

CAMPBELL, WELLS & ELMENDORF
Mining Engineers & Metallurgists
Prefontaine Building
SEATTLE

Re: BARIUM LODE
U.S. Patent #928,968
Issued Jan'y 12, 1924

B A R I T E D E P O S I T

at

LIME POINT, ALASKA

A deposit of barite about forty feet in width and fifty feet in elevation above tide water, exists at Lime Point, on Prince of Wales Island, Alaska.

Its general strike is north 30° West and it dips 70° to the southwest.

Its length as exposed is about 200 feet, but it may be seen extending beneath the water to the southeast a further distance of 100 feet.

Timber and humus cover the northwest extension, which probably continues for another 200 feet.

If only the actual exposure of 50 x 40 x 200 feet, and which is workable above tide water be considered, there is somewhat over 50,000 tons of barite exposed, and available for mining.

The following analysis of the barite is given in the report of the United States Geological Survey for 1915:

SiO ₂	. . . . .	0.42
Al ₂ O ₃}	) . . . . .	} 0.12
Fe ₂ O ₃)	
FeO)	
MgO	. . . . .	0.16
CaO	. . . . .	None
SO ₃	. . . . .	34.01
BaO	. . . . .	64.94
SrO	. . . . .	None
		99.84

There are few physical difficulties to be overcome in the mining of this deposit. A small wharf should be built, preferably in the little cove immediately east of the outcrop where deep water could be reached at a short distance from shore. This affords an all-year harbor.

Abundant timber grows on the property and a good camp site exists a few hundred feet north from the point on the west shore.

Several good water powers exist in the neighborhood and could easily be improved.

LOCATION: Lime Point is about eighty miles distant from Ketchikan, Alaska, by water. It is on the regular line of travel from that town to Sulzer, Alaska, at the head of Hetta Inlet. Mail boats run twice a week unless bad weather prevents. The barite deposit is on the extreme southern point of a peninsula formed by Hetta and Nutkwa Inlets, and is about ten miles south from Sulzer Postoffice. The route of travel from Ketchikan to Lime Point is south through Clarence Strait, west around Cape Chacon, the south extremity of Prince of Wales Island, and thence north up Cordova Bay to the Point. Cape Chacon is

one of the points on the Alaska coast which is dreaded by mariners, as the heavy swell in Dixon's Entrance, combines with tide rips, to raise a heavy sea. Cordova Bay is sheltered water and Lime Point is well up toward its head.

CLIMATE: The annual changes in climatic conditions are slight when the latitude of 55° North is considered. The effect of the warm Pacific Ocean current is felt and mild winters with cool summers result. Heavy precipitation is usual, but almost always as rain below 500 feet altitude. Little snow lies at water line, and the temperature rarely reaches zero. At Lime Point, an all-the-year harbor is assured under normal conditions.

GEOLOGY: The peninsula on which Lime Point is located is largely Greenstone, with Carboniferous, semi-crystalline, blue weathering, white limestone at its north and south extremities. It is in this southern land of limestone that the barite occurs as a replacement deposit. The limestone is cut by several basic dykes - probably diabase - and one of these 200 feet northwest from the barite strikes north 40° east and dips 70° to the southeast. The plane of this dyke would pass beneath the barite and suggests a limit of this material, although exploration only can determine this point.

DEVELOPMENT: An adit 50 feet in length has been run into the barite from a point just above water level and in a north 20° westerly direction, and is entirely in the deposit. The material shows homogenous throughout the entire length of this working. The adit is of little use for future mining operations, as these should be in the nature of quarrying; however, it has served as representation work on the property and proves the continuity of the deposit, at least

for the distance of its length. Such continuity was so strongly presumptive from the nature of the outcrop that the working was not warranted for that purpose alone.

FUTURE WORK: Diamond drill holes from proper points will easily define the extent of the barite deposit. The locality and character of the rock lend themselves well to this mode of exploration as the drill may be set up almost anywhere on the surface and both the limestone and barite should drill easily and furnish good cores. A churn drill might very well be utilized for initial development.

The possible depth of development, assuming vertical continuity of the deposit, depends upon the ability of the formation to hold out the sea. In limestones, where replacement has occurred, and especially where cut by lake intrusives, general fissuring, or at least weakening, of the rocks is suggested. It is doubtful whether shaft work near the water's edge would be advisable, but as the inland extension of the deposit should later be determined, it is probable that at a point sufficiently distant from the shore the formation will be tight enough to keep out the water.

CHARACTER OF DEPOSIT:

The barite shows as a finely crystalline white rock containing no visible impurities. The line - extent of replacement - between it and the limestone is well marked on both sides. As the limestone weathers blue and the barite retains its white surface, the extent of the deposit is easily seen. The limestones strike generally north and south and the barite, therefore, cuts the formation at an angle of about 30° on its strike and at a somewhat greater angle on its dip.

SAMPLES: The following samples were taken from the property:

No. 1 Face of outcrop on Lime Point average 30 ft. across. Barite.

No. 2 Average limestone on both sides, barite outcrop.

No. 3 Dyke six feet wide, 75 ft. east from barite outcrop.

No. 4 Average barite, face, side and back of tunnel, 50 ft. in length.

No. 5 Altered limestone with barite (?) 500 ft. northwest of main
 outcrop.

TRANSPORTATION: At this time the steamship rate for 100 ton lots from
 Ketchikan to Seattle is \$4.00 per ton. It is probable
that a rate of \$6.00 per ton could be obtained from Ketchikan to San
Francisco. As the material from the mine could easily be shipped south
in barges, a materially lower rate than these figures should be obtain-
able if cargo lots could be furnished. This would apply only to Seattle,
as it is not safe for barges to go down the coast from Seattle to San
Francisco.

HISTORY: In 1915 a shipment of barytes, as the barite is
commercially called, was made from the property by the owner, Mr. Charles
Sulzer, and as a result of this shipment a plant of machinery was
shipped north by him the following year. It was his intention to erect
a mill for the grinding and floating of barytes. The plant consisted of
a crusher, rolls, ball mill, filter, boiler and water wheel, with all
necessary auxiliaries. There being many available water power^s in the
vicinity, it was the evident intention to drive the mill by this means.
The mill, however, for some reason, was never erected and most, if not
all, of the machinery is now lying at Sulzer. As a matter of fact, the
plan of manufacturing material on the ground does not seem feasible as
the barite is pure and can be shipped much more cheaply in rock form

than when ground. A larger plant with cheaper labor at some point of consumption would manufacture it much more economically than could be done in Alaska where both labor and supplies are very high.

CONCLUSION: The deposit of barite at Lime Point is of sufficient size and purity to justify development, if the material is valuable. The question of market on the Pacific Coast seems an all-important one, as railroad freights would appear prohibitive. A mill for the manufacture of barytes and possibly lithopone at either Seattle or San Francisco, could supply the coast and possible foreign Pacific ports. As practically all the barytes products used on this Coast come from the east by rail, it would seem that a careful investigation of market conditions and prices is advisable, and the possibility of a plant for the manufacture, preferably at Seattle, is suggested.

/s/ W. J. ELMENDORF

Seattle, Washington

February 27, 1920

II:15

DEPARTMENT OF THE INTERIOR
Franklin K. Lane, Secretary
UNITED STATES GEOLOGICAL SURVEY
George Otis Smith, Director

B A R Y T E S . . A N D S T R O N T I U M
in 1915

By
JAMES M. HILL

NOTED
DEC 17 1946
B. D. STUART
Geological Survey

A L A S K A

In 1915 the first shipment of barytes was made from Alaska. This was shipped to the Pacific Coast for experimental purposes. Mr. Sulzer, owner of the deposit, reports that he will install a grinding plant at Lime Point and that he expects to market ground and floated barytes in 1916. So far as the Survey can learn this will be the only commercial barytes grinding plant on the Pacific Coast. This deposit was examined by Theodore Chapin, of the United States Geological Survey, in 1915, who reports as follows:

A deposit of barite recently discovered in the Ketchikan district is now being exploited. It occurs on Lime Point the southern end of the peninsula between Hetta and Nutkwa inlets on the west coast of Prince of Wales Island. The country rock is semicrystalline, blue-weathering, white limestone interbedded with talc schist. The limestone has a generally northerly strike and dips about 80° W. An opening has been made along the deposit for 100 feet, exposing a body of barite about 30 feet wide. It is roughly tabular in shape and stands nearly vertical, conforming to the bedding of the enclosing limestone. The barite appears to be a replacement of the limestone. It is a finely crystalline white rock containing practically no visible impurities.

Samples collected by Chapin are of exceptionally white, fine-grained crystalline barite, which appears to be well suited for grinding. An analysis made by the Survey gave the following results:

ANALYSIS OF BARITE FROM LIME POINT, ALAKSA

(George Steiger, Analyst)

SiO ₂	0.42
Al ₂ O ₃)	
Fe ₂ O ₃)12
FeO)	
MgO16
CaO	None
SO ³	34.01
BaO	64.94
SrO	None
	<hr/>
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