(25) BECKWITH

U.T.M.G. - N-507418
E-43671

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

This celestite prospect is found on Dickson Brook, approximately 3,200 feet south of the barn on the Sonny Tower Farm which is located at Beckwith, approximately 3.6 miles southwest of Highway 6 at Port Howe (Fig. 82 and 83).

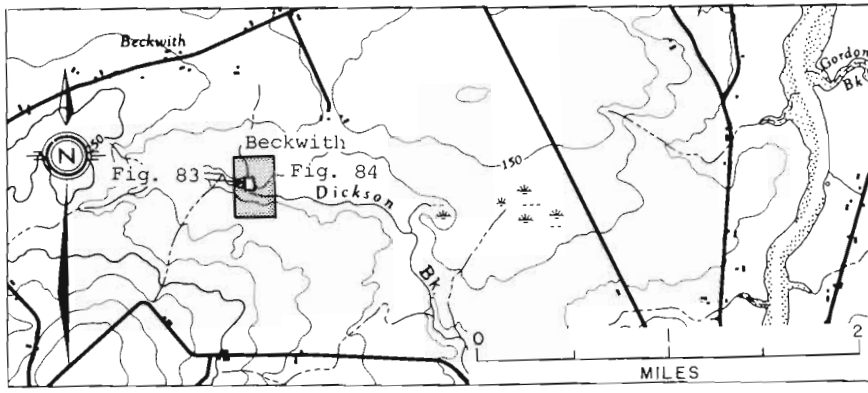

Figure 82

The earliest work on this occurrence appears to have been carried out some time prior to 1911 when a Mr. H. G. Elliot discovered what he believed to be barite cropping out of Dickson Brook. A 27 foot vertical shaft was sunk on the north bank of the stream, as well as a number of small test holes. The prospect was then abandoned until 1941 when C. O. Campbell undertook exploratory work for Springer Sturgeon Gold Mines Limited.

Mr. Campbell's work included dewatering of the old shaft, digging of five trenches in the nearby vicinity of the shaft, and studying the geology in the surrounding area. This work proved a 12 inch vein of celestite striking 016° azimuth, dipping 65° west, and bound on the hanging wall and footwall by dark brown sandstone and calcareous blue clay respectively. Trench number one was

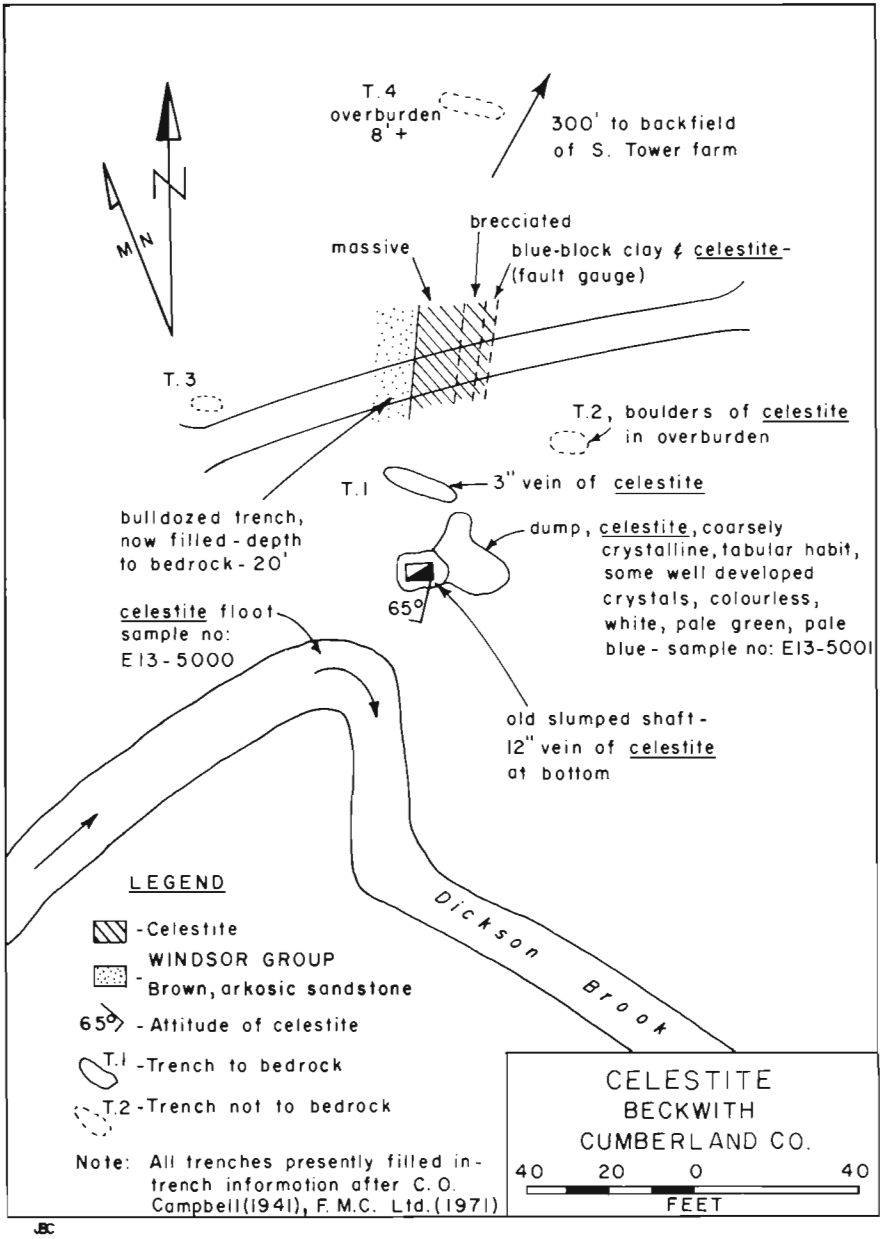
T.4
overburden
8'+
300' to backfield
of S. Tower farm
M
N
massive
brecciated
blue-block clay & celestite-
(fault gauge)
T.3
T.2, boulders of celestite
in overburden
T.1
3" vein of celestite
bulldozed trench,
now filled - depth
to bedrock - 20'
dump, celestite, coarsely
crystalline, tabular habit,
some well developed
crystals, colourless,
white, pale green, pale
blue - sample no: E13-5001
celestite float
sample no:
E13-5000
65°
old slumped shaft -
12" vein of celestite
at bottom
LEGEND
-Celestite
WINDSOR GROUP
- Brown, arkosic sandstone
65° - Attitude of celestite
T.1 -Trench to bedrock
T.2 -Trench not to bedrock
Note: All trenches presently filled in-
trench information after C. O.
Campbell(1941), F.M.C. Ltd.(1971)
Dickson Brook
CELESTITE
BECKWITH
CUMBERLAND CO.
40 20 0 40
FEET
JBC

Figure 83

the only trench to reach bedrock and encountered only a three inch vein of celestite (Fig. 83). Outcrop was found to be very sparse in the area, with only a few small exposures of sandstone evident in the stream beds.

The next work conducted here was by F. M. C. Corporation in 1969. A trench was bulldozed to bedrock across strike apparently revealing a high grade vein of celestite, 15 feet in width, striking north and dipping 50-75° west, under a 20 foot cover of overburden. The trench has since been filled in.

The following year the same company undertook a gravity survey (residual and bouger), a hammer seismograph survey, a differential induced polarization survey, 5,349 feet of rotary drilling (42 holes), and 3,159 feet of diamond drilling (36 holes). A plan showing the locations of these drillholes is found in Figure 84 and pertinent diamond-drill information is given in Table 9. The geophysical work marked a north-south trending gravity feature coincident with the strike of the celestite vein. Drilling indicated the vein to be discontinuous and the host rocks to be structurally complex. It has also been suggested by this company that the major structural features are related to salt piercement structures.

The celestite was not observed in situ as no outcrops are to be found in the immediate vicinity of the shaft; however, specimens found in the small dump and in the stream were examined.

The general lack of outcrop renders it difficult to comment on the nature of the celestite and the host rock. However, company reports indicate the celestite-bearing rock occupies a north-south trending fault zone, and thus is structurally controlled. The presence of celestite fragments in fault gouge and the disruptions of the celestite vein along strike suggests post-ore faulting.

In the immediate vicinity of the shaft, the host rock differs lithologically on the footwall and the hangingwall. Drillhole information indicates that the celestite-bearing fault gouge on the footwall of the vein is in contact with red-green, calcareous, mottled shale, evidently of the Windsor Group (Early Carboniferous age). However, on the hangingwall, the rock is reported to consist chiefly of fine to medium-grained red-green (arkosic) sandstone, red-green siltstone and minor mottled

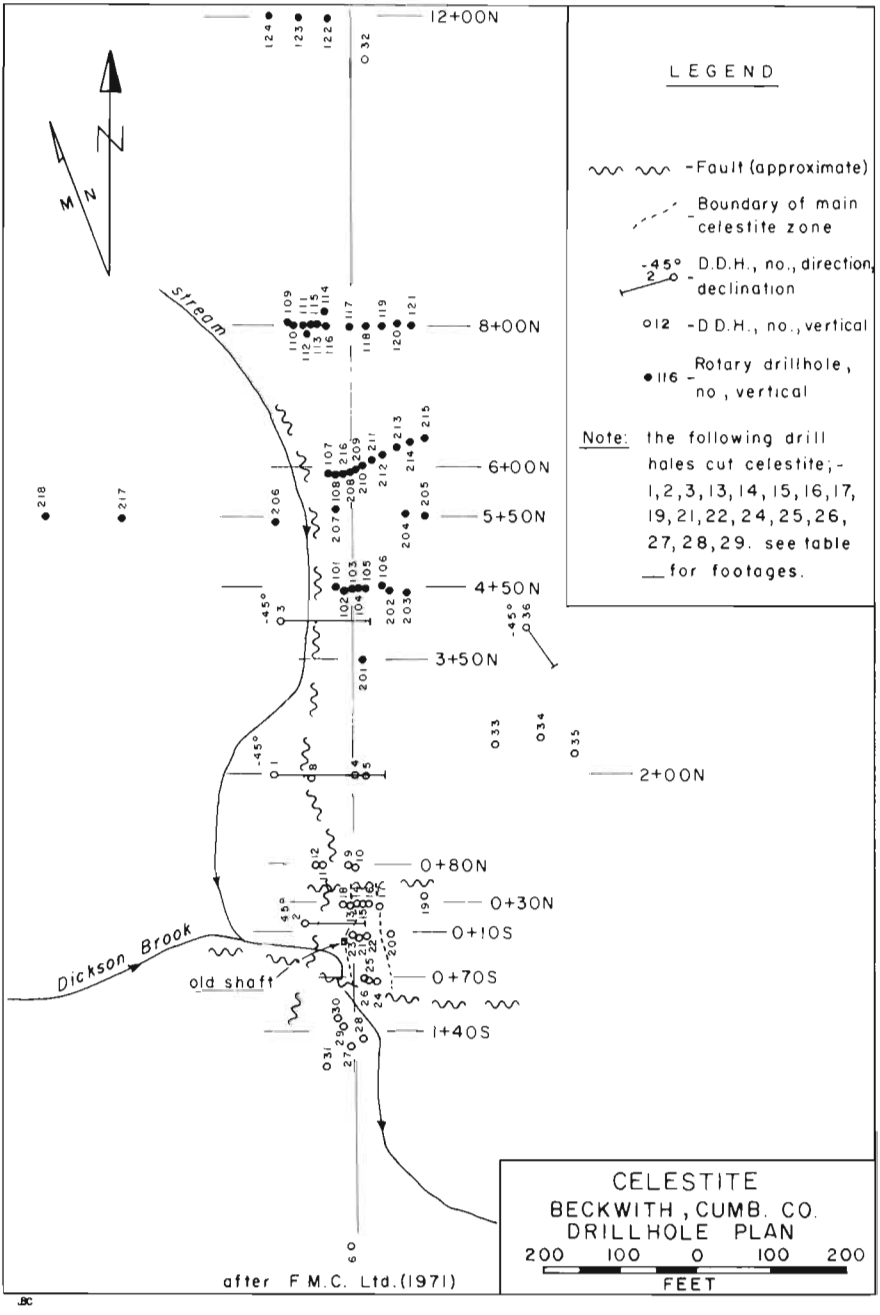
LEGEND
-Fault (approximate)
-Boundary of main celestite zone
-45° 2 - D.D.H., no., direction, declination
012 - D.D.H., no., vertical
116 - Rotary drillhole, no, vertical
Note: the following drill holes cut celestite;- 1,2,3,13,14,15,16,17, 19,21,22,24,25,26, 27,28,29. see table for footages.
12+00N
8+00N
6+00N
5+50N
4+50N
3+50N
2+00N
0+80N
0+30N
0+10S
0+70S
1+40S
stream
Dickson Brook
old shaft
M
N
CELESTITE
BECKWITH, CUMB. CO.
DRILLHOLE PLAN
200 100 0 100 200
FEET
after F.M.C. Ltd.(1971)

Figure 84

TABLE 9

PERTINENT DIAMOND-DRILL HOLE INFORMATION

DIAMOND DRILL HOLE NUMBER	CELESTITE ZONE (FEET) FROM	TO	TOTAL DEPTH (FEET)
D.D.H. - 1	161	165	204
D.D.H. - 2	65	68	93
D.D.H. - 3	127	128	
	130	130.5	
	135	136	176
D.D.H. - 13	3	7	23
D.D.H. - 14	13	20.5	40
D.D.H. - 15	11	28	37
D.D.H. - 16	10	11	
	12	13	
	17	32	43
D.D.H. - 17	16	18	
	19.5	34	75
D.D.H. - 19	31	31.4	55
D.D.H. - 21	12	19	
	22	30	
	33.5	37	53
D.D.H. - 22	8	26	
	28	28.7	
	31	31.4	43
D.D.H. - 24	5	25	53
D.D.H. - 25	12	20	
	41	41.5	64
D.D.H. - 26	20	40	90
D.D.H. - 27	34	58	106
D.D.H. - 28	47	53	94
D.D.H. - 29	35	37	93

shale, thought to be part of the Pictou or Cumberland Group (Late Carboniferous age). It is not entirely certain that these are Late Carboniferous age sediments. Diamond-drill hole 1 is located in an area designated by Bell (G.S.C. Map Sheet 842-A) to be underlain by rocks of the Cumberland Group; yet the hole cut through siltstone, interbedded gypsum and shale, celestite and minor sandstone. These rocks would appear to be more typical of the Windsor Group, rather than the Cumberland Group. Although not confirmed by the writer, sink holes are reported to exist in the area east of the shaft. If this is indeed the case, it would seem that this area is underlain by Windsor Group evaporites rather than Cumberland Group clastic sedimentary rocks. It is also interesting to note that all the drillholes north of D.D.H. 10 cut gypsum and anhydrite in various amounts.

The celestite ranges in colour from translucent pale green, celestial blue, cream to transparent, and is very coarsely crystalline with a tabular habit, often occurring in well developed orthorhombic crystals up to one inch in size. No other minerals were noted with the celestite although it is reported that minor amounts of galena, calcite and barite are associated with it.

Grab samples of the celestite float were collected and submitted for chemical analysis. The sample locations are shown on Figure 83, 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
Celestite	E13-5000	2.75	86.00	.03	20	30	50
Celestite	E13-5001	2.20	89.00	.03	10	750	30

Before any further exploratory drilling is carried out here, it would be prudent to relog all the drillholes. The lack of outcrop in the surrounding area renders the solving of the structural complexities suggested by the drilling to date difficult. The proving of additional celestite will be dependent upon the determination of fault movements.

Bibliography:

Campbell, C. O.
1941: Report on celestite prospect, Beckwith, Cumberland County, to Springer Sturgeon Gold Mines Limited; N. S. Dept. Mines assessment file 11E/13B 48-E-03(01).

Hudgins, A. D.
1970: Exploration surveys Beckwith celestite property, Cumberland County, N. S., for Lura Corp.; N. S. Dept. Mines assessment file 11E/13B 48-E-03(05).

Jones, B. E.
1969: Beckwith celestite prospect, report to F.M.C. Corp.; N. S. Dept. Mines assessment file 11E/13B 48-E-03(03).

1969: Gravity survey at Beckwith, Cumberland Co., for F.M.C. Corp., by Nova Scotia Research Foundation; N. S. Dept. Mines assessment file 11E/13B 48-E-03(02).

(26) BROOKDALE

U.T.M.G. - N-507108
E-41068

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

This occurrence is found in an old manganese pit on the farm of F. Crawford Kinnear, which is located at Brookdale, approximately three miles southeast of Amherst on Highway 204. The pit has been dug into the side of a hill, 50 feet south of the farmhouse. It is approximately 30 feet wide, 40 feet long and is partially filled with water, 15 to 20 feet deep (Fig. 85).

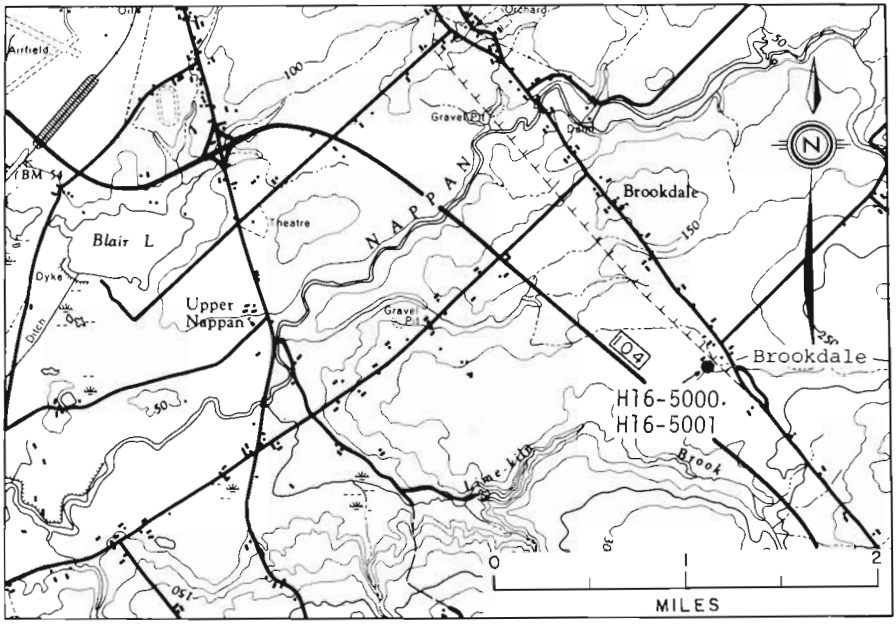

Figure 85

This area has been worked in the past for the purpose of removing manganese oxides and lime. Reports indicate that some 60 tons of good manganese ore were extracted at the turn of the century. There are no reports stating the amount of lime produced here though the size of the workings would suggest that the operations were only carried out on a small scale.

The owner of the farm stated that underneath the farmhouse there is a shaft and a drift from which manganese ore had possibly been removed in the past. These underground workings were not investigated however, and therefore cannot be confirmed.

The old limestone workings south of the farmhouse are presently partially filled with refuse.

In 1957 an electromagnetic survey was carried out over the area by W. Tingley & Associates. This work outlined a weak conductor striking northeast, just south of the pit. Diamond drilling was recommended by this firm but was not embarked upon.

Regionally, this barite showing is situated in a large inlier of Windsor Group rocks, the long axis of which strikes in a easterly direction. Flanking these rocks are Late Carboniferous Age strata composed primarily of clastic rocks. Downfaulted blocks of Late Carboniferous Age rocks also occur as small graben in the inlier.

The following description of the host rock to this occurrence is given by Murray (1975):

> "It is a grey, hard, fine-grained, slightly metamorphosed Windsor limestone. Certain sections of the limestone are nodular (oncolitic) and contain small patches of white barite and calcite. The bedding is very poorly developed and is mainly massive with a light grey, rough weathered surface. There are numerous faults in the area. The limestone is interlayered with a red sandstone and conglomerate, 2 to 3 feet in thickness. The limestone, generally is very impure. In the quarry the limestone is striking N 12° E and is dipping approximately 80° NW. In the mound to the north of the farmhouse, the limestone appears to strike north or slightly northwest. The section would appear to be at least 50 feet thick with very little overburden.
>
> "The limestone is in faulted contact with the Pictou Group, the Boss Point Formation and the Canso Group."

The barite is structurally controlled, lining small irregular fractures and vugs along with the calcite and manganese oxides. The iron oxides occur essentially as a staining in the host rock and give it a light reddish colour. No replacement of the wall rock by barite was noted.

The barite is white, coarsely crystalline with a bladed habit, and often occurs as small rosettes. This barite closely resembles that found at the "Lake occurrence" at Cheverie, Hants County (Fig. 111). Associated minerals include manganese oxides (manganite and pyrolusite), dogtooth calcite and minor hematite.

Grab samples were collected from the mineralized zone (barite present only as small rosettes) and the limestone host rock, and submitted for chemical analysis. The sampling location is shown on Figure 85 and the analytical results are listed below and in appendix III.

Rock Type	Sample No.	Per cent			ppm		
		$BaSO_4$	$SrSO_4$	Fe	Cu	Pb	Zn
Limestone	H16-5000	.06	.03	.03	15	85	130
Limestone	H16-5001	.53	.04	.04	20	80	180

The barite constituting this occurrence is of such an insignificant nature that it can be considered of academic interest only.

Bibliography

Bishop, D. G., and Wright, J. D.
1974: Geology and trace element studies of manganese occurrences in Nova Scotia; N. S. Dept. Mines Econ. Geol. Series 74-1, p. 125, 126.

Faribault, E. R.
1918: Investigations in western Nova Scotia; Geol. Surv. Can. Summary Report 1918, Part F, p. 3F.

Murray, D. A.
1975: Limestones and dolomites of Nova Scotia, Part II, Antigonish, Guysborough, Pictou and Cumberland Counties; N. S. Dept. Mines Bull. No. 2, p. 84.

(27) MALAGASH NORTH SHORE

U.T.M.G. - N-507154
E-47279

N.T.S. - 11-E-14-B

This occurrence is located on the shore 1200 feet east of Gravois Point on the Northumberland Strait (Fig. 86 and 87).

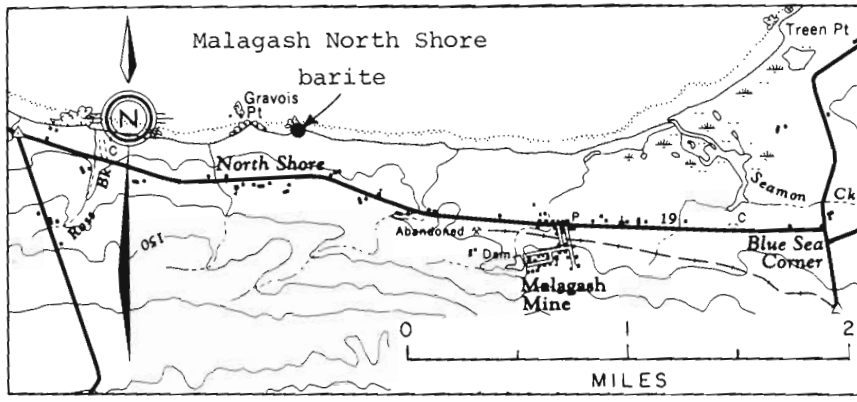

Figure 86

No exploration work for barite has been undertaken here. The showing was discovered during the course of investigations into copper occurrences in the Late Carboniferous Age sediments during the 1977 field season.

The host rock is chiefly a grey, medium to coarse grained, gritty, arkosic sandstone which strikes 112° Az, and 30° N and forms part of the Pictou Group in this area. This rock unit contains minor zones of red sandstone which grade vertically and laterally into grey sandstone, and minor discontinuous layers of shale pebble conglomerate and quartz pebble conglomerate, which never exceed approximately three feet in thickness. The grey sandstones and conglomerates are rich in plant fossils (calamites, lepidodendron and sigillaria), which are often pseudomorphically preserved by pyrite, chalcocite, and chalcopyrite. Minor coal, cross-bedding and spherical sandstone concretions up to 8 inches in diameter are also evident here.

Figure 87 - Malagash North Shore. Coarsely crystalline pink barite lining irregular fractures in Pictou Group sandstone. ba - barite.

For the most part, the barite is found filling irregular fractures not exceeding .5 inch in thickness, but it is also found filling cavities which appear to have been molds of plant stems such as that shown in Figure 88.

No alteration of the host rock attributed to the barite was observed, however malachite and limonite staining derived from the pyrite and copper sulphides is found wherever such minerals are concentrated.

The barite is reddish-white in colour and coarsely crystalline with a distinctly bladed habit. It is found closely associated with pyrite and minor chalcopyrite both as intimate mixtures and as highly segregated zones. An example of well segregated barite-pyrite zoning is shown in Figure 88.

No samples have been submitted for chemical analysis, however visual examination of a relatively pure hand specimen indicates the $BaSO_4$ content to be a minumum of 90 per cent.

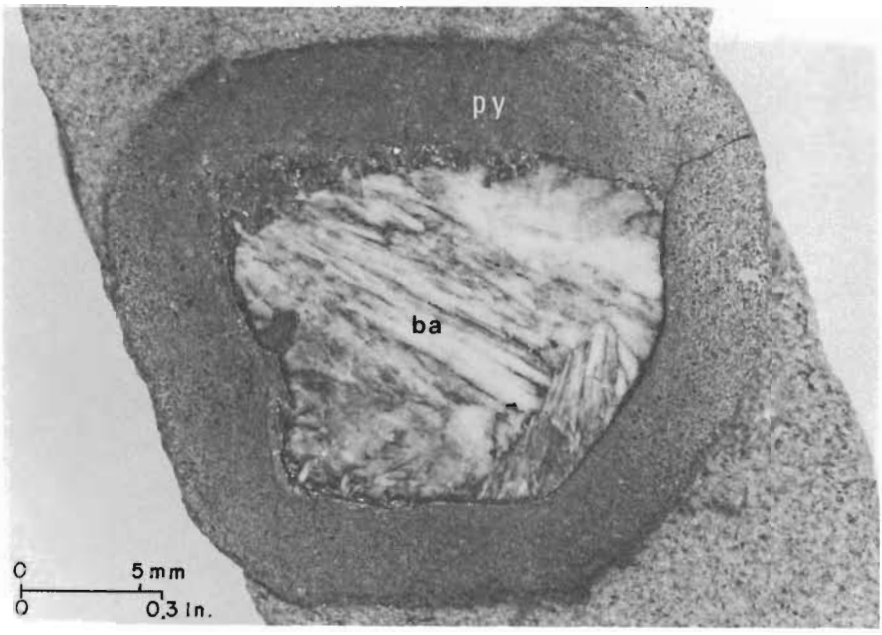

Figure 88 - Malagash North Shore. Section through a cast of a plant stem. The reducing environment created by the decaying plant material resulted in the deposition of pyrite in the outer walls of the plant stem. Continued decay of the inner portion of the plant stem resulted in a mold formed by the pyrite, which accompanied by oxidizing conditions was subsequently infilled with coarsely crystalline barite. ba - barite, py - pyrite.

Barite occurs here only in minor quantities, consequently this showing might be of more interest as a copper showing, of which occurs here in greater abundance than barite.

The association of this barite deposit with fossilized plant remains is a noteworthy feature which has also been reported (Sabina, 1965) at other localities: (134) Melmerby Beach, Pictou Count and [(118) Cribbon's Point, Antigonish County].

(28) NORTH GREENVILLE

U.T.M.G. - N-505318
E-44308

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

This occurrence is located 1.67 miles north of Westchester and 60 feet east of the New Jersey Road, on the west bank of the West Branch of Wallace River (Fig. 89).

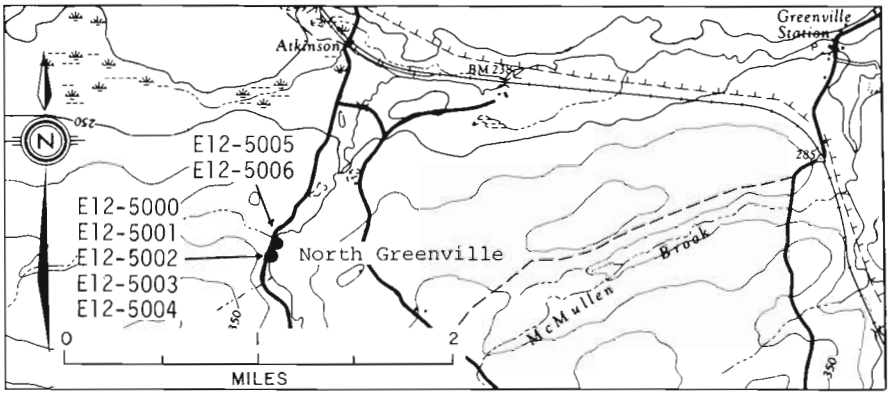

Figure 89

No exploration for barite has been carried out in this area. Barite was first noted here by Fletcher (1905).

Regionally, this barite showing is situated on the south limb of the Tatamagouche Syncline, a broad synclinal structure that trends and plunges in a easterly, northeasterly direction. The rocks comprising this syncline are all clastic sedimentary rocks of Early Carboniferous and Late Carboniferous Age.

The host rock is a red, red-brown pebble-cobble conglomerate belonging to the Cumberland Group of rocks. Immediately downstream from the barite showing the conglomerate is found to strike 080° azimuth and dip 10° north.

Very little rock crops out where the barite occurs in situ; however, the mineralization appears to have been structurally controlled, the barite occupying irregular fractures and breccia cavities. Abundant barite float can be found in the stream in the immediate vicinity of the outcrop.

Barite occurs as aggregates of well developed crystals with excellent crystal faces (crystals up to two inches in length) and is smokey to transparent in colour (see frontispiece).

Grab samples were collected from the mineralized zones, the host rock in their immediate vicinity, and the host rock approximately 400 feet north of the showing, and submitted for chemical analysis. The sample locations are indicated on Figure 89 and the results of the chemical analyses are listed below and in appendix III.

Rock Type	Sample No.	Per cent				ppm	
		$BaSO_4$	$SrSO_4$	Fe	Cu	Pb	Zn
Conglomerate	E12-5000	.73	.03	.03	170	25	40
Barite	E12-5001	94.10	.83	.04	15	25	20
Barite	E12-5002	95.07	.58	.03	10	25	10
Barite	E12-5003	94.35	.70	.04	10	25	20
Barite, conglomerate	E12-5004	72.76	.86	.03	10	20	20
Conglomerate	E12-5005	.77	.02	.04	20	25	55
Conglomerate	E12-5006	.44	.02	.04	20	25	80

The barite at this locality occurs in such minor quantities that it is only of academic interest. However, it is possible that larger fissure type deposits could be discovered in the area, as virtually no exploration work has been carried out here.

Bibliography

Fletcher, H.
1904: Northern part of Nova Scotia; Geol. Surv. Can. Annual Report 1902-03, Vol. 15, Summary Report for 1903, p. 166A.

1905: Geol. Surv. Can. Map Sheet No. 62.

Norman, G. W., and Bell, W. A.
1938: Oxford Sheet (East Half) Cumberland, Colchester Counties; Geol. Surv. Can. Map 409A.

(29) PARRSBORO

U.T.M.G. - N-503157
E-39851
&
N-503157
E-39842

N.T.S. - 21H/8C (1:50,000)

This occurrence is situated approximately two miles northeast of Parrsboro on the Cobequid Fault Scarp (Fig. 90 and 91).

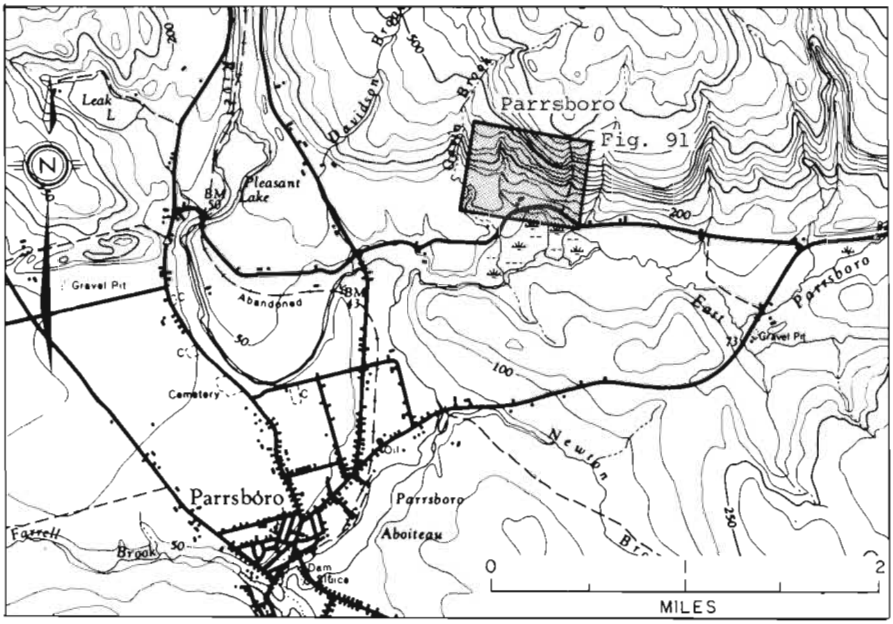

Figure 90

Merrill Island Mining Corporation Limited carried out an exploration program in this area in 1970. This program included prospecting, geochemical surveys, geophysical surveys and three diamond-drill holes totalling 1,193 feet. No significant deposit was encountered in the diamond drilling.

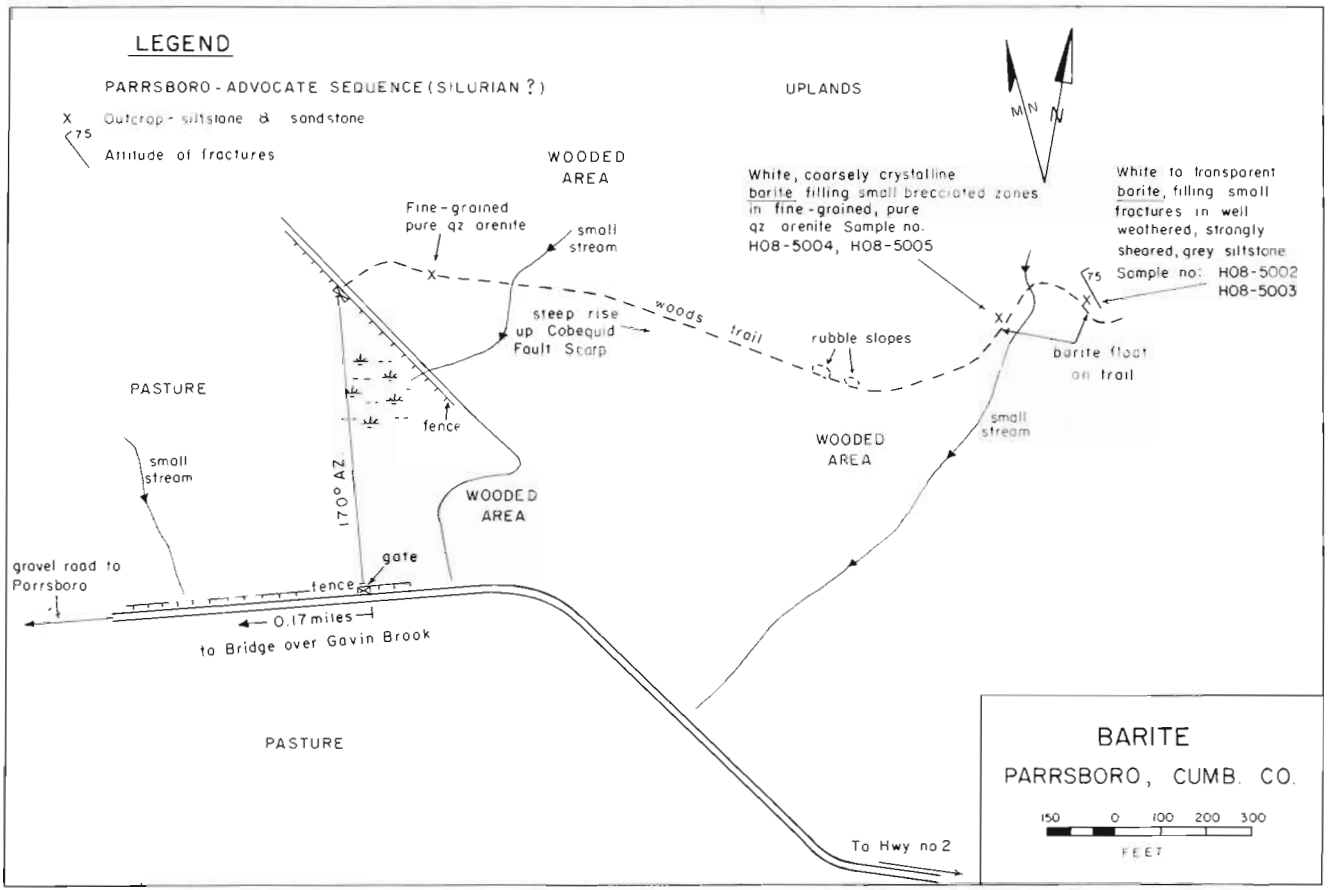
LEGEND
PARRSBORO - ADVOCATE SEQUENCE (SILURIAN ?)
X Outcrop - siltstone & sandstone
75 Attitude of fractures
UPLANDS
MN
WOODED AREA
Fine-grained pure qz arenite
small stream
White, coarsely crystalline barite filling small brecciated zones in fine-grained, pure qz arenite Sample no. H08-5004, H08-5005
White to transparent barite, filling small fractures in well weathered, strongly sheared, grey siltstone Sample no: H08-5002 H08-5003
steep rise up Cobequid Fault Scarp
woods trail
rubble slopes
barite float on trail
PASTURE
fence
small stream
170° AZ
WOODED AREA
WOODED AREA
small stream
gravel road to Porrsboro
gate
fence
0.17 miles
to Bridge over Gavin Brook
PASTURE
To Hwy no 2
BARITE
PARRSBORO, CUMB. CO.
150 0 100 200 300
FEET
PGB

Figure 91

The barite showing is situated on the Cobequid Fault scarp in a series of variously metamorphosed rocks comprising a portion of the Cobequid Highlands. These rocks have been subjected to polyphase deformation and are believed to be primarily Silurian and younger in age. Major faults in these rocks include the east striking Cobequid Fault, and north striking subsidiary faults.

The host rocks are sheared, grey, siltstone and fine-grained quartz arenite of the Parrsboro-Advocate Sequence. This sequence of rocks is believed to be of Silurian age (Donohoe, 1976).

The showing consists of white, transparent, coarsely crystalline barite displaying a tabular crystal habit. It is found cementing small brecciated zones and filling small fracture planes striking 145° azimuth and dipping 75° northeast. Small tabular crystals (approximately 0.5 to 1 inch in length) are found scattered as float on the trail in the immediate vicinity of the outcrop containing barite.

No hydrothermal wall rock alteration was noted in hand specimen at this occurrence.

Although no other minerals were noted at this location, reports indicate that minor amounts of galena, chalcopyrite and sphalerite are associated with the barite in this vicinity (Hudgins, 1970).

Grab samples were taken from the mineralized zones and from the host rock in close proximity to them and submitted for chemical analysis. Sample locations are indicated on Figure 91 and the analytical results are listed below and in appendix III.

Rock Type	Sample	Per cent			ppm		
		$BaSO_4$	$SrSO_4$	F	Cu	Pb	Zn
Barite	H08-5002	93.50	3.42	.03	10	30	10
Siltstone, minor specularite	H08-5003	.20	.05	.03	10	40	50
Barite, quartz arenite	H08-5004	79.66	1.08	.03	10	40	20
Quartz arenite	H08-5005	.20	.00	.04	10	60	20

The similarities to other deposits displayed by this occurrence located in close proximity to the Cobequid

Fault would suggest it has a similar origin and age of mineralization.

Further detailed geological work is warranted in this area and should be facilitated by the results of the Cobequid Highlands Project.

Bibliography

Donohoe, H. V.
1976: Cobequid highlands project; Report of Activities, N.S. Dept. Mines Report 76-2, 113-125.

Hudgins, A. D.
1970: Exploration Surveys, Merrill Island Mining Corp. Ltd., Parrsboro property, N.S.; N.S. Dept. Mines assessment file 21H/8C 27-E-25(04).

(30) SOUTH BROOK

U.T.M.G. - N-504594
E-40745

N.T.S. - 21H/9A (1:50,000)

This occurrence is situated at South Brook, 2.1 miles south of Mapleton. Barite is found in situ on the southwest bank of South Brook, 1,350 feet downstream from the bridge (Figure 92).

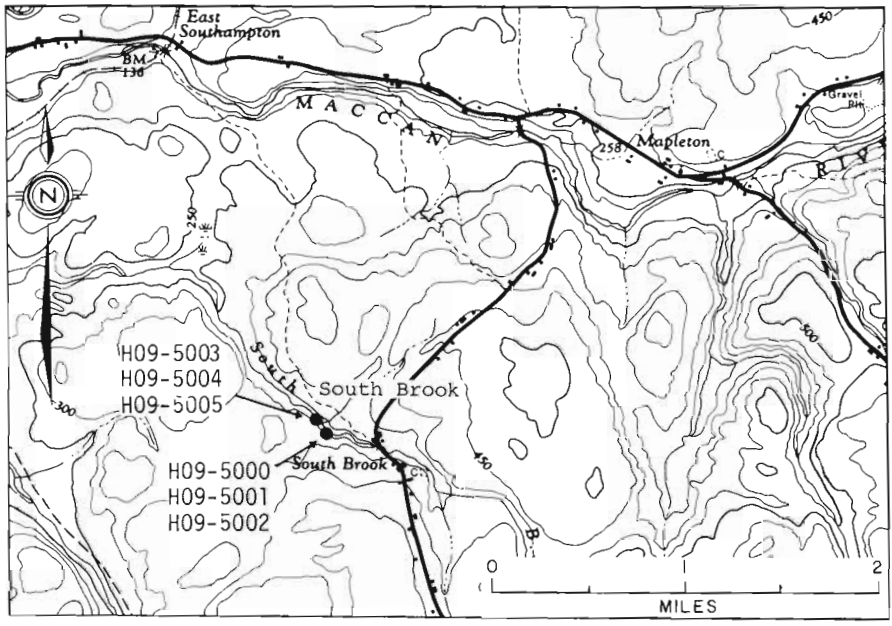

Figure 92

Barite was first reported here by Hugh Fletcher, on Geological Survey of Canada Map Sheet No. 82 (1905). No other reported exploration work has been carried out in this area.

On a regional scale, the barite showing occurs in terriginous clastic sedimentary rocks belonging to the Cumberland Group of Late Carboniferous age. These rocks form a broad syncline known as the Athol Syncline, which traverses the district in a northeasterly direction. The showing is situated on the south limb of this syncline.

Structures favourable for mineralization were probably formed during the Maritime Disturbance (Late Carboniferous and Permian age, and/or the Palisades Disturbance (upper Triassic and Jurassic age).

The host rocks are a grey-brown pebble conglomerate and grey siltstone, both of which strike 120° Az and dip 15° NE. The siltstone contains abundant carbonaceous fossilized plant remains. Conglomerate outcrops further down stream are found to contain multilithic clasts ranging greatly in size, from pebble to boulder, with quartzitic clasts predominating. Copeland (1959) places these rocks in the lower fine, coal bearing facies, however it appears that the contact as marked on Geol. Surv. of Can. Map 1070 A may be in error, with the rock actually being part of the Upper coarse facies. Sandstones and shales are more typical of former facies while conglomerates and sandstones are more typical of the latter.

All the outcrops examined appeared to be well weathered, with hand specimens showing relict cavities due to the complete leaching out of easily degradable minerals (possibly pyrite and calcite).

The mineralization was structurally controlled; with the barite confined to irregular fractures and cementing brecciated zones. Abundant barite float can be found in the stream bed for approximately 350 feet downstream from the in situ barite. The float consists of well rounded, cobble to small boulder-sized material of pure barite, as well as barite cemented brecciated pebble-cobble conglomerate in a sandy matrix (Fig. 93).

The barite is white to pink in colour, coarsely crystalline with a well developed tabular habit. It often occurs in radiating growths.

Grab samples were collected from the mineralized zones, the mineralized float and the host rock in close proximity to them, and submitted for chemical analysis. The locations sampled are shown on Figure 92, and the analytical results are listed below and in appendix III.

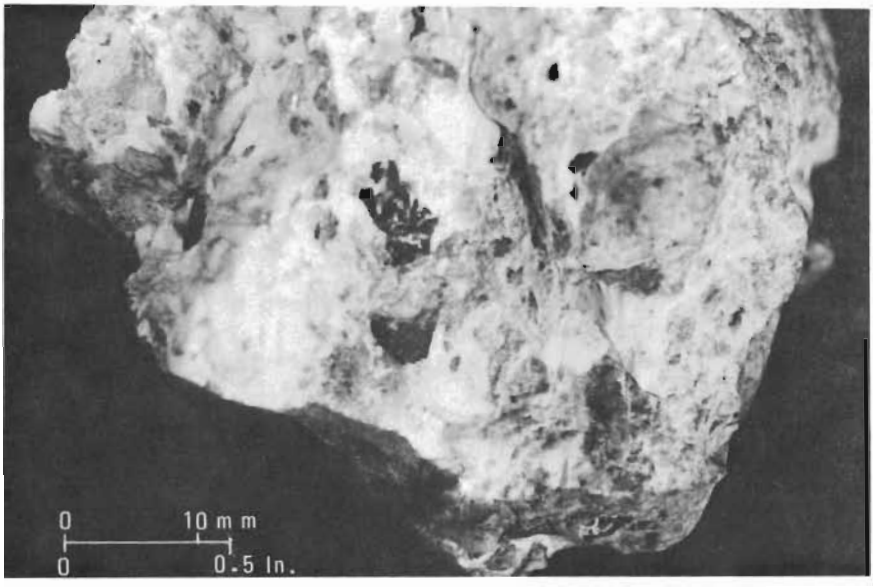

Figure 93 - South Brook. Vuggy, coarsely crystalline, white barite cementing brecciated conglomerate.

Rock Type	Sample No.	Per cent $BaSO_4$	Per cent $SrSO_4$	Per cent F	ppm Cu	ppm Pb	ppm Zn
Baritiferous conglomerate	H09-5000	18.31	.60	.03	20	20	40
Baritiferous conglomerate	H09-5001	47.70	.84	.03	20	70	25
Conglomerate	H09-5002	.20	.06	.03	20	50	55
Barite, conglomerate	H09-5003	58.12	.90	.03	55	25	20
Baritiferous conglomerate	H09-5004	16.50	.78	.03	20	20	40
Barite	H09-5005	94.03	2.33	.03	10	20	20

It is worthy of note that the southwesterly terminus of the Athol Sycline is in the Spicer Cove area, where barite is also found to occur in fissures.

Although only minor amounts of barite are found to occur here, it is possible that larger quantities could be uncovered through additional detailed work. However, it is likely that barite in this particular locality will be restricted to cavity filling type deposits.

Bibliography

Copeland, M. J.
1959: Coalfields, west half Cumberland County, N. S.; Geol. Surv. Can. Mem. 298.

Fletcher, H.
1905: Geol. Surv. Can. Map Sheet No. 82 (Southhampton).

(31) SPICER COVE

U.T.M.G. - N-503217
E-35152

N.T.S. - 21H/7C (1:50,000)

This occurrence is located at Spicer Cove, Chignecto Bay. Barite and minor fluorite is found at various locations in the outcrops along the shore as well as in the outcrops exposed in the intertidal flats at low tide. The outcrops along the shore form near vertical escarpments up to 150 feet in height thereby restricting observation of these veins to times of low tide (Fig. 94, 95, and 96).

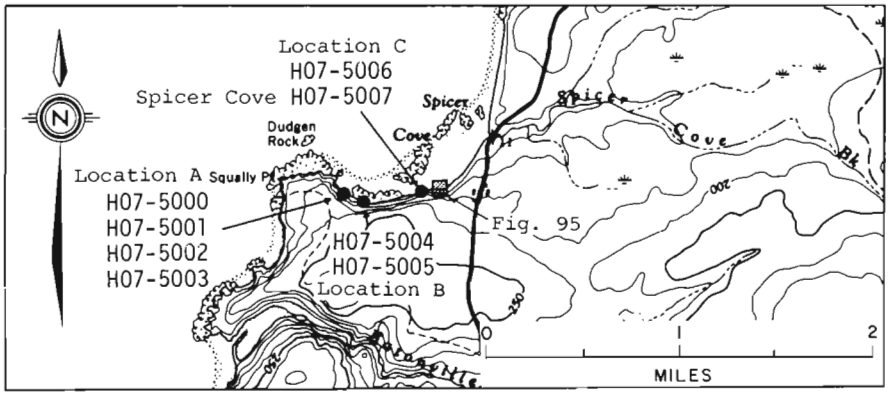

Figure 94

The barite was first noted by Fletcher and is documented on the old series Geological Survey of Canada Map Sheet No. 100 and 101. No other reported exploration work has been carried out in this area.

This barite-fluorite showing is hosted by clastic sedimentary rocks of Late Carboniferous age and rhyolite of Silurian or younger age (Donohoe & Wallace, 1977). The clastic sedimentary rocks rest unconformably on the volcanic rocks, and form the southwest terminus of the northeasterly trending Athol Syncline. The attitude of the unconformity is 040° Az/20° SE. A major fault known as the Spicer Cove Fault traverses the area at a bearing of 150° Az and appears to be dipping vertically. Apparent movement on the fault is up-down, with the

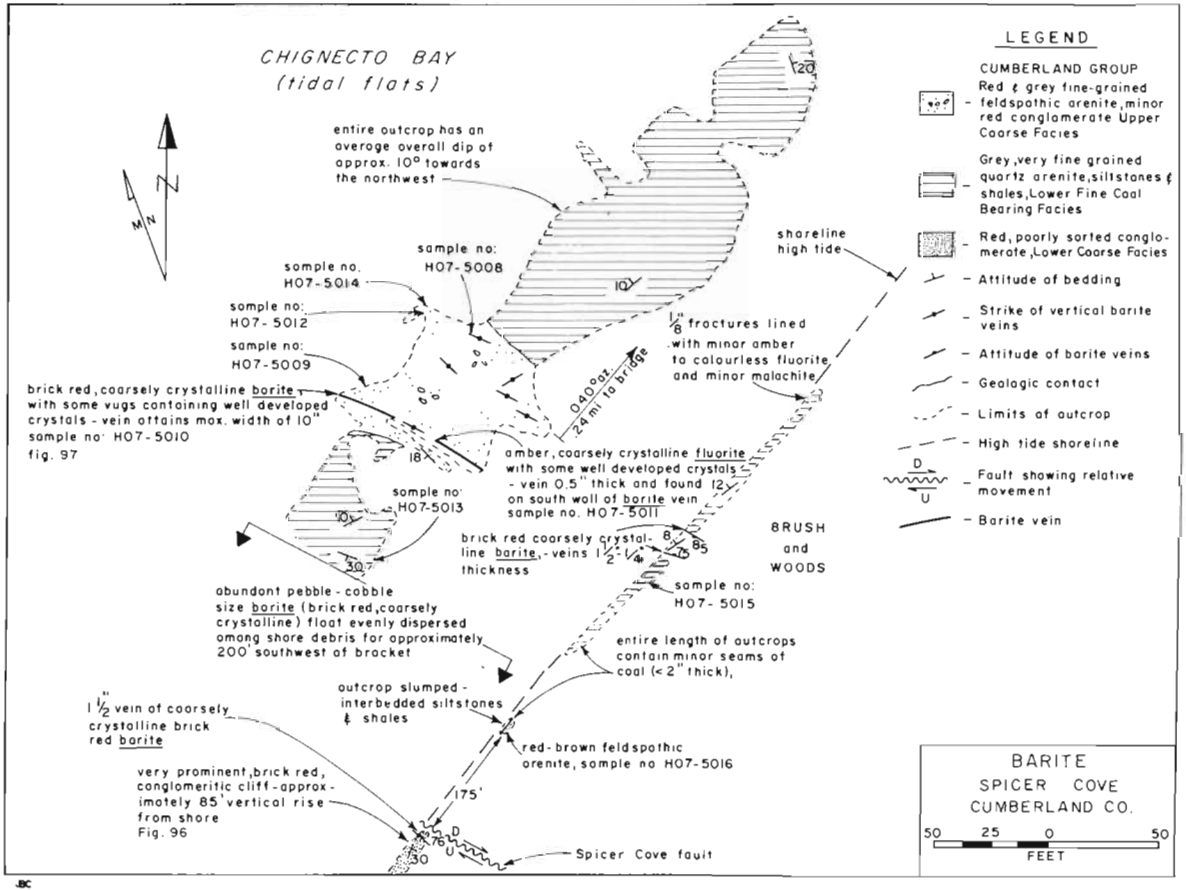
CHIGNECTO BAY
(tidal flats)
entire outcrop has an overoge overall dip of approx. 10° towards the northwest
sample no: H07-5008
sample no. H07-5014
sample no: H07-5012
sample no: H07-5009
brick red, coarsely crystalline borite with some vugs containing well developed crystals - vein attains max. width of 10" sample no: H07-5010 fig. 97
sample no: H07-5013
abundant pebble - cobble size borite (brick red, coarsely crystalline) float evenly dispersed among shore debris for approximately 200' southwest of bracket
1½" vein of coarsely crystalline brick red borite
very prominent, brick red, conglomeritic cliff - approximately 85' vertical rise from shore Fig. 96
outcrop slumped - interbedded siltstones & shales
red-brown feldspathic arenite, sample no H07-5016
175'
Spicer Cove fault
shoreline high tide
⅛" fractures lined with minor amber to colourless fluorite and minor malachite
040° az .24 mi to bridge
amber, coarsely crystalline fluorite with some well developed crystals - vein 0.5" thick and found 12' on south wall of borite vein sample no. H07-5011
brick red coarsely crystalline borite, - veins 1½ - ¼" thickness
sample no: H07-5015
entire length of outcrops contain minor seams of coal (< 2" thick),
BRUSH and WOODS
LEGEND
CUMBERLAND GROUP
Red & grey fine-grained feldspathic arenite, minor red conglomerate Upper Coarse Facies
Grey, very fine grained quartz arenite, siltstones & shales, Lower Fine Coal Bearing Facies
Red, poorly sorted conglomerate, Lower Coarse Facies
Attitude of bedding
Strike of vertical barite veins
Attitude of barite veins
Geologic contact
Limits of outcrop
High tide shoreline
Fault showing relative movement
Barite vein
BARITE
SPICER COVE
CUMBERLAND CO.
50 25 0 50
FEET

Figure 95

downthrown and upthrown blocks on the northeast and southwest sides of the fault respectively. The deformations are attributed to the Maritime Disturbance (Late Carboniferous and Permian age) and the Palisades Disturbance (upper Triassic and Jurassic age).

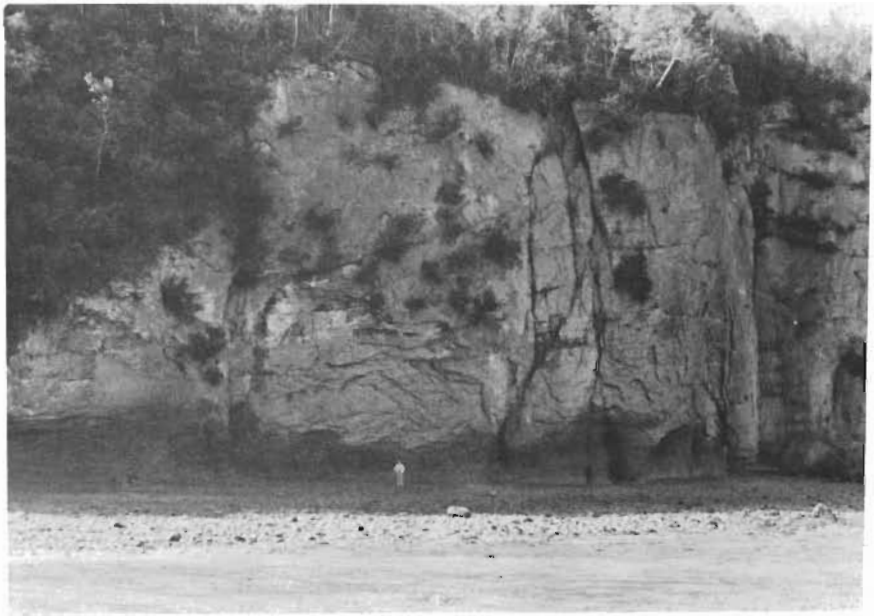

Figure 96 - Spicer Cove. Prominent, vertical cliffs, (Upper Coarse Facies, Cumberland Group) at Spicer Cove. The Spicer Cove Fault traverses this area at the left extremity of the photograph. Looking southeast.

The sedimentary host rocks are part of the Cumberland Group and are comprised of: (i) red and grey fine-grained feldspathic arenite and minor red conglomerate of the Upper Coarse Facies (Copeland, 1959), (ii) shale, siltstone, very fine-grained quartz arenite of the Lower Fine Coal Bearing Facies, and (iii) red poorly sorted conglomerate of the Lower Coarse Facies. These rocks generally strike approximately 220° azimuth and have a shallow dip (approximately 10°) towards the northwest. The siltstone and shale of the Lower Fine Coal Bearing Facies are very fissile and contain abundant fossilized plant remains. Some of these plant remains include: Calamites suckovii, Cordaites borassifolia and Neuropteris cordata (Dawson, 1868). While some of the fossil plants are carbonaceous, others are stained red with iron oxides (hematite). Minor coal seams generally less than two inches thick are also evident here.

The rhyolite is pink to orange in colour, often spherulitic and forms part of the Advocate Sequence in this region.

No barite-fluorite was noted along the shore east and northeast of this area, which is stratigraphically higher in the column.

The mineralization was structurally controlled with the barite-fluorite occupying small faults, fractures and brecciated zones.

The widest barite vein attains a thickness of 10 inches and is curved, giving a range of strikes from 110°-125° azimuth and a generally vertical dip (Fig. 97). Attitudes of veins at various other locations along the shore are:

- at A (near Dudgen Rock), 055°/75 NW
- at B, 090°/80 N and 090°/80°S
- at C (in back of small cave), 140°/80° SW.

Figure 97 - Spicer Cove. Brick red barite vein containing xenolith of siltstone. ba - barite, silt - siltstone.

The mineral relationships observed in three different veins are as follows:

(1) fluorite, barite; - fluorite occurs adjacent to the wall rock and barite forms the inner portion of the vein.

(2) barite, fluorite; - barite occupies the outer portions of the vein and fluorite the center portion.

(3) barite, calcite; - barite is found to be next to the wall rock and the vuggy center lined with dogtooth variety calcite.

In hand specimen the barite is coarsely crystalline, brick red, creamy pink, and white in colour. The brick red variety shows a plumose texture. The fluorite is coarsely crystalline, often showing a tendency to well developed cubes, and is amber in colour. Barite is the predominant mineral with fluorite making up only a minor portion. Other minerals associated with the barite-fluorite are calcite and minor malachite.

Grab samples of the mineralized zones and the host rocks were collected and submitted for chemical analysis. The sample locations are indicated on Figures 94 and 95, 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	H07-5000	94.95	1.36	1.96	5	20	10
Barite	H07-5001	91.71	1.07	.96	30	10	10
Barite, Fluorite	H07-5002	56.45	.91	11.14	10	50	20
Rhyolite	H07-5003	.48	.02	.10	20	20	30
Barite, Fluorite	H07-5004	79.60	1.80	7.16	60	30	10
Conglomerate	H07-5005	1.21	.11	.17	10	40	450
Barite	H07-5006	93.73	1.09	.03	10	5	10
Conglomerate	H07-5007	.34	.02	.05	15	40	75
Barite	H07-5008	97.10	1.67	.03	10	10	5
Feldspathic Arenite	H07-5009	3.24	.05	.03	5	30	80
Barite	H07-5010	86.09	1.68	.03	5	10	5
Baritiferous Conglomerate	H07-5011	21.47	.58	.07	10	60	30
Feldspathic Arenite	H07-5012	.31	.02	.07	15	50	110
Quartz Arenite	H07-5013	.07	.01	.03	130	20	70

Feldspathic Arenite	H07-5014	.17	.01	.03	10	90	320
Carbonaceous Siltstone	H07-5015	.20	.01	.05	10	30	40
Feldspathic Arenite	H07-5016	.04	.39	.04	20	50	25

Although all the barite veins observed were generally only a few inches in thickness, their areal distribution is extensive. West of the area mapped (Fig. 95), the veins can be observed at various locations over a distance of approximately three thousand (3,000) feet, and have been traced northwest for about one thousand (1,000) feet out onto the intertidal area (Fig. 94).

The barite deposits in the Spicer Cove area are in all likelihood restricted to fault zones and fractures. However, since the mineralized veins occur in the clastic sedimentary rocks as well as the rhyolite, the possibility arises of a potential deposit at the unconformity of these two rock groups. Conditions favourable to a replacement deposit such as that at Bass River, Colchester County, may exist where faults or fracture systems intersect the unconformity.

The malachite is considered to be insignificant as it is common to find small concentrations such as this in Upper Carboniferous rocks. The malachite occurs only in small fractures and as accumulation in fossilized plant remains and is of a very limited extent.

Bibliography

Copeland, M. J.
1959: Coalfields, west half Cumberland County, N. S.; Geol. Surv. Can. Mem. 298.

Dawson, J. W.
1868: Acadian geology; 2nd edition, MacMillan and Co., London.

Donohoe, H. V.
1977: Cobequid Mountains Project, Nova Scotia Dept. of Mines

Fletcher, H.
1904: Geol. Surv. Can. Map Sheet No. 100, 101.