(35) CHEVERIE

U.T.M.G. - N-500063 ("Lake" Workings)
E-40680
&
U.T.M.G. - N-500032 ("Brown" Workings)
E-40707

N.T.S. - 21H/1D (1:50,000)

The "Lake" Workings, also known as the "Macumber Mine" are situated along the Minas Basin Shore, on the old Macumber Farm, approximately 2,000 feet northwest of Highway 215 (Fig. 108 and 109).

The "Brown" Workings, also known as the "Deep Hollow Mine" are located 450 feet northwest of Highway 215, and immediately southwest of the gravel road leading to the Macumber Farm (Fig. 108).

Both of these workings have an extensive history as manganese producers dating back to 1866, although the two workings have not produced more than 250 tons of manganese ore between them.

These workings have been described in varying degrees of detail by How (1866, 1869), Penrose (1891), Fletcher (1894), Ingall (1903), Smitheringale (1928), Messervey (1931), Hanson (1932), Flynn (1940), Weeks (1948), Crosby (1962), Boyle (1972) and Bishop and Wright (1974).

The "Brown" Workings originally consisted of an open cut some 60 feet long into the base of a small hill. It has been bulldozed over since the mining ceased and all that remains to be seen are some rubble from the old workings and a few low profile outcrops of the country rock.

The "Lake" Workings consisted of an open cut into the sea cliffs along the Minas Basin shore measuring 80 feet in length, 30 feet in width and 25 feet in depth, as well as a 27 foot vertical shaft immediately southwest of the open cut. At present the vertical shaft is for the most part filled in with refuse, and the open cut partially filled in with beach gravels. A pile of rubble, no doubt originating from the open cut as well as the

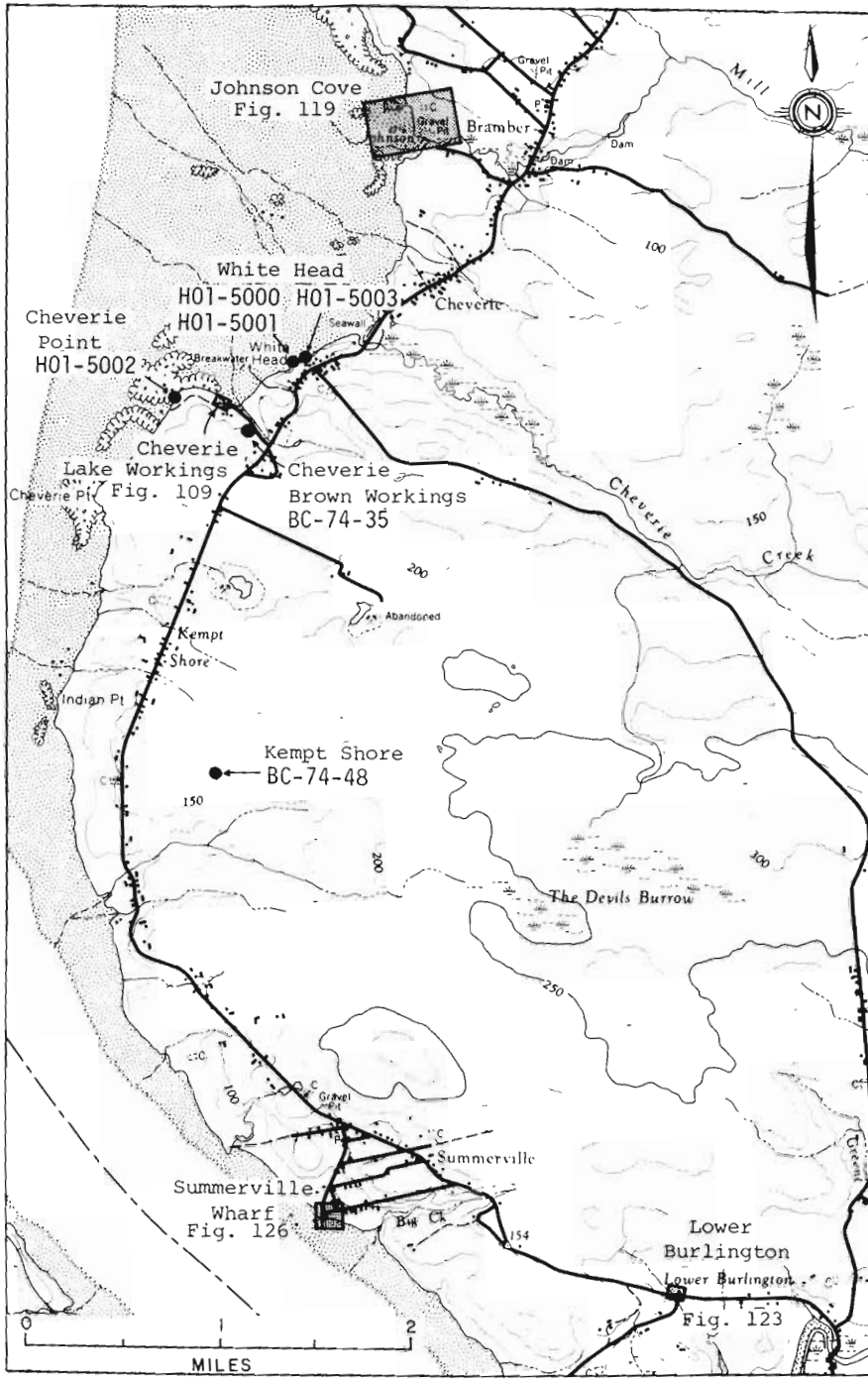
Johnson Cove
Fig. 119
Bramber
Mill
Dam
White Head
H01-5000 H01-5003
H01-5001
Cheverie
Cheverie
Point
H01-5002
Cheverie
Lake Workings
Fig. 109
Cheverie
Brown Workings
BC-74-35
Cheverie
Creek
Abandoned
Kempt
Shore
Indian Pt
Kempt Shore
BC-74-48
The Devils Burrow
Summerville
Summerville
Wharf
Fig. 126
Lower
Burlington
Fig. 123
MILES

Figure 108

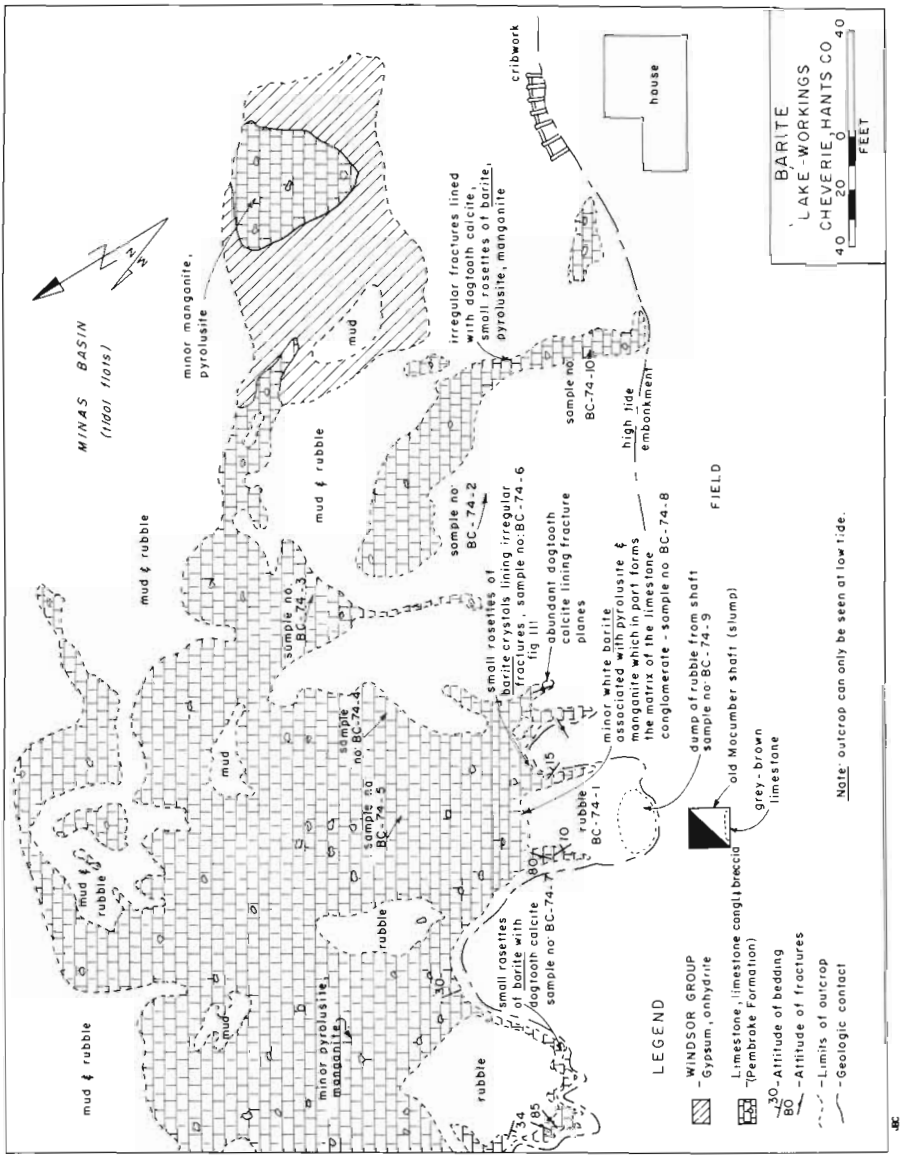
MINAS BASIN
(1801 riots)
BARITE
LAKE WORKINGS
CHEVERIE, HANTS CO
40 20 0 40
FEET
house
cribwork
high tide embankment
sample no BC-74-10
irregular fractures lined with dogtooth calcite, small rosettes of barite, pyrolusite, manganite
minor manganite, pyrolusite
mud & rubble
mud
sample no BC-74-2
sample no BC-74-3
sample no BC-74-4
sample no BC-74-5
small rosettes of barite crystals lining irregular fractures, sample no BC-74-6 fig 111
abundant dogtooth calcite lining fracture planes
minor white barite associated with pyrolusite & manganite which in part forms the matrix of the limestone conglomerate - sample no BC-74-8
rubble BC-74-1
small rosettes of barite with dogtooth calcite sample no BC-74-7
minor pyrolusite, manganite
dump of rubble from shaft sample no BC-74-9
old Macumber shaft (slump)
grey-brown limestone
FIELD
LEGEND
WINDSOR GROUP - Gypsum, anhydrite
Limestone, limestone conglobreccia (Pembroke Formation)
30 - Attitude of bedding
80 - Attitude of fractures
- Limits of outcrop
- Geologic contact
Note: outcrop can only be seen at low tide.

Figure 109

vertical shaft, can be found at the southwest extremity of the open cut.

Barite was not observed in situ at the "Brown" Workings; however, both workings will be treated as a single occurrence because:

(i) the nature of the minerals observed in float hand specimens and the host rock are identical to that of the "Lake" Workings, and
(ii) the close geographic proximity to the "Lake" Workings.

This showing is situated in carbonate rocks of the Windsor Group (Early Carboniferous Age), which in this region form the northwest boundary of the Minas Sub-basin. These rocks overlie terriginous clastic sedimentary rocks of the Horton Group, which are stratigraphically below and older than the Windsor Group. The area is cut by numerous east and northwest striking faults, which affect both the Horton and Windsor Group. These faults are primarily a result of movements which took place during the Maritime Disturbance (Late Carboniferous and Permian Age) and to a lesser extent the Palisades Disturbance (upper Triassic and Jurassic Age).

The host rock is a red-brown limestone conglomerate and breccia of the Pembroke Formation, Windsor Group having an overall strike of 160° to 180° azimuth and dipping from 10° to 15° towards the east. This rock is strongly fractured, has numerous contortions and is extremely vuggy. It emits a strong petroliferous odour when struck with a geopick. The poorly sorted and totally disorganized manner in which the thinly laminated limestone clasts have been recemented is apparent in Figure 110. It remains a topic of debate whether this breccia is a result of solution collapse, tectonism, or is a syndepositional feature.

Pale white gypsum forming a small outlier can be found in the northeastern corner of the map area (Figure 109). North and northeast of the map area, grey, "algal mat" limestone crops out in an undulating manner. This thinly laminated limestone, also known as the "ribbon" limestone, is part of the Macumber Formation, Windsor Group and stratigraphically underlies the limestone conglomerate-breccia. The name "Macumber" was taken from Leander Macumber, the original owner of the farm here.

Figure 110 - Cheverie (Lake Workings). Erratic, angular boulders of thinly laminated limestone comprising the Pembroke limestone conglomerate - breccia in the Cheverie area.

Northwest of the map area are red shales and sandstones conformably overlying the limestone conglomerate-breccia. These rocks also belong to the A-Subzone, Windsor Group.

The barite is structurally controlled; closely associated with pyrolusite, psilomelane, manganite and calcite which fill fractures and form the matrix in a limestone breccia. The rosette variety of barite occurs in vugs, on fracture planes and as overgrowths on dogtooth calcite (Fig. 111). Barite forms only a minor part of the minerals present, with manganese oxides predominating. Brown-white dogtooth calcite (crystals up to one inch in size) is also plentiful, lining vugs and fractures, often in a very intricate manner. The barite is generally coarsely crystalline, occasionally occurring as small rosettes displaying crest like forms, and is white in colour. Hematite was also noted occurring here in small amounts.

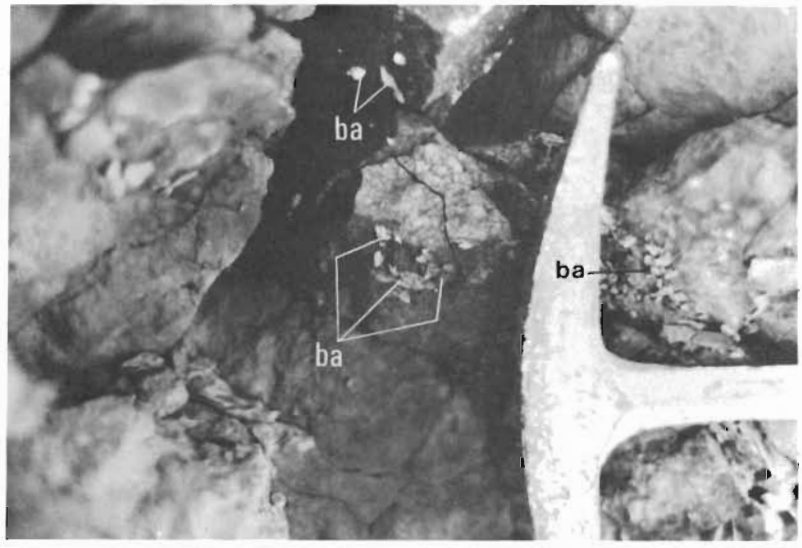

Figure 111 - Cheverie (Lake Workings). Small rosettes of white barite on fracture planes. ba - barite.

Grab samples were collected from the mineralized zones, the host rock, manganiferous zones and the sandstone unit stratigraphically above the host rock, and submitted for chemical analysis. The sample locations are shown in Figures 108 and 109, 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
Pyrolusite, manganite, psilomelane	BC-74-1	1.62	.08	.05	780	130	780
Pyrolusite, manganite	BC-74-2	.51	.08	.04	810	100	820
Limestone, pyrolusite	BC-74-3	1.12	.10	.08	450	100	820
Limestone, minor barite	BC-74-4	1.05	.08	.06	15	110	80
Pyrolusite, psilomelane, limestone	BC-74-5	2.00	.12	.05	650	110	680

Limestone, minor barite	BC-74-6	1.85	.16	.09	10	90	20
Limestone	BC-74-7	1.12	.17	.08	10	90	15
Pyrolusite, psilomelane, manganite, limestone	BC-74-8	2.17	.08	.05	580	90	550
Limestone, pyrolusite	BC-74-9	.91	.08	.05	140	80	170
Pyrolusite, psilomelane, manganite, limestone	BC-74-10	3.04	.26	.05	1050	220	350
Limestone	H01-5004	.07	.09	.03	10	20	20
Sandstone	BC-74-47	1.61	.09	.06	10	33	21
Limestone	BC-74-35	1.63	.17	.08	20	120	110

The barite occurs in such insignificant amounts that both the "Brown" and "Lake" Workings, can be considered of academic interest only.

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(36) FEUCHTWANGER PROPERTY

U.T.M.G. - N-500500
E-41805

N.T.S. - 21H/1D (1:50,000)

This occurrence is located on a small stream, 0.7 mile south of the barite mine at Pembroke (Fig. 112, 113, and 114).

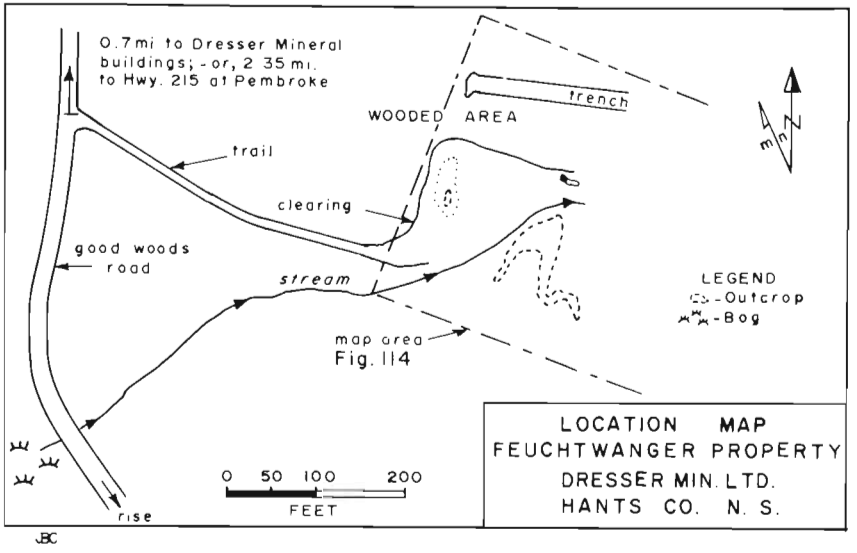

Figure 113

The property has a lengthy history as a manganese prospect, a number of small shafts having been sunk quite some time ago. Reports indicate that two of the shafts reached a depth of 30 feet and that a 60 foot drift was extended from one of these. No manganese ore is reported to have been extracted from here.

In 1955, Magnet Cove Barium Limited undertook investigations on the property for barite and sulphide. The exploratory work consisted of geophysical surveying, trenching and possibly some diamond drilling, but the results proved discouraging.

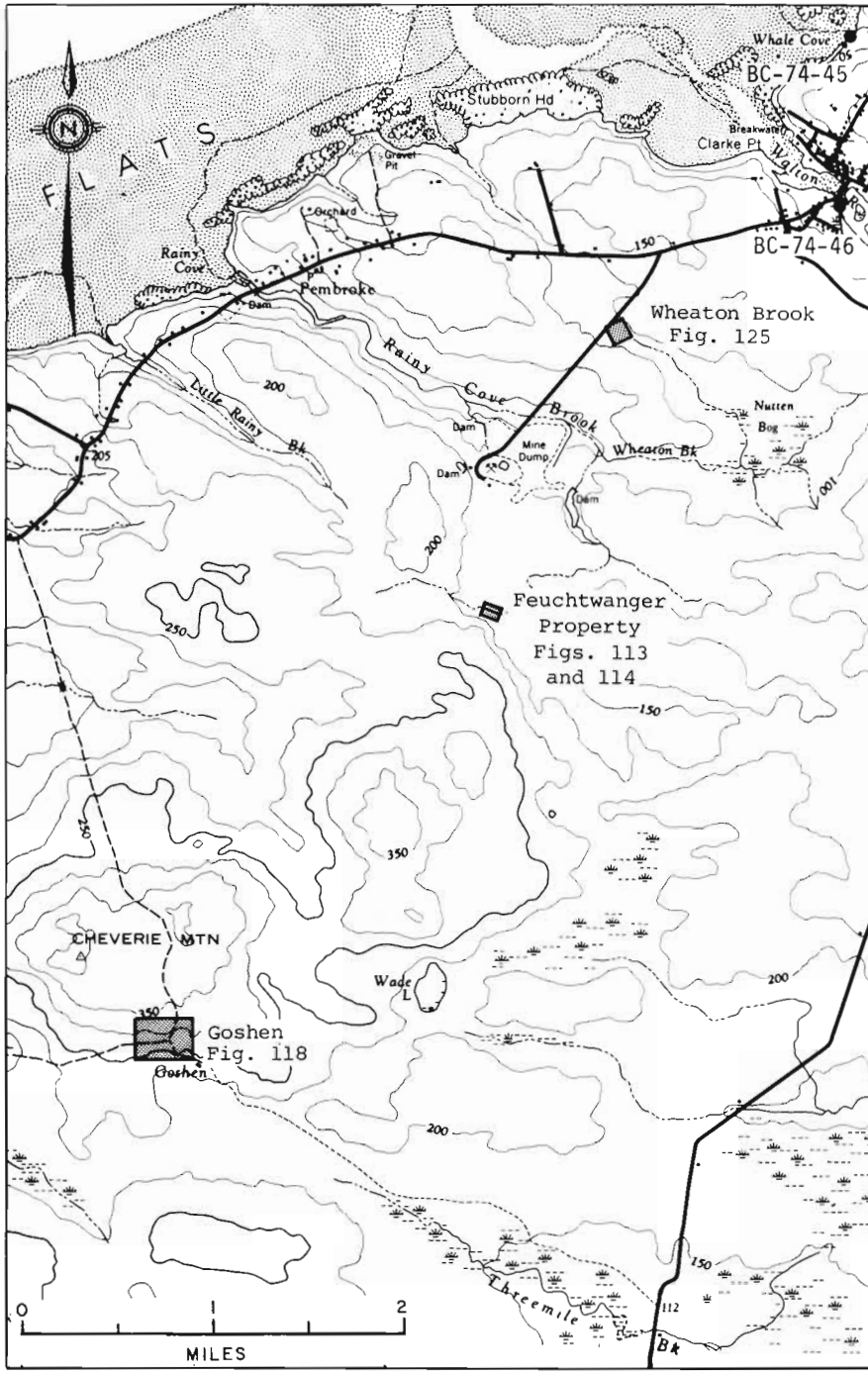
Whale Cove
BC-74-45
Stubborn Hd
Breakwater
Clarke Pt
Wilton
Rd
BC-74-46
Gravel Pit
Orchard
Rainy Cove
Pembroke
Dam
Wheaton Brook
Fig. 125
Rainy Cove Brook
Little Rainy Bk
Nutten Bog
Mine Dump
Wheaton Bk
Feuchtwanger Property
Figs. 113 and 114
CHEVERIE MTN
Wade L
Goshen
Fig. 118
Goshen
Threemile Bk
0
2
MILES

Figure 112

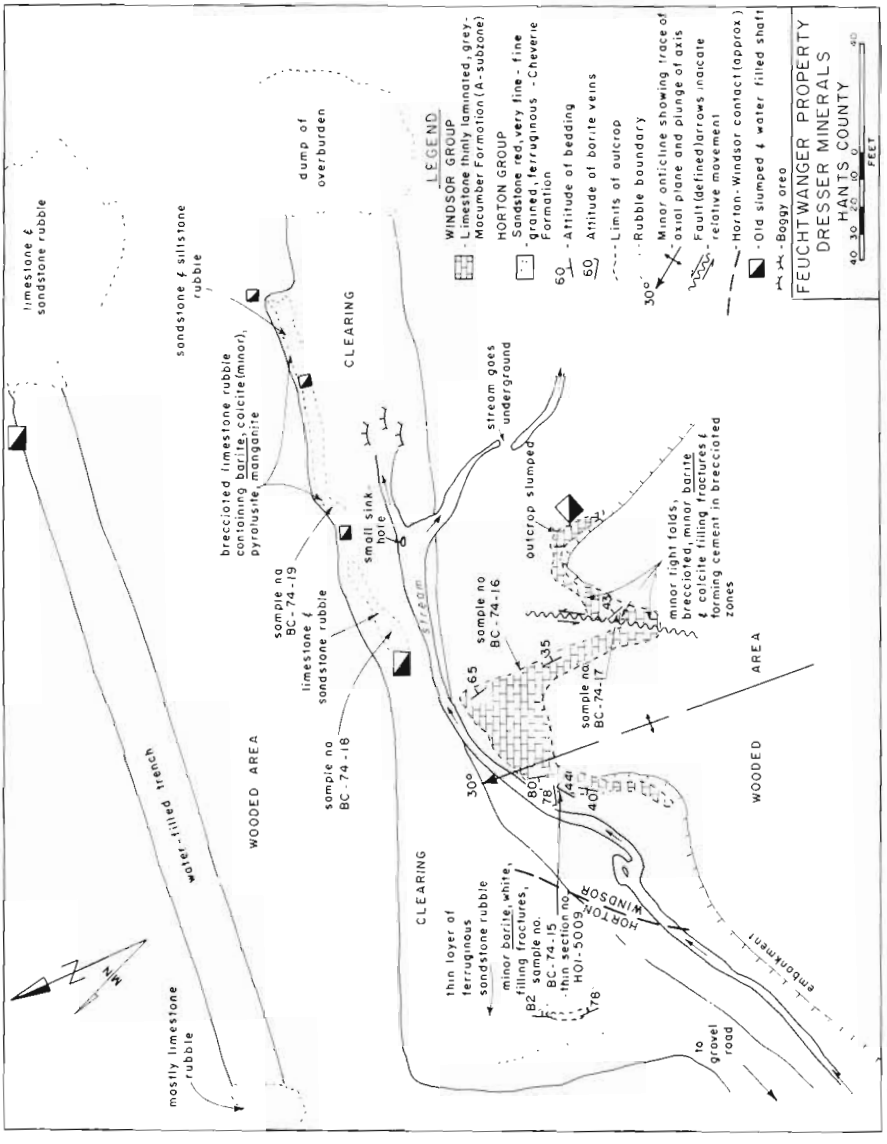
FEUCHTWANGER PROPERTY
DRESSER MINERALS
HANTS COUNTY
FEET
LEGEND
WINDSOR GROUP
Limestone thinly laminated, grey-Macumber Formation (A-subzone)
HORTON GROUP
Sandstone red, very fine - fine grained, ferruginous - Cheverie Formation
Attitude of bedding
Attitude of barite veins
Limits of outcrop
Rubble boundary
Minor anticline showing trace of axial plane and plunge of axis
Fault (defined) arrows indicate relative movement
Horton-Windsor contact (approx.)
Old slumped & water filled shaft
Boggy area
limestone & sandstone rubble
sandstone & siltstone rubble
dump of overburden
water-filled trench
mostly limestone rubble
WOODED AREA
CLEARING
breccioted limestone rubble containing barite, calcite (minor), pyrolusite, manganite
sample no BC-74-19
limestone & sandstone rubble
sample no BC-74-18
small sink hole
stream
stream goes underground
sample no BC-74-16
sample no BC-74-17
outcrop slumped
minor tight folds, breccioted, minor barite & calcite filling fractures & forming cement in breccioted zones
thin layer of ferruginous sandstone rubble
minor barite white, filling fractures, B2 sample no. BC-74-15
thin section no HOI-5009
HORTON
WINDSOR
embankment
to gravel road
WOODED AREA
CLEARING
30°
65
35
80
78
44
40
78
NW

Figure 114

Descriptions of this property are given by Fletcher (1894), Ingall (1903), Smitheringale (1928), Messervey (1931), Hanson (1932), Bancroft (1938), Boyle (1972) and Bishop and Wright (1974).

The barite showing occurs in carbonate rocks of the Windsor Group which forms part of the north boundary of the Minas Sub-basin in this area. These rocks overlie clastic sedimentary rocks of the older Horton Group. North of the prospect, along the shore of the Minas Basin, clastic sedimentary rocks of the Wolfville Formation (Triassic Age), unconformably overlie both the Horton and the Windsor Groups. Tight folds and numerous east, northwest and northeast striking faults make this a structurally complex area. These faults are more prominent in the Horton-Windsor Group rocks than in the Triassic Age rocks, consequently they are attributed primarily to the Maritime Disturbance and to a lesser extent the Palisades Disturbance.

The host rock is a thinly laminated, grey limestone of the Macumber Formation, Windsor Group. When struck with the geopick, the rock gives off a distinct petroliferous odor. This rock is folded into a small anticlinal fold with an axis striking 003° azimuth and plunging 30° towards the north. A small, high angle fault marked by a strongly brecciated zone transects the axis of the fold at an angle of 55°. The displacement appears to be horizontal; the southeast block having moved northeast relative to the northwest block.

To the east of the limestone a small outcrop of brick red, fine to very fine-grained sandstone is marked by rubble of small angular fragments of the same rock type. This sandstone varies in attitude from 002°/78° E to 024°/82° E, and forms part of the Cheverie Formation, Horton Group. The contact between the Cheverie Formation and the Macumber Formation is not exposed.

The mineralization was structurally controlled, with barite occupying small fractures and cementing minor brecciated zones. Some replacement of the host rock by barite is evident (Fig. 115). The attitudes of two barite veins are 056°/44° SE and 105°/78° N.

The barite is white, medium-grained, crystalline and displays a bladed habit, often in a radiating manner. Other minerals associated with the barite include calcite,

manganite, pyrolusite and iron oxide (limonite). No sulphides were found at this prospect.

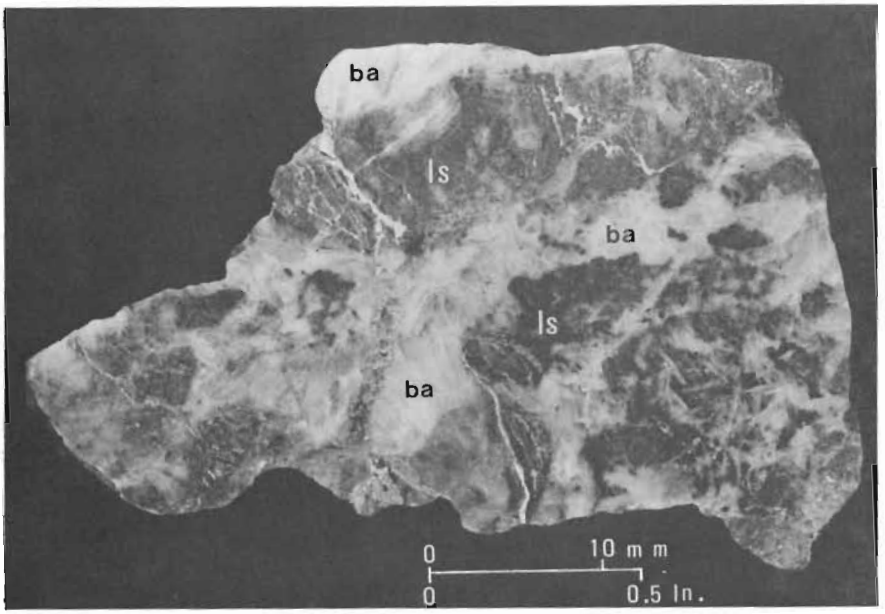

Figure 115 - Feuchtwanger Property. White barite filling fractures and replacing limestone. ba - barite, ls - limestone.

Grab samples were collected from the mineralized zones and submitted for chemical analysis. The sample locations are indicated on Figure 114, and the results of the chemical analyses are listed below and in appendix III.

Rock Type	Sample No.	Per cent $BaSO_4$	Per cent $SrSO_4$	Fe	Cu	ppm Pb	Zn
Baritiferous, limestone	BC-74-15	28.41	.65	.04	20	40	20
Limestone, minor barite	BC-74-16	1.11	.13	.04	20	50	10
Limestone, minor barite	BC-74-17	1.61	.16	.03	20	50	30
Baritiferous, limestone	BC-74-18	20.05	.42	.03	30	50	30
Barite, limestone	BC-74-19	59.48	.93	.03	30	30	20

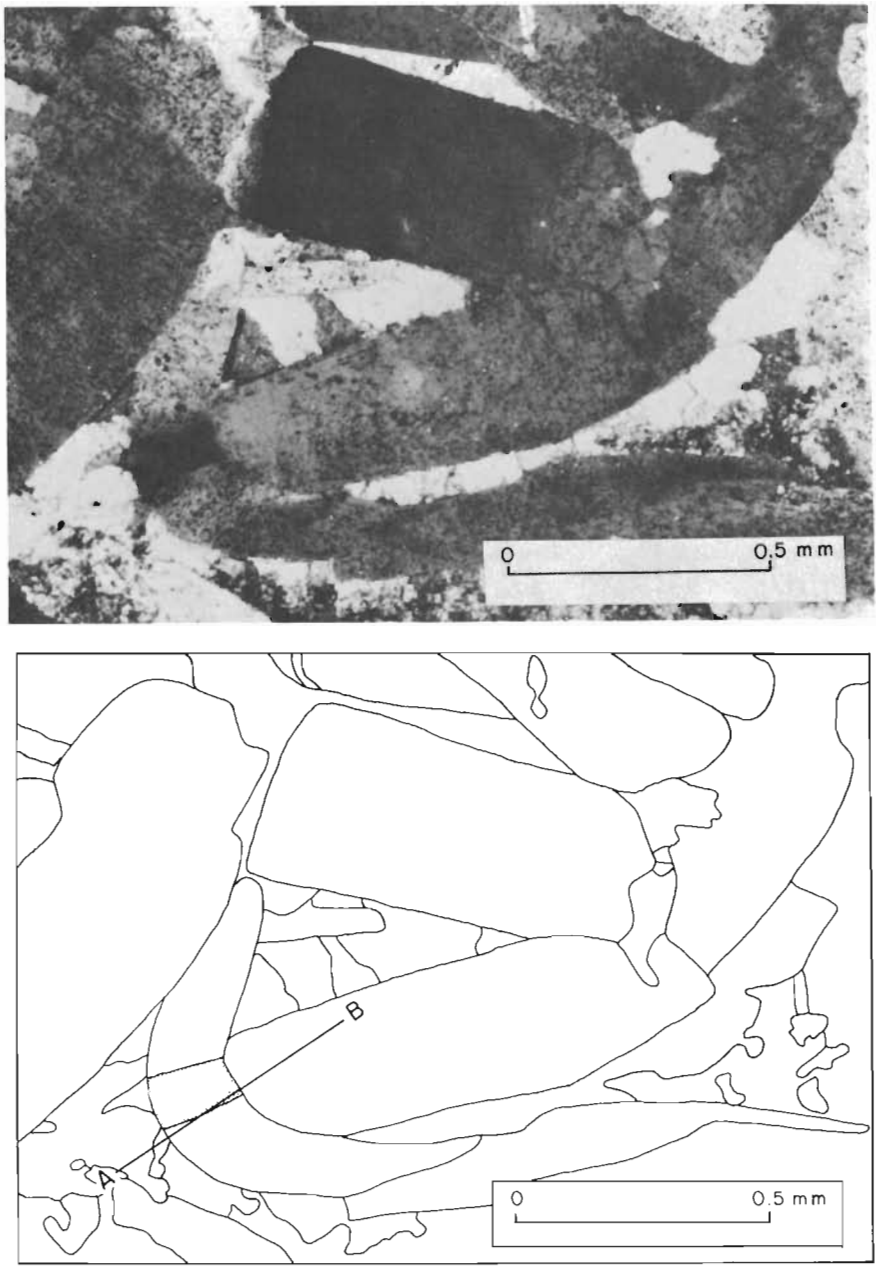

Figure 116 - Feuchtwanger Property. (a) Boomerang shaped deformed barite crystal suggests pre- or syn-deformational growth. (b) Sketch of (a). Note the extinction near the trace of the crystal fold axis A-B. This extinction moves along the crystal perpendicular to the fold limbs when the slide is rotated on the microscope stage.

Thin sections show some of the barite crystals strongly deformed (bent into boomerang shape) indicating either pre-deformation deposition, or deposition contemporaneous with deformation (Fig. 116).

The fact that barite mineralization is post dated by calcite veining is displayed by a calcite veinlet which traverses both the barite and the host rock. The last mineral to be deposited was the iron oxide, which is found to occur at the grain boundaries of both barite and calcite, and as an alteration of the limestone. While the manganese oxides were not evident in the thin sections examined, it is suggested by Boyle (1972) that it accompanied the barite mineralization.

Therefore, the mineral paragenesis at this location may be:

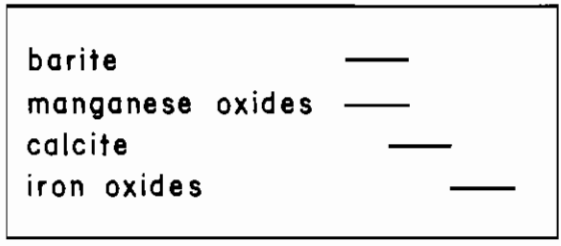

Figure 117

The barite at this location occurs in too small a quantity to be considered a possible prospect. Although replacement of the host rock by barite is evident, it does not appear to have occurred to any great extent, thereby making fracture filling the predominant type of mineralization.

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(37) GOSHEN

U.T.M.G. - N-500146
E-41528

N.T.S. - 21H/1D (1:50,000)

The Goshen prospect is situated at the base of Cheverie Mountain, three miles south of Highway 215 at Cambridge (Fig. 112 and 118).

The first reported work undertaken here was by Canadian Industrial Minerals in 1954 in a search for barite and associated sulphides. This work consisted of six backhoe trenches totalling 600 feet in length, and six shallow diamond-drill holes with a total footage of 294 feet. Only minor barite was encountered through the course of this work.

This was followed by a gravimetric survey in the same year by the Nova Scotia Research Foundation. Similar geophysical surveys were again carried out by the same group for Dome Exploration Ltd. in 1959. Two weak residual gravity anomalies were outlined as a result of these surveys.

McPhar Geophysical Co. undertook an induced polarization survey for Magnet Cove Barium Corporation in 1957; however, results proved negative.

This was followed by exploratory work in 1961 by the Consolidated Mining and Smelting Co. Ltd. (Cominco), which carried out a geochemical survey, 1,300 feet of dozer trenching, geological mapping and a total of 77 feet of drilling in five holes with a packsack drill. No significant barite was uncovered though much siderite and minor pyrite is reported to have been exposed in the bulldozing.

The next company to take an option on this lease was Phelps-Dodge Co. in 1963; however, there is no report on file of the work undertaken here by this company.

The last reported exploratory work conducted on this prospect was by the Magnet Cove Barium Corporation in 1964. This company diamond drilled 14 holes for a total footage of 2,056 feet. Six of these holes intersected

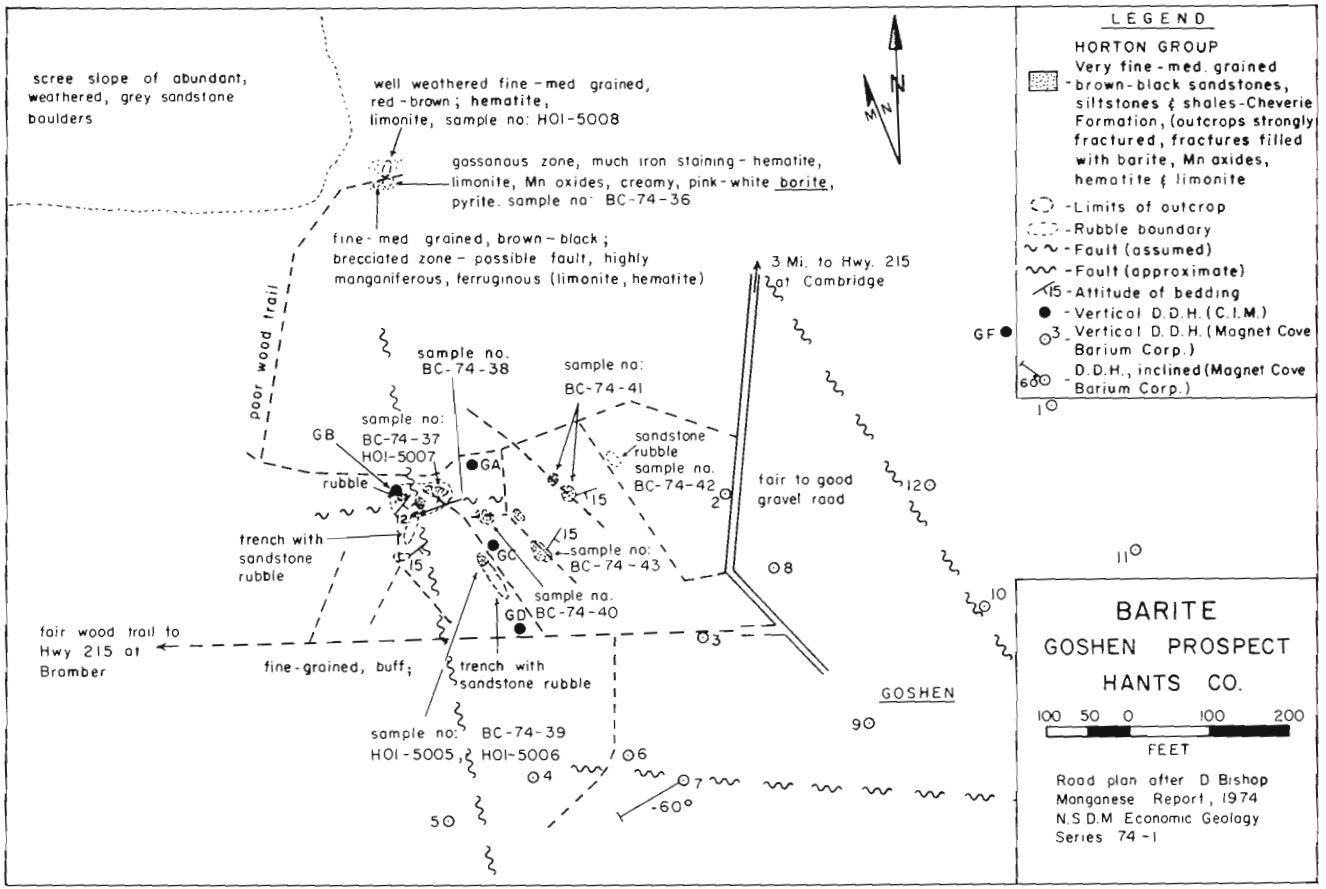
scree slope of abundant, weathered, grey sandstone boulders
well weathered fine-med grained, red-brown; hematite, limonite, sample no: HOI-5008
gossanous zone, much iron staining - hematite, limonite, Mn oxides, creamy, pink-white borite, pyrite. sample no: BC-74-36
fine-med grained, brown-black; brecciated zone - possible fault, highly manganiferous, ferruginous (limonite, hematite)
poor wood trail
3 Mi. to Hwy. 215 at Cambridge
sample no. BC-74-38
sample no: BC-74-41
sample no: BC-74-37 HOI-5007
GB
GA
rubble
sandstone rubble sample no. BC-74-42
fair to good gravel road
trench with sandstone rubble
GC
sample no: BC-74-43
sample no. BC-74-40
GD
fair wood trail to Hwy 215 at Bramber
fine-grained, buff;
trench with sandstone rubble
GOSHEN
sample no: BC-74-39 HOI-5005, HOI-5006
-60°
GF
LEGEND
HORTON GROUP
Very fine-med. grained brown-black sandstones, siltstones & shales-Cheverie Formation, (outcrops strongly fractured, fractures filled with barite, Mn oxides, hematite & limonite
-Limits of outcrop
-Rubble boundary
-Fault (assumed)
-Fault (approximate)
-Attitude of bedding
-Vertical D.D.H. (C.I.M.)
-Vertical D.D.H. (Magnet Cove Barium Corp.)
-D.D.H., inclined (Magnet Cove Barium Corp.)
BARITE
GOSHEN PROSPECT
HANTS CO.
100 50 0 100 200
FEET
Road plan after D Bishop Manganese Report, 1974 N.S.D.M Economic Geology Series 74-1
PG B

Figure 118

minor quantities of barite. This drilling also revealed at least two, and possibly three, faults in the area (Fig. 118).

The prospect is situated in clastic sedimentary rocks of the Horton Group (Early Carboniferous Age) which are terrestrial in origin. These rocks are basement to the evaporitic, carbonate, and clastic sedimentary sequences of the Windsor Group which are marine in origin. The Windsor Group in this area forms the northern boundary of the Minas Sub-basin. Both the Horton and the Windsor Groups are strongly deformed, principally as a result of the Maritime Disturbance and secondarily the Palisades Disturbance. The faults produced during these disturbances show trends ranging from east, northwest to northeast.

The host rock is chiefly brown-black sandstone, siltstone and shale of the Cheverie Formation, Horton Group. The dark colour of the rock is due to the presence of large amounts of iron oxides (hematite and limonite) and lesser amounts of manganese oxides (manganite and pyrolusite) and siderite. The beds vary in attitude, with the strikes ranging from 036° to 073° azimuth and the dips quite shallow--from 12° to 15° towards the southeast. Reports indicate the Horton-Windsor contact to traverse the prospect area in a northeast direction but no evidence of this contact was noted in the outcrops presently exposed here. The highly fractured nature of the rock and the numerous brecciated zones, some of which are healed with barite, suggest that faulting is both a pre-mineralization and post-mineralization feature of this area.

In the northern portion of the map area (Fig. 118), a gossanous zone which shows barite, hematite, limonite, manganese oxides and pyrite, can be found at the base of a fairly steep slope. This mineral assemblage is probably derived from a primary barite-siderite-sulphide (pyrite) body.

All the barite examined was structurally controlled, occupying irregular fractures, brecciated zones and fault zones. No replacement of the host rock by barite appears to have taken place.

The barite is coarsely crystalline and varies in colour from pink-white to cream-white. Other minerals found associated with the barite in varying quantities

include hematite, limonite (some botryoidal), siderite, pyrite, manganite and pyrolusite.

Grab samples were taken from the mineralized zones and the host rock, and submitted for chemical analysis. The sample locations are shown on Figure 118, 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, limonite	BC-74-36	52.75	.56	.05	90	20	40
Barite, limonite	BC-74-37	62.90	1.17	.06	10	10	30
Baritiferous, limonite	BC-74-38	25.31	.72	.07	20	20	20
Barite, limonite	BC-74-39	76.20	1.88	.07	220	20	50
Barite, limonite	BC-74-40	52.10	1.33	.05	140	20	40
Baritiferous, limonite	BC-74-41	42.12	1.29	.07	140	20	40
Baritiferous, limonite	BC-74-42	27.40	.72	.07	60	20	50
Baritiferous, limonite	BC-74-43	22.52	.72	.05	200	20	50
Baritiferous, limonite	H01-5005	1.16	.19	.03	540	50	50
Barite	H01-5006	70.25	2.50	.03	100	30	60
Limonitic, sandstone	H01-5007	.22	.06	.03	20	20	10
Limonitic, sandstone	H01-5008	.87	.08	.03	20	20	20

Geophysical surveys have not proved successful in delineating potential target zones for diamond drilling, other than locating the Horton-Windsor contact, which is known to be a favourable horizon. Geochemical methods have not located any anomalous zones in this area either, and this can be attributed to two factors:

(a) the overburden in many places is in excess of 100 feet in thickness, and

(b) the overburden is essentially composed of a glacial till rather than a residual of the underlying rocks, thereby not reflecting the geochemical character of the bedrock.

The poor quality of the barite and the small amounts proven to date through diamond drilling would necessarily preclude this occurrence as a good prospect for a high grade Walton type deposit (style C). However, the potential for a low grade style B deposit, similar to that at Summerville Wharf, may be very good.

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(38) JOHNSON COVE

U.T.M.G. - N-500309
E-40837

N.T.S. - 21H/1D (1:50,000)

This occurrence is situated on the Minas Basin shore at Johnson Cove, 0.5 mile west of Highway 215 at Bramber (Fig. 108 and 119).

Subsequent to the barite discovery at Pembroke, extensive exploration was undertaken by various companies (Magnet Cove Barium Corporation Limited in particular) in the surrounding Cheverie-Walton area (which includes the Johnson Cove area). However, no work was carried out on this occurrence as the quantity of barite and nature of the deposit rendered it a poor prospect.

The barite showing is located in marine carbonate rocks of the Windsor Group which conformably overlie the terrigenous clastic sedimentary rocks of the upper Horton Group. Both groups display extensive local deformation in the form of a small, tight, easterly trending anticline and faults trending in an easterly and northeasterly direction. The mineralized area is located on the north limb of the anticline. The deformation is primarily a result of movements attributed to the Maritime Disturbance and to a lesser extent the Palisades Disturbance.

The host rock is the thinly laminated limestone of the Macumber Formation, Subzone A, Windsor Group. This formation conformably overlies red sandstone, siltstone and shale of the Cheverie Formation, Horton Group, and is overlain by brown-grey limestone conglomerate of the Pembroke Formation, Subzone A, Windsor Group. The beds generally strike 088° to 098° azimuth, dip from 30° to 40° towards the north, and form the north limb of a small anticlinal structure the axis of which strikes approximately 080° azimuth.

The barite is structurally controlled, lining small irregular fractures. Calcite occurs as cavity linings and manganese oxides and hematite as staining on fracture planes and vug walls. The fractures are quite likely related to the fault which appears immediately west

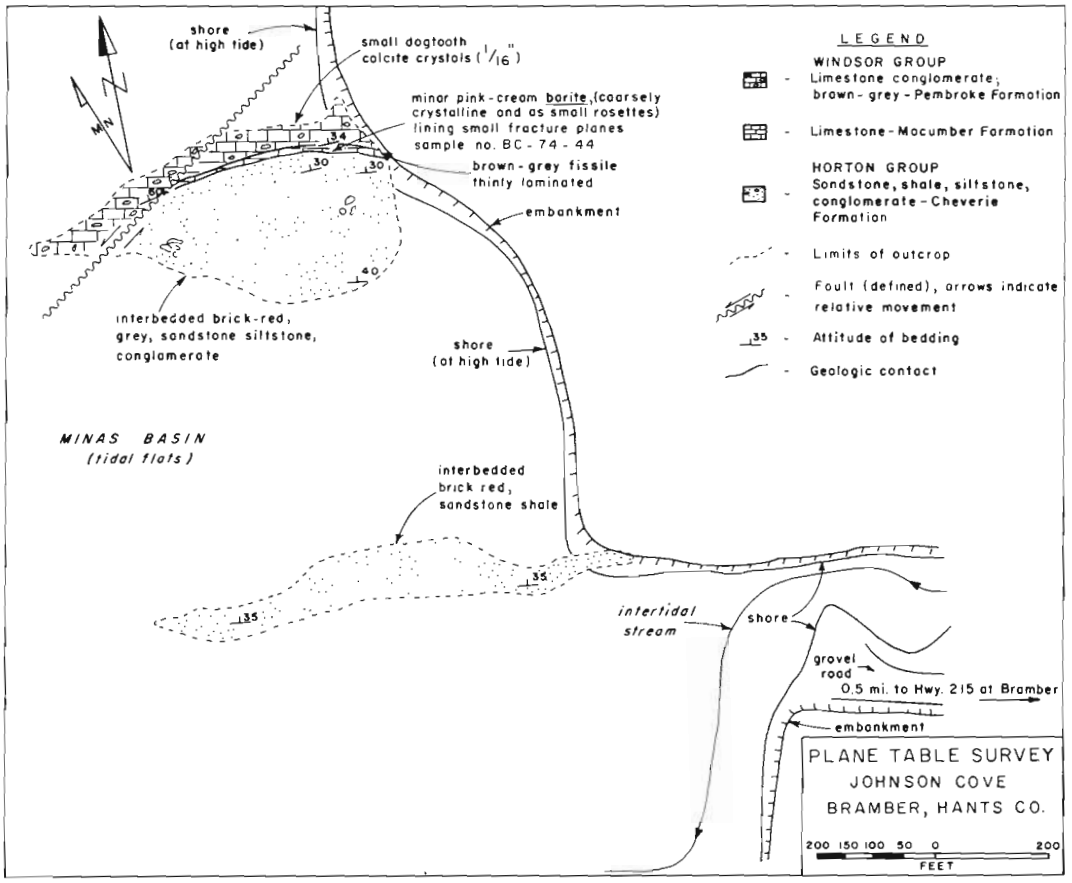
shore
(at high tide)
small dogtooth
calcite crystals (1/16")
minor pink-cream barite,(coarsely
crystalline and as small rosettes)
lining small fracture planes
sample no. BC-74-44
brown-grey fissile
thinly laminated
embankment
interbedded brick-red,
grey, sandstone siltstone,
conglomerate
shore
(at high tide)
MINAS BASIN
(tidal flats)
interbedded
brick red,
sandstone shale
intertidal
stream
shore
gravel
road
0.5 mi. to Hwy. 215 at Bramber
embankment
LEGEND
WINDSOR GROUP
Limestone conglomerate;
brown-grey - Pembroke Formation
Limestone - Macumber Formation
HORTON GROUP
Sandstone, shale, siltstone,
conglomerate - Cheverie
Formation
Limits of outcrop
Fault (defined), arrows indicate
relative movement
Attitude of bedding
Geologic contact
PLANE TABLE SURVEY
JOHNSON COVE
BRAMBER, HANTS CO.
200 150 100 50 0 200
FEET

Figure 119

of the occurrence. It is a high angle fault striking 055° azimuth with the north block displaced horizontally westward relative to the south block. No replacement of the wallrock by barite, or alteration of the wallrock that could be attributed to the mineralization was observed in hand specimen.

The barite is pink-cream in colour, crystalline, medium to coarse-grained, and occasionally shows small (up to 0.5 inch), well developed rosettes. The calcite is present as the dogtooth variety and the manganese oxides appear to be pyrolusite and psilomelane(?).

A grab sample from the mineralized zone was collected and submitted for chemical analysis. The sample location is indicated in Figure 119, 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
Limestone, barite	BC-74-44	19.40	.38	.05	5	100	700

This showing is too insignificant to be considered for further exploration work.

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(39) LEMINSTER

U.T.M.G. - N-496351
E-39670

N.T.S. - 21A/16B (1:50,000)

The fluorite is found in situ in a number of small outcrops along the highway between Vaughan and New Ross in the immediate vicinity of Little Island Lake, 4.65 miles southwest of Highway 14 at Vaughan. See Figure 120, 121, and 122.

Some prospecting for fluorite was conducted here in 1972 by a Mr. Fred Rhodenizer. This work included some blasting in an attempt to uncover additional mineral showings and to obtain a fresh exposure of the host rock.

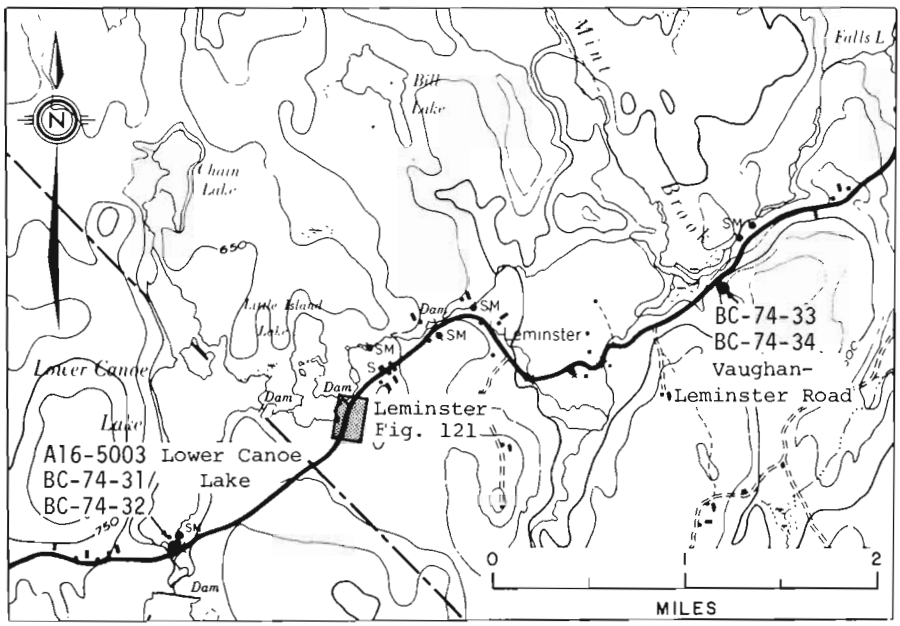

Figure 120

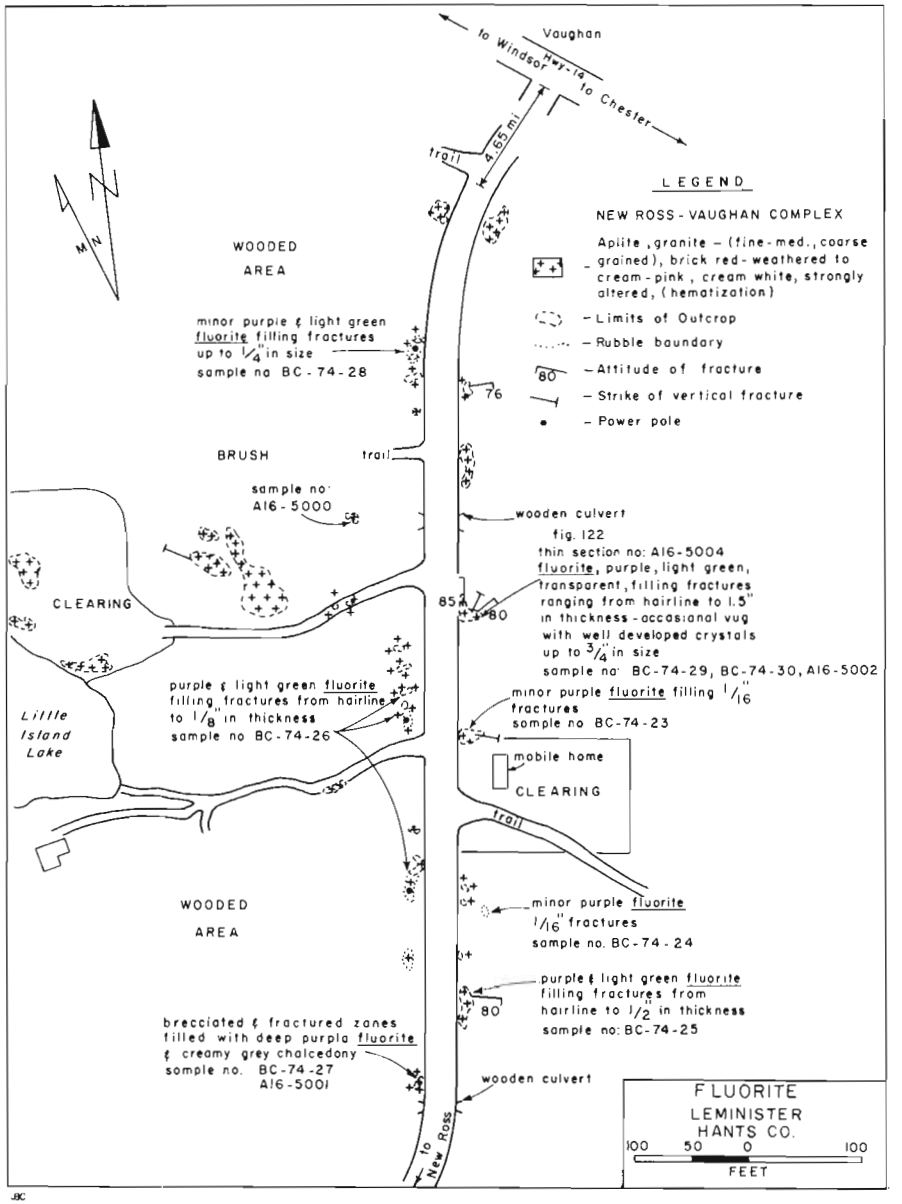
to Windsor Hwy-14 to Chester
Vaughan
4.65 mi
trail
N
WOODED AREA
minor purple & light green fluorite filling fractures up to 1/4" in size
sample no BC-74-28
76
BRUSH
trail
sample no: A16-5000
wooden culvert
fig. 122
thin section no: A16-5004
fluorite, purple, light green, transparent, filling fractures ranging from hairline to 1.5" in thickness - occasional vug with well developed crystals up to 3/4" in size
sample no: BC-74-29, BC-74-30, A16-5002
CLEARING
85
80
minor purple fluorite filling 1/16" fractures
sample no BC-74-23
purple & light green fluorite filling fractures from hairline to 1/8" in thickness
sample no BC-74-26
Little Island Lake
mobile home
CLEARING
trail
WOODED AREA
minor purple fluorite 1/16" fractures
sample no. BC-74-24
purple & light green fluorite filling fractures from hairline to 1/2" in thickness
sample no: BC-74-25
80
brecciated & fractured zones filled with deep purple fluorite & creamy grey chalcedony
sample no. BC-74-27
A16-5001
wooden culvert
to New Ross
LEGEND
NEW ROSS - VAUGHAN COMPLEX
Apilite, granite - (fine-med., coarse grained), brick red-weathered to cream-pink, cream white, strongly altered, (hematization)
- Limits of Outcrop
- Rubble boundary
80 - Attitude of fracture
- Strike of vertical fracture
- Power pole
FLUORITE
LEMINISTER
HANTS CO.
100 50 0 100
FEET

Figure 121

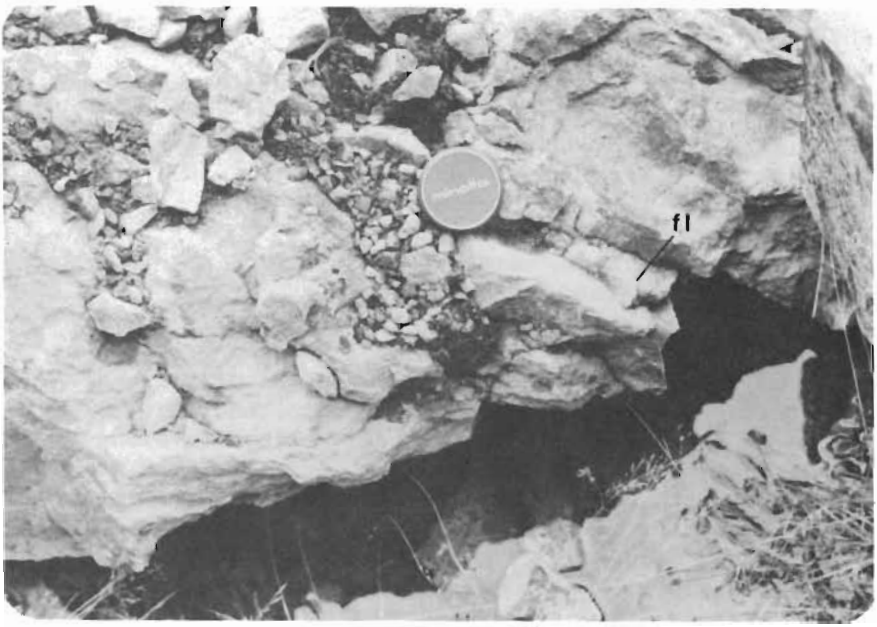

Figure 122 - Leminster. Small vein of purple and green fluorite cutting aplite. fl - fluorite.

The fluorite is hosted by the New Ross-Vaughan Complex of the South Mountain Batholith. It has been shown (MacKenzie, 1974) that this batholith is a highly differentiated intrusion, having been emplaced during the Middle and Upper Devonian time. In the map area (Fig. 121), these rocks are comprised of aplite and granite, which, depending on the degree of alteration (hematization), are light red to brick red in colour. The weathered surface is usually cream-pink to cream white in colour. The granite ranges in texture from medium to coarse grained.

The mineralization was structurally controlled, with fluorite occupying fractures up to two inches in width, joint planes and cementing brecciated zones. The wall rock has been strongly hematized by extensive hydrothermal alteration. The fluorite is primarily confined to buff to red coloured aplite, although minor quantities are also found in the cream coloured, medium to coarse-grained (occasionally porphyritic) granite. Attitudes of some of the fractures and joint planes containing fluorite are:

(a) striking approximately northwest-southeast and dipping shallowly towards the southwest,
(b) 080° azimuth/80° south,
(c) 055° azimuth/vertical,
(d) 025° azimuth/85° southeast,
(e) 112° azimuth/76° south,
(f) 130° azimuth/vertical, and
(g) 125° azimuth/80° southwest.

The fluorite ranges in colour from transparent to rust, light green and purple, and often displays all four colours in a single hand specimen. The rusty colour is due to the presence of hematite and limonite along cleavage planes and crystal grain boundaries. The purple and light green colours are inherent to the fluorite crystals itself; however, the purple colour is also found concentrated along the crystal grain boundaries and cleavage planes. The fluorite varies in texture from medium grained crystalline to very coarsely crystalline, and in some cases shows perfectly shaped cubic crystals up to one inch in size, although they generally do not exceed 3/8 inch in size. Minerals closely associated with the fluorite include quartz, creamy grey chalcedony and hematite.

Grab samples taken from the mineralized zones and the host rock adjacent to them were submitted for chemical analysis. The sample locations are indicated in Figure 121, 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
Aplite, fluorite	BC-74-23	.15	.04	5.25	70	50	10
Granite, fluorite	BC-74-24	.10	.03	15.95	20	70	30
Granite, fluorite	BC-74-25	.24	.03	6.62	20	70	30
Granite, fluorite	BC-74-26	.05	.03	2.15	10	50	10
Granite, fluorite	BC-74-27	.28	.03	28.71	50	60	20
Granite, fluorite	BC-74-28	.43	.03	5.12	40	90	20
Aplite, flourite	BC-74-29	.11	.03	3.16	110	20	10
Fluorite	BC-74-30	.20	.08	43.07	20	70	110

Granite	A16-5000	.03	.01	.04	50	20	30
Granite	A16-5001	.37	.02	.05	50	20	20
Aplite	A16-5002	.02	.01	.20	140	30	30

The mineralizing solutions which deposited the fluorite are of magmatic origin, representing the final stage, or hydrothermal phase of the intrusion's differentiation history.

The fluorite at this locality is of a high quality, containing few impurities, but the veins exposed are of insufficient width to be of commercial interest at the present time. It is believed that this showing has sufficient merit to warrant additional exploratory work, with particular attention being paid to the buff to red coloured aplite.

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(40) LOWER BURLINGTON

U.T.M.G. - N-499311
E-41053

N.T.S. - 21H/1A (1:50,000)

This barite occurrence is located immediately north of Highway 215, on Cabin Brook at Lower Burlington (Fig. 108, and 123).

In 1945, Maritime Exploration Ltd. undertook an exploratory program for barite which included trenching and 512 feet of diamond drilling. This uncovered a 10 foot vein of barite in shaly limestone, which shows replacement by barite on both walls of the barite vein. Diamond-drill holes 3 and 4 (located approximately 105 feet southwest of trench 6) failed to cut massive barite and bottomed in Horton sediments.

Geophysical surveys were carried out over the area by the Nova Scotia Research Foundation in 1956 and 1957; however, no significant anomalies were indicated.

No further work was undertaken here until 1961 when the Consolidated Mining and Smelting Company of Canada Limited carried out a geochemistry program for barite and sulphides. Results proved discouraging however.

The most recent investigations were conducted in 1964 and 1965, when Magnet Cove Barium Corporation Limited completed 2,979 feet of diamond drilling in 10 holes ranging in depth from 117 feet to 1,073 feet. Only two holes, L.B. 64-6 and L.B. 64-8 intersected barite.

The barite is found in marine carbonate and clastic rocks of the Windsor Group, which forms part of the west boundary of the Minas Sub-basin. Outcrop is scarce in the district, with karst topography delineating the areas underlain by evaporites. This region has undergone extensive deformation during the Maritime Disturbance and to a lesser extent during the Palisades Disturbance.

Trench information obtained in 1945 by Maritime Exploration Limited indicate the host rock to be a grey, shaly limestone with an attitude ranging from 045°/60° SE

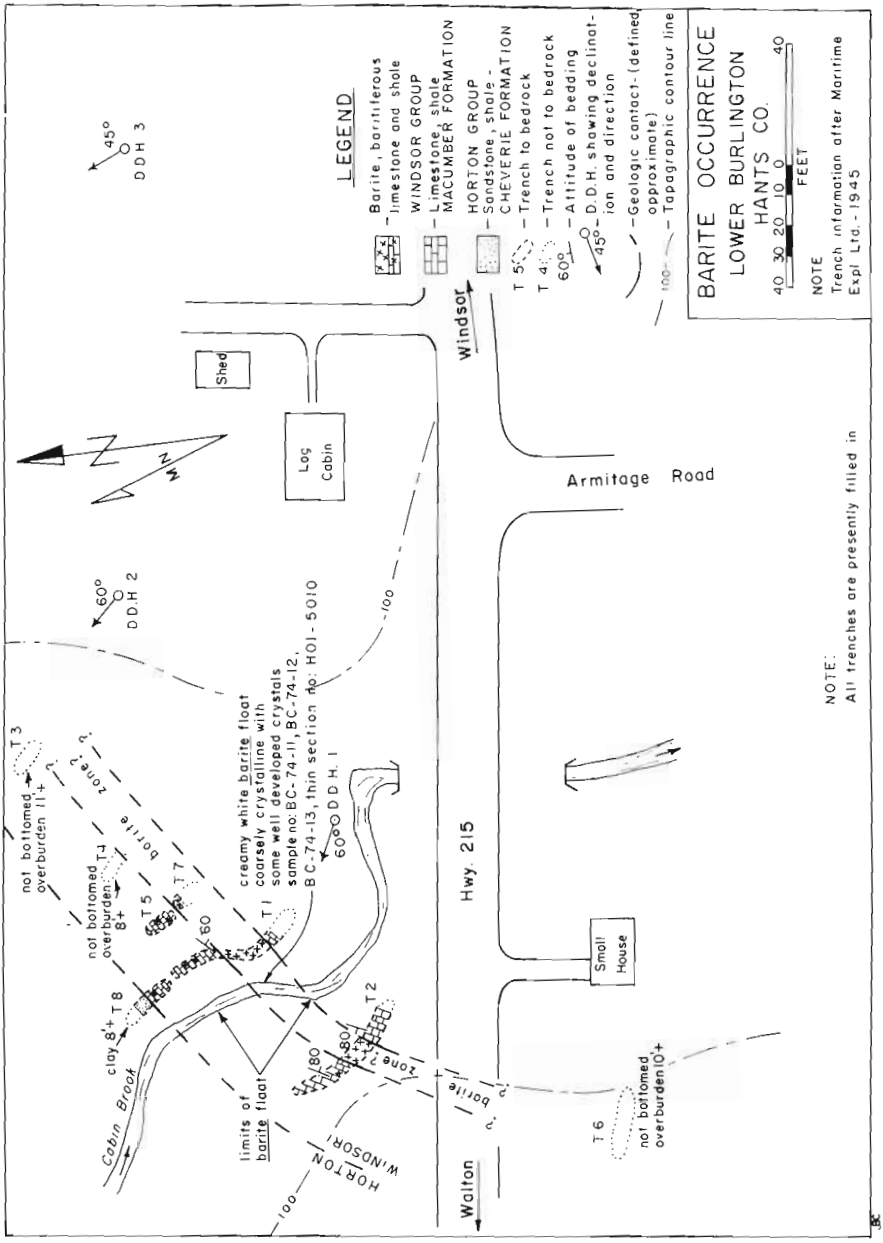
LEGEND
Barite, barriferous limestone and shale
WINDSOR GROUP
Limestone, shale
MACUMBER FORMATION
HORTON GROUP
Sandstone, shale - CHEVERIE FORMATION
Trench to bedrock
Trench not to bedrock
Attitude of bedding
D.D.H. showing declination and direction
Geologic contact - (defined approximate)
Topographic contour line
BARITE OCCURRENCE
LOWER BURLINGTON
HANTS CO.
40 30 20 10 0 40
FEET
NOTE
Trench information after Maritime Expl Ltd. - 1945
NOTE:
All trenches are presently filled in
Windsor
Armitage Road
Hwy. 215
Walton
Shed
Log Cabin
Small House
Cabin Brook
HORTON WINDSOR
creamy white barite float coarsely crystalline with some well developed crystals sample no: BC-74-11, BC-74-12, BC-74-13, thin section no: H01-5010
limits of barite float
not bottomed overburden 11+
not bottomed overburden 8+
clay 8+
not bottomed overburden 10+
DDH 1
DDH 2
DDH 3
T1
T2
T3
T4
T5
T6
T7
T8
45°
60°
80°
100
NW

Figure 123

to 030°/80° SE. Chemical analysis and microscopic examination of the barite also indicates shale to be a host of the barite. The limestone and shale is part of the Macumber Formation, Windsor Group and directly overlies sandstone of the Horton Group.

There are no outcrops in the prospect area though the barite can be found as float in Cabin Brook. Reports by the above mentioned companies suggest the mineralization to have been essentially structurally controlled, with barite occupying a cavity which appears to be concordant with the enclosing host rock. Some replacement of the host rock by barite has taken place, however the extent of the replacement is not known (Fig. 124). The iron oxides post-date the barite, filling small hairline fractures in the baritiferous shale, replacing the shale and filling spaces between barite grain boundaries.

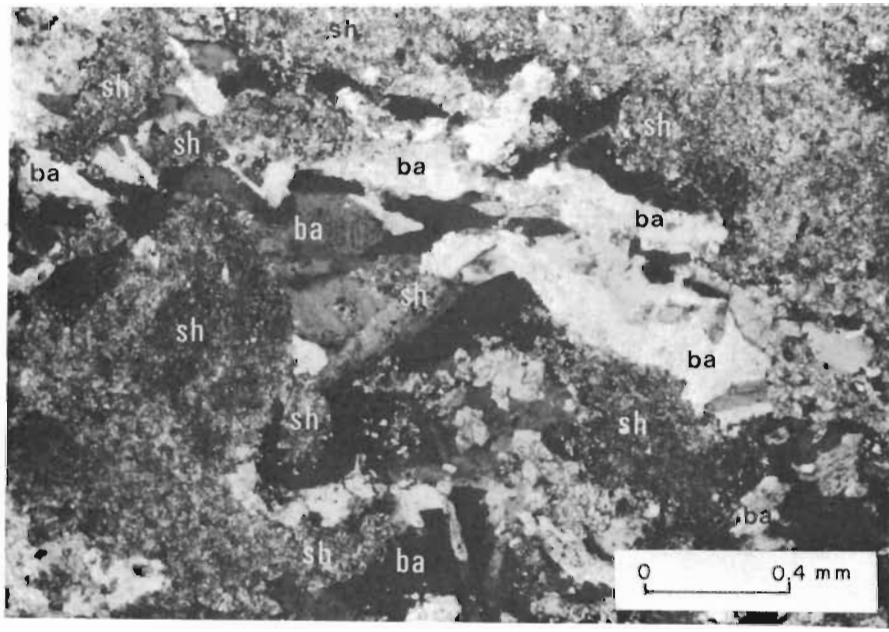

Figure 124 - Lower Burlington. Barite replacing shale. Note the embayed and relict nature of the shale. Crossed Nicols, ba - barite, sh - shale.

The barite is white in colour, generally coarsely crystalline, and often displays a bladed habit. However, where replacement has taken place, it is somewhat finer grained. The only other minerals associated with the barite are iron oxides (probably hematite and/or limonite) which occur in very small quantities (less than one per cent).

Grab samples were collected from the barite float in the stream bed and submitted for chemical analysis. The sample locations are shown in Figure 123, and the results of the chemical analyses are found below in appendix III.

Rock Type	Sample No.	Per cent			ppm		
		$BaSO_4$	$SrSO_4$	F	Cu	Pb	Zn
Barite, shale	BC-74-11	67.10	1.70	.05	10	30	20
Barite	BC-74-12	95.70	2.01	.04	10	10	10
Barite, shale	BC-74-13	75.90	2.09	.04	10	20	30

Lack of outcrop in the area would restrict future investigations primarily to diamond drilling.

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(41) VAUGHAN-LEMINSTER ROAD

U.T.M.G. - N-496436
E-49961

N.T.S. - 21A/16B (150,000)

This fluorite occurrence is situated in a road cut on the southeast side of the highway, 2.36 miles southwest of Highway 14 at Vaughan (Fig. 120).

No reported exploration work for fluorite has been conducted in this area.

The host rock is a pink-red, fine to medium-grained aplite, belonging to the New Ross-Vaughan Complex (MacKenzie, 1974) of the South Mountain Batholith (Devonian Age). This host rock is petrologically very similar to that hosting the majority of the fluorite at Leminster.

The fluorite here is of a minor nature, filling small fractures and lining joint planes that have a near vertical dip and strike in a northeasterly direction. The fluorite veins generally do not exceed 1/8 inch in thickness though 290 feet east of the southwestern most tip of the outcrop, a vein attains a thickness of 1/2 inch. Northeast of this vein, very little fluorite was observed.

The fluorite is deep to pale purple in colour and has a medium to coarse-grained crystalline texture. No associated minerals were noted in hand specimen.

Two grab samples were collected from the mineralized zones and chemically analysed. The sample locations are indicated on Figure 120, 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
Aplite, fluorite	BC-74-33	.24	.03	3.06	60	20	30
Aplite, fluorite	BC-74-34	.25	.04	5.03	64	13	79

The fluorite probably represents the hydrothermal phase of the intrusive's emplacement history.

The fluorite at this showing occurs in insufficient quantities to be of commercial interest at the present time. However, the similarity in host rock to that of the Leminster deposits renders this an interesting occurrence. Because of this similarity, it is believed that further prospecting is warranted in this area.

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(42) WALTON (SHAW AND CHURCHILL MINE)

U.T.M.G. - N-500843
E-42103

N.T.S. - 21H/1D (1:50,000)

The barite at this locality is referred to as the "Shaw and Churchill Mine" occurrence, although in reality it is found approximately 125 feet north of the old open cut which formed the workings of this mine. The occurrence can be seen at low tide, 100 feet southeast of the bridge crossing the Walton River, on the southeast bank of the river (Fig. 112).

No work has been carried out on the barite deposit but the "Shaw and Churchill Mine" has a lengthy history dating back to 1881. This mine is reported to have produced a minor tonnage (250 tons) of chemical grade manganese ore. Descriptions of varying detail of these workings have been given by Willimott (1884), Penrose (1891), Fletcher (1894), Smitheringale (1928), Messervey (1931), Hanson (1932), Boyle (1972), and Bishop and Wright (1974).

The showing is situated in carbonate rocks of the Windsor Group, which forms part of the northwest boundary of the Minas Sub-basin. This group is underlain by terriginous clastic sedimentary rocks of the Horton Group and unconformably overlain by clastic sedimentary rocks of the Wolfville Formation. The Wolfville Formation crops out along the shore of the Minas Basin approximately 1.5 to 2 miles north of the showing. The Horton and Windsor Groups are strongly deformed, exhibiting tight folds and numerous east, northwest and northeast striking faults.

This deformation is primarily a result of the Maritime Disturbance and to a lesser extent the Palisades Disturbance. The Wolfville Formation is relatively undisturbed in this area.

The host rock is a reddish brown, fine-grained, arenaceous limestone of the Macumber Formation (Windsor Group), which strikes 095° AZ and dips 55° S. This limestone is approximately 20 feet thick and is overlain

by limestone conglomerate of the Pembroke Formation (Windsor Group).

The mineralization was structurally controlled, with the barite occupying small, discontinuous fractures and brecciated zones. The veins strike in an east-west direction, are generally steeply dipping and attain a maximum width of 1.5 inches. These fractures and contortions in the host rock are probably related to the northwest striking fault which traverses the area immediately southwest of the barite occurrence.

The barite is for the most part coarsely crystalline and creamy white in colour. Associated minerals include manganese oxides (pyrolusite and manganite), calcite and hematite.

One sample of the mineralized zone was collected and chemically analysed. The sample location is shown on Figure 112, 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, limestone	BC-74-46	47.00	.98	.06	40	20	30

The barite at this locality is of academic interest only. The limited size of the veins and the lack of replacement of the wall rock by barite would preclude this occurrence as a possible prospect.

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(43) WHEATON BROOK

U.T.M.G. - N-500733
E-41917

N.T.S. - 21H/1D (1:50,000)

The barite showing is situated 360 feet southeast of the gravel road leading to Dresser Minerals Ltd., and 0.45 mile southwest of Highway 215 at Pembroke (Fig. 112 and 125).

No records were located concerning the date and purpose of the sinking of a small shaft at this location. However, in view of the fact that other such old slumped shafts and pits in the Walton-Cheverie area were for the mining of manganese oxides, it is quite likely that this one was for that purpose also.

Regionally, this showing is situated in carbonate rocks of the Windsor Group which form part of the northwest boundary of the Minas Sub-basin. These rocks overlie terriginous clastic sedimentary rocks of the Horton Group which crop out to the north and west of the showing. Both the Horton and Windsor Groups are unconformably overlain by terriginous clastic sedimentary rocks of the Wolfville Formation. The Horton-Windsor Groups are severely deformed, exhibiting tight folds and numerous east, northwest and northeast striking faults. The Wolfville Formation, which crops out to the north and west along the shore of the Minas Basin, shows moderate deformation, the faults striking in a northeasterly direction.

Very little outcrop can be found in the prospect area; the only exposure occurring on a small rise which forms a short northeast trending ridge above the surrounding bog. The outcrop is composed of a red-brown limestone conglomerate of the Pembroke Formation of the A-Subzone, Windsor Group. The red-brown colour is apparently due to the presence of hematite. Numerous, small irregular fractures are filled with maganite, calcite and possibly barite.

Grab samples were collected from what was believed to be barite associated with manganite, calcite

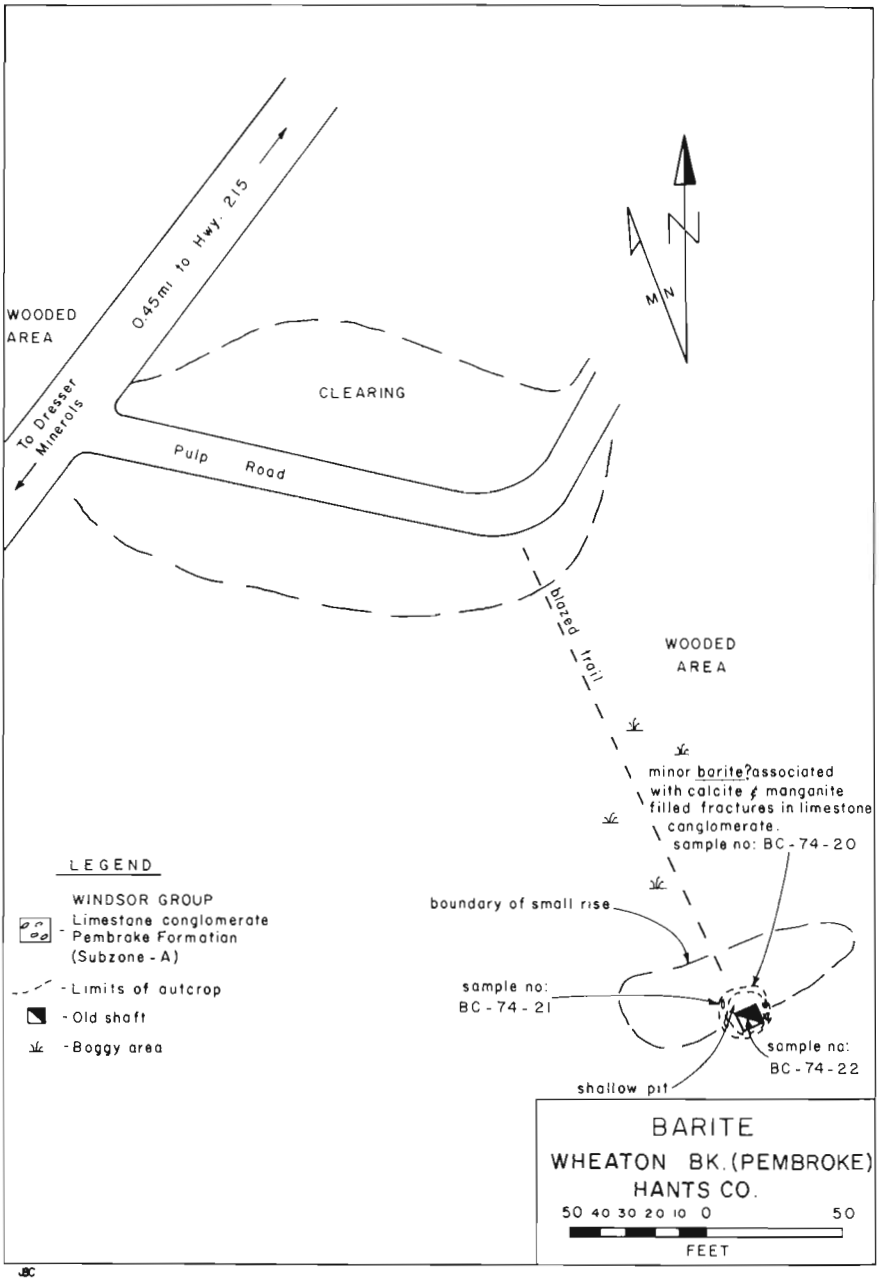
0.45mi to Hwy. 215
WOODED AREA
To Dresser Minerals
CLEARING
Pulp Road
blazed trail
WOODED AREA
minor barite? associated with calcite & manganite filled fractures in limestone conglomerate.
sample no: BC-74-20
boundary of small rise
sample no: BC-74-21
sample no: BC-74-22
shallow pit
LEGEND
WINDSOR GROUP
Limestone conglomerate
Pembroke Formation
(Subzone-A)
- Limits of outcrop
- Old shaft
- Boggy area
BARITE
WHEATON BK. (PEMBROKE)
HANTS CO.
50 40 30 20 10 0 50
FEET
JBC

Figure 125

and hematite, and submitted for chemical analysis. The chemical analyses did not confirm the presence of barite. The sample locations are indicated on Figure 125, and the analytical results are listed below and in appendix III. Also found below are the results of chemical analysis of a sample taken from this showing by D. Bishop (1974).

Rock Type	Sample No.	Per cent $BaSO_4$	Per cent $SrSO_4$	Per cent F	ppm Cu	ppm Pb	ppm Zn
Limestone conglomerate	BC-74-20	.17	.08	.03	10	80	20
Limestone conglomerate	BC-74-21	.05	.07	.10	10	80	10
Limestone conglomerate	BC-74-22	.03	.07	.10	10	80	10

Chemical Analysis of samples taken by D. Bishop (1974):

Rock Type	Sample No.	Per cent Cu	Per cent Pb	Per cent Zn	Per cent Ba
Limestone, barite	BHS-35-67	.004	.03	.003	8.0

Exploratory work conducted in the past by the various operators of the Pembroke barite mine (presently Dresser Minerals Ltd.) proved unsuccessful in uncovering any barite at this prospect.

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(44) WHITE HEAD (Cheverie Creek)

U.T.M.G. - N-500093
E-40741

N.T.S. - 21H/1D (1:50,000)

This occurrence is found on the Minas Basin shore at White Head, northeast of the church at Cheverie, and can only be seen at low tide. White Head appears as conspicuous white cliffs of gypsum and anhydrite that rise 30 to 50 feet vertically from the intertidal flats (Fig. 108).

No reported exploration work for fluorite or celestite has been carried out at this location. Fluorite was first noted here by Goodman (1952), and celestite by Sabina (1964).

The showing is hosted by marine evaporites of the Windsor Group, underlain by terriginous clastic sedimentary rocks of the Horton Group. Extensive deformation in the form of tight folds, and east, northwest and northeast striking faults is evident in the surrounding area. These structural features are principally a result of movements associated with the Maritime Disturbance, and to a lesser degree movements accompanying the Palisades Disturbance (Boyle, 1972).

The host rock is a highly contorted gypsum and anhydrite, of the A-Subzone, Windsor Group. The gypsum occurs in a variety of colours including white, black (due to bitumen and carbonaceous material), grey, orange and transparent. This outcrop is bounded on the north and the south by two steeply dipping, east-west trending faults. These faults are responsible for the contorting of the incompetent gypsum and anhydrite beds.

The mineralization was structurally controlled, with minerals primarily occupying small irregular fractures (1/4-1/2 inch in width) and small vugs.

The fluorite is coarsely crystalline, with occasional small, well developed cubic crystals, and is transparent to purple in colour. Closely associated minerals are calcite and gypsum.

No celestite was observed though Boyle (1972, p. 103) gives the following description of celestite encountered during the course of his studies in this area:

> "Celestite, $SrSO_4$, is rare in the area and has been observed in only a few faults and fractures in or near the gypsum and anhydrite beds. One good occurrence is found in a large fault and gouge zone along the shore just north of the church at Cheverie. There the gouge zone contains numerous stringers and veinlets of fibrous orange gypsum. The celestite, a limpid blue, occurs in the fibrous gypsum as myriad small fibrous bundles oriented parallel with those of gypsum.
>
> "The celestite does not fluoresce."

Grab samples were collected from the host rock (white gypsum), the mineralized zone and the orange fibrous gypsum, and submitted for chemical analysis. The locations sampled are shown on Figure 108, 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
Gypsum (white)	H01-5000	.01	.29	.06	10	40	20
Gypsum, minor fluorite, calcite	H01-5001	.02	.63	4.70	10	50	20
Gypsum (orange)	H01-5003	.20	.16	.04	10	40	20

The fluorite at this locality occurs in such small quantities that it is of academic interest only. It is not uncommon to find such veinlets in evaporite sequences, hence they cannot be considered as indicators of larger quantities of fluorite.

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(138) SUMMERVILLE WHARF

U.T.M.G. - N-499372
E-40780

N.T.S. - 21-H/1-A (1:50,000)

This barite occurrence is located on the east bank of the Avon River, approximately 750 feet east of the Summerville Wharf. The barite can be seen in situ in a small quarry, (40' long, 15-20' wide, 10-20' deep) from which rock was taken to build the Summerville Wharf (Fig. 108 and 126). Large blocks of quartz sandstone and baritiferous quartz sandstone are found on the shore immediately before the pit.

This is a new showing recently discovered by M. Stewart, and was brought to the writer's attention by A. Hudgins (MEX).

The showing is situated in terriginous clastic sedimentary rocks which form part of the Cheverie Formation, Horton Group (Early Carboniferous Age) in this area. These rocks are fault bound to the south by marine limestone, sandstone, siltstone, shale, and gypsum which form a portion of the Lower Windsor Group (Early Carboniferous age) here. The east trending fault separating the Cheverie Formation from the Lower Windsor Group also truncates a northwest trending fault located to the southwest of the barite showing (Crosby, 1962). Both faults are thrust faults; the younger Windsor Group rocks downfaulted relative to the older Cheverie Formation. Movement along these faults probably accompanied the Maritime Disturbance (Late Carboniferous-Permian Age) and the Palisades Disturbance (Late Triassic - Early Jurassic age), both of which are known to have played a major role in producing the structural complexity evident in the Carboniferous rocks in this region.

The host rock is a medium grained, well sorted, porous quartz sandstone. This rock is white, cream-white and light grey in colour when fresh, however it weathers to buff, and light brown. It is generally quite massive, rendering it difficult to obtain an accurate attitude. However, it appears to be striking in an easterly direction and dipping 10° to 15° towards the south.

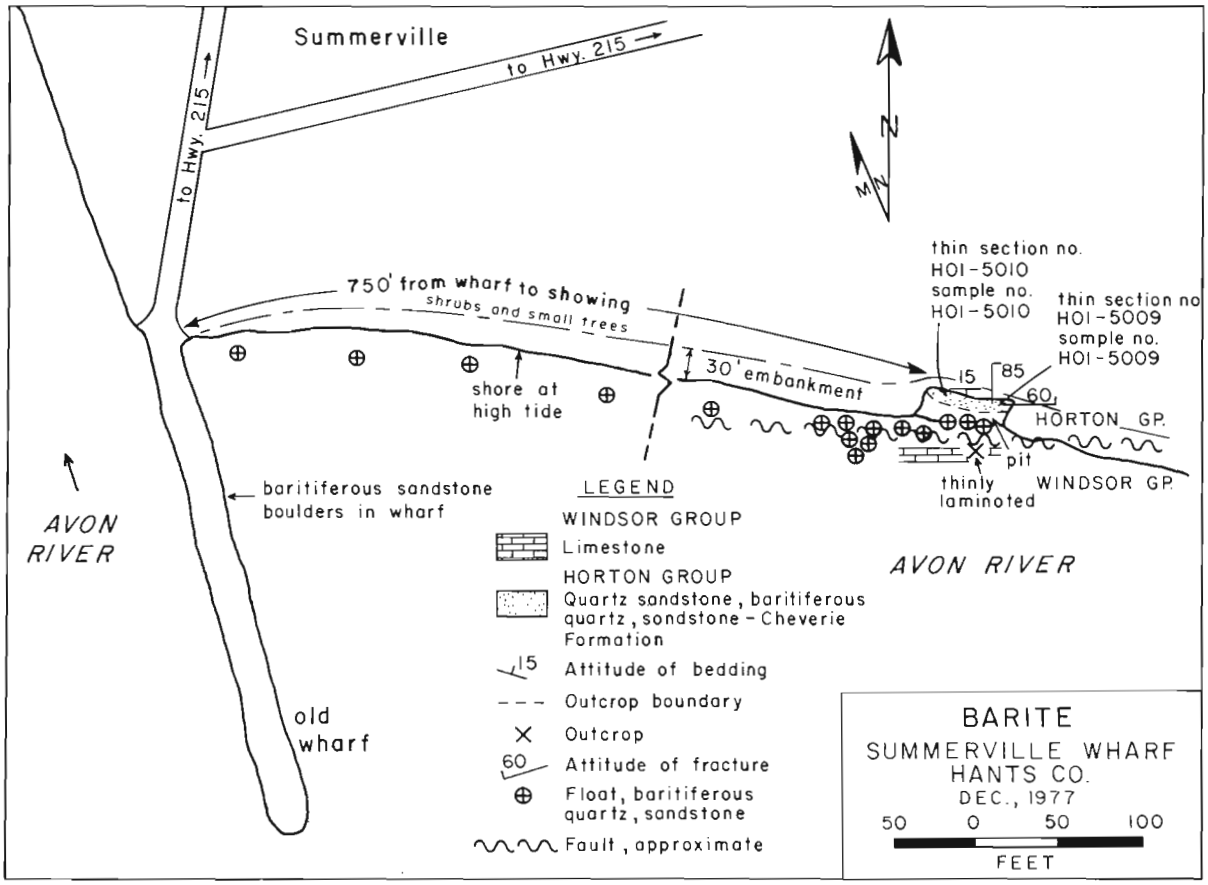
Summerville
to Hwy. 215
to Hwy. 215
N
750' from wharf to showing
shrubs and small trees
30' embankment
shore at high tide
thin section no. HOI-5010
sample no. HOI-5010
thin section no HOI-5009
sample no. HOI-5009
15
85
60
HORTON GP.
pit
thinly laminoted
WINDSOR GP.
baritiferous sandstone boulders in wharf
AVON RIVER
AVON RIVER
old wharf
LEGEND
WINDSOR GROUP
Limestone
HORTON GROUP
Quartz sandstone, baritiferous quartz, sondstone - Cheverie Formation
15 Attitude of bedding
Outcrop boundary
Outcrop
60 Attitude of fracture
Float, baritiferous quartz, sandstone
Fault, approximate
BARITE
SUMMERVILLE WHARF
HANTS CO.
DEC., 1977
50 0 50 100
FEET
P.G.B.

Figure 126

Portions of the outcrop exhibit grey-brown banding apparently due to concentrations of opaque minerals. These minerals include hematite (approximately 2-5 per cent), magnetite (approximately 0.5 per cent), biotite (<0.5 per cent), and galena (<0.5 per cent). In most instances the hematite is strongly altered to limonite, which in many places has been almost completely weathered out, leaving behind a very porous quartz sandstone. This sandstone unit is generally lacking in matrix, however in the instances where it was observed, it consisted primarily of fine grained quartz and to a much lesser extent, feldspar and magnetite. The rock types stratigraphically above and below this sandstone unit were not observed.

The mineralization was both structurally and stratigraphically controlled. Barite is found interstitially in a quartz sandstone unit over a stratigraphic thickness of six to eight feet, and can be traced along strike for approximately 40 feet. This baritiferous quartz sandstone is characterized by subrounded to subangular quartz clasts, a general lack of matrix, and barite cement filling pore spaces. Thin section (No. H01-5010) examination indicates that some replacement of the quartz grains has taken place, indicated by small areas containing relict quartz grains embayed by barite (Fig. 127). For the most part though, the quartz clasts show little evidence of replacement, suggesting that the barite has filled open spaces in what must have been a poorly indurated, porous, and permeable quartz sandstone. Although a detailed examination of this outcrop exposure was not undertaken, the barite content was observed to be quite variable, probably ranging as low as 10 per cent in some sections. The higher values appear to be associated with sections exhibiting the most veining. There was no sharp contact observed between what appeared (in outcrop and hand specimen) to be non-baritiferous and baritiferous sandstone.

Structural control of the barite is indicated where it occurs as fracture fillings which cut the baritiferous quartz sandstone in a random manner. These veins generally range from 0.5 inch to 1.0 inch in thickness, and in themselves do not contribute significantly to the overall quantity of barite at this showing. It is the writer's opinion however, that these barite filled fractures represent channel ways which rendered the porous quartz sandstone more readily accessible to the mineralizing solution through increased permeability.

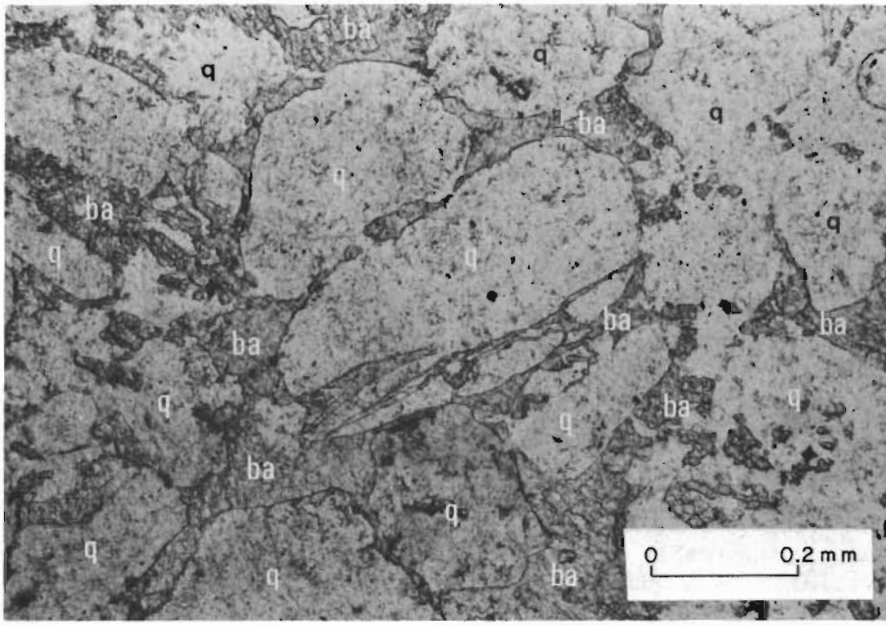

Figure 127 - Summerville Wharf. Barite Cemented quartz sandstone. Minor replacement of the quartz clasts has taken place. Plane polarized light, ba - barite, q - quartz.

The barite occurring as interstitial cement in the quartz sandstone is translucent to white in colour and fine grained. In addition to the opaque minerals mentioned previously, the only other mineral present is calcite, which occurs in quantities ranging from 1-3%. Like the barite, the calcite occurs as interstitial cement, however the relationship between these two minerals was not readily apparent - i.e. no features suggesting replacement of one by the other was observed. The barite in the veins is generally coarsely crystalline, translucent to white in colour, and relatively free from impurities.

Two grab samples were collected from the mineralized zone and submitted for chemical analysis. One sample (No. H01-5010) consisted of barite cemented quartz sandstone, and the other (No. H01-5009) consisted of barite cemented quartz sandstone containing a small barite vein. The results of the chemical analyses are listed below.

Rock Type	Sample No.	Per cent $BaSO_4$	Per cent $SrSO_4$	Per cent F	Per cent Cu	ppm Pb	ppm Zn
Baritiferous quartz sandstone with barite vein	H01-5009	77.42	.84	.02	6	1240	2

Per cent Al	Per cent Fe	Per cent Ca	Per cent SiO_2	Per cent Mn	Per cent L.O.I.
.07	1.56	.58	18.22	.003	.76

Rock Type	Sample No.	Per cent $BaSO_4$	Per cent $SrSO_4$	Per cent F	Per cent Cu	ppm Pb	ppm Zn
Baritiferous quartz sandstone	H01-5010	53.26	.82	.02	14	680	2

Per cent Al	Per cent Fe	Per cent Ca	Per cent SiO_2	Per cent Mn	Per cent L.O.I.
.14	2.16	.18	41.32	.037	-

This occurrence shows potential for a large, low grade barite deposit. Additional work is warranted to determine its extent. If beneficiation can adequately separate the barite and silica, the latter mineral could possibly contribute to the favourable economics of this deposit.

Equivalent rock units of similar lithology elsewhere in the Minas Basin area would also be worthy of attention. There is a possibility that the sandstone unit hosting the barite at this showing is equivalent to the "Glass Sand" unit described by Murray (1960), Hanshaw (1952), and Goudge (1949). Bell (1929), also places a quartzite bed at the base of the A Subzone (Windsor Group) near Cheverie on the Avon River. Further study is required to determine the possible significance of this bed to potential barite deposits.

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