PE-121-01

PRELIMINARY REPORT, APEX GROUP, McLEAN ARM,
PRINCE OF WALES ISLAND,
June 2, 1936.

Location:

An old copper-gold property that has been held for several years and on which continuous assessment work has been done is located on the south side near the head of McLean Arm, Prince of Wales Island. A trail leads from the beach south three quarters of a mile to a cabin located at the foot of the slope. Beginning a hundred feet west of the cabin several opencuts and stripped areas extend up the slope for a distance of 500 to 600 feet. A fissure vein in a siliceous granitic rock is exposed and varies from 12 inches to 3 feet in width. This fissure strikes N. 15° E. and dips 55° E. This vein is traceable for a distance of 2000 feet. At an elevation of 400 and 500 feet two tunnels are driven on the vein. The amount of underground work in these tunnels was reported as 900 feet. This claim is known as the Apex and mention is made in U. S. G. S. Bull. 662, "Mineral Resources of Alaska, 1916" by Theo. Chapin, p. 66.

This fissure has free walls which show movement and a strong gouge. A dense fine crystalline dioritic dike parallels the vein on the hangwall. The ore appears to be associated with this dike. In the tunnels where the dike nears the vein the best ore apparently occurs. The tunnel work has all been done by hand as assessment work over several years. At the request of Dr. Peterson of Ketchikan this preliminary visit was undertaken. No one was present on the property on the date of visit.

Mineralization:

The ore consists mainly of quartz with disseminated sulphides; namely, pyrite, bornite and chalcopyrite. Malachite is present throughout the ore as a product of weathering of the chalcopyrite and bornite. The quartz contains numerous granitic minerals and the walls are slightly impregnated with the above mentioned sulphides. Gold values were reported which are probably associated with the chalcopyrite. The gangue minerals are quartz and quartz crystals, calcite, feldspar and weathered products. Assays were reported as containing $5.00 gold per ton, and from 2 to 3 per cent copper. No samples were taken.

SUPPLEMENTARY TO PRELIMINARY REPORT OF APEX GROUP
(POLSON & ICKES) McLEAN ARM, PRINCE OF
WALES ISLAND, ALASKA
May 30, 1938

KK 121-40

Location and Accessibility:

The examination on the Apex Group of claims on the above date was confined to the underground workings and surface conditions in the immediate vicinity. The property consists of three lode claims; namely, the Apex, Astor and Adit, located three-fourths of a mile inland from the south shore of McLean Arm at a point four miles from the entrance. An old cannery site and dock at the above point is held as a millsite and the Arm is navigable to this point by ocean-going vessels. A trail leads, beginning at the mouth of a small creek, from the beach to a cabin, elevation 125 feet, and thence up to the underground workings.

Owners:

The present owners of this claim group are Dr. Peterson, Axel Carlson and Bert Vig of Ketchikan, Alaska.

History:

The discovery on this group of claims was made by Polson and Ickes in 1908. Claims were staked and the lower tunnel was started in 1910. In 1912 Axel Carlson and Frank Bold bought an interest in the claims and the underground development was continued. In 1914 a Mr. Herbs obtained an interest. Carlson and Ickes later acquired the major interest and held the ground together until 1928. This year Ickes died and his interests were advertised out upon failure to pay for assessment work. Carlson retained the holdings until 1935, which year he sold his major interest to Dr. Peterson and Bert Vig. Only assessment work has been done on these holdings. The property was examined by Mr. Dobson of the Brittania Mine in 1932 and later by H. Townsend and H. G. Wilcox. The latter examined this property for the Territorial Department of Mines.

Geology:

The geology in the vicinity of the underground workings of this group may be noted on the two accompanying sketches. The ore showings are confined to north-south extending shears within a mineralized zone of approximately 300 feet in width. The country rock is a diorite porphyry, which has been intruded into greenstone*, and later covered with limestone.

*U. S. G. S. Bull. 662, "Mineral Resources of Alaska, 1916" by Brooks et al., p. 66.

Evidence of small inclusions of limestone and the presence of lime minerals in the ore give proof of the limestone having been laid down after the diorite intrusions. Greenstone dikes of the olivine-diabase variety were intruded into both the porphyry and limestone. This was followed by a process of shearing which slightly displaced the dikes and formed the shears on which the present ore occurs. Since then, the overlying limestone has been eroded to the underlying porphyry with only small remnants remaining. One low grade copper-gold bearing ore shoot has been partly developed in No. 2 tunnel. This orebody has a length of 150 feet and ranges from 2 to 10 feet in width. This orebody extends along a shear in the vicinity of a faulted diabase dike (note Plate No. 2). Another low grade body occurs over the entire length of the upper tunnel a distance of 66 feet. This body has a width of 3 feet. The shear zones have a strike that varies from N. 10° E. to N. 20° E. and have variable steep dips to the east. Four shears were noted. These shears cut the dike at nearly right angles, the latter having a strike of N. 80° W. and dips 85° N. Rich float pieces have been found along the hillside and in most instances in the vicinities of dike and shear intersections.

Development and Showings:

The total workings on this group consist of three tunnels, and numerous old and new cuts. The following sketches show only two tunnels and a few cuts in the immediate vicinity. The cuts are extended over a distance of 2,000 feet, but they are mainly old cuts and more or less filled. The most important ore showing is in the lower tunnel.

Lower or No. 1 tunnel is located on the Apex claim at an elevation of 330 feet. The length of this tunnel is 275 feet and with included crosscuts the total over all length is 345 feet. At a point 25 feet from the portal the vein was cut and thence followed for a distance of 100 feet at which point the diabase dike was encountered on the footwall. This dike has a width of 13 feet and the ore shear displaces the dike a distance of 20 feet. A small amount of ore occurs on the south side and gradually diminishes along the drift to the south. Several slips, showing little movement, were noted along the drift and these make up the shear zone. The exposed orebody is 150 feet in length, varies from 2 to 10 feet in width, averaging between 3 and 4 feet, and dips to the east on an angle that varies from 56° to 69°. The mineralization carries on along the shear past the dike intersection south, but is more sparsely disseminated, and does not make an ore. Samples 406 and 407 were taken at points shown on Plate 2 in the tunnel. The results were low in gold and copper and could be termed ore only in the prospect term, providing greater tonnages were found.

The upper tunnel, or No. 2, is located above No. 1 at an elevation of 490 feet, and 420 feet southeasterly. The length of this tunnel is 66 feet, and it extends in a southwesterly direction following a 3-foot shear. This shear contains calcite and barite stringers with bands of mineralized and silicified diorite. Four channel samples were taken in this tunnel (note location on Plate No. 2) and the results show higher gold and copper values than those of No. 1 tunnel.

The surface cuts, as shown on Plate No. 1 , reveal two shear zones other than those in the tunnels. The zone, which is located nearly over No. 1 tunnel, is exposed in three cuts for a distance of 100 feet. This shear varies from 4 to 8 feet in width. Disseminated iron and copper sulphides show in the two lower cuts, while four feet of nearly massive barite shows in the upper cut. This shear strikes N. 10° E. or nearly parallel to the shear in No. 1 tunnel, but has a steeper dip of 85° to the east. This shear could be easily opened up from No. 1 tunnel by extending either the tunnel or further cross-cutting to the east. A similar low grade orebody might be encountered near the dike intersection. No samples were taken in these cuts and only low values were reported. Two cuts were noted along the dike to the east along the walls. No mineralization was seen in either.

The other shear zone noted is located 60 feet east of No. 2 or upper tunnel. This shear has a strike of N. 10° E. and dips 80° E. It has a width of 10 feet and is slightly mineralized over its entire width. Small seams of massive chalcopyrite were noted along the walls and center. No samples were taken.

Along the creek bank and above No. 1 tunnel, a few old cuts and a short crosscut tunnel expose the outcrop of the shear in No. 1 tunnel. Here the shear is again mineralized and low values in gold and copper were reported. Since the cuts were partly filled and the surface oxidized, no samples were taken and they were not included on the sketch.

Mineralization:

The ore consists of copper and iron sulphides with associated gold occurring disseminated in shear zones with altered diorite and limestone silicate and carbonate minerals and the presence of barite. The metallic metals noted were pyrite, bornite, chalcopyrite and gold. Malachite is present throughout the ore and is apparently a product of weathering of the bornite and chalcopyrite. Iron oxides were also noted in the ore. The walls are impregnated with the above sulphides.

The gangue minerals consist of quartz, calcite, chlorite, feldspar, barite, lime silicates and altered diorite minerals in various stages of alteration. Minor amounts of mica were noted in some portions.

Timber and Water Power:

There is abundant timber, both on the property and in the immediate vicinity. The streams are very small and water power is lacking in the region.

Recommendations:

The ore, as it occurs in the tunnels and the cuts, appears to be generally a low grade copper-gold ore. The greater value of the ore is in the copper content. Thus, with this type of ore, a concentration product would have to be made and shipped for smelting. Due to the low values a considerable amount of this ore, much greater than the present amount in sight, would have to be proven before profitable operations could be assured. Thus the recommendation of further prospecting might reveal further ore, particularly in the vicinity of the intersections of the shear zones with the diabase dike and the greenstones. The presence of high grade float gives an indication of the possibility of locating a much higher grade orebody. As the property stands at the present time, the amount of ore, compared with the gold and copper content, is not sufficient to warrant a profitable operation.

(19.9, 14.0)

Record: — 54°46', 132°01', 121.40

This report loaned to Mr. Wright - U.S. Bureau Mines - Nov. 21/44

Returned — Dec. 2, 1944 B.D.

Copy to
C. W. Wall, Prop
Industrial Development Inc. etc
419 S.W. Sixth St
Portland 4, Ore

5/5/52 one req of acq who obtained approval of Peterson & Carlson
(See acq letter of 5/2/52)

121-1

was done on the Copper Hill claim, about a mile southeast of Hollis, a short distance from the Ready Bullion tram. The ore occupies a shear zone in greenstone tuff and is composed of stringers of chalcopyrite veinlets inclosing sheared rock impregnated with particles of chalcopyrite and stained in places with copper carbonates. Both country rock and lode strike N. 70° W. The greenstone walls dips steeply northeast, and the lode apparently does the same.

McLEAN ARM AND MALLARD BAY.

Prospecting and assessment work is being done on a number of claims on McLean Arm and Mallard Bay. The country rock north of McLean Arm and part of that south of the arm is a medium-grained dioritic rock, evidently a part of the batholith that occupies a large area in the south end of Prince of Wales Island. West of the diorite is a narrow strip of greenstone with some facies grading into alaskite. The diorite is intrusive into the greenstone. Light-colored porphyries are believed to be intrusive into both greenstone and diorite.

The principal work has been done by Polson & Ickis on a group of claims extending from McLean Arm to Mallard Bay, including mineral claims and a mill site. [illegible] and crosscuts has been done and [illegible] of underground work has been done, besides a number of surface openings.

The ore deposits occupy shear zones in both the greenstone and its associated porphyritic intrusives. Chalcopyrite is the principal ore mineral, with a little secondary malachite and in places a black coating that is probably chalcocite. The Iron adit and Astor claims cover a mineralized zone that has been explored by surface cuts and underground workings for a distance of [illegible] along the strike. Within this zone are a number of well-defined lodes with intermediate parts which are more or less mineralized.

On the Adit claim an adit has been driven [illegible] feet, exposing two well-defined parallel lodes and a considerable area with disseminated chalcopyrite. The ore occupies hollow very prominent fracture planes with a general trend of N. 40° E. and a southeasterly dip. The mineralization was not confined within these walls but extended into the wall rock. The adit follows one of the lodes for about 50 feet and cuts across to another [illegible] the adit, at an elevation of 550 feet, an open cut has been made on a quartz vein which appears to be the hanging wall of the lode.

On the Veta claim the ore body occurs in the greenstone adjoining the diorite that forms the hanging wall of the lode. The lode strikes N. 45° W. and dips 70° NE. A short tunnel crosscuts the lode and drifts along it for about 20 feet. Adjoining [illegible] is about 17 [illegible]

Below this low-grade ore is about 8 feet of high-grade chalcopyrite ore, which occurs in masses and irregular veins in the greenstone and also associated with quartz veins.

The Spik claim is about a mile west of the Polson & Ickis claims and 2 miles south of the head of McLean Arm. It can be reached by a good trail from a point on McLean Arm half a mile west of the Polson & Ickis mill site. The developments consist of a few open cuts and a short adit. The country rock is greenstone with much intrusive granite. The ore exposed by the open cuts is of very high grade. It consists of bornite, chalcopyrite, and pyrrhotite, occurring in irregular masses in the greenstone.

NICHOLS BAY.

The rocks along the shore line of Nichols Bay are mineralized at a number of places, and several prospects have been located, but little work has been done on them.

Near the mouth of the bay the Foickert claim has been located recently and a little surface stripping done. The country rock is red granite and quartz diorite. The lode is a chalcopyrite-bearing quartz vein about a foot wide. It strikes N. 50° E. and stands about vertical. Development work in 1916 consisted of surface stripping and the construction of a temporary shelter and blacksmith shop.

[illegible] claim has been located on the east side of the bay a short distance from the beach [illegible] from the cabins on the shore half a mile to the workings. The ore is chalcopyrite-bearing quartz, and the country rock is andesitic greenstone. The lode has been prospected by a shaft and other openings and traced on the surface by open cuts.

The Alice claim, on the east shore of Nichols Bay, was recently relocated by Thornton & Kilpatrick. The country rock is andesitic greenstone with intercalated beds of limestone. The ore is chalcopyrite and occurs in the limestone in irregular bunches and veinlets. The old shafts on the lode were filled with water at the time of visit and were not accessible for examination.

A short distance north of the Alice claim is another property on which a little work has been done. The country rock is quartzite and siliceous slate interbedded with andesitic greenstone. The beds strike N. 20° E. and stand about vertical. The ore bodies consist of irregular masses of rock strongly impregnated with pyrite. No underground exposures were accessible when the property was visited.

TAH BAY.

[illegible] claims, including the Ranger 1 and 2, have been located [illegible] mineralized area on the ridge southwest of Tah Bay, a [illegible] on the north shore of Hessa Peninsula, on the west coast

MOIRA SOUND AND [illegible]

Prospecting in the vicinity of Moira Sound [illegible] to little more than the annual assessment work required [illegible]. Between the head of North Arm and Mineral Lake the copper [illegible], once active, were idle throughout the year and the only person in the region was a man who looked after the various properties and as opportunity offered did a little prospecting. Efforts have been made to prospect further the Navaho claim, formerly called the Hope claim, which lies between Cannery Cove and North Arm. No important new discoveries, however, have been made at this place.

No productive work was done during last year on any of the properties adjacent to Niblack. Only one person now lives in this region, and although part of his time is spent in prospecting little new work has been accomplished. Reports were current that plans were under way to reopen the Niblack mine, but they were not verified. The strongly faulted and deformed structures in this region undoubtedly will increase the difficulty and expense of mining.

A small prospect hitherto not reported lies in the small bight north of Black Point, at the entrance of Niblack Anchorage. The lead had been opened by means of a vertical shaft, now full of water, and by a short adit. The country rock is an agglomeratic or pyroclastic igneous rock trending east and dipping south. Not far away an infaulted mass of black shales and slates was exposed. Work at this place had been abandoned only a relatively short time, but the exposures did not seem to be sufficiently encouraging to warrant further development at present.

[illegible]

Seven miles north of Cape Chacon, the extreme southern point of Prince of Wales Island, is McLean Arm, a fiord about 5 miles long. A slight indentation immediately south of this arm is called on the charts of the Coast and Geodetic Survey Mallard Bay, but according to local usage this name correctly applies to the next bay south, which is called on the charts Stone Rock Bay. Without presuming to decide which of these names is correct, the writer has accepted the nomenclature adopted for the charts, and in the following notes the name Mallard Bay is used for the first bay south of McLean Arm.

The country rock in the neighborhood of McLean Arm is composed chiefly of a medium coarse-grained [illegible], similar in physical aspect to the intrusive rocks of the Coast Range farther east. South of Mallard [illegible] the country rock is [illegible] in origin, but differs from that [illegible] more porphyritic. It may be of the [illegible] may possess a different [illegible] under different conditions.

[illegible] greenstones and greenstone schists. The relation of the [illegible] to the granitic rocks was not apparent in the exposures examined, but the impression gained was that the greenstone had been brought into its present position by faulting. The greenstone outcrops along the south shore of Mallard Bay and its trend is slightly north of west, so that it is again exposed near the head of McLean Arm.

Along the belt of greenstone claims have been located. These are, from east to west, the Veda group, the Apex-Adit group, the Hillside, and the Wano. Although the claims have been located a number of years, none had been brought to a producing stage and none is being developed continuously. Copper is said to be the main metal of value in the ore and occurs as chalcopyrite. This sulphide is most abundant in the greenstone and schist, but in places it is also found in the granitic rocks.

A little prospecting has also been done farther south in the vicinity of Stone Rock Bay. This place was not visited, but from reports of prospectors the country rock is dominantly the same porphyritic [illegible] that occurs south of the belt of greenstone. A short distance [illegible] of the head of the [illegible] are being prospected by Becker and [illegible] of the bay on the [illegible] as to the [illegible] of the deposits was obtained.

HETTA INLET AND VICINITY.

The region near the head of Hetta Inlet has long been the greatest producer of copper ore in the Ketchikan region. Although it still produces the greatest quantity of copper ore, mining activities have dwindled, until in 1913 it contained only one producing mine. This mine, the Jumbo, owned by the Alaska Industrial Co., is located about 3 miles south of the town of Sulzer. About 50 men are employed more or less continuously throughout the year. The ore is delivered by an aerial tram from the mine to bunkers at the wharf, from which it is loaded onto ocean-going steamers and transported to the Tacoma smelter. No notable developments occurred during the year, and mining was carried on at the same places and with the same general results as in the past. The facts regarding the geology and mining developments in the neighborhood of this mine have been given in considerable detail by Wright[1] in a recent report and will not be repeated here.

[1] Wright, [illegible] W., Geology and ore deposits of Copper Mountain and Kasaan Peninsula, Alaska: [illegible] Geol. Survey Prof. Paper 87 (in press).