

PRELIMINARY REPORT OF PROPERTIES VISITED IN HELM BAY,  
CLEVELAND PENINSULA, KETCHIKAN MINING DISTRICT,  
June 6-7, 1936.

Location and General Geologic Conditions:

Helm Bay is a small embayment of salt water, 7 miles in length and nearly a mile in width, that extends in a north-northwest direction on the south central portion of Cleveland Peninsula. The general trend of this bay represents a contact between greenstone lava flows and earlier sediments of Paleozoic age. The general geology of the vicinity of Helm Bay is given with a short description of properties in the following reports: Prof. Paper No. 1, "The Ketchikan Mining District," by A. H. Brooks, 1902, pp. 55-60; and U. S. G. S. Bull. 347, "Ketchikan and Wrangell Mining Districts, Alaska," by F. E. & C. W. Wright, 1908, pp. 152-158.

Nearly all the mining activity of the past has been confined to a strip of greenstone and greenstone schists over a mile in width extending along the west coast of Helm Bay. This greenstone belt, referred to in above reports, is derived from igneous rocks and it is intercalated in argillites. This belt is mineralized and contains the gold showings of Helm Bay. A mass of what is mentioned as a pyroxene-granite occurs intruded into this greenstone belt along the west coast of the bay. Since it is harder than the greenstone, it outcrops as an elongated ridge. Gold quartz veins occur both in the granite and in the mineralized greenstone schists. They represent two types or systems. The older system follows the foliations of the schist striking north to north 20° west. The younger system is a series of filled fractures striking N. 20-40° E. Most of the veins carry low gold values associated with pyrite and numerous high grade specimens have been found. The pyrite mineralization in the schists usually associated with some silica carries low gold values. Generally the geology may be classed as very simple, however, the structure of the schists appears complex. Following is a short description of properties beginning at the head of Helm Bay and extending south along the west shore.

Beat Lode: K4119-162

119 - Claim  
A group of six claims are held by A. H. Stenland on the west side of Helm Bay near the head. This group is called the Beat Lode group. The showing in this group is located one-half mile back from the beach and consists of a strong fissure vein in a shear zone. The formation is greenstone schists and the fissure and shear zone strike N. 30° W. The fissure dips 74° W. Numerous quartz stringers dip into the fissure on the footwall and end. These strike the same as the

by former owners.

fissure but dip 30° east. These are heavily mineralized with pyrite and the largest have a width of two inches. The fissure contains a small amount of quartz and gouge and can be traced for 300 feet. The showing is best exposed where a small creek cuts across. Here an old tunnel is driven alongside the fissure for a distance of 15 feet and then turns with a crosscut of 20 feet cutting the shear and fissure. It was reported that a sample taken across this shear zone in this crosscut, 20 feet averaged \$11 per ton in gold (old price). The mineralization consists of free gold, pyrite and a small amount of chalcopyrite in a gangue of quartz, calcite, chlorite and gouge material.

Assessment work has been done this season and a roadway from the beach has been cut nearly to the showing.

Portland Group: 119-124

119 Craig  
The Portland group adjoins the Beat Lode group on the south and the showings are located nearly a half-mile from the beach at an elevation of 420'. This group represents the restaking of the old Portland group by Elmer Perkins in 1931. These claims are now owned by the B. R. Libe of Ketchikan. The showing in this group represents numerous small quartz stringers occurring in a highly folded section of the greenstone schist formation. Some of the stringers vary in width up to 2 feet and a few feet in length. They represent fillings between the foliation of the folded schists. Both the schists and the quartz are mineralized with pyrite and they were reported as containing low gold values. The gold can be seen in several of the stringers and calcite and small wall rock pieces are contained in the quartz. Considerable trenching has been done in the last season. An old shaft with a reported depth of 35 feet was pumped out and sampled. A short tunnel was driven to intersect this zone by the old Portland Company, but was never completed. This company erected a mill which burnt down later.

Free Gold: 119-123  
126-89

also Ketchikan 120  
Craig 119  
The Free Gold claims extend along the beach between the Portland group and the Gold Standard group on the west shore of Helm Bay. These claims were contained in the Gold Coin group staked about 1903. Very little development work was done until 1932. During this year the Helm Bay Mining Company was formed and these claims were taken over from the owners, Martin Bugge and H. W. Rogers. A. Rust of Tacoma, J. L. Freeburn and associates were the organizers of this company. The tunnel (note accompanying sketch) was driven and some surface work done. Following the property was dropped and assessment work has been done by Martin Bugge. A total of sixty thousand dollars was reported spent in development work by this company.

The showings on these claims consist of a strong fissure vein exposed for a distance of 800 feet with a northerly strike and a series of flat lying quartz lenses. The fissure vein contains quartz that varies from a few inches to three feet. It is intersected by small spur veins that intersect into the hanging wall. At these intersections high grade pockets have been found. Several opencuts and strippings are found along the fissure and the flat lying lenses. The Mahoney cut shown on sketch exposes one of these lenses. The Free Gold tunnel has an approximate length of 1400 feet. From the portal which is located approximately 300 feet back from the beach and a few feet above sea level, a crosscut tunnel with a length of 500 feet cuts the fissure. The fissure shows strong movement, is narrow and tight, quartz varies from an inch to two inches in width. High values were reported from samples taken of the quartz. In the crosscut 250 feet from the portal a series of rather flat quartz stringers were cut. One sample across 7 feet of the main stringers was reported as containing \$14 in gold per ton (old price). The drift leads off the crosscut and follows the fissure for a few feet then swings off the fissure into the hanging wall. The fissure was again hit by the tunnel and only a few inches of quartz shows. From this point it was driven to get under the flat lenses to the east. These were not encountered. Near the end a small trough of a synclinal fold was intersected that contains a few quartz stringers on the limbs of the fold. Low gold values were reported from them. This fold strikes No. 46° W. and plunges 15 to 20° towards the west. The formations on these claims consist of greenstone and greenstone schists. The quartz in the fissure ranges from milky white to rather glassy. Gold occurs free and contained in a fine to coarse pyrite. A little chalcopyrite was noted. The gangue mineral consists of quartz, calcite, chlorite and wall rock pieces. The fissure veins show strong movement and the wall rock in place is highly schistose.

The machinery on the property consists of a 25 H. P. diesel engine that operates a small compressor. At the portal of the tunnel a 36" fan is run by a 6 H. P. Fairbanks Morse gas engine. This was used with fan pipe for ventilation.

Gold Standard: K4120-88

The Gold Standard group is located adjoining the Free Gold group on the south and approximately  $2\frac{1}{2}$  miles from the entrance of the bay. The original discoveries were made on this group and this property has been operated intermittently since the original discovery in 1897. Reports of this property are given in Prof. Paper No. 1, "The Ketchikan Mining District, Alaska" by A. H. Brooks, 1902, pp. 59-60, and U. S. G. S. Bull. 347, "Ketchikan and Wrangell Mining Districts, Alaska" by F. E. and C. W. Wright, 1908, pp. 153-155.

This property is now owned by the following of Ketchikan, Alaska: Dr. and Mrs. Dickens, Miss Glenmere and D. Knuckolls. The last four years it has been under lease to J. Sahonovick, A. Walson and C. Hellm. These lessees operated the mill and mined in the glory hole 600' south of the mill. It was reported nearly \$50,000 in gold has been recovered from these four years of operation and the ore averaged about \$3 per ton (old price).

Only the glory hole was visited on this property. This shows several quartz stringers in a limb of a fold in greenstone schist. The stringers vary in width from a few inches to three feet. They are well mineralized with pyrite and the schist between them contains pyrite and gold values. The stringers strike and dip with the foliation of the schist along the limb of the fold. Prior to the date of visit, this property was optioned to a Mr. Tillie of Spokane, Washington. He and associates have organized the Gold Helm Mining Company, a stock company, in the State of Washington. Ten men were on the property representing this company, and they were engaged in building a new bunk house. It was reported they also intended to open up the old shaft and workings of the old company. This was for the purpose of an examination to be made this season by Dean Roberts of the University of Washington for the company.

Lone Jack Claim:

The Lone Jack claim is located to the southwest of the Gold Standard group and approximately 2100 feet back from the beach. This claim is owned by E. Perkins, H. M. Sawyer, J. McKay and E. Steers of Ketchikan, Alaska. Two tunnels have been driven on a fissure vein that is exposed for a distance of 800 feet between elevations 850 to 1200 feet. Quartz lenses occur along the fissure with highly sheared walls. No. 1 tunnel, elevation at 850', was driven three years ago. Its length was 60 feet with an 8-foot crosscut. A small lense occurs over half the length of the tunnel. The first 20 feet was reported as averaging \$5 (old price) in gold per ton. The strike of this lense is N. 15° E. and dips 63° E. The formation is a chlorite schist on the hanging wall and a schistose greenstone on the footwall. The quartz contains numerous pieces of wall rock and contains pyrite, calcite and chlorite.

No. 2 tunnel 1160' elevation has a length of 30 feet and an 8' crosscut. A small 4-inch flat vein occurs cutting other small veins. This small flat vein was reported to carry good gold values and it is well mineralized with pyrite. The other small veins were reported averaging \$5 (old price) gold per ton across them. The wall rock in places is well mineralized.

7 Rainy Day Claim: KX 120-32

Ketchikan 120  
The Rainy Day claim is located approximately 2 miles from the entrance of Helm Bay and a short distance from tidewater on the west side. This claim was staked by Tom Johnson prior to 1901 and has retained its original name and location. It is now owned by E. W. Steers of Ketchikan, Alaska. Short descriptions of this claim are given in Prof. Paper No. 1, "The Ketchikan Mining District, Alaska" by A. H. Brooks, p. 58, and Bull. 347, "Ketchikan and Wrangell Mining Districts, Alaska" by F. E. and C. W. Wright, page 156. The vein on this claim is located in a coarse granite porphyry which occurs as a dike that is reported to strike N. 40° W. and ranges between 600 to 1,000 feet in width. The vein strikes N. 69° W. and dips 52° E. The vein appears to strike into the slate and greenstone schist formation on the east. However, it has not been uncovered. It averages three to three and half feet in width and contains considerable wall rock occurring in bands which are cemented with silica and contains some mineralization. The walls are defined and free and show movement. Small slip planes intersect the vein. The vein outcrops at an elevation of 260' and a few opencuts expose the vein. At an elevation 180' a tunnel exposes the vein for a length of 145'. Forty feet of this tunnel was done last year. Two tons of ore was milled from this tunnel last year in a small 5-stamp mill. These two tons were reported to have produced \$27 in gold and a few pounds of a \$100 per ton concentrate. Assays from the opencuts were reported as averaging \$7 per ton (old price) in gold. Power for drifting was furnished by a two cylinder 6 1/4 x 6" Chicago Pneumatic Tool Company compressor run by a 6-cylinder Studebaker gas engine.

This vein represents one of the later veins in this section as it is subsequent to the granite. The mineralization consists of gold associated with pyrite, galena and small amounts of sphalerite and as small visible particles in a gouge of quartz and altered granite minerals. Both large and small pyrite crystals occur irregularly along the vein.

Annis KX 120-1  
The Annis claim which adjoins the Lone Jack on the west, was restaked last year by A. Egvot and O. Olsen. This claim has an old shaft, a tunnel and winze in the tunnel. In the shaft a high grade pocket was discovered and mined several years ago. This year only assessment work was done which consisted of stripping. This completes the activity in this section this season. The old properties of Smuggler Cove were all reported as inactive.