

092HSW067

871(23)

009370

December 10th 1974

Mr. Jack White,  
701 Birch Street,  
CAMPBELL RIVER, B.C. V9W 2T3

Dear Mr. White:

Re: CLOVER LEAF CLAIMS

In response to your request to Mr. J.E. McMynn of September 6th last that the Government put your talc property on Ruby Creek into production, I can report that we cannot recommend this.

The nature of the material and the limited market will not support a profitable operation.

Yours sincerely,

JAMES T. FYLES  
Associate Deputy Minister

JTF:bg

c.c. J.E. McMynn

**MEMORANDUM**

TO..... Dr. J. T. Fyles.....  
..... Associate Deputy Minister.....  
..... Mineral Resources Branch.....

FROM THE

**DEPARTMENT OF MINES  
AND PETROLEUM RESOURCES**

VICTORIA, B.C., December 2, 1974

RE: Clover Leaf Mineral Claims

WHEN REPLYING PLEASE REFER  
TO FILE No.....

As per your instructions of 23 October, I visited the Clover Leaf mineral claims on a talc deposit at Ruby Creek on Saturday, 16 November, 1974.

Mr. Jack White, partner of W. E. Harvey, the registered owner of the Clover Leaf No. 1 claim on which the showing occurs, met me at Ruby Creek. The claim lies on private property. Apparently there has been trouble between White and the owner and the latter has refused White access to the claim. As a result White would not accompany me to the showing but sent his daughter-in-law, who was supposed to know where all the showings were. It turns out she had only been there once and was not too sure about anything. However, I think we saw what could be seen.

A report on the property based on the examination is attached.

*J. W. McCammon*  
J. W. McCammon  
Geologist, Geological Division  
Mineral Resources Branch

12861

JWM/ldm  
Encl. (2)

REFERRED TO	DATE	INITIAL
D.M.		
ADM (M)	18/12/74	
ADM (P)		
C.G.C.		
C.P.R.		
D.C.C.		
ACPR		
C.C.		
ACCTS.		
GEOL.		
INSP.		
M. REV.		
EC. & P.		
FILE NO.		
FILING CLERK		

DEC 3 '74 AM



DEPT. OF MINES  
AND PETROLEUM RESOURCES

CLOVER LEAF TALC PROPERTY, RUBY CREEK

92H/5E

49° 21.61' - 121° 37.05'

A small showing of talc occurs 2 metres above high water level about 5 metres west of Ruby Creek, 1,000 metres upstream from the bridge over Highway 7. The bridge is 17 kilometres northeast of Agassiz. The talc is reported to be on the Clover Leaf No. 1 mineral claim (no stakes were seen) registered in the name of William E. Harvey. The showing can be reached by driving 1,500 metres by road northwest from the bridge through I.R. No. 2 to the first road forks. From a point 100 metres northeast along the east fork it is about 350 metres east by trail through the bush to the talc exposure at the creek.

The showing is in a drift covered area where exposures are poor and much of the visible rock is loose, in masses as much as 5 to 7 metres in diameter. From what little can be seen it would appear that the talc forms a lens about 10 metres thick between chloritic phyllite wallrocks that strike nearly north and dip deeply east. A length of at least 70 metres is indicated by outcrops of talc that were seen. Possible extensions north and south would be covered by 40 metres or more of overburden. The regional geological map of the area (G.S.C. Map 737A, Hope) indicates the area as one with many small basic and ultrabasic bodies scattered through metamorphosed sedimentary and volcanic rocks. The talc is most likely an alteration product of one of these ultrabasic bodies. The actual size of the talc mass cannot be predicted from available information.

A crude opencut has been blasted in what appears to be talc "in place." The excavation is about 10 metres wide and 15 metres long in a northerly direction along the strike of foliation in the talc. Rock along the sides of the cut, the apparent walls of the talc, are highly metamorphosed volcanic or sedimentary rocks now consisted of chloritic phyllite. A few metres downstream a bluff of quartz-biotite phyllite has a foliation that strikes north 7 degrees east and dips steeply east. Large blocks of phyllite and ultrabasic rocks form the

bank northward up the creek. One small outcrop of talc, apparently "in place," was found 70 metres north of the cut. Pyroxenite forms a bluff about 30 metres higher than and 50 metres northwest of the talc.

The talc visible in the cut ranges in colour from cream to dark greenish grey and weathers rusty to greenish. In the exposure the surface is highly fractured and slickensided. A thin section consisted of 25 per cent tremolite-actinolite, 5 per cent black metallic (mostly magnetite), and talc. When powdered it was off-white to grey. A thin section from the north outcrop consisted mainly of talc with black metallic grains. It was dark greenish grey, weathered greenish, and formed an off-white powder. No exposure was large or fresh enough to give a good indication of what size of unfractured blocks could be quarried from the deposit. Some loose pieces up to 6 inches thick were noted.

A drill site was seen just off the south end of the cut. The drill platform was collapsed and overgrown with moss. Debris covered the site and the actual drill hole was not seen so the orientation could not be measured. No core was seen. A crude core log submitted with a 1970 exploration form describes "hole no. 1 on the Clover Leaf No. 1 claim that went through 204 feet of talc on a 33 degree dip north" (see attached). If this is the same hole, then a north dip would be along the apparent strike and would indicate the depth but not thickness of the talc.

Unless some market unknown to me can be proven, I can see little value to the deposit at this time other than possibly as a small operation to supply blocks for the local carving fraternity. This, of course, if the rock is free from fractures below the surface. Such a market I would consider to be very limited.



This is record of work done with Xray <sup>drill</sup> on this property during 1966 1967.  
Assays taken from portions of Hole No 1 and Hole      on Clover Leaf

Claim No 1, Clover Leaf Group Ruby Creek B C in talc shear zone.

Assays from Hole No 1.

33' to 39' Victoria B.C. Pb. Cu, Ag assays over \$1. and under \$3. in metals other than talc.

39' to 43' J R Williams Vancouver " " " " " " " " " " " "

Assayed for Au Ag and Cu only

74' to 84' Victoria Pb Cu Ni Ag " " " " " " " " " " " "

166' to 176' J R Williams all white talc. " " " " " " " " " " " "

178' to 180' J R Williams au ag but assayed for au and ag only. " " " " " " " " " " " "

180' to 204' Victoria (pure white talc, magnesium silicate, ag ni over \$1. and under \$3. in metals other than talc. Portions of Hole No 1 which were not talc were pyrrhotite. Also thirty ft of talc dressed which lies between hanging wall and where Hole No 1 was drilled down the creek. Hole No 1 drilled with 33 degree dip north. Also 120 feet talc dressed east of where Hole No 1 drilled. Talc extends on creek for approx 140 yds.

Assays of Hole No 2.

2' au ag and cu Victoria B.C. Under \$5. and over \$1. of metals other than talc.

88' cu ni ag " " " " " " " " " " " "

112' cu ag " " " " " " " " " " " "

132' to 145' cu ni ag " " " " " " " " " " " "

176' cu ni ag " " " " " " " " " " " "

206' to 207' cu ni ag " " " " " " " " " " " "

247' Ag \$2.52 Cu \$.40 total \$2.92 J.R/Williams assayed for ag & cu only

250' 250 1/2' au 0.01 ag p.35 cu .60 zi 0.57 Ni 0.46 total \$13.64 J R Williams.

Heavy rods for going any deeper with Xray drill. Would require larger pump and aluminum rods to go 300' to 350' with Xray drill.

250 1/2' to 257 1/2' in pyrrhotite. This as far as could go; but last seven feet not heavily mineralized.

Have made several 12' to 17' holes in talc with pack sack drills. Always got assays of silver 1 oz. or sometimes fraction more. Silver assays always consistent. Got 3 oz. ag in the clastic slate in contact of serpentine and talc.

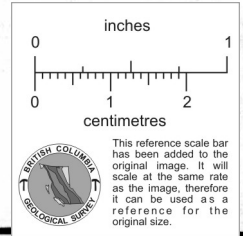
*Supplied with 1970 Exploration Form.*

92 H / 5E

1:50,000

CLOVER LEAF M.C.

RUBY CREEK.



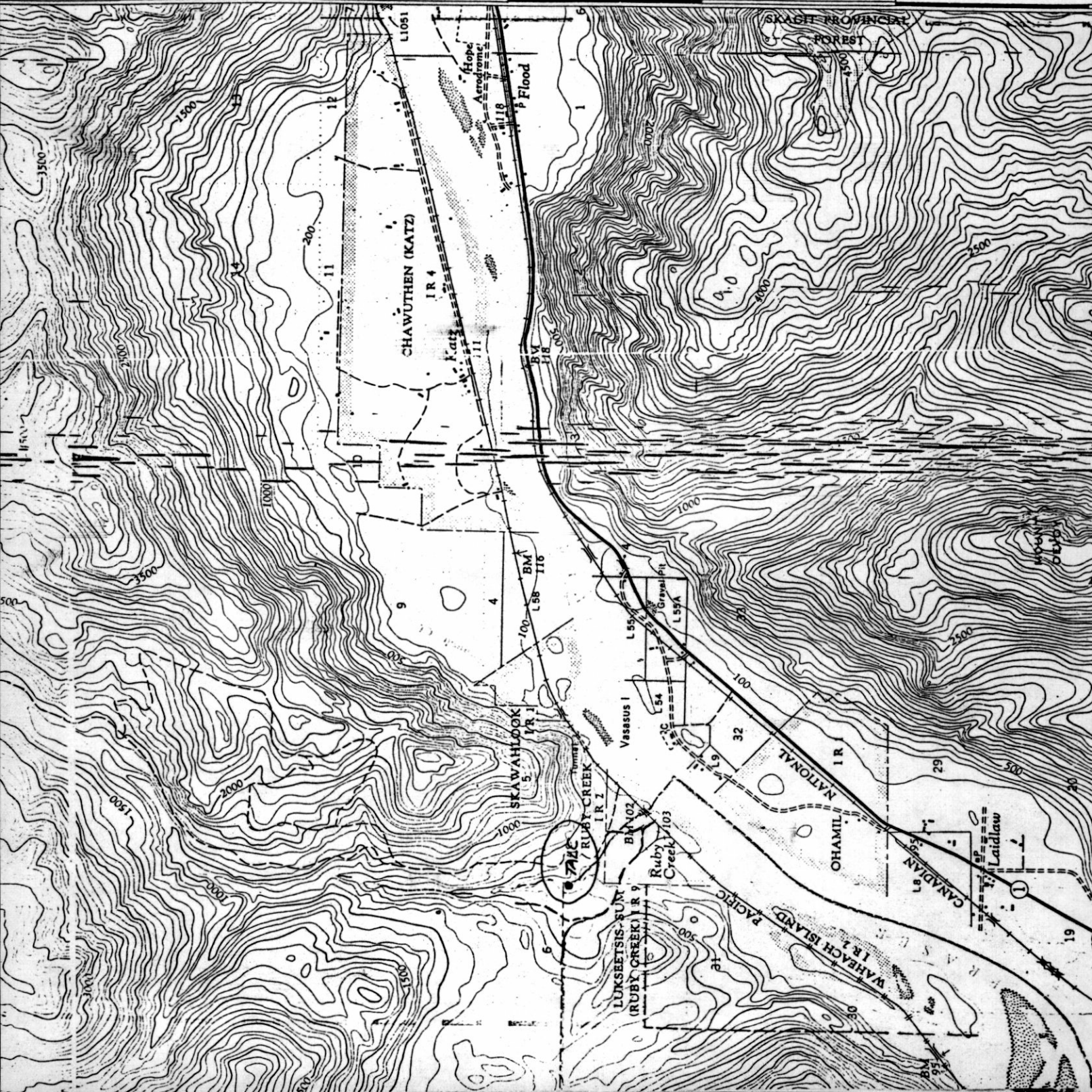
Tp 5

To Kamloops

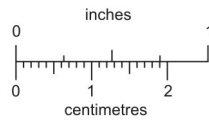
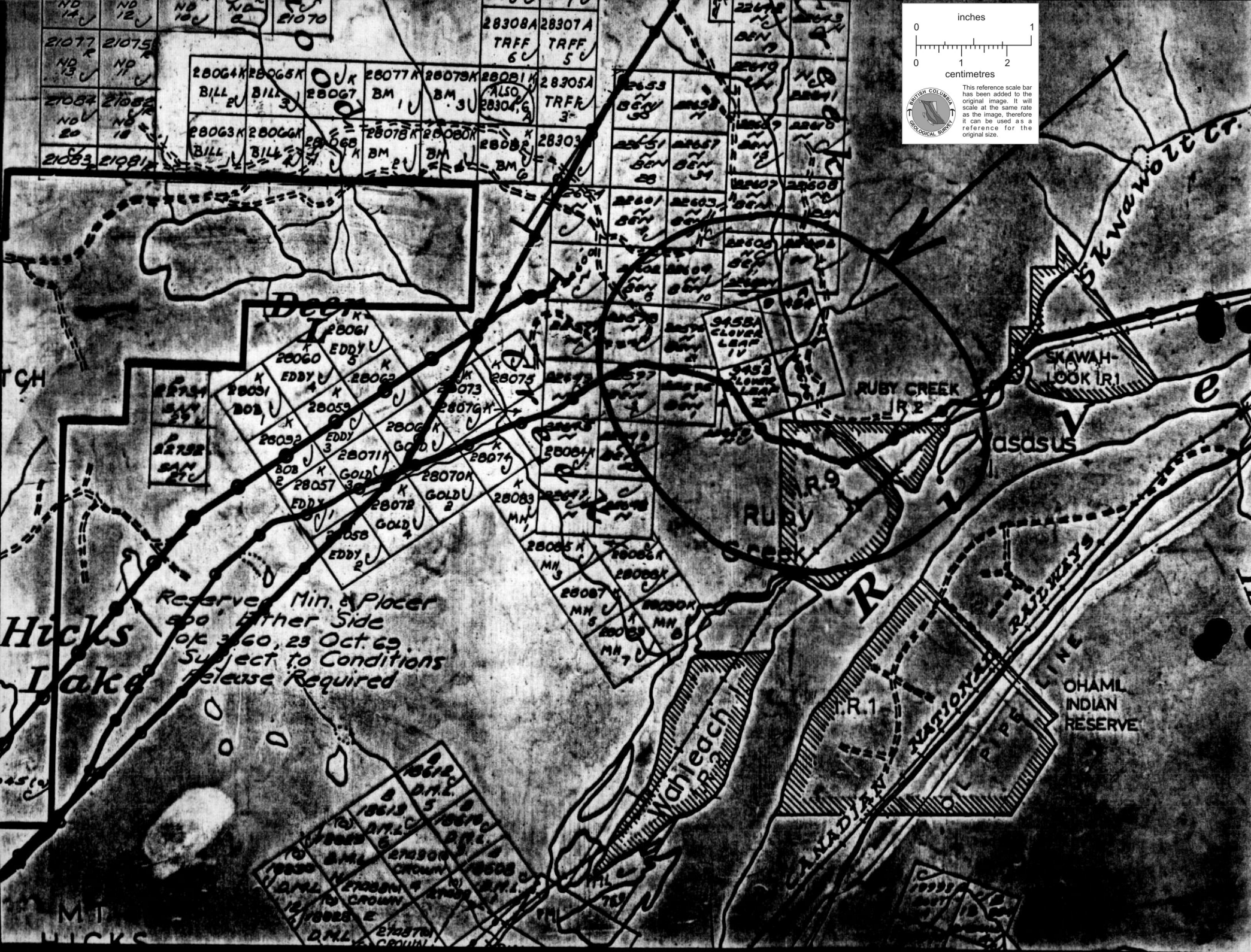
To Hope

Hope 4 m

20'







BRITISH COLUMBIA  
GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

Reserve Min. of Plover  
400' either Side  
ok 3-60, 23 Oct 69  
Subject to Conditions  
Release Required

Hicks Lake

RUBY CREEK IR 2

SKAWAH-LOOK IR 1

CANADIAN NATIONAL RAILWAYS PIPELINE

OHAMI INDIAN RESERVE

21077	21075	28064K	28065K	28067	28077K	28079K	28081K	28308A	28307A
NO 14	NO 12	BILL 2U	BILL 3	BM 1	BM 3U	ALSO 28304.6	TRFF 3-	TRFF 6U	TRFF 5U
21082	21082	28063K	28066K	28068	28078K	28080K	28082K	28303	
NO 20	NO 18	BILL 1	BILL 2	BM 1	BM 2	BM 3	BM 4		

28061	EDDY 3	28075	28073	28076K	28074	28074	28074
28060	EDDY 3	28059	EDDY 3	28071K	28070K	28072	28083
28051	BOB 1	28052	BOB 2	28057	EDDY 2	28058	EDDY 2
28051	BOB 1	28052	BOB 2	28057	EDDY 2	28058	EDDY 2
28051	BOB 1	28052	BOB 2	28057	EDDY 2	28058	EDDY 2
28051	BOB 1	28052	BOB 2	28057	EDDY 2	28058	EDDY 2

Wahleach Road

Mr. J. W. McCannon,  
Geologist,  
Geological Division

October 23rd 74

871

"Clover Leaf" Mineral Claims

Thank you for your recent note on these claims  
and for the information on talc.

Under the present circumstances I request that you  
visit this property at your convenience and let me know the results.

JAMES T. FYLES  
Associate Deputy Minister

JTF:bg



**MEMORANDUM**

TO Dr. J.T. Fyles,  
Associate Deputy Minister.

FROM THE

**DEPARTMENT OF MINES  
 AND PETROLEUM RESOURCES**

VICTORIA, B.C., September 16, 19 74

WHEN REPLYING PLEASE REFER  
 TO FILE NO.....

Re: Four "Clover Leaf" Mineral Claims  
on a talc showing near Ruby Creek

I do not have much information on this deposit. In May, 1964 I visited the showing. No one was on the property at the time. There was little rock exposed in the vicinity. About 1/2 mile north of Ruby Creek station I found a diamond drill site in drift at the top of the west bank of the creek. No core was present. In the creek directly below the diamond drill site an exposure revealed 2 to 3 feet of sheared yellowish talc in a northerly striking shear zone in altered ultrabasic rock. Little else was visible at the time.

Recent exploration reports by the owners describe the deposit as containing sulphides in talc in a shear zone in serpentine. They state the width to be up to 300 feet.

Enclosed are recent price quotations and the latest Ottawa pamphlet on talc. Small blocks of unfractured talc, suitable for carving, bring up to \$1.00 or more a pound on the retail market hereabouts but the amount sold is probably relatively small. If this deposit is all in a shear zone, it is doubtful if much would be suitable for carving.

REFERRED TO	DATE	INITIAL
D.M.		
ADM (M)	<i>12/10/74</i>	
ADM (P)		
G.G.C.		
C.P.R.		
DCCG		
ACPR		
G.C.		
ACCTS.		
GEOLOG.		
INSP.		
M. REV.		
EC. & P.		
FILE NO.		
FILING CLERK		

*J.W. McCammon*

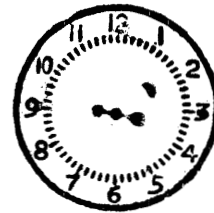
J.W. McCAMMON,  
 Geologist, Geological Division,  
 Mineral Resources Branch.

10428

JWMcC/jr

Encls.

SEP 30 '74 PM



**DEPT. OF MINES  
 AND PETROLEUM RESOURCES**

the concentrate building, and the filter building had been erected. The 12-kv. power-line has been rebuilt to British Columbia Hydro and Power Authority standards and new 4/0 A.C.S.R. conductors have been strung. A new 150-kva. 12,000-480-volt transformer station was built to supply power to the 3050 level. Work is continuing and operations are expected to resume in early 1971.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 196.

**BEA, GIANT, SWEDE** (No. 54, Fig. H)

LOCATION: Lat. 49°25-29' Long. 121°26-32' (92H/5E, 6W)

Two to 6 miles north of Hope.

CLAIMS: BEA, GIANT, SWEDE, MARY G, PUFF, PAT, and others totalling 131 full claims and fractions.

ACCESS: Road from Highway 1.

OWNER: KELSO EXPLORATIONS LTD., 470 Granville Street, Vancouver 2.

METALS: Nickel, copper.

DESCRIPTION: Copper and nickel sulphide disseminated in basic and ultrabasic rocks.

WORK DONE: Surface workings surveyed; geological survey of Swede, Bea, Mill, Giant, and Pat claims; self-potential, electromagnetic, and ground magnetometer surveys of Swede claims; soil sample geochemical survey of Bea, Mill, Swede, Giant, and Pat Claims; 26,540 feet of trenching on Swede, Bea, Mill, and Giant claims; three holes totalling 1,119 feet diamond drilled on Swede 9 and 42 claims; and one-half mile of road built on Swede 49 claim.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 197; Assessment Reports 2505, 2612, 2660, 2743, 2744, 2745.

**CLOVER LEAF** (No. 27, Fig. H)

LOCATION: Lat. 49°21.5' Long. 121°37' (92H/5E)

At approximately 900 feet elevation, on Ruby Creek, about 1 mile from mouth, 8 miles west of Hope.

CLAIMS: CLOVER LEAF 1 to 4, BEN 1 to 35.

ACCESS: By road from Ruby Creek, one-half mile.

OWNERS: W. E. HARVEY and JACK WHITE, 3450 West 35th Avenue, Vancouver 16.

METALS: Gold, silver, nickel, copper.

DESCRIPTION: Sulphide mineralization in talc in shear zone in serpentine.

WORK DONE: Surface diamond drilling, three holes totalling 60 feet on Clover Leaf 1 claim.

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 198; Assessment Report 2666.

**DIANE** (No. 17, Fig. H)

LOCATION: Lat. 49°18.7' Long. 121°37' (92H/5E)

At 500 to 750 feet elevation, on the east side of Wahleach Creek, three-quarters of a mile south of the Fraser River.

CLAIMS: DIANE 1 to 6.

ACCESS: By Jones Lake road from Laidlaw, 2 miles.

OWNER: ALMAZA MINING CO. LTD., 3797 Kingsway, Burnaby 1.

METALS: Gold, silver, cobalt.

WORK DONE: Fifty feet of underground work on the Diane 1 claim.

REFERENCE: *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, p. 198.



# MARKETS

# E & M J

# MAY 1974

(Continued from p 118)

Imported drilling mud grade, specific gravity 4.20-4.30: c.i.f. Gulf ports.....	\$17-21	European wet filter cake, 8-10% moisture, sold dry content, duty pd, st, c.i.f. Wilmington/Philadelphia term contracts.....	\$95-97	f.o.b. Tampa, Fla., warehouse (domestic), eff. 7-1-71	
c.i.f. Canada.....	\$15	Mexican: st, f.o.b., metallurgical, effective CaF <sub>2</sub>		Muriate	
Ground, st		70% Tampico, f.o.b. vessel.....	\$50	Standard, 60% K <sub>2</sub> O.....	64¢
Water, 99½% BaSO <sub>4</sub>		Mexican border, f.o.b. cars.....	\$48.50	Coarse, 60% K <sub>2</sub> O.....	70¢
325 mesh, 50-lb bags, (b), (d).....	\$60-80	Acid 97% +, Eagle Pass, bulk, st.....	\$60-62	Sulfate, bulk, per unit K <sub>2</sub> O.....	(n)
Dry ground drilling mud grade, 83-93% BaSO <sub>4</sub>		<b>Graphite (natural):</b> f.o.b. source, mt		<b>Pyrites:</b> f.o.b. Climax, Colo., st, bulk	\$4-5
3-12% Fe, specific gravity 4.20-4.30, (b), (d).....	\$40-47	Flake and crystalline graphite, bags,		50-52% sulfur.....	
Imported		Madagascar.....	\$175-525	<b>Quartz rock crystals:</b>	
4.20-4.30 specific gravity (b)	\$31	Norwegian.....	\$120-200	For fusing, all sizes, st.....	\$330-1,100
<b>Bauxite:</b> lt, (d)		German.....	\$225-1,300	Prisms for piezo-electrical and optical use, according to size and grade, lb.....	\$2.50-50
Imported Guyana refractory grade, super calcined		Ceylon.....	\$200-350	<b>Silica:</b> amorphous, 50-lb paper bags, st f.o.b. Elco, Ill., through 200 mesh	
f.o.b. Baltimore, Md.....	\$62.50	Amorphous, non-flake—cryptocrystalline f.o.b. source (80-85°C):		90-95%.....	\$27
f.o.b. Mobile, Ala.....	\$62.53	Mexican, bulk.....	\$24	96-99%.....	\$28
<b>Borax:</b> bulk, (d) st, (b) eff. 4-1-73		Korean, bags.....	\$30	through 325 mesh	
Technical, 99½%.....	\$59.50	<b>Kyanite:</b> st, (b),		90-95%.....	\$29
Dehydrated, min. 99%.....	\$109.50	Georgia, raw, bagged		98-99.4%.....	\$32.50
Sodium Borate concentrates,		35 mesh.....	\$58	96-98%.....	\$31.50
46% B <sub>2</sub> O <sub>3</sub> .....	\$63.50	48 mesh.....	\$62	99.9% passing 400 mesh.....	\$68.00
65% B <sub>2</sub> O <sub>3</sub> .....	\$91.00	100 mesh.....	\$65	99% below 15 microns.....	\$75.00
<b>Corundum:</b> st crude, c.i.f. US ports,		200 mesh.....	\$73	99% below 10 microns.....	\$95.00
crystal.....	\$120-130	325 mesh.....	(n)	f.o.b. Dierks, Ark., st, 100-lb paper bags	
Boulder.....	\$70-75	Bulk shipments \$2 less per ton		200 mesh.....	\$30
<b>Feldspar:</b> st, (c), (d), (e) bulk		<b>Magnesite:</b> st, f.o.b. Luning, Nev., dead		325 mesh.....	\$40
North Carolina		burned grain, bulk.....	\$63.50	<b>Sulphur:</b> Following quotes are term contracts. US producers, f.o.b. vessel at Gulf ports, La. and Tex., lt.	
40 mesh, flotation.....	\$14-21	Bags.....	\$70.50	bright.....	\$34.50
20 mesh, flotation.....	\$13.00	f.o.b. Port Joe, Fla., bulk.....	\$100	dark.....	\$33.50
200 mesh, flotation.....	\$22.50-27.00	<b>Ochre:</b> st, (c), (d), Georgia		Export (Sulexco) f.o.b. Gulf ports:	
325 mesh, flotation.....	\$27.00	50-lb bags, #548 dark buff.....	\$50	bright.....	\$36-37
Georgia		50-lb bags, #404 light buff.....	\$60	dark.....	\$35-36
200 mesh.....	\$28.50	<b>Phosphate rock:</b> central Florida, land pebble, R.O.M., washed, dried, unground bulk, st, f.o.b. mine		Mexican export, f.o.b. vessel, lt, eff. 8-1-70	
325 mesh.....	\$26.50	66-68%.....	\$10.00	bright.....	\$26
40 mesh, granular.....	\$24.00	70-72%.....	\$11.75	dark.....	\$25
Connecticut		68-70%.....	\$10.95	<b>Talc:</b> st (d), (c) containers included unless otherwise specified:	
200 mesh.....	\$24.50	<b>Potash:</b> stu K <sub>2</sub> O contained, bulk, muriate, 62% K <sub>2</sub> O		New Jersey: mineral pulp,	
325 mesh.....	\$24.50	f.o.b. Carlsbad, N.M. and Moab, Utah, eff. 2-1-74		ground (bags extra).....	\$10.50-12.50
20 mesh granular.....	\$17.50	through 6-30-74		Vermont: 98% through 325 mesh, bulk.....	\$20
<b>Fluorspar:</b> net ton; f.o.b. Ill., Ky.; CaF <sub>2</sub> content, bulk		Standard.....	47¢	99.99% through 325 mesh, dry processed, bags.....	\$58
Metallurgical:		Soluble 62-63%.....	50¢	99.99% through 325 mesh, water beneficiated, bags.....	\$86
Pellets 70% effective CaF <sub>2</sub> .....	\$65.50	Coarse.....	50¢	New York: 96% through 200 mesh.....	\$28.00
Ceramic: calcite and silica variable, CaF <sub>2</sub>		Granular.....	52¢	99.9% through 325 mesh.....	\$44.50
88-90%.....	\$77.00-83.00	<b>f.o.b. Saskatchewan, Canada, eff. 2-1-74</b>		100% through 325 mesh (fluid energy ground).....	\$80-90
95-96%.....	\$82.00-90.00	through 6-30-74		California	
97%.....	\$87.00-96.00	Standard.....	46-47¢	Standard.....	\$37-55.50
In 100-lb paper bags, extra.....	\$6	Soluble 62-63%.....	50¢	Fractionated.....	\$37-71
<b>Acid, dry basis, 97% CaF<sub>2</sub></b>		Coarse.....	50¢	Micronized.....	\$62-104
Carloads.....	\$78.50-96.00	Granular.....	52¢	Cosmetic/steatite.....	\$44-65
Bags, extra.....	\$6	Charge for bags on above about \$10.00 per ton for muriate		Georgia:	
Pellets, 88% effective.....	\$76.50	<b>f.o.b. Trona, Calif., year-round, eff. 1-1-74</b>		98-200.....	\$14
Wet Filter cake, 8-10% moisture, sold dry content.....	subtract approx. \$2.50	Standard.....	59¢	100-325 (fluid energy ground).....	\$25

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OCT 26 1973 1972

# Talc, Soapstone and Pyrophyllite No. 48

G.H.K. PEARSE

Talc is a hydrous magnesium silicate  $H_2Mg_3(SiO_3)_4$  formed by the alteration of rocks rich in magnesia (most commonly ultrabasic igneous rocks and sedimentary dolomite) within which it occurs as veinlets, tabular bodies, or irregular lenses. It is a soft flaky mineral with a greasy feel or 'slip'; it is readily ground to a fine white or nearly white powder, has a high fusion point, low thermal and electrical conductivity and is relatively chemically inert. Most of the uses of talc depend on individual physical properties or combinations of these properties.

Talc is produced in various grades which are usually classified by end use, such as cosmetic grade, ceramic grade, pharmaceutical grade and paint grade. A special high-quality block talc used in making ceramic insulators and other worked shapes is designated steatite grade.

Soapstone is an impure talcose rock generally occurring in massive, compact deposits from which blocks can be sawn. Soapstone has been used since early times in many parts of the world for carving ornaments, pipes, cookware, lamps and other utensils, an art which has survived among the Eskimos up to the present era. Present uses include metalworker's crayons, refractory bricks, and blocks for sculpturing.

Pyrophyllite is a hydrous aluminum silicate  $H_2Al_2(SiO_3)_4$  formed by hydrothermal alteration of acid igneous rocks, predominantly lavas which are andesitic to rhyolitic in composition. It resembles talc in physical properties and for this reason finds uses similar to talc - notably in ceramic bodies and as a filler in paints, rubber and other commodities.

In Canada talc is produced in two provinces, Quebec and Ontario; pyrophyllite is produced only in Newfoundland. In 1972 the value of talc and soapstone shipments increased to \$975,000 from \$666,761 in 1971. The value of pyrophyllite production increased from \$393,375 in 1971, to \$560,000 in 1972.

## Production and developments in Canada

**Talc, soapstone.** The earliest recorded talc production in Canada was in 1871-72 when 300 tons valued at \$1,800 were shipped from a deposit in Bolton Township, southern Quebec by Slack and Whitney. In 1896 a deposit in Huntingdon Township, in the Madoc district in Ontario was opened up and over the next few years numerous deposits in this area were discovered and mined intermittently.

Several deposits in southern British Columbia and one in southwestern Alberta were discovered prior to 1920 and some of these were worked in a small way. At present, talc is mined by three companies, two in Quebec and one in Ontario. Total talc and soapstone production in Canada in 1972 reached an estimated 43,000 tons.

Baker Talc Limited produces talc and soapstone from an underground mine in South Bolton, Quebec, 60 miles southeast of Montreal. Ore from the mine is trucked 10 miles south to the company's mill facilities at Highwater. In former years, Baker Talc has produced a relatively low-grade, low-cost product suitable for use primarily as a dry-wall joint filler, asphalt filler and dusting compounds for asphalt roofing. Tests conducted in 1967-68, employing a Jones High Intensity Wet Magnetic Separator, were successful in upgrading talc products for use in the paint, cosmetic and paper industries and this process was added to the mill circuit in 1969. This project was supported by the federal Department of Industry Trade and Commerce. Throughout 1970 the new beneficiation circuit was tuned and modifications were made, including the addition of more flotation capacity and a thickener. Trial shipments of upgraded talc were made in 1970-71 for assessment in pulp and paper manufacture. The product proved satisfactory and regular shipments began in 1971. In 1972, seven paper mills were using the upgraded product and others are expected to place orders. Minor shipments have also been made for use as a filler in plastics and paints.

Along with talc output, the company from time to time markets soapstone blocks as an artistic medium to schools and art shops.

Broughton Soapstone & Quarry Company, Limited quarries talc and soapstone from deposits near Broughton Station in the Eastern Townships of Quebec, where the same geological conditions are evident as in the South Bolton area. Several low-priced grades of ground talc are produced and soapstone is sawn to produce metalworker's crayons and blocks for sculpturing.

Canada Talc Industries Limited produces talc from underground workings at Madoc, Ontario. The deposits at Madoc are extensive and were formed by the alteration of dolomitic marble. Impurities in the deposit consist of tremolite and dolomite, which limit the use of some ground products. A high-quality

Table 1. Talc, soapstone and pyrophyllite production, trade and consumption, 1971-72

	1971		1972 <sup>P</sup>	
	(short tons)	(\$)	(short tons)	(\$)
<b>Production (shipments)</b>				
Talc and soapstone				
Quebec <sup>1</sup>	..	314,220	..	490,000
Ontario <sup>2</sup>	..	352,541	..	485,000
Total	..	666,761	..	975,000
Pyrophyllite				
Newfoundland	..	393,375	..	560,000
Total production	65,562	1,060,136	80,000	1,535,000
<b>Imports (talc)</b>				
United States	33,428	1,821,000	39,206	2,069,000
Italy	323	22,000	1,277	50,000
Other countries	1	..	22	2,000
Total	33,752	1,843,000	40,505	2,121,000
<b>Consumption<sup>3</sup> (ground talc, available data)</b>				
Ceramic products	8,505		6,190	
Paints and wall joint sealers	7,156		7,469	
Roofing	6,593		6,412	
Paper and paper products	3,699		4,157	
Rubber	1,682		2,629	
Insecticides	682		266	
Toilet preparations	843		666	
Cleaning compounds	734		645	
Pharmaceutical preparations	227		163	
Linoleum and tile	646		1,474	
Other products <sup>4</sup>	5,378 <sup>r</sup>		8,587	
Total	36,145 <sup>r</sup>		38,658	

Source: Statistics Canada.

<sup>1</sup>Ground talc, soapstone, blocks and crayons; <sup>2</sup>Ground talc; <sup>3</sup>Breakdown by Mineral Resources Branch;

<sup>4</sup>Chemicals, foundries, gypsum products and other miscellaneous uses.

<sup>P</sup>Preliminary; .. Not available; ... Less than \$1,000; <sup>r</sup>Revised.

product suitable as a filler material in the paint industry is produced.

Numerous deposits of talc and soapstone occur in other parts of Canada. A soapstone deposit on Pipestone Lake in Saskatchewan was worked by Indians for the manufacture of pipes and various utensils. Reserves are reported to be considerable. In the Northwest Territories, a few occurrences of soapstone are known, from which Eskimos obtained material for carving. Showings of minor importance occur at several localities in Nova Scotia and Newfoundland.

**Pyrophyllite.** Newfoundland Minerals Limited, a subsidiary of American Olean Tile Company, Inc. pro-

duces pyrophyllite from an open-pit mine near Manuels, 12 miles southwest of St. John's, Newfoundland. Ore is crushed, sized and hand-cobbed at the mine site prior to trucking a short distance to tidewater. Continuous chemical analyses and physical tests are run on all material delivered from the mine to the loading dock. Blended ore is shipped in bulk to the parent company's operation at Lansdale, Pennsylvania, where it is used in the manufacture of ceramic tile. After a slow year in 1971, pyrophyllite production recovered in 1972 to former levels. Annual production is estimated to be about 37,000 tons. The pyrophyllite deposit at Manuels appears to be a hydrothermal alteration of sheared rhyolite. Altered zones are

Table 2. Production and trade, 1963-72

	Production <sup>1</sup>			Imports, Talc
	Talc and Soapstone	Pyrophyllite <sup>2</sup>	Total <sup>3</sup>	
	(short tons)			
1963	22,467	31,783	54,250	27,539
1964	25,316	32,816	58,132	31,598
1965	22,703	30,134	52,837	27,858
1966	29,596	40,548	70,144	24,918
1967	..	..	60,665	26,482
1968	..	..	80,589	28,244
1969	..	..	75,850	34,910
1970	..	..	72,055	33,068
1971	..	..	65,562	33,752
1972 <sup>P</sup>	..	..	80,000	40,505

Source: Statistics Canada.

<sup>1</sup>Producers' shipments; <sup>2</sup>Producers' shipments of pyrophyllite, all exported; <sup>3</sup>From 1967, breakdown of producers' shipments not available for publication.

<sup>P</sup>Preliminary; .. Not available.

associated for the most part with extensive fracturing near intrusive granite contacts. Reserves are extensive.

Other known pyrophyllite deposits in Canada include: an extensive area of impure pyrophyllite near Stroud's Pond in the southern part of Burin Peninsula, Newfoundland, a deposit near Ashcroft, British Columbia and three deposits in the Kyuquot Sound area, 200 miles northwest of Victoria, British Columbia. The Vancouver Island deposits were worked on a limited scale in the early part of this century.

#### Trade and markets

Most talc and soapstone produced in Canada is consumed domestically while all pyrophyllite produced is exported. Imported talc, most of it from the United States, is high-quality, high-value material suitable for use in the paint, ceramics, paper and cosmetic industries. Production of these superior grades of talc in Canada began in 1970 with the new beneficiation techniques incorporated into Baker Talc's mill and in 1971 a product acceptable to the pulp and paper industry was marketed. It is anticipated that imported high-quality talc will soon be displaced to some extent in other industries by this domestic product. Imports in 1972 amounted to 40,505 tons valued at \$2,121,000. Of this, 39,206 tons were imported from the United States and the remainder predominantly from Italy. Average value of imports in 1972 was \$52 a ton while domestic production sells in the range of \$10-70 a ton, depending upon quality.

#### Uses

Talc is used mostly in a fine-ground state although soapstone is used in massive or block form. There are many industrial applications for ground talc but major consumption is limited to less than a dozen industries.

Talc is used as a filler material in the manufacture of high-quality paper where it aids in dehydration of the pulp, improves sizing characteristics, reduces the tendency of papers to yellow and assures a well bonded surface to promote ease of printing. For use in the paper industry talc must be free of chemically active compounds such as carbonates, iron minerals, manganese, etc., have a high reflectance, possess high retention characteristics in the pulp and be free of abrasive impurities. Micronized material provides a high-gloss finish on coated papers.

The ceramic industry utilizes very finely ground talc which increases the translucence and toughness of the finished product and aids in promoting crack-free glazing. For use in ceramics, talc must be low in iron, manganese and other impurities which would discolour the fired product.

High-quality talc is used as an extender pigment in paints. Specifications for a talc pigment, as established in ASTM Designation D605-69, relate to the chemical composition, colour, particle size, oil absorption and

Table 3. World production of talc, soapstone and pyrophyllite, 1970-72

	1970	1971 <sup>P</sup>	1972 <sup>e</sup>
	(short tons)		
Japan	2,066,230	2,089,474	2,100,000
United States	1,027,929	1,037,297	1,082,000
U.S.S.R.	419,000	441,000	..
France	256,838	250,000	250,000
South Korea	224,952	234,185	..
India	185,641	195,477	..
People's Republic of China	165,000	165,000	..
Italy	170,657	152,936	150,000
Finland	69,140	110,979	..
Austria	110,406	100,995	100,000
North Korea	88,000	99,000	..
Norway	70,500	70,500	70,000
Canada	72,055	65,562	..
Romania	62,532	65,000	..
Australia	141,253	60,000	..
Other countries	256,886	253,267	1,750,000
Total	5,387,019	5,390,672	5,502,000

Sources: U.S. Bureau of Mines, *Minerals Yearbook*, Preprint 1971; U.S. Bureau of Mines, *Commodity Data Summaries*, January 1973; Statistics Canada.

<sup>P</sup>Preliminary; <sup>e</sup>Estimate; .. Not available.

consistency of, and dispersion in, a talc-vehicle system. A low content of carbonates, a nearly white colour, a fine particle size with controlled particle size distribution and a specific oil-absorption are important. However, because of the variety of paints, precise specifications for talc pigments are generally based on agreement between consumer and supplier. Paint characteristics influenced by the use of talc as an extender are gloss, adhesion, flow, hardness and hiding power.

Talc is well known for its use in pharmaceutical preparations and cosmetics. It is the major ingredient in face, baby and body powders. Finely ground, high-purity material is used as a filler in tablets and as an additive in medical pastes, creams and soaps. Material used for these purposes should be free of deleterious chemical compounds, abrasive impurities and fibrous minerals such as tremolite and asbestos, which are believed to be injurious to health when inhaled or ingested.

Lower-grade talc is used as a dusting agent for asphalt roofing and gypsum board; as a filler in dry-wall sealing compounds; as a filler material in floor tiles; in asphalt pipeline enamels; in auto-body patching compounds; as a carrier for insecticides and as a filler or dusting compound in the manufacture of rubber products.

Other applications for talc include use in cleaning compounds, polishes, electrical cable coating, plastic products, foundry facings, adhesives, linoleum, textiles, and in the food industry.

Particle-size specifications for most uses require the talc to be minus 325 mesh. The paint industry

demands from 99.8 to 100 per cent minus 325 mesh. For rubber, ceramics, insecticides and pipeline enamels, 95 per cent minus 325 mesh is usual. In the wall-tile industry 90 per cent minus 325 mesh is generally required. For roofing grades the specification is about minus 80 mesh with a maximum of 30 to 40 per cent minus 200 mesh.

Soapstone has now only very limited use as a refractory brick or block, but because of its softness and resistance to heat it is still used by metalworkers for marking crayons. The ease with which it can be carved makes it an excellent artistic medium.

Pyrophyllite can be ground and used in much the same way as talc but at present the use of the Canadian material is confined to ceramic tile. It must be minus 325 mesh and contain a minimum of quartz and sericite, which are common impurities.

### World review

Deposits of talc are widely distributed throughout the world, but have been commercially developed only in the more industrialized countries. Because talc is of relatively low unit value, only a very small proportion of world production is traded internationally. The majority of international trade takes place within Europe, in the Far East between Japan, the People's Republic of China and Korea, and in North America between Canada and the United States. However, talc of exceptional purity is able to withstand the cost of transportation over much greater distances. For example, high-grade French, Italian, Indian and Chinese talcs are shipped throughout the world.

### Prices

United States talc prices according to Oil, Paint and Drug Reporter, December 25, 1972

	(\$ per ton)		(\$ per ton)
Canadian		California	
Ground, bags, carlot, fob mines	20-35	Domestic, ordinary, off-colour, bags, carlot fob works	34-39.50
Vermont		New York	
Domestic, ordinary, off-colour, ground, bags, carlot, fob works	22.25	Domestic, fibrous, ground, bags	35.50

### Tariffs

Canada

Item No.	British Preferential	Most Favoured Nation	General
	(%)	(%)	(%)
71100-3 Talc or soapstone	10	15	25
71100-8 Micronized talc	free	5	25
29655-1 Pyrophyllite	free	free	25
29645-1 Talc for use in manufacturing of ceramic tile (expires Feb. 28, 1974)	free	free	25
29646-1 Talc for use in manufacture of pottery (expires Feb. 28, 1974)	free	free	25

1972 Talc, Soapstone and Pyrophyllite

Tariffs (cont.)

United States  
Talc, steatite, soapstone

Item No.

523.31	Crude and not ground	0.02¢ per lb	
			On and After January 1
			1971                      1972
523.33	Ground, washed, powdered, or pulverized	7%	6%
523.35	Cut or sawed, or in blanks, crayons, cubes, disks, or other forms	0.2¢ per lb	0.2¢ per lb
523.37	All other, not provided for	14%	12%

Sources: The Customs Tariff and Amendments, Department of National Revenue, Customs and Excise Division, Ottawa. Tariff Schedules of the United States, Annotated (1972), TC Publication 452.

May 1973

This is one of 54 mineral review preprints that will be republished late in 1973 in the *Canadian Minerals Yearbook 1972*. A complete set of these 1972 preprints or a copy of the currently available *Canadian Minerals Yearbook 1971* may be ordered from Information Canada, Ottawa; sets of preprints priced at \$5; yearbook at \$7.50. Preprints are distributed as they become available. Single copies may be purchased only from the Distribution Office, Mineral Resources Branch, Dept. of Energy, Mines and Resources, Ottawa, Canada, for 25¢ each.



September 12, 1974

Mr. Jack White,  
701 Birch Street,  
Campbell River, B. C.  
V9W 2T3.

Dear Sir:

Your letters of September 6 have been received and the one regarding talc in the Fraser Valley has been referred to our Industrial Minerals Geologist for his assessment. Should this be an interesting deposit, with your permission I will refer it to the Provincial Department of Economic Development regarding placing it into production.

Your letter regarding the iron or magnetite deposit has been referred to our the Geological Division of our Mineral Resources Branch for their investigation and possibly they may wish to visit the property, in which case they will be in touch with you directly.

Yours very truly,

J. E. McMynn,  
Deputy Minister.

JEM:DB

1179

REC'D SEP 11 1974

"701 Birch Pt.  
Campbell River  
B.C.  
VgW 2T.3  
Sept 6th, 1974"

REFERRED	TO	DATE	INITIAL
ACCTS			
A. D. M.			
A. D. P.			
M. R.			
E. & P.			
A. D.			
<i>Mr. McCann</i>			
FILE			

Mr J.E.McMynn  
Deputy Minister of mines  
Victoria B.C.

Dear Sir;

Further to the enclosed letter re help for developing claims. When I was in your office this summer we talked about my 4 claims at Ruby Creek, They are the claims that is the talc property.

They are located about 1/2 mile from the highway that runs from Agassiz to Hope, There is a road right to the claims.

We have done some dimond drilling on them and to a depth of 312 feet and still in solid talc we cross cut one vein of pure White talc 26 ft wide, We have proven up about 1.000.000. tons of talc. There is a power line runs over the claims and a gas line.

When I was in Calgary last year at the stampeed I went to the R.C.M.P display of Eskimo carving displaying some of the work they do in talc or soap stone, I ask the R.C.M.P Sgt in charge where they get the talc and he said the government buys it back east and ships it in to the eskimos and it costs about \$800. a ton.

I understand that talc is worth about \$105. a ton and the white talc much more, at this price we have about one hundred million dollars worth of talc.

Will the government be interested in putting this property into production, As a suggestion they could put up a building on the highway at Ruby creek where the talc is mined and bring in some eskimo carvers to work right on the property, It would be a good tourist attraction as well, I will sell the property cheap as I am unable to put it into production myself.

I would appreciate hearing from you re this matter.

Respectfully yours

Jack White

