SAMPLING AND REMAPPING REPORT

on the

MW MINERAL CLAIMS

MW 1-8; 11-14	YA 33049-060
MW 9, 10	YA 33804, 805
MW 15-28	YA 33806-819
MW 31-48	YA 33820-837

MAP SHEET 105B/3

Latitude 60°03'N Longitude 131°28'W

WATSON LAKE MINING DIVISION

YUKON

by

J.C. Stephen

Work Done August 16-20, 1979
By J.C. Stephen Explorations Ltd.
Funded by D.C. Syndicate

March 1980

This report has been [illegible]amined by the Geological [illegible] and is recommended to [illegible] be considered as [illegible] amount of $ 2,900.00

J A Morin

[illegible] of

R[illegible] [illegible]gineer

Considered [illegible] work under Section 53 [illegible] Quartz Mining Act.

B. R. BAXTER

Supervising. Mining Recorder

~~Commissioner of Yukon Territory~~

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LIST OF ILLUSTRATIONS

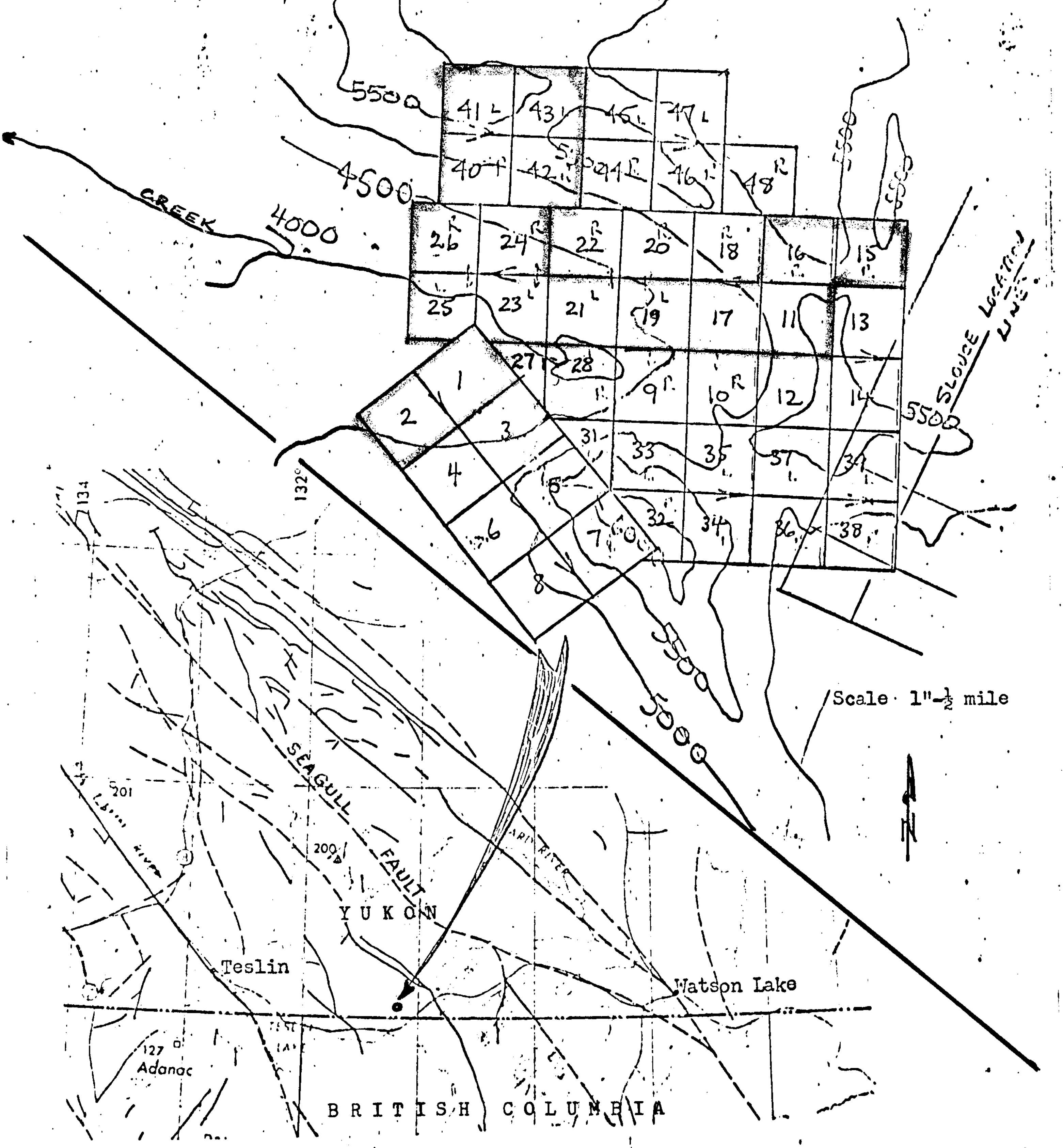
LOCATION AND ACCESS

Figure I

The claim group is located ten miles (16 km) north west of Swift River on the Alaska Highway. It is about six miles (10 km) north east of Log Tung.

Topography is rugged around the south, east and north sides of the claim group. The central part of the group is occupied by a wide valley draining to the west north west.

Access during 1978 and 1979 has been entirely by helicopter from Pine Lake airstrip or from Swift River. The property, in earlier years, was accessible by horse up the valley of Screw Creek and its west branch.



1 : 2,500,000

D.C. SYNDICATE
M.W. CLAIM GROUP
LOCATION & SKETCH MAP

FIGURE I.

REGISTER OF CLAIMS

Name	Record Numbers	Record Date
MW 1 - 8	YA 33049 - 056	June 15, 1978
9,10	YA 33804, 805	July 17, 1978
11 - 14	YA 33057 - 060	June 15, 1978
15 - 28	YA 33806 - 819	July 17, 1978
31 - 48	Ya 33820 - 837	July 17, 1978

CLAIM GROUPING AND DISTRIBUTION OF EXPENDITURES

As shown on Figure I the following claims due for assessment work are being regrouped.

Group	Claim Names	Distribution of Expenditures
I	MW 9,10,12-14; 32-39	$ 1,300.00
II	MW 1,2,11,15-17,19,21 23-26; 40-43	1,600.00
	Total	$ 2,900.00

A statement of expenditure is given on page 19 of this report.

1979 PROGRAM

GEOLOGICAL MAPPING

Purpose and Results

Geological mapping was conducted over part of the property to add to the information gathered in 1978. The geological map of the property was revised and is contained in the pocket of this report as Map I. This mapping corrected and detailed some portions of the outcrop areas; it extended the No. 2 showing skarn down the west slope of the mountain and located a single outcrop well out in the valley; it served to investigate the granite talus in the valley for possible outcrops of Seagull batholith and it relocated the original arsenopyrite bearing skarn float which carried values in tin.

Rock Types

The following descriptions are taken from "Geological Geochemical Report on the MW Claims" dated February 1979 with revision of the description for Limestone; Skarn and Diabase and addition of Gabbro to the list.

1. Quartzite, Siltstone, Argillite:

This unit is equivalent to Unit 8 of the GSC Map 10-1960. It contains black fine grained siltstone and argillite and considerable quartz rich sandstone or quartzite. A specimen of this rock from above the No. 1 Zone lead zinc showing was examined by Dr. K.D. Watson and is described as follows:-

"... a rock unit resembling either rhyolitic rock (Possibly tuffaceous) with abundant quartz eyes or quartz-rich sandstone. I have now examined a thin-section of the rock and have found that it is the latter.

About 90% of the rock consists of subrounded grains of quartz, mainly 0.25-1.0mm. in diameter (medium and coarse sand sizes). These are contained in a very fine matrix rich in sericite, quartz, and biotite. A few grains of zircon, tourmaline and opaque material (magnetite?) were seen in the matrix."

2. Andesite

This unit consists of some lapilli tuff together with flows containing plagioclase crystals in a fine grained matrix. In the field these rocks were classed as andesite. It is generally green in color, somewhat soft and contains blebs of carbonate.

3. Dolomite Limestone:

This dolomite is interbedded with limestone. It is generally white in color and weathers buff brown.

4. <u>Limestone</u>:

Most of the limestone horizon is thin bedded white and "flaggy". Some portions are more massive clean and white, often with chert nodules.

On the north side of the ridge above the quartz monzonite contact (Claims MW 45, 47) thick lenses of chert are included in this unit. Photo 1 shows this feature with the cherty horizons prominent on the cliff face.

On claims MW 5, 7 and 9 crinoids and coral are prominent within the limestone.

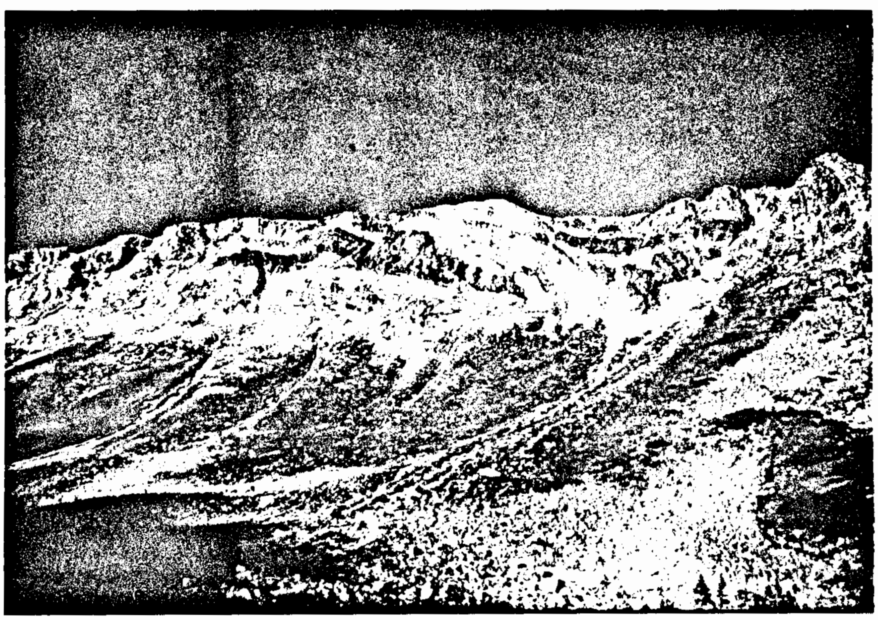


Photo 1. Dark chert bands in white flaggy limestone. North side of ridge on MW 45,46.

5. Conglomerate:

Lenses of chert pebble conglomerate lie, apparently unconformably, above the linestone and dolomite.

6. Skarn:

The No. 2 showing is a zinc bearing epidote magnetite, and epidote garnet skarn which contains some visible sphalerite mineralization, a little copper and traces of tin. It is complexly folded and is in contact with limestone or quartzitic sediments. Some skarn is developed preferentially along thin beds within the limestone.

Brilliant black garnets are common in the skarn exposures at the lower elevations.

Portions of the overall skarn horizon are described in field notes as tuff, cherty tuff and siliceous tuff. No petrographic work has been done but there may be a volcanic component along this horizon.

The No. 3 zone skarn on MW 16 and 18 is a narrow diopside garnet skarn which is variably mineralized with arsenopyrite, chalcopyrite, bornite and several tin minerals. A detailed description is provided as Appendix I of this report.

On MW 16 the horizon indicated as skarn is principally fragments of garnet and arsenopyrite bearing skarn which appears to be the remnant of a skarn bed engulfed and largely destroyed by intrusion of the Seagull batholith.

7. Quartz Monzonite:

This is part of the Seagull Batholith. The rock is brown weathering, blocky and jointed. It is a medium grained biotite quartz monzonite.

7a. Gabbro Diabase:

Dark massive medium grained gabbro occurs immediately north of No. 2 showing as sill like and cross cutting small bodies, Figure II. This rock may be related to the finer grained diabase dykes cutting No. 1 showing which are about 3 feet thick and 20 to 50 feet long.

The large diabase body reported by Turner has proved to be a bed of hornfelsed argillite interbedded with the limestones.

8. Aplite or Alaskite Dykes

A few small light colored aplite or alaskite dykes cut the sediments on the ridge north of No. 2 skarn zone.

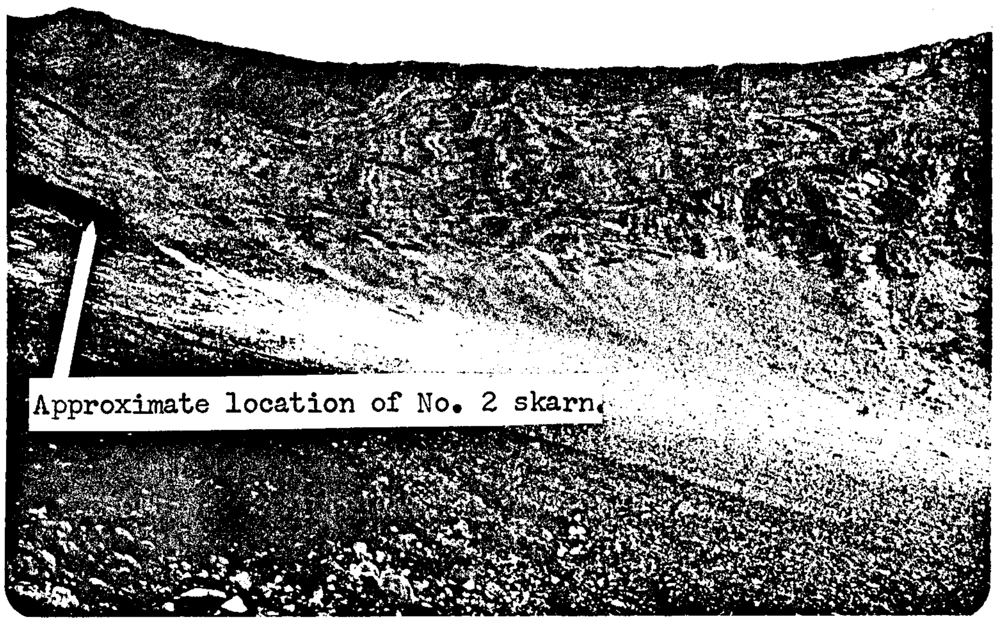


PHOTO No. 2 INTRICATE FOLDING IN LIMESTONE
FACING SOUTHEAST

Chip sample line along trace of
No. 2 skarn.

PHOTO No. 3 LOCATION OF ZINC BEARING SKARN
FACING SOUTHEAST

STRUCTURE

Photo 2 and 3 indicate the intricate folding evident in the limestone and reflected as intensely by skarn and argillite locally.

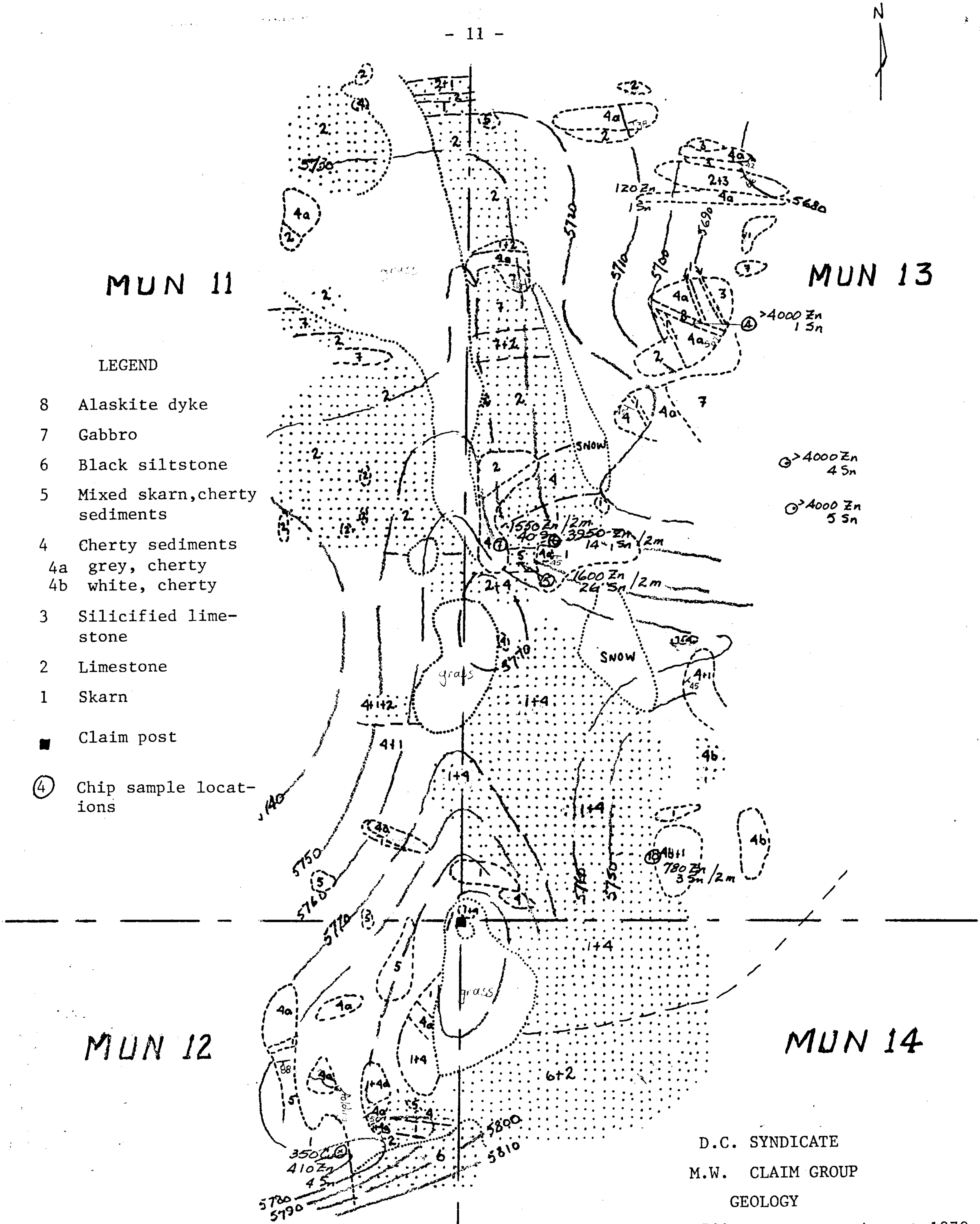
The sedimentary horizons are usually south to south east striking with steep overall dips except where deformed by this intricate, and to the east recumbent folding.

A fault is evident on MW 9 and 31 striking N40E. Offset on this fault has not been determined but is probably not very large. The low saddle in the ridge on MW 16 is probably due to this same fault structure.

Two sets of strong fractures cut the large limestone dolomite area on MW 9. These strike N10 W and N75E and cause sharp scarps and gullies and control the shape of several outcrop areas. No significant movement has been demonstrated on these to date.

The sedimentary sequence is intruded by the Seagull batholith with the contact trending generally north west through the north east portion of the claim group. The batholith appears to be younger than all other rock types other than a few aplitic dykes and it appears to partially destroy the skarn zone.

Considerable granitic talus covers the south west slopes below the peak on the north side of MW 11. It had been suggested previously that granite might outcrop in the valley floor. Outcrops of skarn and limestone, although rare, indicate this is not likely to be the case. The granitic contact is not well exposed here but is evidently somewhat irregular, possibly due to the north east trending faults.



LEGEND

8 Alaskite dyke

7 Gabbro

6 Black siltstone

5 Mixed skarn, cherty sediments

4 Cherty sediments
- 4a grey, cherty
- 4b white, cherty

3 Silicified limestone

2 Limestone

1 Skarn

■ Claim post

(4) Chip sample locations

D.C. SYNDICATE

M.W. CLAIM GROUP

GEOLOGY

Scale 1:500

August 1979

FIGURE II

ROCK CHIP SAMPLING

Mapping indicated the No. 2 skarn showing to be much more extensive than indicated in 1978. The crest of the ridge at the original showing was mapped at 1:500 and is shown as Figure II. The westerly extension of the skarn is exposed in a narrow slide running steeply down-slope from the crest for an almost continuous 240 metres (785 feet). The skarn is as intricately folded as the closely associated limestones to the south. It contains phases and beds which were described as tuff-aceous and is associated with cherty to quartzitic sediments to the north.

The skarn horizon was checked by UV light for scheelite and/or malayaite. None was found.

The west slope skarn exposure was chip sampled over its full length in 10 metre intervals and checked geochemically for zinc and tin. Sample numbers and values are given in Table I. The approximate positions of the sample line is shown on Photo 3 above.

Several skarn exposures at the top of the ridge were also sampled and are included in Table I. Locations are on Figure II.

TABLE I

No. 2 SHOWING SKARN

CHIP SAMPLING

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

••ANALYTICAL CHEMISTS ••GEOCHEMISTS ••REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: J.C. Stephen Explorations Ltd.,
1124 West 15th St.,
North Vancouver, B.C. V7P 1M9

CERTIFICATE NO. 50107
INVOICE NO. 32434
RECEIVED Aug. 27/79
ANALYSED Sept. 7/79

ATTN: PROJECT: D.C. Syndicate (rocks)

SAMPLE NO. :	PPM Cu	PPM Zn	PPM Sn	CHAINAGE FROM LOWER WEST END OF EXPOSURE TO TOP OF RIDGE.
53538		>4000	9	0 - 10 metres
53539		>4000	19	- 20
53540		>4000	26	-30
53541		>4000	21	-40
53542		2200	6	-50 NO OUTCROP 50 - 80
53543		>4000	12	80 - 90
53544		>4000	7	-100
53545		>4000	4	-110
53546		>4000	3	-120
53547		>4000	1	-130
53548		>4000	1	-140
53549		>4000	5	-150
53550		>4000	4	-160
84629A		>4000	6	-170
84630A		>4000	4	-180
84631A		>4000	5	-190
86632A		>4000	3	-200
84633A		>4000	5	-210
84634A		>4000	7	-220
84635A		>4000	1	-230
84636A		>4000	12	-240
84637A		125	1	Hornfels with pyrr. MW 12
84738A		80	1	E. side hornfels,mica greisen MW12
84639A		120	1	75N,15-20E Epidote,garnet sk; sphal
84640A		>4000	1	Green sk,aplite dyke, sphal.
84641A		1600	26	37N,16E 0'-7' Epidote-magnetite sk
84642A		3950	14	7-14' " " sphal
84643A		1550	40	14-20' " "
84644A		>4000	4	50N,35E Rusty sk, pyrr,py,sphal
84645A		>4000	5	45N,35E Epidote skarn, 1.5' thick
84646A		780	3	0N,20E 0'-6' Pale cherty seds
84647A	350	410	4	Rusty skarn,pyrr,cpy
84648A			2	White chert, north tin ridge
84649A			1	Dark chert, north tin ridge

MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichle

SOIL AND TALUS SAMPLING

Purpose and Results

Talus sampling in 1978 was done in two areas separated by approximately 4000 feet (Map I). That sampling had revealed anomalous levels for lead and zinc on MW 3 and 5 where no mineralization had been reported.

The additional soil and talus sampling in 1979 was intended to extend the 1978 lead zinc anomaly and search for other possible anomalies. As shown by results plotted on Map I the 1978 sampling covered the anomalous area and a good deal of outcrop was available for examination to the east of that anomaly. Only a few 1979 samples were anomalous.

Procedure

Grub hoes were used to dig sample holes at 200 foot intervals near the base of outcrop areas along tape and compass lines. Soil development is very poor although most samples were from mossy and grassy areas. Samples were collected in kraft paper bags and consisted generally of reddish brown soil with many small limestone fragments.

These samples were forwarded to Chemex Labs Ltd. North Vancouver where they were dried and sifted before analysis. It is likely that most rock fragment material was removed in this way before processing as no pulverizing was done.

TABLE II

SOIL AND TALUS SAMPLES 1979

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 984-0221
AREA CODE: 604
TELEX: 043-52597

• ANALYTICAL CHEMISTS ••GEOCHEMISTS ••REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 50072
INVOICE NO. 32348
RECEIVED Aug. 26/79
ANALYSED Sept. 4/79

TO: J.C. Stephen Explorations Ltd.,
1124 West 15Th St.,
North Vancouver, B.C. V7P 1M9

ATTN: PROJECT: D.C. Syndicate CC: J.C. Stephen

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Sn
79 DCMT 1	720	830	1
2	154	540	1
3	36	290	1
4	16	112	1
5	32	132	1
6	68	172	1
7	42	162	1
8	34	186	1
9	34	64	1
10	50	100	1
11	380	196	1
12	32	86	1
13	72	128	1
14	24	78	1
15	32	166	1
16	18	114	1
17	24	200	1
18	68	265	1
19	56	350	1
20	60	290	1
21	32	166	1
22	48	280	1
23	34	186	1
24	34	100	1
79 DCMT 25	30	88	1
79 DCM 101	340	930	1
102	36	240	1
103	46	355	1
104	16	114	1
105	36	92	1
106	70	225	1
107	40	148	1
108	52	156	1
109	76	96	1
110	114	168	1
111	40	110	1
112	68	112	1
113	24	148	1
114	64	345	1
79 DCM 115	98	134	1

MW GRP

CERTIFIED BY: Hart Bichler

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 984-0221
AREA CODE: 604
TELEX: 043-52597

ANALYTICAL CHEMISTS •• GEOCHEMISTS •• REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 50073
INVOICE NO. 32348
RECEIVED Aug. 26/79
ANALYSED Sept. 4/79

TO: J.C. Stephen Explorations Ltd.,
1124 West 15Th St.,
North Vancouver, B.C. V7P 1M9

ATTN:
PROJECT: D.C. Syndicate CC: J.C. Stephen

SAMPLE NO. :	PPM Pb	PPM Zn	PPM Sn
79 DCM 116	30	86	1
117	4	60	1
118	60	250	1
119	50	124	1
120	16	64	2
121	26	108	1
79 DCM 122	36	124	1

Mid Grid

MEMBER CANADIAN TESTING ASSOCIATION

CERTIFIED BY: Hart Bichler

Results

Samples were analysed for lead zinc and tin. No tin values were obtained (Table II) and although some significant lead values occur,(samples DCMT 1,2,11,101,110) they do not indicate any significant anomaly other than the original one being checked on.

Zinc values are similar to lead, being anomalous in samples DCMT 1,2,19, 101,103,114. They too serve only to confirm and limit the extent of the MW 3-5 anomaly.

Investigation of MW 3,5 Anomaly

Prospecting of the area indicated as anomalous by 1978 sampling revealed small amounts of galena and sphalerite in fine rubble and spotty outcrop where the anomalous samples were taken. Occasional specimens, well mineralized with reddish sphalerite, could be collected but no extensive zone of significant values is immediately evident. A trench should be excavated across this zone to provide more continuous exposure for sampling purposes.

RECOMMENDATIONS

The single skarn outcrop on MW 17 is probably part of the No. 2 showing skarn. This outcrop has apparently not been sampled It should be checked for tungsten tin content.

A tape and compass grid should be laid out along the trend of this skarn with soil samples to be taken at 100 foot intervals on lines 200 feet apart. Magnetometer readings should be taken at 25 foot intervals on these same lines.

On the MW 3-5 lead zinc showing a trench should be dug and blasted across the mineralized indications for mapping and sampling purposes. The local area should be mapped at 1" - 40' scale by stadia methods.

In the north west portion of the claim group additional mapping is needed and talus sample lines should be continued from the north west end of present sampling to the west boundary.

The additional stratigraphic information derived from this work should be used to investigate the westerly projection of the tin bearing skarn.

Respectfully submitted
J.C. Stephen Explorations Ltd.

A P P E N D I X I

MW MINERALOGY

TIN BEARING SKARN

Subject D.C. SYNDICATE M.W. MINERALOGY Reference

I have completed a small petrographic/mineralographic study of two rock slabs from D.C. Syndicate's MW claims. This was undertaken as a combined informational/research project. The material studied was collected by Jim Turner, a geologist who worked for D.C. Syndicate last summer. The two samples are supposed to represent about one foot of a four foot section that assayed over 4% Sn. One sample was taken at the base of the section (6" thick) and the other from a position one foot above. The same section(?) has been located about 300 feet along strike(?) and again assayed in excess of 4% Sn over four feet. Turner indicated that the section may not be continuous over 300 feet but might represent a series of discontinuous faulted(?) blocks. Apparently the outcrop is poor and the assayed sections were first revealed in trenching.

A quick look at one of Turner's polished sections at the end of 1978 using the scanning electron microscope indicated the presence of a Ca-Sn mineral thought to be nordenskioldine. It was decided to look at these two slabs in more detail. Six polished thin sections were taken from intervals across the two slabs. This was done to detail and document the mineralogy, particularly the Sn species, as this type of occurrence seemed rather unusual. This type of occurrence, where cassiterite is not the major Sn contributor, might pose problems in economic evaluation.

In the following section brief microscopic descriptions of the ore and gangue mineral assemblages are presented from the uppermost sample stratigraphically to the lowest.

DESCRIPTIONS

Sample R79-273: In thin section the mineralogy is as follows:

Diopside	:	~35%
Calcite	:	~30%
Nordenskioldine	:	~10%
Wollastonite	:	~5%
Opaques	:	~20%

Bands or layers, presumably representing original sedimentary structure, vary in thickness from 5-10mm. Individual bands consist of crystalline (0.5-1.0mm) calcite or sugary mixtures of fine grained calcite and diopside (0.5 to .1mm). Seams and patches of nordenskioldine (1-2mm in size) occur with mixtures of calcite and diopside, often in association with opaques. Wollastonite is present in thin discontinuous seams in calcite-diopside.

In reflected

Signed

In reflected light opaques are:

Aresnopyrite	:	~96%)	
Bismuth	:	~3%)	total opaques = 20%
Sphalerite	:	<1%)	

Subhedral grains of arsenopyrite range in size from 3 to 10mm. Bismuth and sphalerite are included in arsenopyrite as small 10-30µm rounded grains. One grain of bismuth, 160µm in size, is seen hosted by calcite.

Sample R79-274: In thin section the mineralogy is as follows:

Diopside	:	~35%
Nordenskioldine	:	~15%
Calcite	:	~10%
Malayaite	:	~10%
Opaques	:	~30%

Diopside occurs as anhedral grains up to 1mm in size. Nordenskioldine present in patches of several mm's size is composed of individual grains to 0.5mm in size. Calcite is interstitial to other gangue. Both diopside and nordenskioldine appear variably altered. Malayaite was identified occuring as prismatic grains, usually associated with sulfide minerals.

The overall texture of the specimen is that of a layered or banded skarn. The original rock was a calc-silicate.

In reflected light opaques are:

Arsenopyrite	:	~95%)	
Cassiterite	:	~2%)	
Tetrahedrite	:	<1%)	total opaques = ~30%
Stannite	:	~1%)	
Sphalerite	:	<1%)	
Bismuth	:	~1%)	

Massive arsenopyrite seams the section. Cassiterite occurs as rounded grains that may reach 300µm in size. Cassiterite also occurs as microscopic grains developed at grain boundaries of nordenskioldine (alteration?). Irregular shaped composites of stannite, tetrahedrite and sphalerite are hosted by diopside-calcite. These grains are usually less than 100µm in size. Traces of bismuth in very small grains are present and appear to accompany the composite sulfides.

Sample R79-275: In thin section the mineralogy is as follows:

Diopside	:	~60%
Nordenskioldine	:	~20%
Calcite	:	~10%
Danburite	:	~7%
Opaques	:	~2%

The rock is

The rock is finely layered or laminated with bands 1-5mm in width. Nordenskioldine with included round diopsides form one type of band as does solid nordenskioldine or diopside. Delicate features such as slightly deformed bands less than 1mm wide are composed of extremely fine grained diopside. Calcite occurs as an interstitial mineral in diopside and nordenskioldine Danburite also occurs as an interstitial mineral. The rock is a calc-silicate skarn.

In reflected light opaques are:

Arsenopyrite	: ~90%)	
Bismuth	: ~5%)	total opaques = ~2%
Cassiterite	: ~5%)	

Arsenopyrite is present in a few widely scattered patches to 2mm in maximum size. Bismuth is noted in small <50μm rounded blebs in calcite. Cassiterite is present in very finely divided particles, developed along grain boundaries of nordenskioldine.

Sample R79-276: In thin section the mineralogy consists of:

Diopside	: ~45%
Nordenskioldine	: ~20%
Danburite	: ~6%
Calcite	: ~4%
Opaques	: ~25%

Diopside and nordenskioldine occur in massive form and as included grains, one in the other. Calcite and danburite are essentially large anhedral to subhedral grains or patches that overgrow diopside-nordenskioldine at a later stage. The rock is a calc-silicate skarn.

In reflected light the mineralization consists of:

Arsenopyrite	: ~95%)	
Cassiterite	: ~ 3%)	
Bismuth	: ~ 1%)	total opaques = ~25%
Stannite	: < 1%)	
Sphalerite	: < 1%)	

Arsenopyrite occurs as large crystalline patches to 1cm in size. Occasional inclusions of bismuth are noted in arsenopyrite but most bismuth is present as free grains in gangue adjacent to arsenopyrite. Grains do not exceed 80μm. Stannite and sphalerite occur in a similar manner to bismuth. Cassiterite is present as finely divided grains strewn along grain boundaries of nordenskioldine or nordenskioldine and diopside.

Sample R79-277

Sample R79-277: In thin section the mineralogy is:

Danburite	:	~30%
Diopside	:	~25%
Nordenskioldine	:	~15%
Fluorite	:	~10%
Calcite	:	~ 5%
Opaques	:	~15%

Patches of fluorite and calcite host the sulfides. Nordenskioldine forms an envelope around mineralization and is accompanied by included grains of diopside. This mineralogy is set in a groundmass of coarse crystalline danburite with included fine grained, sugary, diopside and small clots of nordenskioldine. The nordenskioldine shows opaqueness in transmitted light, likely from extremely fine grained cassiterite development.

In reflected light the section is seen to contain:

Bornite	:	~50%)	
Chalcocite	:	~30%)	total opaques = ~15%
Stannite	:	~20%)	
Bismuth	:	Tr.)	

The mineralization occurs as skeletal, ragged patches in a distinct seam or zone in the rock. Sulphides form a complex intergrowth of bornite, chalcocite and stannite. The bornite exhibits a eutectic-like intergrowth with chalcocite and both are in mutual boundary contact with stannite. The stannite appears to have unmixed and segregated to grain boundaries sooner than the copper sulfides. Individual composite grains do not exceed 0.5mm. Bismuth is present in small irregular shaped grains in the gangue.

The mineral stannite is called that for convenience. Actually it differs from stannite in that it is a Sn-rich phase and has optical properties more closely matched by stannoidite.

Sample R79-278: In thin section the following mineralogy is noted:

Danburite	:	~35%
Nordenskioldine	:	~30%
Calcite	:	~10%
Fluorite	:	~10%
Diopside	:	~10%
Opaques	:	~ 5%

This section is mineralogically and texturally similar to R79-277. In reflected light the following minerals are noted:

Bornite	:	~25%)	
Chalcocite	:	~20%)	
Stannite(?)	:	~35%)	total opaques = ~5%
Arsenopyrite	:	~10%)	
Cassiterite	:	~10%)	

Arsenopyrite

Arsenopyrite occurs as a euhedral crystal 2mm in length. Cassiterite is present in ragged grains to 0.5mm. The sulfides bornite, chalcocite and stannite occur similarly to R79-277 with the largest composite grains being 1.5mm across.

DISCUSSION

In the rock slabs studied the major tin-bearing phase has been positively identified as the mineral nordenskioldine ($Ca\ Sn\ B_2O_6$) by gandolfi camera X-ray diffraction. Of the 4% plus Sn in these rocks about 90% is the result of nordenskioldine (43% Sn by weight). Cassiterite (SnO_2) and malayaite ($Ca\ Sn\ SiO_5$) account for the remainder. The mineral nordenskioldine is apparently very rare, having been identified in only 5 localities throughout the world, according to literature.

Nordenskioldine and malayaite are stable only under unusual conditions. Nordenskioldine requires conditions unusually enriched in B_2O_3 and depleted in Co_2, HF and especially SiO_2 to be stable, while malayaite requires relatively high temperatures and a basic environment. These conditions seem to prevail.

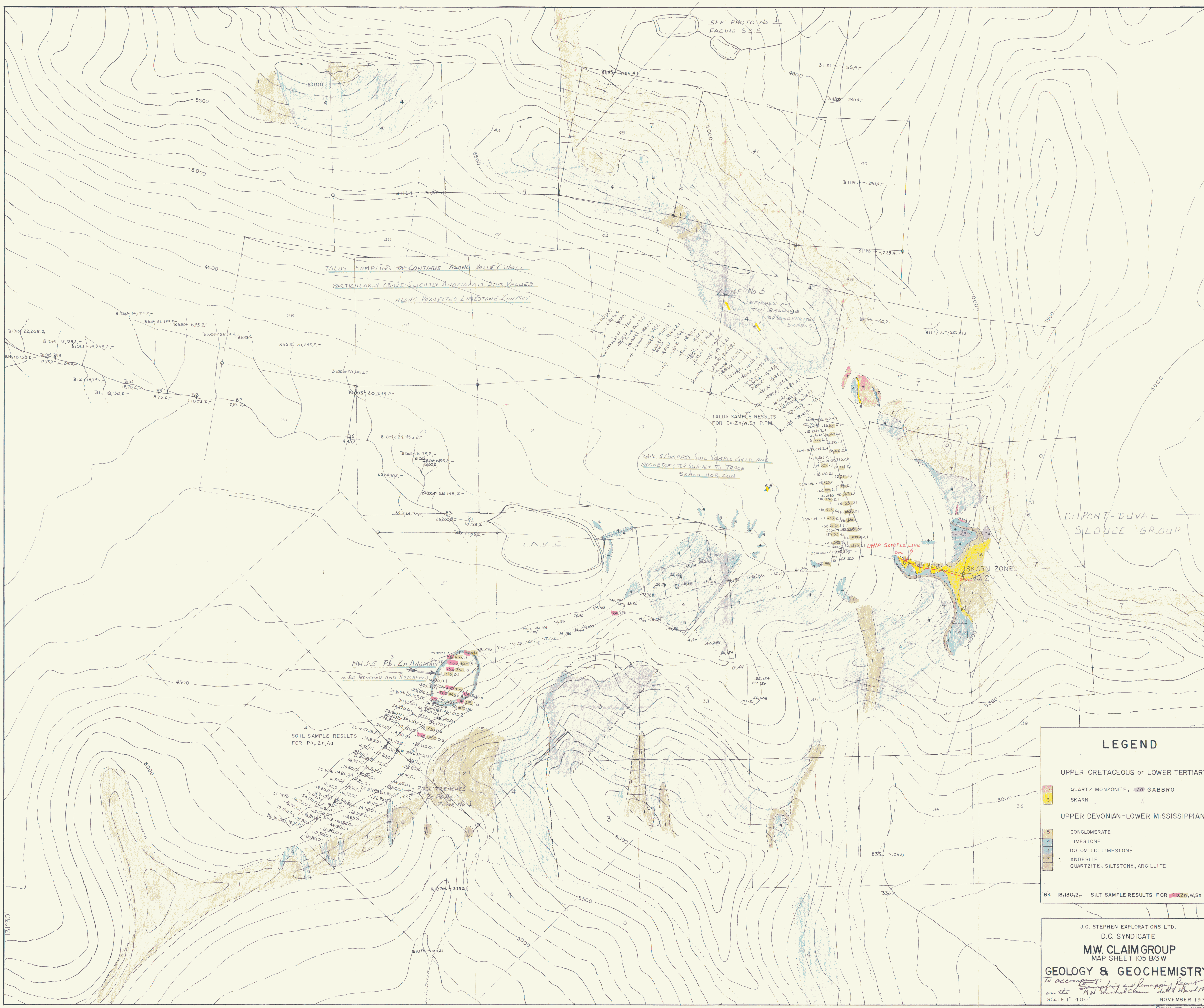
The skarn is a diopside-calcite-wollastonite type which represent the pyroxene hornfels metamorphic facies. This assemblage is formed at contact conditions of granitic intrusion with temperatures in the 600-650°C. range.

The original mineralogy of the host rock has played an important role in producing the mineralogy seen. The general absence of tourmaline, epidote, garnet and axinite, typical of Sn skarns, appears to be the result of insufficient aluminum in these rocks. This might then force the formation of unusual boron-rich phases (hydrothermal volatiles rich in boron) such as danburite (($Ca\ B_2\ Si_2O_6$), a topaz group mineral) and nordenskioldine ($Ca\ Sn\ B_2O_6$) at the expense of cassiterite and typical skarn mineralogy. Further, the presence of wollastonite, present here in small amounts, implies the stability of malayaite over that of cassiterite. A rock package more enriched in aluminum, iron and magnesium and more deficient in calcium would probably foster the formation of the more typical cassiterite-bearing skarn.

Field identification of cassiterite is often difficult. Malayaite on the other hand can be identified by a characteristic greenish-yellow fluorescence in short wave ultra-violet light. Nordenskioldine which has a dolomite structure and may be easily confused with an amorphous-looking carbonate has a weak white to yellow tinged fluorescence under short wave ultra-violet light.

Regards.

J.A.McLeod



SEE PHOTO No 1 FACING S.S.E.
TALUS SAMPLING TO CONTINUE ALONG VALLEY WALL PARTICULARLY ABOVE SLIGHTLY ANOMALOUS SILT VALUES ALONG PROJECTED LIMESTONE CONTACT
ZONE No 3
TRENCHES ON TIN BEARING SKARNS
TALUS SAMPLE RESULTS FOR Cu, Zn, W, Sn P.P.M.
TAPE & COMPASS SOIL SAMPLE GRID AND MAGNETOMETER SURVEY TO TRACE SKARN HORIZON
LAKE
CHIP SAMPLE LINE
SKARN ZONE No. 2
DUPONT-DUVAL SLOUCE GROUP
MW 3-5 Pb, Zn ANOMALY
TO BE TRENCHED AND REMAPPED
SOIL SAMPLE RESULTS FOR Pb, Zn, Ag
ROCK TRENCHES Zn Pb Ag ZONE No 1
LEGEND
UPPER CRETACEOUS or LOWER TERTIARY
7 QUARTZ MONZONITE; 7a GABBRO
6 SKARN
UPPER DEVONIAN-LOWER MISSISSIPPIAN
5 CONGLOMERATE
4 LIMESTONE
3 DOLOMITIC LIMESTONE
2 ANDESITE
1 QUARTZITE, SILTSTONE, ARGILLITE
B4 18,130,2,- SILT SAMPLE RESULTS FOR Pb, Zn, W, Sn
J.C. STEPHEN EXPLORATIONS LTD.
D.C. SYNDICATE
M.W. CLAIM GROUP
MAP SHEET 105 B/3 W
GEOLOGY & GEOCHEMISTRY
To accompany: Sampling and Remapping Report on the MW Mineral Claims dated March 1980
SCALE 1"-400'
NOVEMBER 1978
REVISED 1979

MAP I