly fractured zone with creamy pink coarsely crystalline barite
creamy pink coarsely crystalline barite with some well developed crystals, veins - 1/16" → 2 1/2" in width
sample no. BC-74-97
fig: 9
Arisaig Hwy. 245: 0.5 miles
NORTHTHUMBERLAND STRAIT
wharf
BOULDERS
BEACH
wharf
BARITE
ARISAIG POINT
ANTIGONISH COUNTY
50 0 50 100 150
FEET
JBC

Figure 8

> to the flow banding, locally resembles cleavage. Quartz veins are common. Several beds of spotted red tuff with white feldspar phenocrysts are interbedded with the rhyolite flows. The surface of the individual flows have also been deeply weathered and converted to laterite."

Stratigraphically beneath and immediately north of the rhyolite are outcrops of dark green, amygdaloidal andesite. The amygdules generally consist of quartz and chlorite. Quartz veining is also common. Weathering of the andesite has imparted a spheroidal structure to the outcrop.

The following petrological description of the andesite is given by Benson (1974, p. 24):

> "The andesite consists of plagioclase (andesine) and chlorite phenocrysts in an andesine-quartz groundmass. The plagioclase is partly epidotized, and the chlorite has developed from pyroxene, mainly enstatite."

Both the rhyolite, welded rhyolitic tuff and the andesite are part of a formation of rocks designated as the Dunn Point Volcanics believed to be uppermost Ordovician in age. This formation appears to have been deposited subaerially on rocks of the Browns Mountain Group (Benson, 1974).

Immediately southeast of the map area pebbly wacke conglomerate of the Beechhill Cove Formation disconformably overlies the rhyolites. No barite is evident in either the andesite or the pebbly wacke conglomerate.

The mineralization was structurally controlled, with the barite occupying fractures and brecciated zones. The largest vein is 2.5 inches in width, strikes 120° azimuth and dips 60° towards the northeast (Fig. 9).

The barite is coarsely crystalline, often displaying a bladed habit and occassionally occurs as small, perfectly shaped tabular crystals. It ranges in colour from semi-transparent orange, salmon pink, and milky white to transparent. Other minerals associated with the barite are quartz, chlorite, hematite and epidote (?).

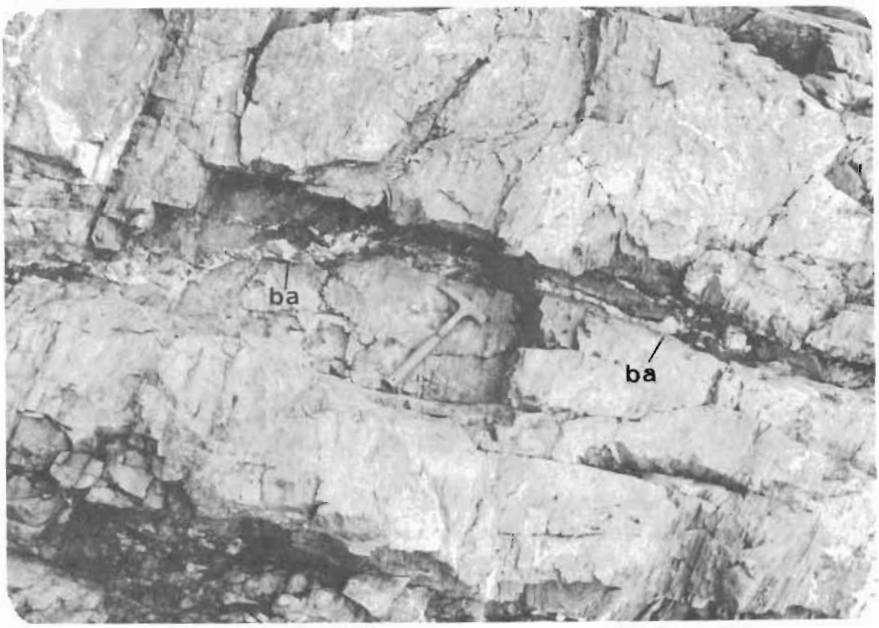

Figure 9 - Arisaig Point. Barite veins in rhyolite.

Two periods of barite crystallization are apparent; the first resulting in the transparent, orange and salmon pink variety, and the second producing the milky white variety. Evidence is provided by:

(a) transparent, perfectly formed tabular crystals partially imbedded in the milky white barite,
(b) milky white barite filling voids among the transparent, and orange varieties, and
(c) boundaries of the milky white barite controlled by crystal faces of the transparent and orange barite.

Both types of barite are cut by small veinlets of quartz and chlorite. The quartz appears to have at least partially post-dated the chlorite as evidenced by a veinlet where chlorite forms the outer walls and quartz constitutes the center portion. The paragenetic relationship between the calcite and the other minerals was not observed. Thus, with the exclusion of calcite the paragenesis of the mineralization appears to be:

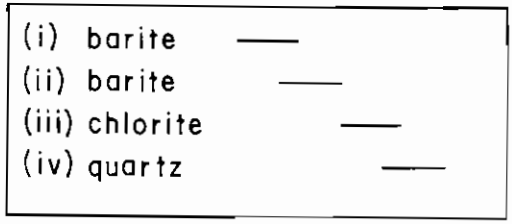

Figure 10

(i) barite (primarily transparent, semi-transparent orange and salmon pink)
(ii) barite (primarily milky white)
(iii) chlorite
(iv) quartz.

The hematite occurs chiefly as staining along cleavage planes and crystal faces, and is probably of a secondary origin being derived from alteration of the host rock.

Grab samples from the vein material, the brecciated zones, the host rock and the pebbly wacke conglomerate were submitted for chemical analysis. The sample locations are shown in Figure 7 and 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, welded rhyolite tuff breccia	BC-74-94	77.25	1.40	.03	10	20	15
Barite, welded rhyolite tuff breccia	BC-74-95	42.85	.96	.03	10	0	15
Welded rhyolite tuff, barite	BC-74-96	15.00	.36	.03	10	25	15
Barite	BC-74-97	94.10	1.05	.03	100	100	50

Welded rhyolite tuff	E16-5000	.54	.02	.05	10	40	50
Pebbly wacke conglomerate	E16-5001	.14	.00	.04	10	25	25

The barite at this locality is necessarily of academic interest only, as the known veins are of insufficient width and length to be of any economic significance. If the barite in this vicinity is restricted to the rhyolite (it is also reported to occur in rhyolite at Frenchman's Barn), it is unlikely that any significant amounts of barite will be discovered because:

(i) the rhyolite has only a limited areal extent, and
(ii) the fractures are too irregular and lack the width to contain economic deposits.

Bibliography

Benson, D. G.
1974: Geology of the Antigonish Highlands; Geol. Surv. Can., Memoir 376, p. 24, 25.

(2) BIG MARSH

U.T.M.G. - N-506485
E-57687

N.T.S. - 11E/9D (1:50,000)

This barite occurrence is situated at Big Marsh, 2.3 miles east of Highway 245. A small trench (6 feet long, 1 foot wide and 2 feet deep), dug into a slight rise approximately 75 feet west of the gravel road and 50 feet north of a small pond, marks the location of the barite (Fig. 11).

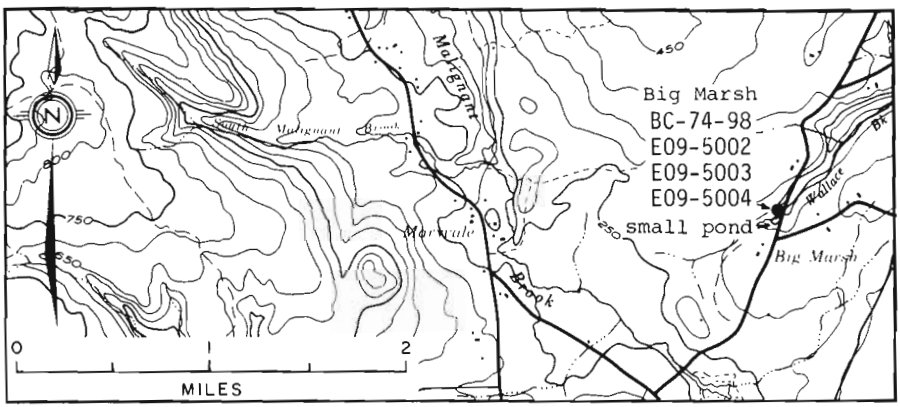

Figure 11

Barite was first reported here on the G.S.C. Map Sheet No. 34 (Roberts, 1886); however, it was not until the early 1940's that any work was carried out here in an attempt to determine the extent of the deposit.

In 1947, C. O. Campbell undertook a brief survey for Maritime Industries Limited and uncovered a two foot vein of barite. The latest exploratory work conducted here was in 1972 by David S. Robertson and Associates Limited for CERA Corp. Ltd. This consisted of a geological survey, hydrogeochemical survey and a VLF-EM-16 survey. No significant anomalies were outlined as a result of these surveys, and no further work was recommended.

The overburden at this location is at most only two feet. The host rock is a grey, limestone conglomerate of the A-subzone, Windsor Group (Early Carboniferous Age).

This is directly underlain by a grey, dense, fine-grained, thinly laminated limestone that crops out just east of the trench, near the gravel road. This rock strikes 195° azimuth, dips steeply towards the west, (near vertical dip in places) and is equivalent to the basal member of the A-subzone of the Windsor Group. Regionally, this limestone host rock forms a small, elliptical outlier (approximately 1 mile in length and 3/4 mile in width) in the clastic sedimentary rocks of the Rights River Formation of the Horton Group.

A small trench was dug and a vein of barite one foot thick, steeply dipping, and which appeared to be striking approximately in an east-west direction was uncovered. No replacement of the host rock by barite was noted; however, as only a very small portion of the barite vein was exposed, the possibility that replacement may have taken place cannot be excluded.

The barite is grey-white to brown-white in colour and has a medium to coarse-grained crystalline texture. The only other minerals associated with it appear to be iron oxides, which have a brown-black colour, earthy texture and occupy small vugs in the barite.

Grab samples of the barite vein and the host rock were submitted for chemical analysis, the results of which are listed below and in appendix III. The sampling location is indicated on Figure II.

Rock Type	Sample No.	Per cent			ppm		
		$BaSO_4$	$SrSO_4$	F	Cu	Pb	Zn
Barite	BC-74-98	95.50	1.10	.03	25	25	10
Limestone Conglomerate	E09-5002	1.99	.09	.03	20	110	40
Limestone Conglomerate	E09-5003	.12	.07	.05	20	170	40

Further exploratory work might be warranted to determine:

(a) length of the vein along strike, (b) whether or not a replacement deposit exists, and (c) if the controlling structure is a fault or merely a small discontinuous vein. The shallow depth to bedrock would indicate that trenching may provide the answers to these questions. If the mineralization was restricted to the Windsor limestone, the small size of the outlier would limit the size of this deposit.

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Benson, D. G.
1974: Geology of the Antigonish Highlands, N. S.; Geol. Surv. Can., Mem. 376, Map 1361-A.

Campbell, C. O.
1947: Brief description of localities in Nova Scotia at which barytes occur in Nova Scotia; N. S. Dept. Mines open file report OFR115.

McCulloch, P. D.
1972: Big Marsh Property, Big Marsh, N. S.; for David S. Robertson and Associates Limited; N. S. Dept. Mines assessment file 11E/9D 6-B-32(01).

Roberts, J. A.
1886: Geol. Surv. Can. Map Sheet No. 34, Old Series.

(3) BRIERLY BROOK

U.T.M.G. - N-505089
E-57262

N.T.S. - 11E/9A (1:50,000)

The barite occurrence is found in a stream bed, approximately 175 to 200 feet north of the barn on the farm belonging to Mr. Leo MacDonald. The farm is situated on the north side of the gravel road, 3.4 miles west of Highway 245 (Fig. 12).

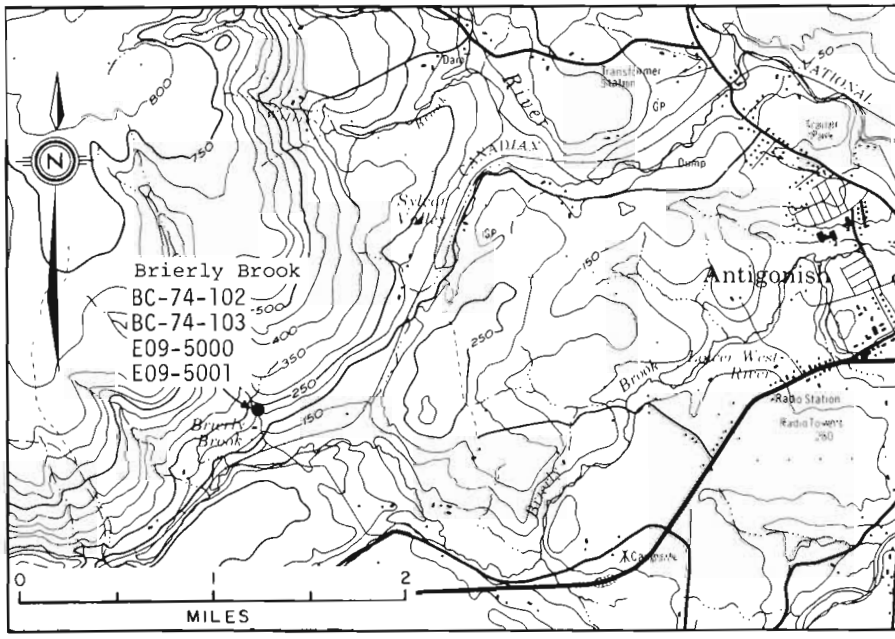

Figure 12

No exploratory work for barite has been carried out in this area, but Milmor Rogers Syndicate and Imperial Oil Limited conducted surveys in a search for potash and base metals respectively. In the Milmor Rogers Syndicate work, minor amounts of barite were cut in one drillhole (D.D.H. J.R.#3, 521-522 feet), and some barite float was found approximately 1,200 feet downstream from this occurrence. The same company also reported the presence of barite float near the railroad track approximately three miles southeast of the MacDonald farm.

The host rock is a grey, dense, fine-grained, thinly laminated, 'algal mat' limestone which is part of the basal member of the A-subzone, Windsor Group (Early Carboniferous Age). This rock strikes 095° azimuth, dips 35° towards the south and is disconformably underlain by a red-brown boulder conglomerate of the Rights River Formation, Horton Group. At the limestone-Rights River conglomerate contact, small irregular fractures in the limestone are filled with malachite and calcite.

The mineralization was structurally controlled with barite occupying fractures up to two inches in thickness. The attitudes of these fractures are 085°/75° north and 062°/ vertical. No replacement of the host rock by barite was observed.

The barite is pink-white in colour and coarsely crystalline in texture. The presence of hematite appears to be responsible for the pink colour evident in the barite. It is intimately associated with calcite, which is more abundant than the barite.

Grab samples were taken from the barite veins,and from the limestone and the boulder conglomerate in the immediate vicinity of the mineralized rock (Fig. 12). Chemical analyses of these samples 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	BC-74-102	87.50	.13	.04	150	40	20
Limestone, minor sphalerite, malachite, chalcopyrite galena	BC-74-103	.36	.04	.06	8891	1440	11515
Conglomerate	E09-5000	.21	.04	.04	20	30	100
Limestone	E09-5001	.71	.13	.05	160	150	150

The barite at this location is only of a minor nature, precluding it as a potential barite prospect at the present time. However, the close proximity of this occurrence to the favourable limestone-Rights River conglomerate contact, the presence of small amounts of copper at this contact, and the presence of barite float to the south and

southwest suggests that the region surrounding the occurrence is worthy of additional exploratory work.

References

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1974: Geology of the Antigonish Highlands, N. S.; Geol. Surv. Can., Mem. 376, Map 1361-A.

Hudgins, A. D.
1974: Geological map and diamond drill logs of Antigonish-James River for Milmor Rogers Syndicate, Quebec Uranium, Eastwest Exploration, N. S. Dept. Mines assessment file 11E/9A 40-B-14(01).

Ward, M. C.
1974: Report on exploration Gael-Sylvan Glen property, Antigonish Co., N. S.; N. S. Dept. Mines assessment file 11E/9D 13-B-26(02).

(4) CAPE BLUE

U.T.M.G. - N-505804
E-40966

N.T.S. - 11F/12D (1:50,000)

This fluorite occurrence is located along the shore of St. Georges Bay approximately 500 feet south of the trail connecting Cape Blue with the main gravel road. The trail is marked by a concrete barricade on the west side of the road, approximately 1.4 miles northwest of Linwood (Fig. 13).

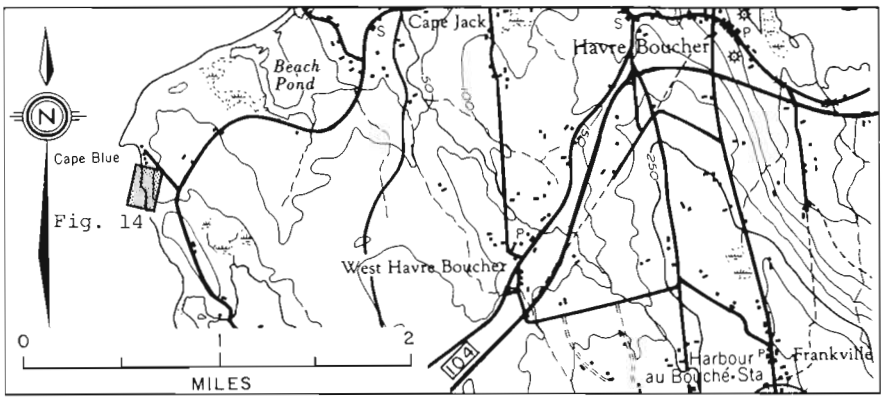

Figure 13

No reported exploratory work has been conducted here. The fluorite was first noted here by Murray, (1975).

The host rock is a grey, dense, fine-grained, thinly laminated, 'algal mat' limestone which for the most part strikes 020° azimuth and dips 35° towards the west. This rock unit is 15 to 20 feet thick and is part of the A-subzone, Windsor Group (Early Carboniferous Age). The limestone conformably overlies a very fine grained, brick red sandstone and siltstone of the Horton Group (Early Carboniferous Age). No evidence of mineralization was observed in this rock.

In the northern portion of the map area (Fig. 14), the limestone is strongly contorted and fractured, and displays attitudes from 045°/60° southeast

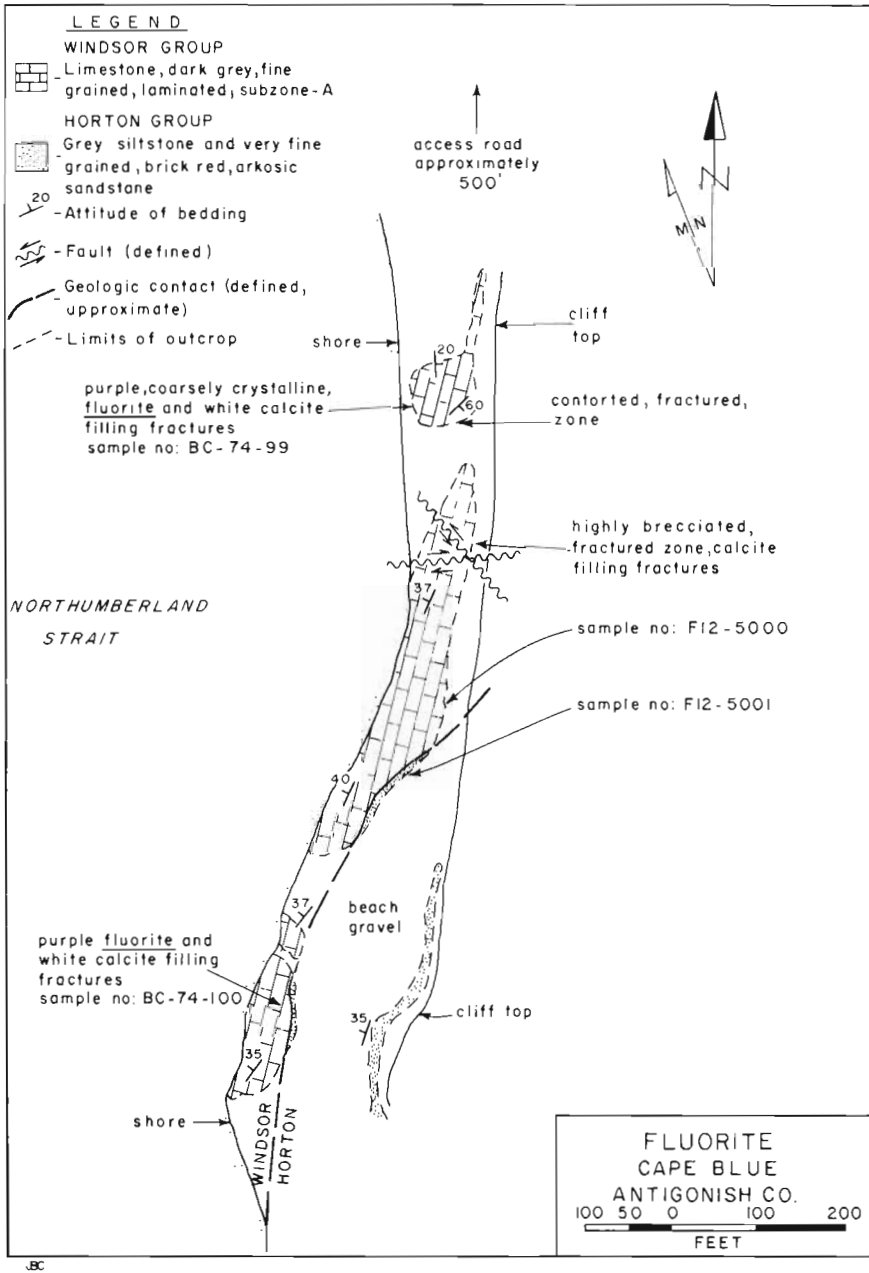
LEGEND
WINDSOR GROUP
Limestone, dark grey, fine grained, laminated, subzone-A
HORTON GROUP
Grey siltstone and very fine grained, brick red, arkosic sandstone
20
Attitude of bedding
Fault (defined)
Geologic contact (defined, approximate)
Limits of outcrop
access road approximately 500'
MN
shore
cliff top
20
60
purple, coarsely crystalline, fluorite and white calcite filling fractures
sample no: BC-74-99
contorted, fractured, zone
highly brecciated, fractured zone, calcite filling fractures
NORTHUMBERLAND STRAIT
37
sample no: F12-5000
sample no: F12-5001
40
37
beach gravel
purple fluorite and white calcite filling fractures
sample no: BC-74-100
35
cliff top
35
shore
WINDSOR
HORTON
FLUORITE
CAPE BLUE
ANTIGONISH CO.
100 50 0 100 200
FEET
JBC

Figure 14

to 180°/20° east. A highly fractured and brecciated zone also marks the location of two high angle faults that strike 088° and 120° azimuth. The faulting and folding evident in these rocks is attributed to the Maritime disturbance during late Carboniferous to early Permian time (Benson, 1974).

The mineralization was structurally controlled, lining fracture planes and forming the minor constituent in calcite-filled fractures (hairline - 0.5 inch) and sigmoidal gash veins. The fracture planes carrying fluorite generally strike north and have a near vertical dip, while the calcite veins generally strike in an easterly direction. No replacement of the wallrock by fluorite was noted.

The fluorite is generally purple to pale purple in colour and is coarsely crystalline, often showing very small well developed cubic crystals.

Grab samples were collected from the mineralized zones and the limestone and sandstone outcrops in the immediate vicinity (Fig. 14). Chemical analyses of these samples are listed below and in appendix III.

Rock Type	Sample No.	Per cent			ppm		
		$BaSO_4$	$SrSO_4$	F	Cu	Pb	Zn
Limestone, minor fluorite	BC-74-99	.06	.15	1.40	25	125	80
Limestone, minor fluorite	BC-74-100	.62	.18	1.60	40	150	110
Limestone	F12-5000	.06	.08	.04	20	120	40
Arkosic sandstone	F12-5001	.46	.03	.03	20	20	60

It is possible that there is a relationship between the fluorite and the lead-zinc deposit evident in the same limestone member cropping out near Cape Jack; however, since the latter was not studied, it will not be commented upon.

The fluorite at this locality is of too minor a nature to consider it a potential prospect.

Bibliography

Benson, D. G.
1974: Geology of the Antigonish Highlands, Nova Scotia; Geol. Surv. Can., Mem. 376, p. 60-63.

Murray, D. A.
1975: Limestones and dolomites of Nova Scotia; N. S. Dept. Mines, Bull. No. 2, Part II, p. 21.

(5) LAKEVALE

U.T.M.G. - N-507070
E-58455

N.T.S. - 11F/13B (1:50,000)

The barite occurrence is found on the west shore of St. George's Bay, 2,200 feet east of Highway 337, on property belonging to Mr. Frank MacNeil (Fig. 15).

No exploratory work for barite has been undertaken here.

The host rock is a fine to medium-grained, brick red and buff red arkosic sandstone of the Horton Group (Early Carboniferous Age). In the immediate vicinity of the barite showing this sandstone strikes 065° azimuth and dips 38° towards the northwest. However, 100 feet north of this location, it is found to strike 035° azimuth and dip 36° northwest. Further north along the shore, a grey, dense, fine-grained, thinly laminated limestone is found which unconformably overlies the sandstone. This limestone, known as the "ribbon limestone", strikes 085° azimuth, dips 25° towards the north, and forms the basal member of the A-subzone, of the Windsor Group (Early Carboniferous Age) in this area. No barite was observed in this rock.

The mineralized zone is structurally controlled with the barite filling small irregular fractures and vugs. No replacement of the wallrock by barite was observed.

The barite is reddish white in colour and is coarsely crystalline, often showing well developed crystals with a tabular habit, up to 0.5 inch in size. The red colour is probably due to hematite staining. The only other mineral associated with the barite is calcite which occurs as the dogtooth variety.

Grab samples taken from the mineralized fractures, the host rock (arkosic sandstone) and the limestone were chemically analysed (Fig. 15). The results are found below and in appendix III.

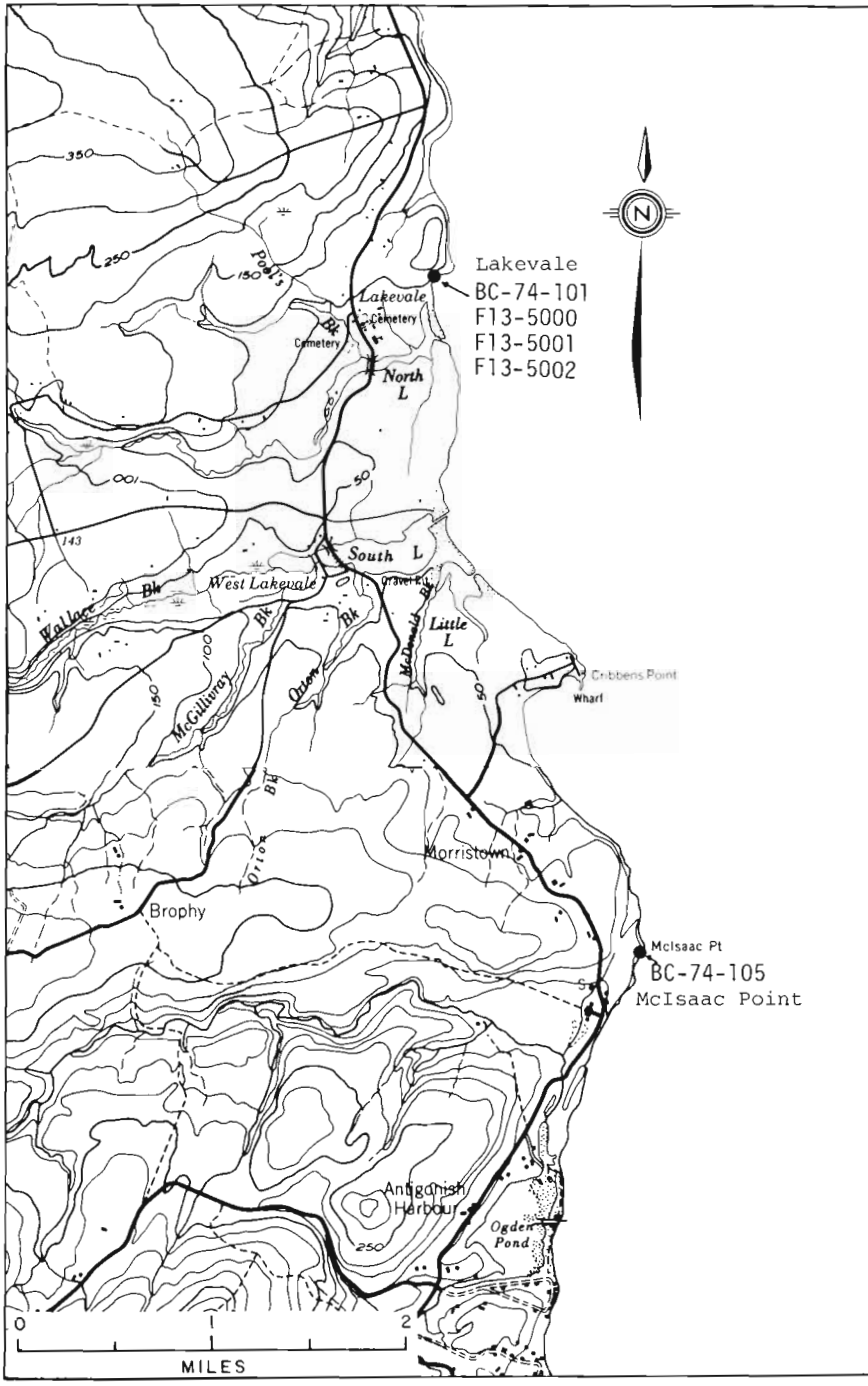
Lakevale
BC-74-101
F13-5000
F13-5001
F13-5002
Lakevale
Cemetery
Blk
Cemetery
North L
South L
West Lakevale
Gravel Pit
Blk
Wallace
Blk
Blk
McGillivray
Orton
Blk
Orton
McDonald
Blk
Little L
Cribbens Point
Wharf
Morristown
Brophy
McIsaac Pt
BC-74-105
McIsaac Point
Antigonish Harbour
Ogden Pond
350
250
150
100
50
143
0
1
2
MILES

Figure 15

Rock Type	Sample No.	Per cent $BaSO_4$	Per cent $SrSO_4$	Per cent F	ppm Cu	ppm Pb	ppm Zn
Calcite, minor barite	BC-74-101	4.39	.14	.03	20	50	30
Arkosic Sandstone	F13-5000	.10	.02	.03	10	50	50
Sandstone	F13-5001	.36	.02	.04	20	50	110
Limestone	F13-5002	.02	.05	.04	10	190	420

This barite occurrence is of academic interest only as the barite occurs in insufficient quantities for it to be designated as a potential prospect at present.

Bibliography

Benson, D. G.
1970: Notes to accompany geological maps of Antigonish and Cape George map areas, Nova Scotia; Geol. Surv. Can., Paper 70-8.

(6) McARRAS BROOK

U.T.M.G. - N-506391
E-56059

N.T.S. - 11E/9D (1:50,000)

The barite showing is situated along the Northumberland Strait shore at McArras Brook, 750 feet northeast of a prominent limestone point (Fig. 16).

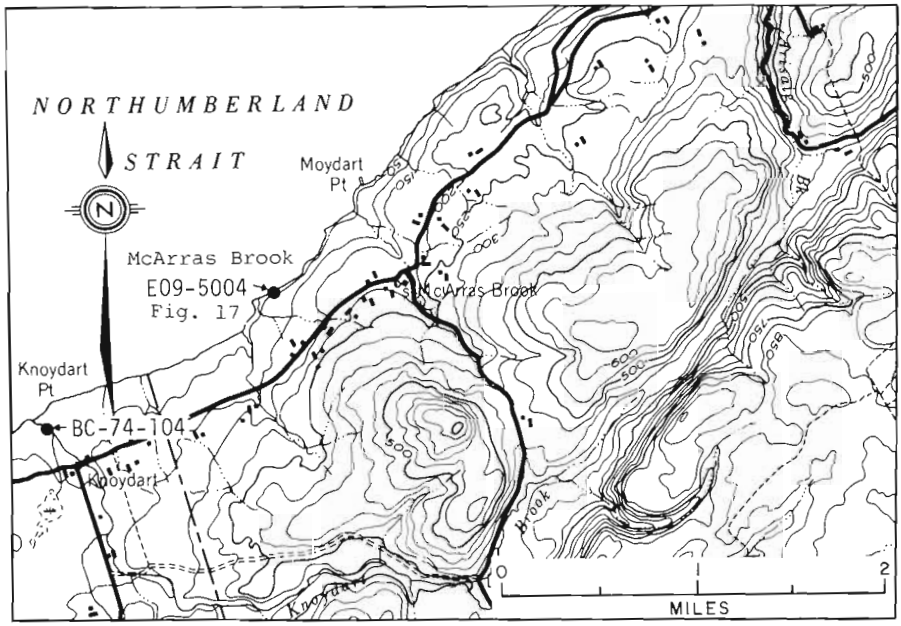

Figure 16

No exploratory work has been undertaken at this deposit, having only been recently discovered during the course of thesis work by Mr. Phil Fralick (student, Dalhousie University, personal communication). It was brought to the writer's attention in late fall, 1975.

The host rocks are clastic sedimentary rocks which strike 027° azimuth, dip 25° towards the northwest, and are part of the Martin Road Formation, upon Windsor Group (Keppie, et al, 1978). Other rock types encountered in the

area are grey, oolitic limestone and amygdaloidal basalt. The former forms a prominent point 750 feet to the southwest of the barite occurrence and contains pyrite (and minor chalcopyrite?) filled fractures, and the latter forms a prominent point approximately 1,000 feet to the northeast of the barite occurrence. Neither the limestone nor the basalt contain barite.

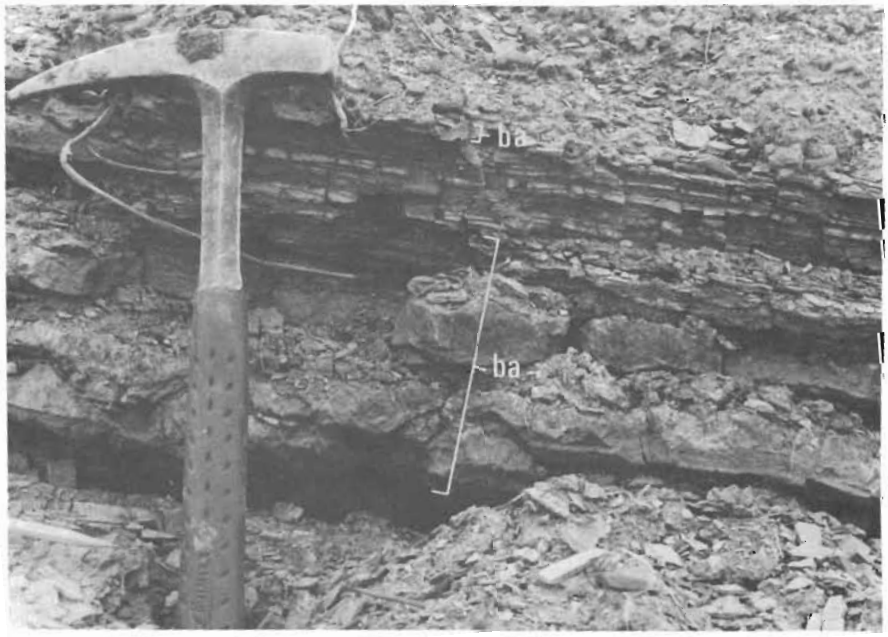

Figure 17 - McArras Brook. Barite beds in shale of the Martin Road Formation, upper Windsor Group. ba - barite.

The barite is stratigraphically controlled, occurring as two beds; one six inches in thickness and the other 3/10 of an inch in thickness (Fig. 17). The larger one is bound on the footwall by a two inch thick bed of grey, grey-black shale and minor yellow-grey claystone, the exposed portions of which are fragmented into small angular pieces, not more than 1 1/2 inches in length. This bed is underlain by a 10 foot thick unit of red shale and siltstone, which is in turn underlain by red sandstone. On the hangingwall, the bed is bound by a seven inch thick bed of shale and minor claystone identical to that on the footwall. This in turn is overlain by the small (3/10 inch thick) bed of barite, on top of which is another layer of shale and minor claystone approximately 1/2 to 7/10 inch in thickness. This layer is overlain by a thick unit of red siltstone and

fine-grained sandstone. In outcrop the barite-shale unit attains a maximum thickness of 14 inches.

The barite occurs as layered lenses and nodules that vary greatly in size. The smallest nodule is approximately the size of a small pebble while the larger lenses approach several inches in length and up to 1/2 inch in thickness. In plan view these nodules and lenses impart a knobby or warty appearance to the barite bed. In section, a chicken-wire structure is common where the smaller lenses and nodules predominate over the larger lenses. In thin section (No. E09-5004), the barite crystals in the nodules and lenses are found to be predominantly anhedral in form. Separating the barite lenses and nodules is dark, calcareous, shaly material and occasionally yellow claystone, both of which contain very fine grained pyrite and traces of chalcopyrite (?).

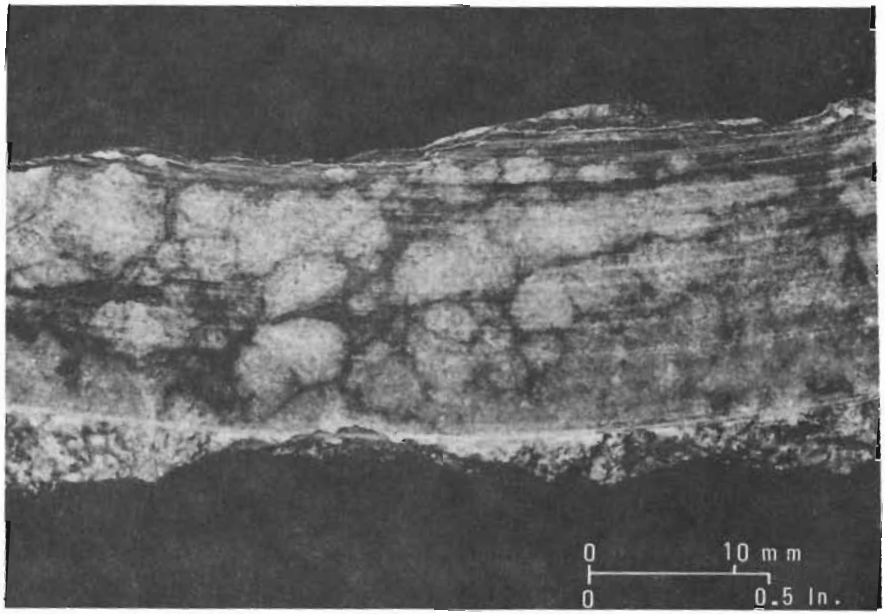

Figure 18 - McArras Brook. Barite lenses and nodules. Note the sagging and bending of the nodules and lens in the left of centre portion of the photograph. Top of the photograph is the top of the bed.

A number of geopetal structures such as those described by R. A. Zimmerman (1965) are evident (Fig. 18). They include (a) compaction and sagging features (e.g. 'finger-tip' ends on lenses, lenses bending over nodules and

other lenses, and lenses with sagging lower surfaces and nearly flat upper surfaces); (b) slumps and small intra-formational folds that appear to have been formed pene-contemporaneous with the deposition of barite, pyrite and sediments, and/or during diagenesis; and (c) roughly layered barite, which will part readily along thin (1/16-1/8 inch), dark, wavy laminae of calcareous, pyritic shale that separate the accumulations of layered barite lenses and nodules. These shaly laminae are consistently thin; however, their irregular and wavy character which is a direct expression of the underlying barite lenses and nodules, results in barite layers of variable thickness. Thus, an individual layer of barite will vary in thickness from 1/2 to 1 1/2 inches.

The shaly material also contains carbonaceous remnants of organic material and limonite. The limonite may be secondary after pyrite. The thin shale laminae also contain minor quantities of thin, platy malachite which appears to be concentrated in the carbonaceous remains of organic material.

The barite is white, grey-white to grey in colour and has a fine-grained to cryptocrystalline texture. Associated minerals in order of decreasing abundance include calcite, pyrite, malachite and chalcopyrite.

The calcite associated with the barite occurs both in the shale and in the barite nodules and lenses. Thin section examination (No. E09-5004) of the nodules and lenses, reveal the calcite to be randomly distributed throughout the barite. The calcite grains are subhedral to anhedral in form, and are generally larger than the barite grains.

The mechanisms and factors governing the primary sedimentary deposition of the barite are rather problematic. A more detailed study would be required to determine the physico-chemical conditions necessary for such deposition and also the source of the required ions - particularly the barium ions. Although such a study is beyond the scope and purpose of this report, the following observations are believed to be significant factors in determining the origin of the barite:

(a) The presence of pyritic, black shale indicates a reducing environment.

(b) the SO_4 ions required to produce $BaSO_4$ suggest local environments of oxidation whereby H_2S gas is oxidized upon passing through the oxidation-reduction interface.

(c) the Martin Road Formation (formerly the upper member of the McArras Brook Formation, Fralick, 1977), is interpreted by Fralick, 1977 as a fluvio-lacustrine deposit. This suggests that the barite-shale layer was deposited in a shallow water environment, (probably brackish water), possibly an estuary.

(d) Determination of the composition of the claystone (kaolinite?, illite?, montmorillonite?) might indicate the pH of the depositional environment, and

(e) the barite-pyrite association suggests that they may both form and exist together in the same environment although the physico-chemical conditions required to precipitate each one must necessarily vary somewhat within that environment.

A representative sample of the larger barite bed was chemically analysed. The results are listed below and in appendix III. The location sampled is shown on Fig. 16.

Rock Type	Sample No.	Per cent			ppm		
		$BaSO_4$	$SrSO_4$	F	Cu	Pb	Zn
Barite	E09-5004	89.59	1.51	.02	1300	585	650

Despite the relatively small thickness of the barite bed exposed in outcrop, exploratory work is warranted to determine the extent of the deposit. There is a distinct possibility that the shale unit and consequently the associated barite units may thicken downdip. The question also arises whether an associated metallic sulphide deposit occurs down dip. The malachite staining evident in the shaley partings in outcrop may have originated from such a sulphide deposit (The copper ions migrating up dip and then being precipitated by H_2S generated by the carbonaceous material).

An interesting statement concerning this type of deposit is given by R. A. Zimmerman (1965, p. 343):

> "Pyrite and barite nodules are useful indicators of larger barite deposits since they usually border a deposit."

The possibility also arises of such barite deposits occurring in time equivalent rocks of a similar lithology elsewhere in the province.

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(7) McISAAC POINT

U.T.M.G. - N-506512
E-86330

N.T.S. - 11F/12C (1:50,000)

The barite is found on the west shore of St. George's Bay, at McIsaac Point (Fig. 15).

No reported exploration work for barite has been undertaken here.

The host rock is a dense, fine-grained, red-grey, thinly laminated algal mat limestone striking 070° azimuth and dipping 42° towards the southeast. This limestone is often referred to as the "ribbon" limestone, forming part of the basal member of the A-Subzone, Windsor Group (Early Carboniferous Age). In the immediate vicinity of the barite showing this limestone is underlain by medium grained arkosic sandstone and ferruginous quartz sandstone of the upper Horton Group. The contact between the limestone and the sandstone is an angular unconformity, with the sandstone beds dipping much more steeply than the limestone. No barite was observed in the sandstone.

The deposit is structurally controlled with the barite occupying small fractures, 1/32 to 1/16 inch in thickness. The larger veins, up to 1/2 inch in size, are primarily calcite filled. These veins strike 050° azimuth and dip 58° towards the southeast.

No replacement of the wallrock by barite was noted.

The barite found at this location is reddish white in colour and coarsely crystalline, with some well developed crystals up to 1/4 inch in size. Associated minerals are calcite and hematite, the latter responsible for the reddish colour of the barite.

Grab samples from the mineralized fractures, the limestone and the ferruginous quartz sandstone were collected and submitted for chemical analysis (Fig. 15). The limestone and sandstone samples were taken from outcrop in close proximity to the mineralized fractures. Results of the analyses 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
Baritiferous limestone	BC-74-105	6.02	.20	.04	30	70	250
Limestone	F12-5002	.07	.04	.03	20	80	310
Ferruginous quartz sandstone	F12-5003	.71	.04	.03	30	30	120

The barite at this locality occurs in insufficient quantities to be considered a potential prospect. However, since it occurs very near the favourable Horton-Windsor contact, a thorough check of this environment elsewhere in the surrounding region is warranted.

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