

114-P.10

P R E L I M I N A R Y

REPORT

ON

O'CONNOR GYPSUM

DEPOSITS

1958

ATLIN

MINING DIVISION

James J. McDougall
Geologist

~~XXXXXXXXXX~~
ENGINEER

15,077





Photo O-10

O'Connor Gypsum

Showing Aunt Jamima Extension



Photo O-10
O'Connor Gypsum
Showing Aunt Jemima Extension



File #3296

November 28, 1958

A. J. Anderson, President,
Frobisher Limited,
2810 - 25 King Street West,
Toronto 1, Ont.

Dear Allan:

Enclosed please find two copies of report on the O'Connor Gypsum property.

I have asked the B. C. Research Council to make, on a confidential basis, a preliminary study of the gypsum supply and markets in the Pacific Northwest areas. The cost of this work will be about \$300. and we should have the results within two weeks. Enquiries indicate that gypsum of the quality of these deposits may bring \$10.50 a ton locally, which could be attractive. If this study by the Research Council shows that a detailed market study is warranted, they are prepared to undertake this phase, too, for approximately \$1000. Before authorizing them to undertake such work I will write for your approval.

One of the most likely purchasers for the property or the ore is Gypsum Lime & Alabastine Canada Limited, who are undertaking an active search for gypsum deposits in this area. However, we should not approach them at this time because we have first to prospect for possible southward extensions of the gypsum-bearing limestones. As I have indicated earlier I think there is a fair chance of picking up similar gypsum deposits not far from Klukwan. To approach Gypsum Alabastine at this time would be a tip-off for them to undertake this search for their own benefit.

If we decide to conduct a drilling program there next summer, we might fly in some equipment in March before the snow goes. However, as mentioned in the report, it would take very little to get a jeep road or packhorses into the deposit.

Yours sincerely,

Alex Smith

AS/eps.
enclo.

File #3349

December 12, 1958

A. J. Anderson, President,
Frobisher Limited,
2810 - 25 King Street West,
Toronto 1, Ont.

Dear Allan:

Re: O'Connor Gypsum

Enclosed is copy of a preliminary report by the B. C. Research Council mentioned in my covering letter of November 28th. Evidently there is about 160,000 tons per year gypsum being used in the southern coastal area of B. C., with an additional 100,000 in the adjacent region of Washington. The gypsum imported by sea costs little over \$9.00 a ton, while that brought in from the Windermere area is about \$12.00 per ton. If the O'Connor gypsum could be made competitive, we might market 150,000 tons per year along this coast.

At first glance \$9.00 a ton would appear to be about our cut-off point (mining \$1. trucking \$3.50, barging \$4.50).

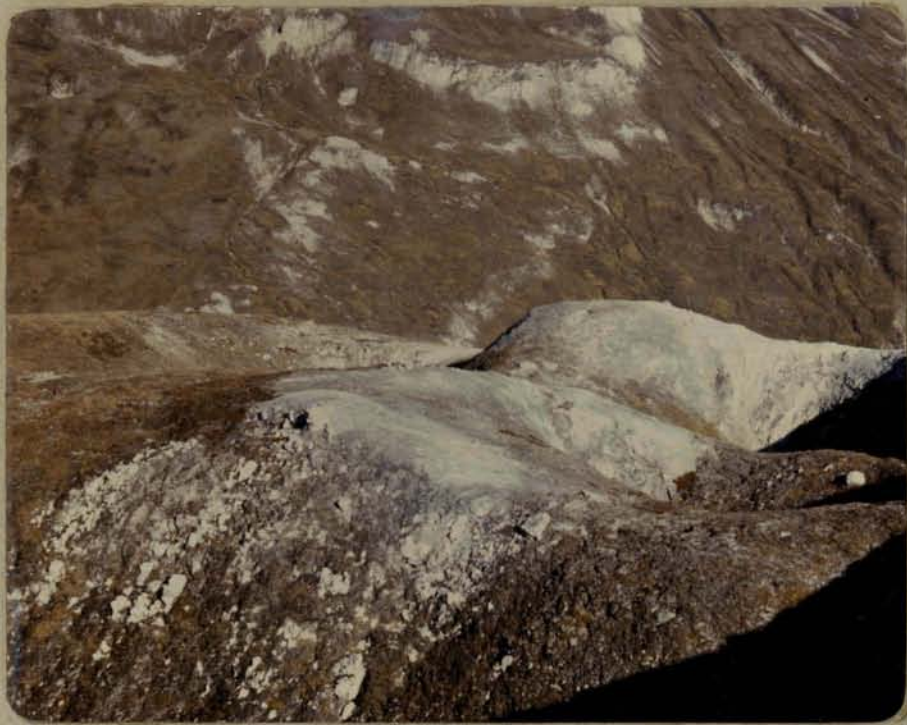
Cost of this preliminary investigation by the Research Council will be about \$200. They estimate an expansion of this study to cover the Washington area in detail would be an additional \$800. I do not feel we need this additional study just now. Our next move should be to do some drilling and sampling on the property to determine the quality and tonnage in the deposit, factors which would have to be established before we could either sell or operate.

We should also remember that consumption of gypsum products, particularly plaster board, along this coast is expanding rapidly and so, though the deposit might not be profitable at present, it could well be five years hence.

Yours sincerely,

Alex Smith

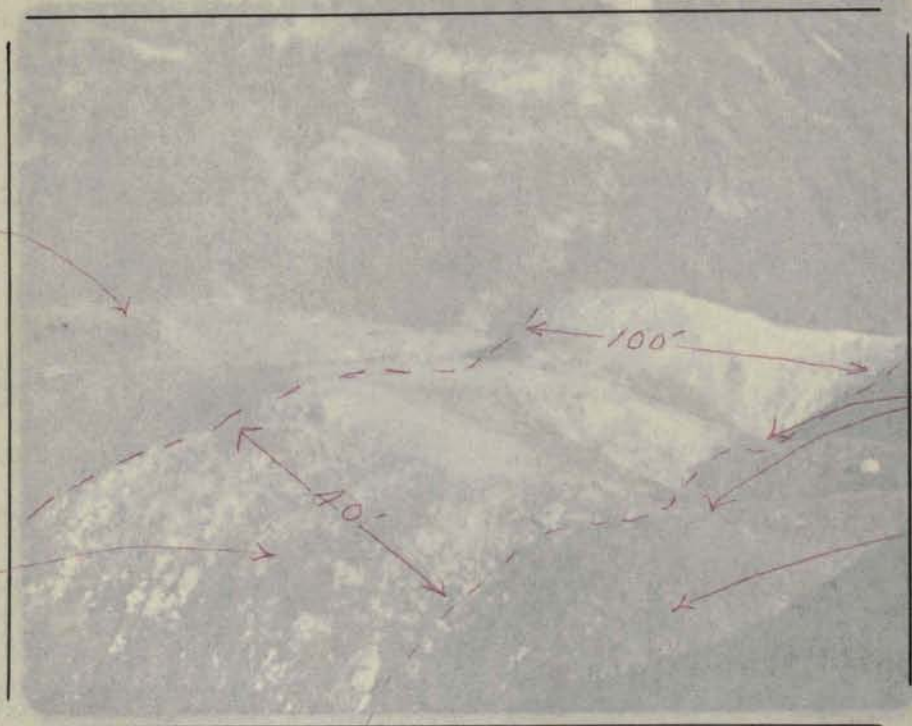
AS/epg.
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0-5

O'Connor
Valley

Gypsum



Sink Holes

Gypsiferous(?) rock

Looking easterly along central portion of #2 Gypsum
Zone - (elev. 3700-)

0-6

Gypsum

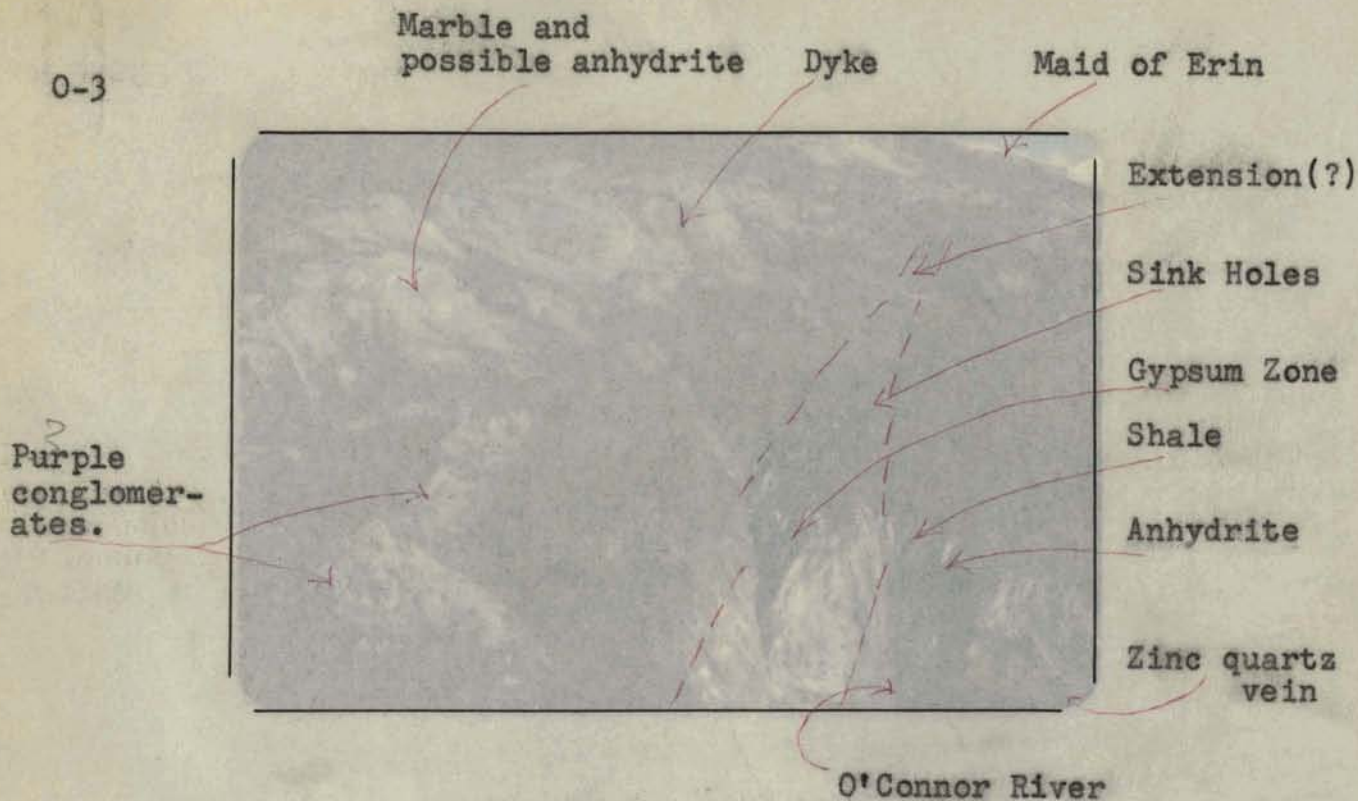


Possible
Extension

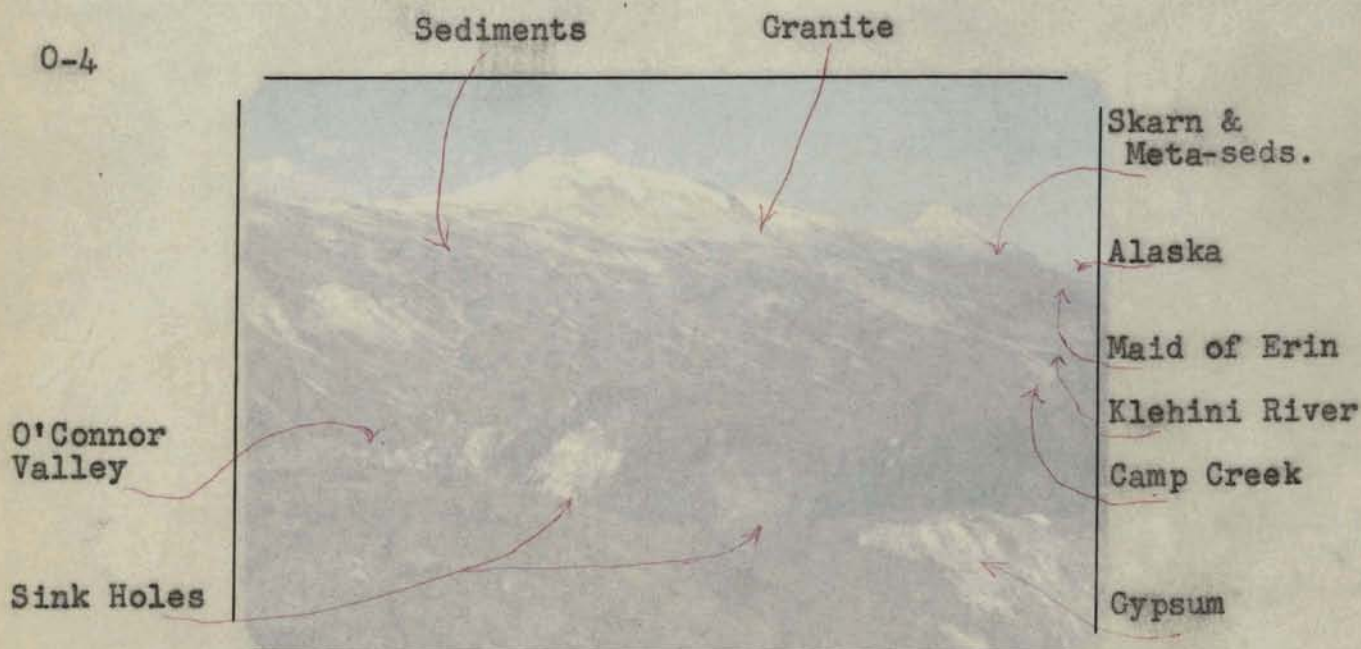
River

Zone

Looking easterly along strike of #2 Gypsum Zone from elev. 3500'.
Massive Gypsum in foreground is about 100' wide at this point.



Looking easterly toward eastern portion of #1 Zone Gypsum deposit from Sulphate Hill west of River.



Looking southerly down Valley of Camp Creek and Klehini River towards Maid of Erin mine and Haines. Western exposed limit of #2 Gypsum Zone in foreground (elv. 4000'±) Note extensive sink holes.



#0-1



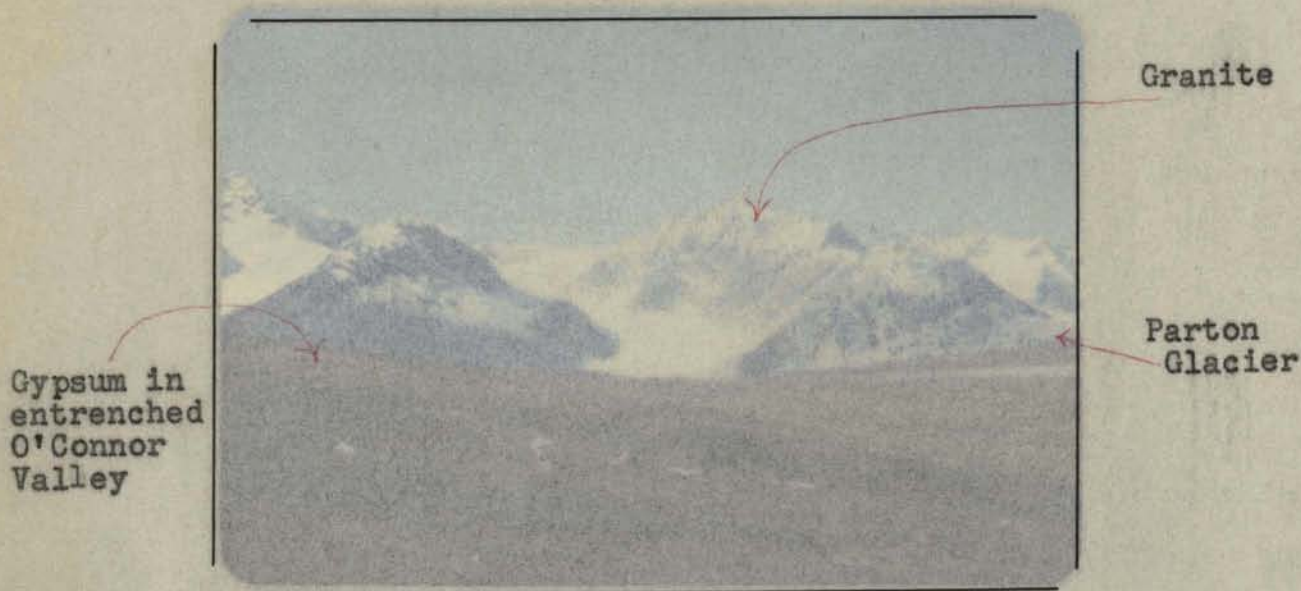
Looking westward toward O'Connor Valley from location west of the Haines Highway. Broad valley in foreground is typical of region

#02



Looking north towards Parton Glacier from a position immediately N of #1 Gypsum Zone. Note marble in foreground.

#0-1



Looking westward toward O'Connor Valley from location west of the Haines Highway. Broad valley in foreground is typical of region

#02



Looking north towards Parton Glacier from a position immediately N of #1 Gypsum Zone. Note marble in foreground.



P R E L I M I N A R Y R E P O R T

on the

O'CONNOR GYPSUM DEPOSITS

AT THE HEADWATERS OF THE O'CONNOR (BOUNDARY) RIVER

ATLIN MINING DIVISION, B.C.

by

JAMES J. McDOUGALL

Geologist

Vancouver, B. C.

November 1st, 1958

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P R E L I M I N A R Y R E P O R T

on

O'CONNOR GYPSUM DEPOSITS

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M A P S:

(1) Madahini Creek - Geological and Topographical 1" = 1 mi	} In Pocket
(2) O. G. 2 - Gypsum Deposits 1" = 1000'	

P H O T O S:

0 1 - General View	} In Front
0 2 - Parton Glacier	
0 3 - #1 Zone - Gypsum	
0 4 - #2 Zone - Gypsum	
0 5 - "	
0 6 - "	

P R E L I M I N A R Y R E P O R T

on

O'CONNOR GYPSUM DEPOSITS

SUMMARY AND GENERAL CONCLUSIONS:

Two parallel beds of pure white gypsum were discovered five miles west of the Haines Highway on the O'Connor River, several miles north of the Maid of Erin Mine in Northwestern British Columbia. Although the showings have not been tested or even well prospected, surface exposures indicate the possibility of a multi-million ton high grade deposit which could constitute an important future potential. The economics of gypsum are such that, because of the distance of this deposit from a large market, probably the only interest in it would come from the several large companies directly engaged in the manufacture of gypsum products. However, several possible alternates should be studied.

LOCATION AND ACCESS:

The gypsum deposits are located on both sides of the North Fork of the O'Connor (Boundary) River in Northwestern B. C. between elevations 2500 and 4000 ft. in a picturesque setting 1-1/2 miles below the river's headwaters in the Parton Glacier. The showings are easily accessible by a two-hour, five-mile trip through a broad untimbered valley immediately west of the 66 Mile Post on the Haines Highway (see Photo #1). Mineral (our name) Lakes, large enough for most float planes, are two miles closer to the showings than the Highway. The Nadahini sheet enclosed is the best map avail-

able. The area to the west has never been mapped.

The 159 mile long Haines Cut-off Highway, constructed in 1942, joins Haines, Alaska, 50 airmiles southeast, with Haines Junction on the Alaska Highway. The latter settlement is 100 miles west of Whitehorse. The Highway, following a water grade along the Chilkat and Klehini Rivers for 50 miles, is paved for 40 miles. It passes through the Klukwan Iron Deposit at 23 Mile (posted miles from Haines) and our Maid of Erin campsite at 52 Mile. The Canadian Customs Office is located at 43 Mile and a large pumping station at 48 Mile. The latter is one of several stations in Canada located on the high pressure military fuel line following the highway between Haines and Fairbanks. The remainder of the road is a first-class gravel highway, the highest point (elevation 3490') of which is near 65 Mile. The highway is used mostly by large oil tankers which haul fuel to storage tanks at Haines Junction. Twice weekly bus travel is presently offered. The road has not been kept open all winter beyond 50 Mile, as B. C., with the heaviest snow-belt section, derives little benefit from it and refuses to allocate funds for snow removal.

The shortest road distance to the gypsum would be gained by following the Klehini Valley on beyond the end of the 4 mile Maid of Erin road. Total distance from Haines would be approximately 58 miles. Initial road access could be gained more readily by following the valley already described west of 66 Mile. This latter route would be free of snow much earlier than the former and would require less

road construction.

Haines is a seaport on Lynn Canal about 80 miles north of Juneau in Alaska. In recent years St. Eugene Mining Corporation Ltd., a subsidiary of Frobisher, shipped Maid of Erin copper ore to Tacoma, using port facilities at Haines, and thus detailed information regarding transportation and costs is available.

Timber-line in the area occurs at approximately 2800 feet. Below this, especially in Rainy Hollow, fair spruce timber is available. The nearest timber to the gypsum deposits is about 5 miles down the O'Connor River Valley.

Although the fall and summer climate is enjoyable with long hours of sunshine, winters are not and heavy snow is the rule from October to April. Winds cause very large snowdrifts. Winter temperatures are severe, but are not as bad as they are further inland. Perma-frost is probably entirely absent.

Small but important amounts of hydro power could be generated by damming the 20 ft. wide, steep-walled canyon of the entrenched O'Connor River a short distance above the gypsum and thus backing the water up to the Parton Glacier. A 30 ft. head could probably be obtained at very little cost. However, silting would be a serious problem in time and such a unique(?) project would require considerable study. No estimate of the average flow is made but the river can be waded with safety only during low water in late summer.

Small amounts of lignite coal have been found within a few miles of the Haines Highway, but these have not been seriously investigated.

GENERAL GEOLOGY, HISTORY, AND DESCRIPTION OF PROPERTY:

Geological mapping of a strip on either side of the Haines Highway was done by K. DeP. Watson for the B. C. Department of Mines, following the opening of the highway. The rock units in which the gypsum occur are shown on the extreme western edge of the resulting published map. (The Squaw Creek - Rainy Hollow Area, B. C. Dept. of Mines Bulletin #25, 1948). Although no mention was made of gypsum or anhydrite, on the basis of very limited fossil evidence the rocks were assigned a Permian-Carboniferous Age, and it is in this that most important gypsum deposits seem to have originated.

Although prospecting must have been intense in this easily accessible area near the copper-silver showings a few miles to the south, no mention has been made of gypsum. However, this spring one part-time prospector known to the writer was heard mentioning that he "wanted to stake a deposit" of what he considered to be "white bentonite near the Parton Glacier."

The deposits occur between elevations 2850 and 4000 ft., on both sides of the O'Connor River. They were discovered through use of the helicopter following airborne Super-Cub reconnaissance which had outlined the immediate locality as one of several in the area demanding ground checks. As the area could be so readily checked by others, and as the

demand for gypsum deposits in B. C. is on the upswing, it was decided to stake the showings, despite the fact that they may be sub-commercial at present due to the location. Thirty-two claims were located to cover the deposits and any possible extensions along strike. Included by this staking were a number of impressive mineralized quartz veins which could well stand further testing.

The showings are cut by a shallow (150' deep) two mile long canyon of the O'Connor River (See Maps 114 P/10 and O. G. 2.

No. 1 deposit outcrops on the east wall of the canyon (elevation 2950') and can be traced by two parallel rows of characteristic sink holes plus abundant float and outcrop for at least 800 feet to the southeast where it is lost under overburden two or three hundred feet vertically above the river. Slumping of overburden has obscured most immediate geological features. Beyond this, aligned but poorly defined sink holes in a float-free, overburdened area indicate an additional 5-800 ft. extension. To the northwest the river-course follows the gypsum deposit for about 1500 feet before swinging north again. Preferential erosion of the soft mineral has caused a distinct 150-200 foot widening of the valley at this point. The gypsum is seen to outcrop for an additional 200 feet beyond the river and is lost under overlying shale or talus. The actual total exposed length of the gypsum zone is thus about 1000', the indicated length in excess of 3000', and the probable length in the order of 4000 feet.

A second line of smaller sink holes parallels the

first east of the river at a distance of 80-150' south. Overburden obscures the underlying rock but patches of snow-white gypsum occur near the bottom of several holes.

Width of the white gypsum in #1 zone increases continuously from about 30 or 40 feet at the first recognizable easternmost outcrop to about 150 feet near the river, and the impression is gained that the deposit is widening with depth. The extension across the river is about 40 or 50 feet wide.

#2 Zone, on the west side of the river, about 2000 feet to the south, is astonishingly similar to #1 Zone and could well prove to be its faulted repetition. It consists of two parallel bands about identical in appearance, size, location and attitude to #1. At the best exposure near the westernmost sink hole, at elevation of 4000', near the top of Sulphate (our name) Hill, the largest or northern band is about 40' wide. (See Photo #3). From here down the O'Connor River, a drop of about 1000' and a horizontal distance of about 2000', gypsum is exposed only at irregular intervals due to talus and overburden. (See Photo #4). The enclosing rocks and structure appear to cross the river, but no gypsum is evident. The last exposure near the river indicates that the gypsum band may have narrowed considerably. The extension of this band westerly from the top of the hill is uncertain. A series of depressions in a glacial side-morraine for a distance of about 1000' could mark such an extension, but the holes could also be due to melting ice.

The sink holes associated with the deposits are

remarkable features. Although characteristic of gypsum deposits the world over, these funnel-shaped holes are probably among the youngest having been covered by ice in the not too distant past. The larger holes occur at equally spaced intervals and range in size from 30 to 70 feet across and 15 to 30 feet deep (see photos 2 & 3). Overlapping is common resulting in a lowering of the wall separating them. Most holes centre just within the white gypsum above the footwall. Actually considerable of the brown, highly-altered footwall rock appear to have gone into solution, indicating it also may be gypiferous.

The deposits described occur in an irregularly defined, 6 mile long distinctively light colored remnant of Permo-Carboniferous sedimentary rocks (see Map 114 P/10).

Time did not permit more than a rapid or distant check of geological features. Major rock types include limestone or marble, limestone conglomerate, reddish or purple intraformational(?) limestone conglomerate or breccia, shales and argillites. To this can be added the gypsum deposits and unknown but possibly large thicknesses of anhydrite. This rock group is bounded on the northwest by a granodiorite stock with which it appears to be in fault contact. To the southeast a similar granitic rock intrudes the sediments and extensive skarn and meta-sediment areas have developed. To the north the rocks are chiefly schistose volcanics containing bodies of serpentine. An unmapped complex south of the O'Connor River just below #2 Zone contains gneisses, granitic and felsitic intrusives, volcanic rocks and skarn.

Silicic dykes and small basic intrusives occur at several places within this sedimentary pocket, as do sizeable quartz veins occasionally mineralized with sphalerite, pyrite and pyrrhotite. Generally, the rock units strike northwesterly and dip at moderate to high angles to the northeast, although local variations occur. Strike faults are apparent, especially near the gypsum deposits, but there is no evidence of extensive cross-faulting. Total thickness of the rocks making up the deposit is not known but could be several thousand feet. As evidenced by the remarkably similar paralleling gypsum deposits, repetition by faulting may have occurred.

Locally the gypsum in both zones occurs in a massively bedded anhydrite-marble complex with which it seems conformable. In #1 Zone, the gypsum bands strike northwesterly and dip northerly at angles varying between 45 and 70°. As evidenced by occasional thin grey films which accentuate the outline, the gypsum band appears composed in part of regular 1/2 to 2 inch beds conformable with the enclosing rocks. The poorly exposed footwall, at least in the vicinity of the river cut, is composed of massive, hard, white anhydrite whose scarplike contacts stand out in bold relief against the softer gypsum. Occasionally black shale and a highly altered brownish dolomitic (possibly gypsiferous) rock occurs along this footwall. Sphalerite is present in a quartz vein within 200' of the gypsum. The immediate hangingwall is even less well exposed but float indicates it to be either the brown,

altered rock or dolomitic(?) limestone. The extensive 'purple' limestone conglomerate occurs beyond this several hundred feet to the north.

The enclosing rocks of #2 Zone appear to be impure marble or anhydrite or both, with little real evidence of other types except for one similar to the brown-grey altered rock of the more northern deposit. The intervening ground north to the #1 deposit is 90% exposed and consists of steep, northerly dipping, massive anhydrite, marble, meta-sediments and a large greenstone sill. An impressive overhanging (anhydrite?) scarp occurs about half way along this section and is believed to mark a major fault.

The gypsum of both zones appears identical. Most material near the surface is extremely soft or loose and fresh (?) coherent samples can only be obtained from the bottom of the sink holes. The soft surface is grey weathering due to effects of soil and vegetation. The material is fine granular and snow-white. If surface exposures are any judge, impurities in the way of foreign inclusions are rarely present. Along the 800' exposed length already described in #1 Zone, total impurities evident include an altered basaltic, dyke-like lens about 20' long and 1' deep in cross-section and several 1' square rust areas near the surface. Inclusions may be more numerous near the walls.

Overburden in the whole area is light but moderate thicknesses of talus occur nearer the mountain and may cover extensions of both zones.

ASSAYS AND RESERVES:

The gypsum has not been properly sampled. A few chips of the harder material of several #1 Zone sink holes gave a calculated gypsum content of 92% and an anhydrite content of 5.8%. This was calculated from an SO_3 content of 46.02%. As up to 5% of the gypsum can reportedly very easily be converted to anhydrite simply by grinding, the anhydrite content may not be too accurately determined. A mill-run of a bulk sample is the best test for gypsum.

A specimen of the hard anhydrite just south of the #1 Zone assayed as follows:

Gypsum ($CaSO_4 \cdot 2H_2O$)	8.43%
Anhydrite ($CaSO_4$)	89.68%
Sulphur SO_3	56.66
Moisture	1.76

Gypsum has a specific gravity of between 2.3 and 2.4 so that massive gypsum moisture free, weighs about 140 to 150 pounds per cubic foot, or, under natural conditions in the quarry face, it goes about 13 cubic feet to the short ton.

Any reliable estimates of the probable reserves of the O'Connor gypsum can not be calculated due to the numerous unknown quantities at present. Besides obvious dimensional uncertainties, an increasing anhydrite content possible at depth and the effect of the solution cavities must be considered. However, neglecting these at present, if structure holds several million tons could probably be outlined to river level and the overall recoverable content

of gypsum could well be in the order of ten million tons.

Strip mining employing some sort of drag line method could probably remove the top 1 - 200 feet, but the greater quantity would eventually have to be extracted by underground mining to which the deposit appears adapted.

ECONOMIC ASPECTS:

Gypsum is a low priced commodity. Present needs on the West Coast are almost entirely taken care of by Mexico through the San Marcos Island deposits in the Gulf of Mexico. Rock gypsum is hauled up the coast by boat and landed in Vancouver for about \$8.00 a ton. To be competitive, 'local' material would have to be of equal or better quality and be landed in Vancouver at a price not exceeding \$8.00. The value of calcined gypsum (which employs crushing, low-temperature controlled heating, small amounts of special additives, and sacking) seldom exceeds \$18.00/ton, although production figures show some B. C. material valued at up to \$34.00/ton. Barges of 4000 ton capacity can deliver gypsum in Vancouver from Haines at a 'negotiable' figure of about \$5.00/ton. The distance involved is comparable to that of the Mexican haul. However, even though it is a downhill run, trucking plus mining costs could not be expected to keep the "landed-in-Vancouver" figure below \$8.00/ton.

Thus the only hopes for such a deposit seems to be as follows:

- (a) Negotiation of a higher price through a superior product.
- (b) Local sales (Northern B.C. and Alaska).
- (c) Sale of property to a large producing gypsum products company.

Although the writer has not investigated any of these possibilities, certain aspects of the various situations have been made known by association during the past year with exploration engineers of one of the larger gypsum companies keenly interested in deposits anywhere in B. C. The following is a general outline of existing conditions as related to the possibilities suggested:

(a) Local Manufacturers are quite satisfied with the present Mexican product. Although it contains some impurities and is tan in color, San Marcos gypsum is suitable for most purposes. Reserves of this, the only large deposit on the West Coast, are in the order of a hundred million tons. Coupled with a relatively stable political environment (complete control by Kaiser of the U.S.) tenure of supply is realized.

The gypsum deposits at Falkland, B.C. with which the writer is familiar, for many years supplied demands in B. C. and Alberta with a high grade product. The Falkland high grade and that of the O'Connor deposit are almost identical, although the former contained numerous impurities which had to be extracted during the mining, and the gypsum graded abruptly into anhydrite at shallow (50 - 100 ft.) depth. Before ceasing operations last year, due to lack of ore, railway freight rates alone had risen to \$5.00/ton or more. As gypsum is in great demand in Calgary (more so

than on the Coast) the company that owned Falkland (Gypsum, Lime and Albastine of Toronto) is carrying out considerable exploration for similar deposits in B.C. To date only low grade material has been located.

Windermere gypsum, present in seemingly inexhaustible amounts, is owned by Western Gypsum Products Ltd. and is shipped to centers in Alberta and Washington. Some is shipped by rail 400 miles to Vancouver. This material is distinctly grey in color but when ground and calcined it is fairly white and suitable for the majority of uses.

The only other gypsum deposit of interest in Western Canada, excluding those in the McMurray area in far northern Alberta, are near Cranbrook in southeastern B. C. not far from Windermere.

It seems probable that the O'Connor deposits could produce a superior product - certainly in color even if other comparative qualities are not known at this time. However, as raw material, except for a possible premium price involving only small quantities, it will not bring more than \$8.00/ton. If calcined gypsum were produced at or near the property, economics as regards transportation would be much more favorable. However, as no marketing company buys calcined gypsum in large amounts, it would mean entering wholeheartedly into the gypsum business with all its integrated phases.

(b) Local Sales: Little is known of present or potential demand for gypsum products within a few hundred mile radius of the deposits. There are no known gypsum deposits in Northern

B. C., and high grade occurrences in Alaska, mainly on Chichagof Island, are either effectively worked out or too small to be of interest. Nevertheless these have been taken over by Kaiser Industries Incorporated.

The pulp and paper industry use either white gypsum or kaolinite as a filler. Several such industries are located along the B. C. Coast. Kaolinite is at present imported from England or other distant countries largely as ship ballast, and gypsum must be able to compete with this.

A Canadian company has recently announced that a Petroleum Refinery is to be built at Haines Junction, about 90 miles from the deposit. Many refineries use gypsum as a filter and a small but important amount may be required here. The possibility of refineries in the hoped-for oil fields of coastal Alaska should be similarly kept in mind.

A small tonnage of calcined gypsum has been produced near a very low grade deposit about 100 miles northeast of Anchorage, Alaska, indicating a potential market in this area. Small amounts of calcined material could undoubtedly be sold in Juneau and Whitehorse.

Should any large concrete construction jobs, such as the mammoth dams often envisioned in the North, ever become a reality, a cement plant conceivably built for these jobs alone would require considerable gypsum.

(c) Sale of the property to a producing gypsum products Company, involving royalty payments, could probably be negotiated. Such a company would be in a position to divert more money towards transportation in return for tenure of

supply of a high grade product. They could well await future developments, or, with their integrated marketing system, could conceivably produce calcined gypsum on the spot. A number of such companies are active in the West, particularly Gypsum, Lime and Alabastine, Western Gypsum, and the Kaiser Gypsum Division. The former has indicated a keen interest in deposits anywhere in Western Canada.

CONCLUSIONS AND RECOMMENDATIONS:

Preliminary examination of the O'Connor Gypsum deposits indicates a large potential source of high grade material. It is extremely doubtful if crude gypsum can be economically produced as a straight mining venture due to the distance from large markets. Alternatives as outlined should be studied.

Regardless of any pending deal on the property, we should do sufficient assessment work on the key claims to hold them for several years. If no real interest is aroused this winter, work next spring should center around a preliminary survey of the property, including detailed prospecting and elimination of unlikely ground, together with limited but easily done surface stripping. Present indications are that six claims could cover all important mineral occurrences, and an additional six all likely extensions. The present claims were located with this in mind. Should this plan be adopted, pack-horses should be employed to establish a small camp on the river bench below #1 Zone. Horses can be obtained from Haines Junction or Champagne. This camp could later serve as a base from

which to prospect promising prospects related to the Maid of Erin copper belt, which we discovered in the same area this summer. Bulk gypsum samples could be taken out on the horses. Several years' assessment work on the key claims, using four men for two weeks, would cost about \$2,000. Added to this at little extra cost, but of sampling value, could be a small scale packsack drilling program. Such test drilling would at least indicate if anhydrite was present to 100 foot depths. Considerable difficulty might be experienced collaring holes any place but on the river bank exposure.

Should serious interest be shown, considerably more testing would be required. A bulldozer, such as the one we have had stored in Vancouver for several years, could haul a loaded sled to within 2000 feet of the property without lowering its blade. If a few small creek-ruts along the way were filled in, a jeep could follow behind. A good cat skinner could have the machine working on the lower end of #1 Zone the same day it was unloaded from the highway at 66 Mile. A cat, however, would be advantageous at this stage only if it was used in conjunction with a diamond drilling program. Test drilling of these deposits, using our EX drill, should be easy providing sufficient casing is provided.

Should test samples be required this winter, at least one of our ski-equipped Super-Cubs will be available in the North, and can obtain them by landing on the wide, flat bar of the O'Connor about 3/4 of a mile below the

showings. Both pilots are familiar with the deposits, but due to the usual heavy snowfall in this section work might be slow.

Further prospecting for gypsum and related minerals should be carried out in other known favourable areas close to coastal transportation, as outlined in our Alsek Prospecting Report.

Vancouver, B. C.

November 1st, 1958

A handwritten signature in cursive script, reading "James J. McDougall".

James J. McDougall
Geologist.