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The following is a preliminary survey of the Winter & Pond lode at Echo Cove, Berners bay, Southeastern Alaska. The information herein contained is based on the writer's own knowledge and critical examination of the property in which he is associate owner. It is accurate in every detail.

The Winter & Pond mining property, in its present entirety, consists of five unpatented claims, Number 1, 2, 3, 4, and 5, identified as the California-Gold Standard group. It is occupied by right of U. S. location and registered at Juneau.

The claims embrace the apex of the ore bodies near tidewater where conditions as to economical transportation, water-power, land-locked harbor facilities, timber, gravity mining, character of material to be handled, etc., are ideal.

One adjoining placer claim, and five 5-acre mill sites, are included in the group. The mill sites, located at tidewater, are connected to the claims by a tunnel site thus forming a perfect unity of all the related parts, with a trail 1¼ miles long from the beach to the workings.

Claims Number 1, 2, 3, 4, and 5 adjoin each other end to end from a few feet above sea level to an elevation of approximately 2,500 feet 1¼ miles from tidewater camp. They are situated on the steep slope of a mountain heavily forested with spruce and hemlock at the Southeast end of Echo Cove, a sheltered, land-locked extension of Berners bay, a broad indentation from Lynn Canal about 39 miles North of Juneau.

The property is situated in the very heart of what is generally recognized as the most favorable section of the northern portion of the Juneau gold belt. Precisely, this main land mineral belt, ranging from 7 to 10 miles wide, and 130 miles long, has a general Northwest and Southeast trend parallel to the coast. It is located between tidewater and the high, rugged grano-diorite peaks of the Coast Range and extends from Windham bay south of Juneau to, and including, the entire Berners bay mining region North of the city.

The lower California unit of the property, composed of claims 1, 2, and 3, was located in 1897 by E. P. Pond and J. G. Davies of Juneau, Alaska, who are credited with making the first mineral locations in the Echo Cove area.

The upper Gold Standard unit, embracing claims 4 and 5 on the same lode was located in 1897 and subsequently purchased from the original locators.

The property, favorably known for a long time, has frequently aroused interest by reason of its spectacular gold showings. It has an interesting history extending over a period of forty years during which intervals of development work have alternated with relatively long intervals of restricted improvements due to insufficient working capital.

Though all exploratory work on the lode has been done by crude

hand methods at a cost of about $20,000.00, with no outside assistance, the ore showings are sufficiently good to encourage a more intensive development of the property than has yet been undertaken. The apparent indifference of mining operators to this splendid, but partially opened property, is occasioned only by the usual demand for a more thorough development of the ore bodies than has thus far been made. Hence, the lode has not been prospected, or developed, to any great depth below the surface. It is, therefore, a virgin property and not an exhausted mine.

The Winter & Pond lode is easily accessible. Power boats and air transports ply throughout the year between Juneau and Berners bay area. The waters there are very deep; the shores bold; often perpendicular bluffs. Sea-going vessels can land close to shore in many places at Berners bay. Sheltered Echo Cove affords a good, safe landing for marine air transports, and ample harbor for small vessels during high and low tide. The entire district is one of rounded, wooded hills and jagged mountains with narrow intervening valleys and many glacier streams emerging from hidden recesses 1,500 to 4,000 feet above the sea.

A good foot trail 14 miles long through this mountainous area connects Echo Cove with the north end of the Juneau auto highway which terminates at Eagle river 25 miles North of the city. This timely trail, the forerunner of the highway extension scheduled for early construction, was completed in 1935 by the United States Forestry Department in the interest of mining.

The property has many natural advantages for economical mining. The ore bodies occur in such manner as to afford the most modern method of gravity mining, with an unlimited area for mine waste and tailings at the base of the mountain on which the claims are situated.

Almost unlimited quantities of spruce and hemlock, ranging from 3 to 4 feet in diameter, thriving at tidewater and extending to an elevation well over 2,500 feet on the mountain slope, are favorably situated and adequate for rough lumber, fuel and mine timber.

Davies creek, a formidable stream about 75 feet wide, rising in the small cirques, glaciers and snow fields a few miles east of property, is situated at the south end of the lode. It affords unlimited water the year around for hydro-electric power, mining, milling and other purposes. It cascades seaward at right angle through a canyon on the center of claim Number 1 of the group. The stream has a catchment area of about 40 square miles and drains the main mountain front for a distance of nearly 8 miles.

Though the lower portion of Davies creek is bordered by a broad flood plain, the upper valley is a U shaped gravel flat and was once occupied by glacier ice which has long since disappeared. It is rather narrow with steep walls which provide on the center of claim Number 1 an excellent dam site for water power. The stream is swift and turbulent during the warm period of the year, with a surprisingly heavy flow throughout the winter for mining operations.

In recent years there has been comparatively little written concerning the geology of the lode. Earlier developments are very briefly described in Bulletin 502, Eagle River Region, Southeastern Alaska by Adolph Knopf of the United States Geological Survey under date of 1912.

The geology of the lode is not complex. The ore bodies appear to be very strong and often wide fissures, or crushed zones, in which the ore occurs as quartz lenses, and shoots, of greater or less size as illustrated in the accompanying photographs.

The rock formation consists of black slates, green schists, augite melaphyre (greenstone) and breccia and is exposed where the workings are situated. The lode strike is North about 30 degrees West, and, for the most part, dips about 60 degrees Northeast, into the mountain.

During the past few years development work, confined to statutory requirements, has been limited to surface cuts along the apex of the lode for the purpose of determining the course and vertical extent of the veins.

These cuts, strippings and test pits have exposed a number of well mineralized quartz croppings 2½ to 6 feet and more in width, all having a general North and South strike, and dipping at angles ranging from 60 degrees to 80 degrees, concordant with the dip and strike of the formation. They are portrayed in accompanying photographs which, if first carefully examined, will materially contribute to a clear understanding of what is summarized herein concerning the lode. The work shows the quartz exposures to be very strong, regular and apparently continuous over nearly the entire extent of the property.

Removal of heavy vegetation and surface debris from certain places on the apex of the lode on the California unit has revealed, what had often appeared to be, two distinct parallel ore deposits quite independent of each other but of the same general character, and uniformly separated by approximately 80 feet of country rock.

The first deposit, identified as the East lode, occurs on the slate-greenstone contact, slate forming the hanging-wall, greenstone, the foot-wall.

The second deposit, identified as the West lode, occurs on the foot-wall side of the East lode. This latter deposit is enclosed in a greenstone shear zone which forms both the hanging-wall and foot-wall of the vein system.

As this second ore deposit, a heavily mineralized banded vein, appeared to the co-discoverers, Messrs. Pond and Davies, to be the most promising, an open cut was "faced up" and a tunnel driven in about 175 feet on the lode. This drift follows the foliation of the green schists lying against a hanging-wall of augite melaphyre. This is a heavy rock, somewhat sheared, especially along the margins. It is dark-green in color and characterized by the presence of numerous porphyritic crystals of augite. The ore body consists of banded

quartz 2 to 3½ feet wide, and a belt of glossy-green schist irregularly traversed by veinlets composed of quartz, calcite, and ferruginous carbonate. Arsenopyrite, infrequently associated with galena, both in the veins and schist, is the principal sulphide. The ore has yielded assays from several dollars to $35.00 gold per ton at $20.00 per troy ounce.

Several hundred feet to the Northeast some tunneling has been done on the East lode exposed at the bottom of a 15-foot fall in a small stream. This drift follows the vein on the contact between slate and augite melaphyre, the latter rock forming the foot-wall of the deposit. Maximum veining has taken place in the crushed slate lying immediately against the greenstone foot-wall. The ore body varies from 2 to 4½ feet wide. Arsenopyrite is the main sulphide and commonly concentrated in the banded quartz and in the fragments and filaments of slate embedded in the quartz. Channel cuts across a width of 4½ feet have assayed from several dollars to $35.00 gold per ton at $20.00 per troy ounce.

Within this tunnel pockets of golden quartz worth $10.00 per pound were encountered during mining operations. In the early days much high-grade selected ore from this drift was roasted and treated at Juneau.

Though "high-grade" or "jewelry ore" is meaningless in a known gold zone, its occurrence in this area suggests a special import that should not be ignored. A substantial portion of the recovered gold in the nearby Comet mine, which has been one of the largest and richest producers in the Berners bay district, occurred in vugs or "bonanzas". One pocket alone yielded more than $60,000.00 in gold. It is generally known at Juneau that in years past many miners employed at the Comet mine high-graded considerable gold from these rich pockets. It is not improbable that similar "bonanzas" exist in the Winter & Pond lode. Vugs of this type, typical of the district, are quite likely to be found during mining operations on the ore deposits.

One of the most impressive of the ore showings is that on the Gold Standard unit, claim Number 4 of the group. (See photo No. 10) Two prospect tunnels, 120 and 150 feet long, have been driven in a narrow gulch to strike the downward extension of a massive body of highly mineralized banded quartz 5 feet wide. It is exposed on the slope several hundred feet above the portals of the uncompleted drifts.

This splendid quartz lens lies against a hanging-wall of highly folded graphitic slate, and a foot-wall of augite melaphyre. Arsenopyrite is the predominating sulphide. It is concentrated both in the quartz and slate fragments embedded in the quartz. Galena also occurs as a primary sulphide. Samples from this favorable showing have assayed from $2.89 to $45.92 gold per ton at $20.00 per troy ounce. Like the lower California unit of the property, the Gold Standard was always rated a prospective bonanza by its original owners because of the high grade character of the ore.

A few hundred feet higher on the slope, at an elevation well over 2,000 feet on claim Number 5 of the Gold Standard unit, a body of massive white gold-bearing quartz 7½ feet wide and somewhat banded, is exposed on the surface. (See photo No. 11) This important showing

has been partially explored by a small cross-cut adit, a thirty-foot winze, and an open out 112 feet along the face of the exposure. The work has disclosed what appears to be a well defined ore body apparently in place with greenstone walls. Here, again, arsenopyrite is the principal sulphide. Though the exposure is highly leached on the surface, a grab sample from the vein assayed $2.89 gold per ton at $20.00 per troy ounce.

In the early days of its discovery, surface "high-grade" in free gold was removed from this quartz cropping by its original locators. The real value of the showing is however, still undetermined because a little more than prospecting has been done on the claim. It appears, nevertheless, to be a continuation of the main lode system of the property.

For the present, work on all upper levels has been temporarily abandoned in favor of surface exploration at a point identified as "the knob" a butte-like projection on the slope several hundred feet below the old main workings on the California unit.

Trenching and surface stripping have disclosed several clear-cut, highly mineralized fissure veins of banded structure. They are 2½ to 3 feet wide and over with definite indications of widening with depth. They strike North by Northwest, South by Southeast and dip about 80 degrees to the Northeast, into the mountain. (See photos No. 4 and 6) It should be emphasized here that the continuity between this recent discovery and the strong quartz showings on the slope along the apex of the lode is at once apparent. Samples from these veins assayed as follows:

Sample Marks	Metals	Amount per ton Ozs. Hds.	Value per ton Dol's-Cents
Vein No. 1 on "the knob" (See photo No. 4) visible gold not uncommon.	Gold Silver	6.70 1.30	$138.49 1.00
Vein No. 2 on "the knob" (Offshoot, Vein No. 3)	Gold Silver	.80 Trace	16.54
Vein No. 3 on "the knob" (See photo No. 6)	Gold Silver	.44 Trace	9.09
Vein No. 3 on "the knob" (Resampling)	Gold Silver	.80 Trace	16.54
Vein No. 3 on "the knob" (Resampling)	Gold	.28	5.79

All determinations herein specified were made by the Colorado Assaying Company, expert chemists and assayers at Denver, on the basis of gold at $20.00 per troy ounce, silver 77½ cents.

Though development of the property has not proceeded far enough to block out any measurable quantity of ore, there are six or seven

surface exposures that give promise of containing ore in workable quantities, and of a grade, as indicated herein, to permit their being profitably exploited.

Several of the outcrops, portrayed in photos Number 8 and 9, have sustained a loss of values near the surface due, undoubtedly, to the powerful action of chlorine-bearing solutions. This accounts, to a great extent, for the variation of gold content of the weathered vein exposures.

In mountainous Southeastern Alaska where humidity is high, the chemical action of chlorine elements in exposed ore bodies is greatly accelerated by the heavy infiltration of moisture. Often, when determining the economic value of gold lodes here, there is a lamentable tendency to overlook this condition, especially in cases where the gold is finely disseminated throughout the quartz. It has resulted in many worthy mineral prospects lying idle.

Determination of the quantity of gold, or silver, in the several weathered quartz ledges above mentioned, therefore, would not be a fair basis for calculating the ultimate value of the lode. To ascertain the positive value of the Winter & Pond property it would be only necessary to concentrate all future development on the lowermost tunnel, where, because of the increase in depth that can be rapidly attained, mining operations would soon pass beneath the oxidized zone. This can be done with little difficulty and expense.

This lowermost drift, described in the last paragraph on page 3, was driven on a quartz-filled fissure to reach the vein cropping portrayed in photo Number 7, situated about 200 feet higher on the slope. Towards its center it was deflected off its course where the vein "pinched" there. It is considered advisable to straighten out this deflection, so, from this point in the tunnel where the deflection started it would be only necessary to continue in a straight line, and from there to the high grade ore body shown in photo Number 7 is calculated to be about 10 feet.

By driving the tunnel forward along the prolongation of the veining system, all the quartz outcrops on the apex of the lode shown in photos Number 7 to 11 inclusive could be economically and quickly tapped at considerable depth.

A more substantial development of the property would be to drive a long main tunnel on the lode commencing a few feet below the surface outcrop shown in photo Number 1 situated near Davies creek, thus following and undercutting all the quartz exposures extending up the slope at intervals along the apex.

The cost of extracting the ore should be very moderate; it is massive in character; the country rock very solid. Hence, very little timbering would be required except for chutes, and a few stulls here and there. No timber was used in the old tunnels. Today, after a period of many years, the walls stand intact. Three sets of timber installed at the portal of the lowermost tunnel were used more for lagging than for carrying weight. It would be only necessary to re-

place them with two or three new sets from new growth timber located a few score feet from the tunnel.

Needless to say, the cost of placing the property on a productive basis demands careful consideration. This can be satisfactorily determined only by a detailed examination of the entire lode. Though many factors enter into the problem, and they interact so intricately, the cost of preparatory work should be quite nominal. This would call for suitable camp quarters near the old workings, a blacksmith shop and accessories, compressor, drilling equipment and a few other incidentals. Equipped in this manner, it would not take long to determine the extent of the ore bodies for future, long-time operations.

As indicated in this summary, the Winter & Pond lode is a property of unusual merit. For the most part the ore is of moderate grade and free-milling in character. It contains abundant sulphides. The gold is fine. And from what is positively known of the quality and average surface value of the quartz it seems certain that the vein material, if kept reasonably free from waste in mining, will yield from $16.00 to $30.00 gold per ton.

Strangely enough, the gold lodes in this widespread mineral portion of the Juneau belt have never received the attention their surface indications seem to warrant. Nor has development been prosecuted by big operators in anything like a vigorous manner except at the Kensington, Comet and Jualin mines. The Berners bay mining region is one of the most economically attractive lode areas in all Southeastern Alaska. Declare Messrs. C.W. Wright and A. C. Spencer of the United States Geological Survey:

".....such work as has been done indicates that there is a grouping of veins along the inland edge of the slate-greenstone band and in the adjacent portions of the black slates. The veins follow the country structure for the most part, and taken together they may be regarded as essentially a continuation of the main lode system of the Juneau gold belt". Continuing, they report:

"The strip of country lying Northeast of the main longitudinal valley of Cowee creek, extending from Yankee basin to Sawmill creek and the shores of Berners bay, (midway in which Winter & Pond group is located) would seem, from a cursory examination, to be one of the most favorable fields for prospecting within the general region. Many of the veins are strong and well mineralized, the sulphides observed being pyrite, pyrrhotite, arsenopyrite and galena".

------page 134, Bulletin No. 287, The Juneau Gold Belt, U. S. Geological Survey, Washington, D.C.

Respectfully submitted,

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