IR 195-19

SUMMARY REPORT OF MINING INVESTIGATIONS IN THE KETCHIKAN AND PETERSBURG MINING DISTRICTS
AND
ITINERARY OF J. C. ROEHM, ASSOCIATE ENGINEER, TO COMMISSIONER OF MINES, TERRITORIAL DEPARTMENT OF MINES, JUNEAU, ALASKA
May 23 to July 13, 1938.

Eighteen lode properties in the Ketchikan mining district and two lode properties in the Petersburg district, including a week of geological reconnaissance in the vicinity of Red Mountain between Vixen Inlet and Union Bay, were visited during the time interval of this report.

The mineral chromite was discovered in dunite and pyroxenite associated with magnetite as a magmatic segregation in the central mountain masses of Mt. Burnett and the high mountain ridge between Vixen Inlet and Union Bay. The mineral occurs disseminated as small crystals to irregular scattered crystalline bunches and small masses along the top of Mt. Burnett for over two miles and along the top of the mountain mass north of Mt. Burnett, with considerable magnetite, for a distance of nearly two miles. Samples taken from Mt. Burnett were tested in the Territorial assay office under five different chemical and blowpipe tests, and strong chromium reactions were obtained in each, showing this ore of commercial quality.

What appears to be a commercial grade of molybdenite was found in the copper-gold ore of the Shepard mine on Kasaan Peninsula. Twenty-two tons of ore was shipped from this mine last season, which assayed (smelter returns) .09 oz. gold; 1.75 oz. silver; and 14.28% copper. No molybdenite returns were given in smelter returns. The molybdenite occurs as irregular masses associated with chalcopyrite as a replacement of a garnetite filled fissure in greenstone tuffs.

The following is a summary of date collected during investigations and interviews as my itinerary progressed:

NOTED
AUG 19 '38
H. D. STEWART
Commissioner of Mines

May 23-24. En route to Ketchikan.

May 25-27. Ketchikan.

May 28-30. The Polson & Ickes property, now called the Apex group and owned by Axel Carlson, Dr. Peterson and Bert Vig, located at the head of McLean Arm, Prince of Wales Island, was visited in company with the above owners at their request. Two men have been engaged in assessment work for the year. This work has consisted of cuts on the surface which show scattered mineralization and possibly a low grade ore. The owners were much in doubt as to the position of the surface cuts with the underground

KX-1.21-40

lower tunnel. This was cleared up for them by engaging them in the actual mapping by plane table of the tunnel and cuts. The orebody on the lower tunnel was clearly pointed out to them with the fault shear intersection on which the body occurs with a green basic dike. Samples were taken in the new cuts, the upper tunnel and a few across the orebody. The greenstone dike was traced for some distance and the owners were shown other likely spots to do work where this dike is cut by shear faults. This deposit with its associated lime contact minerals, basic type of ore and uneven distribution in a wide shear zone has several aspects of being of supergene type. Samples 402-407, JCR., were taken from this property.

The Nelson and Tift operation on the north side of McLean Arm KK-121-53 near the entrance was visited. Four men are employed and are engaged in mining and loading the sulphide ore on scows. From this lense of sulphide ore in limestone, the latter a fissure filling in granodiorite, a total of 1,200 tons have been shipped. This season two loaded scows, each holding approximately 50 tons, are ready for shipment. Recent assays of this shipment shows the ore averaging over $50 per ton.

This lense of ore had a length of 75 feet, averaged 30 feet in depth and averaged 9 feet in width. It plunged on a 30° angle to the northeast along its strike and dip of 80° N. The present mining is located at the very bottom on the northeast end 12 feet below high tide. The ore occurs in massive bunches and appears to represent the bottom end of the ore. The owners intend to build a cement dam across between the walls at high tide line to keep out water and sink on the remaining ore in the bottom.

The property consists of 12 surveyed claims owned and operated by Nelson and Tift of Ketchikan. It was formerly operated by representatives of the Anaconda Copper Company, who dropped the option last year.

KK-121-42

The Dakoo property on Dall Island, held by H. R. Gould, has been optioned to Dr. Peterson of Tacoma and associates. Terms give 60 days examination and one year of operation without payment. This agreement has been signed, but the amount held for the property was not learned.

KK-119-8

June 1-5. Visited the property of the Kasaan Gold Company, formerly the Dutton mine, and Humbolt and Free Gold showings. This property, located on Harris Creek, is under lease to Wendell Dawson on a 10 per cent royalty on gross production for a period of 25 years. The property consists of 18 lode claims, two of which are patented. Since Dawson's lease, 1933 to date, a total of $22,000 in gold has been produced. At present Dawson is mining a faulted block of ore, known as the Free Gold, and milling one shift running between seven and eight KK-119-123 tons of ore that averages between 20 and $30 per ton.

KK-119-8-112

The Humbolt tunnel and showings were mapped along with the Free Gold to determine continuation of the faulted block. Some time was spent in tracing the vein onto the Cracker Jack claims to the east. Unusual geology and structure of this vein is the major faulting and recent faulting presents an interesting and complex series of geological problems. As a result this has presented difficult mining problems which has accounted in the past for the failure in operations. Briefly mentioned here is the geological conditions and structural problems. The Kasaan Gold, Cracker Jack and possibly other prospects on the Harris-May-be-so creek divide are linked up with these conditions. The central mountain core between Harris Creek and May-be-so creeks consists of an elongated ridge with a dioritic core. This intrusion, which is possibly genetically related to the granite mountain mass, has intruded and cut through comparatively flat-lying beds of black slates and greenstones. These sediments were capped by limestone which the intrusion also penetrated. However, the present day condition shows the greenstones and slates exposed on the surface in a tilted structure and all the limestone worn away with the exception of odd remnants about the intrusion itself on the higher elevations. The present creek valleys have been worn by stream, ice and other erosional forces to their present level on each side of this elongated intrusive. Schist zones developed in the greenstones and slates. The slate band represented the weakest member of the series and zones of weakness developed parallel to the bedding along the upper portions of the slate strata. Aplitic dike material was injected into these zones accompanied by considerable silica and mineralizing solutions. Pressure still continued along these zones after the injections and the dikes themselves became brecciated and broken. This was accompanied by further solutions which filled open spaces and altered the dike and slate materials, and numerous re-opening and filling followed. Pressure of greater magnitude followed, causing the already formed site of veins (two parallel sites, 200-250' apart are known in slate band) to buckle, forming rolls at intervals along its strike. These buckles or small folds on the vein represent the highest grade orebodies. They are of different strike and dip as compared to the general strike of the bedded vein. Cross faulting has developed on these. The veins (two parallel bedded vein zones) occupy their relative positions near the top slate band, strike N. 20-30° W. and dip 25-35° SW., and can be traced from where they cross the bed of Harris Creek around the nose of the mountain above Hollis down into May-be-so valley. They rise, as the upward dip of the slate band rises, to 1,500 feet on the Hollis group and down again on the Cracker Jack group.

KK-119-123

The Free Gold showing, or faulted block, which is at present being mined, represents a section of one of these folds along the vein which has recently been normally faulted on a hinge-type, rotational, comparatively flat fault. This fault is very recent as it is open, contains a flowing water course, and is partly filled with surface mud. The amount of displacement cannot be determined due to heavy overburden.

However, the displacement appears less at the north end than at the south end of the block. Drag ore shows clearly that the hanging wall has moved down hill, and the position of this block with the footwall vein zone, shows the displacement somewhere between a hundred and two hundred feet, depending from which end of the block the measurement is taken.

The Humbolt vein shows the same character quartz as the Free Gold. It appears also as a faulted block, but is nearer its original position than the Free Gold. Cross vein faulting has cut these blocks on the ends. The Humbolt tunnel was driven following the footwall of the vein. In sampling the tunnel, one only samples the footwall part of this vein. This was reported as only averaging 6 to 7 dollars per ton. Close inspection of the surface outcrop shows the same aplite hanging wall and associated granular to crystalline quartz that carries the best values in the Free Gold. Positive proof of this will be obtained from slides taken on both veins. This higher grade portion of the Humbolt was pointed out to Mr. Dawson, who can move his small mill and crusher to this position upon completion of the Free Gold block. The faulting and structure was also pointed out in an effort to help locate the ore structure in place.

The total workings on the Free Gold are 450 feet of drift and crosscuts. The Humbolt tunnel measures nearly 500 feet, with two short crosscuts.

Samples JCR. 408 and 409 were taken on drag ore of the Free Gold.

June 5. A small banded quartz vein in greenstone was found and staked by W. Dawson and B. LeBrant last year on May-be-so Creek, 2⅔ miles up from Hollis. This vein was not found by the writer. It was reported as averaging 4 to 6 inches in width and exposed 20 feet, cuts into the river and is covered on the opposite bank. Two claims, the May-be-so Nos. 1 and 2, have been staked. Channel assays from the vein were reported ranging from $72 to $128 in gold. Samples from the vein noted showed a heavy pyrite-galena mineralization in gray quartz, highly banded.

June 6-7. The Lucky Nell group of four claims owned by G. W. Gervis of Ketchikan, located 7-1/8 miles northwest of Hollis via trail between the Harris and May-be-so creek divide, was visited. Since 1936 this property has been under option to Mr. Tillie of Spokane. Prior the property was bonded to Col. E. J. Ryan. Two men were engaged in assessment work on date of visit. They were engaged in driving the lower, or No. 5, tunnel by hand. According to Mr. Gervis, the payment by Tillie for the month of May had not been made and he is serving Tillie with notice to abandon the property. Further that he is offering the property for $50,000 on terms, or a $10,000 reduction over the former price.

A map was made of the workings, which consist of five tunnels at various elevations between 1330 and 2,000 feet. A total of approximately 750 feet of drifting, with a 62-foot raise and a 24-foot winze, represent the total underground workings. All are accessible, in good order, and on the vein. The raise and winze are on ore with the former connecting up No. 3 and No. 4 tunnels. This proves an ore lense 50 feet in length, nearly a hundred feet in depth, and averaging 18 inches in width. Ore was reported in the bottom of the winze. According to J. Herdlick's report (engineer for Tillie) who sampled at 10 foot intervals, this block represents $53,400 in positive ore. The probable ore runs into the hundred thousands. Three lenses of this magnitude occur in the workings with vein material heavily mineralized, which no doubt carries values. Samples were taken in representative spots in the workings. The problems in regard to this property mainly hinge on transportation. The trail for two miles from the beach has been bridged and made into a suitable caterpillar road. The remaining mile has to be bridged and widened. There is sufficient water for milling, but water power is lacking. Very little free gold is contained in the ore. It is mainly contained in the sulphides which have a ratio of 1 to 4, making for large tonnage in concentrates that would necessitate hauling and shipping to a smelter. This property has, however, good possibilities and no doubt considerable more ore could be proven with an intelligent development program. Samples JCR. 410-414, inclusive, were taken in the tunnels.

Parallel with the Lucky Nell vein and approximately 600 to 700 feet northeast, the writer found a 6-inch banded quartz vein in place in a small creek. Walls were free in the same greenstone porphyritic formation. The vein was exposed 6 feet and carried a heavy sulphide mineralization of pyrite, sphalerite and small amounts of galena. This mineralization is identical to the Lucky Nell vein. A sample, JCR. No. 415, was taken for assay, representing the 6-inch width, and gave .48 oz. gold and .80 oz. silver per ton.

June 8. The divide between May-be-so and Karta River was crossed and the McGiveny group was located at the basin head. This prospect is apparently open to location. Snow, however, prevented seeing the surface workings and the cabin is flattened from snow. Returned to Hollis.

June 9. Visited the old Puyallup mine, now staked and held as the Lucky Jack group. This group is located one and a half miles northwest of Hollis. Prior to this year this property was held by B. LeBrant and Brown. This year the property was restaked by LeBrant and sold for $30 a month for six years to K. G. Adams and L. T. Erickson. They are on the property and operating the 5-stamp mill with an Ainsley bowl below stamps. They are working intermittently mining and milling with no men hired. This spring LeBrant found a pocket in the bottom of the lower tunnel from which he recovered $600 in a few pounds of rock. Adams and Erickson expect to sink on this pocket and possibly extend the lower tunnel under the high

grade shoot that was formerly mined from the above tunnel. Several thousand dollars is reported mined from this shoot and may continue in depth. This will necessitate driving the lower tunnel approximately a hundred feet, depending upon the rake of the ore shoot. Caved stopes prevented getting the rake.

All open workings were mapped and a working map was made for them. With the set-up, water power and mill, should they strike any amount of ore, they are certainly due for a fair degree of success.

KX-119-72

June 10. The Cracker Jack group, consisting of nine patented claims, two fractions, and mill site, and located above the Lucky Jack, was visited. This group contains the original Cracker Jack claims and the Hollis group. The geology is well described in U. S. G. S. Bull. 347, "The Ketchikan District." No work has been done for several years and the wooden tramway up to the Hollis group has deteriorated beyond repair. Eight tunnels with drifts and crosscuts totaling 2,700 feet, and several small raises and stopes, represent the total underground workings. Numerous cuts, many partly filled, represent the surface work. All tunnels were visited and a representative sample was taken in each. All are accessible, including stopes and raises.

KX-119-72

The Hollis veins and the Cracker Jack are the same continuation of the Dutton, Free Gold, and Humbolt veins, with the same general geology applying as mentioned prior. The two parallel vein zones are in the black slate formation. These can be traced the entire length of the property. The folded roll structure, as mentioned, occurs intermittently on these claims and is present in the tunnels where stoping has been done. It is the writer's belief that more of these structures exist. They are workable bodies, however, their comparatively flat dip makes for rather expensive mining. Here again the better values appear to be contained in the hanging wall vein zone of the slate band. Aplitic dike material accompanies these vein zones as on the Kasaan Gold property. Several samples of dike and vein matter were taken for slides.

This property is owned by Maurice McMicken of Seattle. Here again is another property that could be working. Samples JCR. 416-422 were taken mainly from stopes on this property.

June 11. Leave Hollis on foot and arrive Karta Bay.

June 12. Leave Karta Bay, and arrive west end of Salmon Lake by boat and on foot.

Along the north shore of Salmon Lake a wide width of quartz porphyry, representing the end phase of the granite Mountain diorite, shows a strong mineralization along contacts of schist. Considerable mineralized quartz float is evident along the shore. A 150-foot dike of pyroxenite cuts close to porphyry. Thus extending north of this lake, a favorable prospecting area should exist within the close proximity of the highly acid and basic rocks.

Located three-fourths of a mile southeast of Salmon lake via trail from the southeast shore at a point midway between the east and west ends, is an old prospect known as the Lone Jack. This prospect was located in 1931 by Tom Stevens, discovered several years ago, and was open on date of visit. Trail leads southeast to cabin, elevation 400 feet. 150 feet east of the cabin a vein apparently crosses the creek, but is covered. Several large quartz boulders show along the side. A short tunnel has been driven along the west side which is caved. This tunnel was apparently on the vein as the dump contains considerable quartz. This location is on the north slope of Granite Mountain and the formation is massive diorite. The large pieces, some 18 inches thick, show a banded vein containing large vugs and scattered mineralization. The mineralization consists of pyrite, galena, and chalcopyrite, and was reported to carry good gold values.

Located along a small creek 700 feet west of the cabin between elevations 300 and 400 feet two parallel quartz veins are exposed along the creek bed for 500 feet. The small footwall vein varies in width from 2 to 4 inches. The hanging wall vein varies in width from 8 to 16 inches. Both veins are banded and contain shoots of altered diorite in diorite formation. They strike N. 46° E. and dip 54° NW. The mineralization, mainly pyrite, occurs in spots and bunches along the veins. A 16-inch channel sample, JCR. No. 424, was taken from the hanging wall vein.

June 13. Located 7 miles west of the west end of Salmon Lake and one mile east of the Constitution prospect, and 400 feet north of the Constitution trail along a small steep ravine, an 18-inch vein is exposed for 200 feet. This vein strikes N. 30° E. and dips 75° W. The hanging wall is a dense fine-grained dark rock, possibly a basalt, and the footwall is a dark porphyritic rock. The vein is a fine-grained purplish dike rock and contains a highly colored pyrite of green to silver and light yellow color. Sample JCR. 423 was taken for nickel assay. This showing was located from directions given by Sam Swenning who reports a nickel assay of 2 per cent. A large mass of gabbro was noted above this vein which apparently this vein strikes along to the northeast. The mineralization is, however, comparatively weak and scattered in the vein. However, a 2 per cent nickel assay would warrant prospecting on the vein. No work has been done on it. Samples for slides were taken of the wall rocks and vein rock to determine kinds.

KA-119-3

June 14. Returned to Salmon Lake and went on foot to the property of the Flagstaff Mining Company. The property held by the Flagstaff Mining Company consists of 29 lode claims and four mill sites. It is located 4 miles via caterpillar road southwest of Karta Bay and 3½ miles northeast of Hollis. The present owners of this company are H. J. Mesta, C. B. Morgareidge, G. W. Sheridan, Wm. Goodwin, W. M. Sheridan, D. S. Morgareidge, and R. J. Tobin. Owners of the property are Tom Stevens and associates.

No actual mining has to date been done by this company. Last fall, winter and spring was spent in building a camp, a caterpillar road from Karta Bay, a 2,000-foot aerial 2-way tram, and mill. The mill and tramway have just been completed. The mill is fully equipped and later reports were that it started the last week of June. The camp and mill are located below the showings on the main valley floor. A tower 35 feet in height was erected of square timber on the lower end of the tramway. The ore is dumped in a bin at the top over 1-inch mesh grizzly bars with the fine material fed directly through a 50-foot wooden chute to the lower bin at the top of the mill. The coarse material is fed to a Morse Bros. 6x8" Blake-type crusher run by an 8 H. P., 2-cylinder Cushman gas engine, and falls into the wooden chute below. A plunger-type feeder at the bin feeds the 25-ton capacity Morse Bros. ball mill, 48x44". A 20-mesh classifier on end of the ball mill returns oversize to the ball mill with the flow passing to Wilfley table where a high grade concentrate is to be made. The overflow from the table is returned with No. 1 Wilfley sand pump to a Morse Bros. rake-type classifier. Overflow from classifier is fed to four Morse Bros. Denver flotation cells. Oversize is returned to the ball mill. Into this oversize flow the oil reagents are fed and carried direct to the ball mill. Thus the flow mixed with reagents passes over the table (rather unusual arrangement). This was pointed out to them. The original planned flow-sheet had this arrangement with an amalgamator, compact type, below the ball mill and ahead of the table. This also was taking the oil reagents flow from the ball mill. This, however, was cut out due to the small amount of free gold in the ore. A mixer was recommended to be inserted below the rake classifier prior to the cells, thus insuring a clean flow in the ball mill, classifier, over the table, and rake classifier. Power for the mill is furnished by an auto-type 4-cylinder Waukesha gas engine. The mill building is 35x60 feet, with a built-under settling box for concentrates below the cells. A Kohler light plant, run by gasoline engine, is installed in the mill, which furnishes light for both mill and camp. The camp buildings consist of cook house, office, bunk house, shower and wash room, caterpillar house, and saw mill. The saw mill has furnished all the lumber for camp buildings and building timbers. It has been a great saving to the company. A second hand Morse Bros. compressor, run by a Wisconsin gas engine, is to be installed at the portal of the lower or main tunnel. The aerial tram consists of two $1\frac{1}{2}$" cables 2,000 feet in length with 5/8" carrier cables and using 1,000-lb. buckets.

Mining is to start on the east-west vein from the lower tunnel, elevation 1440 feet, by drifting further under the ore and stoping through to the surface with a 220-foot back. This shoot of ore has a surface length of 54 feet and averages $3\frac{1}{2}$ feet in width over this length. Gold values were reported averaging from $25 to $35 per ton. All the main showings were visited on the east-west and north-south veins. Reported parallel veins were not visited.

A request was made to map the showings, which was refused on the grounds that they can well afford to do their own. A report of showings will be contained in a later report. Mr. H. C. Wilcox is in charge of operations. Twelve men are employed.

June 15. Returned to Hollis on foot.

June 16. Visited Salt Chuck Mine.

KX-119-142

Mr. Howard, manager for the Alaska Gold and Metals Company, was absent during visit to this mine.

One 8½-hour shift is worked daily except Sunday in the mine. The mill is operated an 8-hour shift every other day, milling 100 tons per shift. Eight men are employed.

A few days prior to this visit a miner was working down ore in the stope above the 300-foot level, and undercut a mass of rather large rocks hanging on top of the pile, when they caved or slipped down and inflicted a compound fracture of the leg below the knee. Mr. H. B. Humphrey was in camp at the time and gave first aid, then traveled to Kasaan and wired for a plane. The plane arrived prior to his return, however, it waited and Humphrey accompanied the injured man to Ketchikan. Rock dust from an operating dry stoper a few feet above in the stope possibly had some part in the cause of this accident by reducing the visibility and creating noise. Dry machines are used in the mine exclusively and three are operated per shift. Stopes are rather large and ventilation is at times downward. Similar accidents have formerly occurred. The use of wet machines would correct this condition.

Only the Salt Chuck mine was visited. Ore is being mined from vicinities near the glory hole and below on the 200 and 300-foot levels. The orebodies contain calcite stringers and small slips which penetrate the wall rocks in close proximity to the gabbro-pyroxenite contact. Several samples were taken for slides. Apparently, one of the unknown factors or problems is regarding the possibility of this ore continuing in depth. No mining or development has been attempted below the main 300-foot level. The slides may show some information concerning this problem.

June 17. Visited the Copper Center prospect. This prospect, which is located four miles east of the Salt Chuck mine and 3,000 feet north of the beach, has been located by A. Moquist of Ketchikan. A small amount of new work has been done this season, which consisted mainly of cleaning out old cuts. The old workings consist of several filled shallow shafts and cuts within an area 300 feet in length along a small knoll. One cut alongside an old filled shaft shows a 3-foot band of ore consisting of massive bands of chalcopyrite, magnetite and pyrite. A few tons of ore has been sorted on the dump. This is apparently a shipping ore from the amount of chalcopyrite showing. A reported assay of 100 lbs. gave .46 oz. gold, 3.02 oz. silver and 6% copper per ton. Another apparent band 20 feet south of this contains mainly magnetite. These bands strike N. 80° E. and dip 65 to 70° S. They are in metamorphosed greenstone tuffs and are near a granodiorite contact. Three samples, JCR. 425, 426 and 427 were taken.

KX-119-7

June 18. Visited Shepard property. (See also page 1.)

This property is located 6 miles northwest of Kasaan and 1,800 feet back from the beach at an elevation of 300 feet. The property was staked and is held by Eric Lindeman and consists of three claims and two mill sites. The property was originally known as the Brown and Metzdorf prospect. Last year 22 tons of ore was shipped, picked from the dump, that gave returns of .09 oz. gold; 1.75 oz. silver; and 14.28% copper per ton, $28 a ton being cleared above expenses of transportation and smelting.

The workings consist of a 250-foot tunnel (approximate), caved on date of visit, but since reported cleaned out, which connects up with a shaft to the surface 35 feet above and a raise to a small glory hole. The underground workings are accessible through the raise from the glory hole. The showings consist of a greenstone dike in crystalline limestone with a 4-foot band of garnetite on the footwall side. The ore occurs in bunches and disseminations of chalcopyrite, molybdenite and pyrite, as a replacement in the garnetite. The limestone is in contact with greenstone with evident faulting which has cut and displaced the dike, the ore and the limestone. Due to inaccessibility of the workings, this displacement could not be worked out. However, 24 inches of ore shows in the face of the southwest drift on the tunnel level (Sample JCR. 429). Also 30 inches of ore shows in the bottom of the glory hole 20 feet below the surface. The crosscut directly below the glory hole is within one round of hitting ore.

The property is equipped with an aerial tram, 1,800 feet in length, consisting of two 5/8-inch cables that extends from the tunnel level to the old dock on the beach. With some active mining, more ore could be mined and shipped at a low cost. The molybdenite occurs scattered and is associated with the chalcopyrite in garnetite. More ore is to be shipped later this year with two to three men employed.

June 19. Visited Copper Came and Venus groups.

The Copper Came group is located 1-3/4 miles from the beach northwest from the mouth of Pauls Creek on the northwest end of Karta Bay. The group consists of three claims held by Walter and Felix Young of Kasaan. The showings are located along the north bank of Pauls Creek at an elevation of 140 feet. They consist of three large opencuts up the bank across a shear zone in interbedded greenstone and argillite. In the zone are numerous quartz and calcite stringers and veinlets with scattered seams and bunches of chalcopyrite and pyrite.

The Venus group was visited in the absence of the owner, a Mr. Moiser of Ketchikan. The showings are located 1¼ miles via trail from the head of a small bay at the head of Kasaan Bay on Iron Creek. The number of claims in this group is not known. Assessment work has been done this year. The showings consist of a tunnel (caved), with a reported length of 75 feet, and a trench with strippings over 300 feet in length. This trench shows a lense of pyrrhotite, nearly massive, showing a little copper and pyrite, exposed over 150 feet. This lense is in greenstone tuffs with interstratified quartzite beds near a diorite contact. The tunnel on the west end and 40 feet below was reported as cutting this body. This lense has an east-west strike and nearly vertical dip. A qualitative test of this mineralization gave only a trace of nickel.

June 20. At Ketchikan the following was reported:

The Khayyan mine on Skowl Arm, Prince of Wales Island, was staked by Harry Townsend on May 20, 1937.

Paul F. Langworthy staked 25 and a fraction claims on March 26, 1937 on Baker Island covering the molybdenum property held by Jerry Galvin and associates in 1935-36. According to reports assessment work has not been done this year on the above properties.

E. C. Hudson (Indian), Metlakatla, made a discovery of gold-bearing quartz on Annette Island in May of this year. The location is unknown. One sample ran by the assay office at Ketchikan carried $79.30 in gold and $1.95 in silver. He has promised to bring in more samples.

Assessment work is being done on the Andrews copper property southeast of Kasaan. R. G. Nibbe of 295 Berkeley Park Blvd., Berkeley, California is the owner and the property is for sale. It consists of two claims. Mr. L. Gore of Ketchikan is handling correspondence for the above. No definite price is set for the property.

Assessment work is being done on the Doris Bay property on Prince of Wales Island.

The marble quarry at Tokeen is being operated this season, the first since 1932. A few men were reported engaged and more expected later.

The Peerless property has been dropped by the Evis Mining Company at Thorne Arm. This property is held by Jackson, who optioned the property from Lyle, the holder, in 1936. The full payment of $30,000 has been paid for the Sea Level property by the Evis Mining Company.

The Evis Mining Company intends to operate this season. Four men are engaged on the property putting things in shape for a larger crew. A mill test of the ore is to be made. H. Micley, formerly with the Anaconda Copper Company at McLean Arm, is engineer in charge for the company and is on the property. Mr. Page, a New York broker, is financing this operation.

Cy Perkins of Ketchikan reports a large showing of bauxite, determined by the Ketchikan Territorial assayer, on Etolin Island opposite Stikine Straits. Assays up to 12% aluminum were received.

Geo. Puumala, a CCC. worker, formerly on a halibut boat, found considerable quartz float and two small veins on the east coast of Prince of Wales Island. The location was not given. Assays up to $200 per ton in gold were received. He has not staked the discovery. However, he has promised to reveal the location after staking and will send samples.

A. B. Wolf of Ketchikan located a large showing of calcite on the beach a mile from the head of Walkers Cove on the north side across from the creek. This showing was blasted into and considerable malachite was reported as showing. Assays gave gold and silver results between $10 and $12 per ton.

June 21. Visited Bert Libe property, Helm Bay.

KX-119-124

The Portland group of two claims, owned by Bert Libe, is located one mile from the head of Helm Bay and 1,800 feet from the beach between elevations of 100 and 300 feet. A map was made of the surface workings and the tunnel. This located the latest work in the tunnel with reference to the surface shaft and mineralized silicified zone above. A small compressor has been installed at the portal of the old tunnel and development has been directed toward driving this tunnel under the surface showings. To date the tunnel is in 303 feet and a zone consisting of altered green schist and quartz stringers has been crosscut that assays from $1 to $2 in gold. The map shows several more feet of this zone should be cut and better values may be encountered on the footwall, which is true of the surface cuts. No samples were taken.

June 22. Visited Sleeping Beauty prospect.

KX-119-162

The Stensland property, now incorporated as the Sleeping Beauty Mining Company, consists of seven lode claims and three mill sites, located one-half mile from the head of Helm Bay. The amount of work done on the property since the writer's visit in 1936 consists of three rock cuts and a partly built cabin and improved trail. The cuts and old tunnel were mapped and sampled, Nos. JCR. 434-437, inclusive. The cuts show only small quartz mineralized stringers. Two men are employed this season. An old gasoline-driven compressor has been purchased and is on the beach.

Two men have been engaged doing assessment work on the Alaska Gold Mountain property in Smuggler Cove.

June 23. Visited the Free Gold property.

KS-126-87

The Free Gold property is located north and adjacent to the Gold Standard group on the west shore of Helm Bay. The group consists of eight claims held by M. Bugge and J. E. Rogers. The owners of this property are willing to give a liberal working option to any one as they desire to get further development done. Martin Bugge of Ketchikan will be glad to show the property and has power of attorney to sell or option it. The report of George Crerar on this property can be accepted as checking with conditions found and with older reports by others.

Two types of deposits are definitely shown in the surface and underground workings. One type is the one referred to by Crerar's report as the Bugge, or High Grade vein. This is a fissure vein showing good structure and continuation on which several small high temperature quartz lenses showing free gold have been formed. The writer found the presence of black tourmaline in a bluish-gray quartz, with which the higher values of the vein are associated. This points to high temperature and continuation in depth.

The other type is the one that shows in the crosscut tunnel, the Mahoney cut, and the showing above the long crosscut tunnel. This type is a stringer lode or shear zone type consisting of highly altered greenstone schist with interbanded and interlaced quartz stringer veins. These zones appear to be on the limbs of the fold which have an apparent low plunge to the north. These, as they outcrop on the surface, with their low angle plunge and low angle dip, account for the large flat-lying quartz outcrops. They contain low values, but sufficient values to be interesting with their apparent widths and continuation. Further development is warranted on this property.

June 24. Visited Gold Standard.

KS-126-88

The Gold Helm Mining Company, headed by Mr. Tillie and operated by J. A. Herdlick, engineer, ceased operations on December 4, 1936. John Folwarzny obtained a lease and started operations in March, 1937. Intermittent mining and milling has been carried on in the glory hole to date. During 1937 a total of $3,000 was recovered. This season to July 1 $800 in free gold has been recovered plus one shipment of concentrates. The ore mined was from the south end of the glory hole and from a stope under the surface south of the glory hole. Three men are engaged.

The Gold Standard tunnel was filled and the drift was full of water to the extent that access down the shaft permitted examining.

The faulted segment above and offset to the east of the Gold Standard vein was mapped. The ore lies above the upper tunnel. This vein is exposed over 100 feet, has an average width of 18 inches, and an average of 40 feet of back. According to reported values, this represents a block of ore worth approximately $9,000. This was pointed out to the operators, who intend to mine such this season. Further extension of the vein to the north may show good ore. Samples JCR. 438-439 represent widths of 2'3" and 22" across this vein.

June 25. Helm Bay to Vixen Inlet.

June 26. Investigated Mt. Burnett, locally called Red Mountain, located between Vixen Inlet and Union Bay on Cleveland Peninsula. Chromite was found associated with magnetite in the dunite core of this mountain.

June 26. Vixen Inlet to Windfall Harbor, Prince of Wales Island and Ketchikan.

The property of Wm. Robinson, called the Mucker's Dream group, is located two miles north of Windfall Harbor and one and a half miles back from the beach via trail.

Here between elevations of 600 and 1500 feet, and exposed for 3000 feet, is a shear zone developed on a contact of greenstone lava and a feldspar porphyry. This zone strikes No. 30-35° W. and dips to the W. This zone is 20 to 30 feet in width and contains stringers of quartz and calcite, and the country rock is somewhat sparsely impregnated with pyrite and copper sulphides and carbonates. Numerous cuts and trenches are exposed along the strike beside a small creek. At an elevation of 1240 feet a fault, which strikes N. 70° W. and dips 60° S., cuts this contact shear zone, at which point a high grade pocket of copper and free gold was found. The intersection was filled with garnetite, calcite and some quartz. The workings from which the ore was mined were caved and filled. A short tunnel 40 feet below was not continued far enough to intersect the downward continuation of this pocket, if it continues in depth. The owner was advised to continue this tunnel and raise to the pocket.

June 30. Return to Vixen Inlet.

The areas of ultra basic rocks which form the main mountain ridges between Vixen Inlet and Union Bay were rapidly geologically mapped. The map shows the general segregation of these basic rocks with the dunite cores. Chromite and magnetite were irregularly scattered over the central core of the dunite masses. Sample JCR. 441 is a representative sample of chromite, as it occurs as irregular bunches on Mt. Burnett. Sample 446 is a representative sample of a 200-foot width of magnetite and possibly chromium in pyroxenite along the gabbro-pyroxenite contact on the ridge north of Mt. Burnett. No conclusions, however, can be based on these two assays. Only systematic sampling accompanied by considerable prospecting will throw light on the commercial possibilities of this occurrence.

July 7. Leave Ketchikan.

July 8. Arrive Petersburg.

Mr. Ohmer reports that no work has been done on the Maid of Mexico prospect this year. He expects to clear up the title to this property within a few weeks. Apparently a Mr. Bidgood of Wrangell holds a lien against the property. This is to be paid off and the owners are dealing with Martin Jasper in regard to a sale.

July 9. Petersburg to Keku Islands.

July 10. Visited Keku group on Kuiu Island.

The annual assesement has been done on the Keku group of claims, located along the northeast shore of Kuiu Island opposite Keku Islands, according to a notice posted on the beach at the camp site on Keku claim No. 9. The work has been concentrated on Keku claims Nos. 8 and 9. This has consisted of blasting the face off the zinc showing along the south side of the creek approximately 600 feet inland from the beach. An area 40 by 30 feet and two rock cuts on the lower portion of this outcrop totals the amount of work. Approximately 150 to 200 tons of ore has been removed from this cut and is piled in the creek. A trail has been constructed from the camp site on the beach to a showing in the creek and south 700 feet to parallel the creek. Two cuts were seen along the trail, but no ore was seen in them. Two rock cuts were made in the limestone band in the creek south. Some sphalerite shows here across a 30-foot width, however, this ore appears rather low grade. Samples JCR. 447-48-50 were taken from main zinc showing and sample 449 is a representative sample of the south creek showing. Eight men were reported engaged during the month of June.

July 11. Visited Children group.

The Children group of two lode and six placer claims is located adjoining the Keku group to the south, extending from the beach upstream along Hungerford Creek. This group is held by T. Hungerford. The two lode claims extend from the mouth of Hungerford Creek upstream 3,000 feet. The bed of this creek follows the same apparent limestone bed, or a parallel bed, as the one found on the Keku group and appears to be the southern extension of it. A greenstone conglomerate forms the hanging wall and andesite lavas the footwall of this bed. This limestone bed has an apparent thickness of 30 to 40 feet. The creek bed, filled with gravels and log jams, occupies most of this width. However, a scattered mineralization can be found along the banks, which are the walls of this formation. Commercial assays of lead and silver have been reported from cuts on the hanging wall in the greenstone.

Located 1,300 feet from the beach on the Brown Bomber claim on the south bank of Hungerford Creek, elevation 50 feet, and directly opposite the second branch stream from the mouth, is a showing of sphalerite. A 5-foot width is exposed, occurring as a replacement of the limestone. This showing is only an outcrop with no work done. Prior it had not been identified as a zinc ore. The outcrop is only exposed a few feet. A much greater width and length could be exposed by trenching and opencutting. This was advised. The formation strikes N. 25° W. and dips 40° E. Prospecting on this formation was recommended for further occurrences of this ore. Sample JCR. 451 is a representative sample across this 5-foot outcrop.

The seven placer claims are staked along the top of the ridge parallel to the shore line, Here, underlying the tundra is variable thicknesses of a soft black, light muck. It has a brown streak and was reported as containing manganese. In places along the creek bank, iron oxides are mixed with this muck. The underlying rock is andesitic lavas. Sample JCR. 452 was taken for assay. However, the writer is still doubtful regarding manganese content.

July 12. Boarded North Sea.

July 13. Arrived Juneau.