

IR 195-41

DEPARTMENT OF MINES
TERRITORY OF ALASKA

Report of Investigations and Itinerary of J. C. Roehm,
Associate Mining Engineer, Territory of Alaska,
in the Petersburg and Ketchikan Mining Pre-
cincts
June 11 - July 2, 1946.

June 11 - Juneau to Petersburg.

June 12 - Petersburg to Duncan Canal.

June 13-15 - Mapping outcroppings and sampling Taylor Creek
zinc-lead prospect. - *Corner - Ora P. Schomrock - Bay...* ^{RT 117-29}

The ore zone on Taylor Creek is exposed along the banks of Taylor Creek from a point approximately 1500 feet above the first falls to within 300 feet of the second falls, a distance of nearly 1700 feet. Elevation of the creek ranges from 165 feet to 175 feet between the falls. This zone can be traced by outcroppings and exposures along the steep banks, which range from 30 to 50 feet in height. The ore zone is irregularly distributed in a stratum of limestone underlain by andesitic greenstone schists and overlain by graphitic lime shale. The limestone has a thickness ranging from 50 to 60 feet and lies conformably upon the greenstone schists. The dark limy shales are laid conformably upon the limestone stratum. *(Dumfries) Hoonah*

Petersburg 117

The formations have a general northwest strike, N. 28 to 30° W., with a very low and variable dip to the Northeast. Northwest faults intersect northeast faults that have formed large dimensional blocks, which show step faulting and low tilt to the northeast. Some of the northeast faults contain basic dike magma which appears to have some genetic relation to the high grade zones of ore where they cut the limestone stratum. Some folding has been subsequent to the northeast faulting, while general folding of the strata was mostly prior thereto. Small open folds with NE. plunging apexes at low angles were noted and were formed prior to the faulted blocks.

The ore zone consists of a dissemination of lead, zinc and iron sulphides contained both in the central and basal portions of the limestone stratum. Small high-grade pockets occur along fault intersections, and the dike-filled, northeast trending faults. Outcrops show in numerous places along the creek banks as deep brownish-red zones caused by the oxidation of the heavy pyrite mineralization. Small amounts of secondary lead and zinc minerals were noted in the thin fractures of the limestone on the ore zone outcrops, and some black manganese oxides are also contained in the ore.

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B. D. ...

Discovery of another zone of extensive outcroppings, that appears to be the same ore and same limestone stratum, was made early this year along the top and sides of a northwest-trending ridge which lies from 600 to 800 feet to the northeast of the creek outcroppings. (Note Sketch Map). The outcroppings, over which ore appears to be indicated, are exposed 600 feet in length and range from 40 to 100 feet in width. This ridge appears to be an upturned edge of one of the faulted blocks which has again exposed the ore zone. To the south the ridge noses into the muskeg flats and rises to an elevation of over 300 feet to the northwest. Heavy timber and vegetal growth make some development work necessary before much can be said regarding these indicated ore outcroppings.

Sample JCR. 1204 was taken across 12 feet of the oxidized material on the crest of the ridge, where it is best exposed. This location is on the side claim lines of Nos. 4 and 5, 425 feet north of the south corner posts and discovery posts. Following are results of assay:

Oz. Per Ton		Percentages		
<u>Au.</u>	<u>Ag.</u>	<u>Pb.</u>	<u>Zn.</u>	<u>Cu.</u>
0.61	1.20	1.7	1.6	0.02

Three channel samples were taken across the creek bank outcroppings and from the bottom of the creek as indicated. Development, such as rock cuts into the weathered outcroppings, is needed before true values can be obtained from samples. These are, however, indicative:

Sample No.	Locality	Width	Oz. Per Ton		Percentages		
			<u>Au.</u>	<u>Ag.</u>	<u>Pb.</u>	<u>Zn.</u>	<u>Cu.</u>
1202	Claim No. 1, N. bank, 20' above creek, 350' above Disc. cut.	8'	0.08	1.0	Nil	0.4	0.02
1203	Claim No. 1, bottom of creek, 300' above Disc. cut.	12'	0.29	3.70	0.08	23.2	0.07
1201	Claim No. 2, center claim line, N. bank of creek, 100' above center end post.	10'	Tr.	0.8	1.5	18.8	0.02

The outcrop showings in this area appear to be quite extensive, and if they represent a continuous zone throughout a length of over 1500 feet, and 1000 feet in width, as indicated, containing a commercial grade of ore, there may be sufficient tonnage for operation. This block could easily be strip-mined at low cost. The problem at hand is surface development by either surface trenching or small diamond drill. More investigation is needed before a definite program can be outlined.

June 16 - The Ironton group of five claims along the west shore of Towers Arm were investigated upon receiving reports of lead and zinc occurrences. This claim group was located by Mike and Mary McCallick. The discoveries and posts were found in old workings along the shore line of Towers Arm extending from midway down on the arm to the head.

Petersburg
The showings and old workings are confined to a zone of mineralized greenstone schists, which outcrop at high tide, and as low bluffs along and paralleling the shoreline. Pyrite is found as disseminations and in narrow thin seams and bands in the schist, which has been highly altered by heat and pressure. The seams and bands parallel the strike of the schistosity, N. 35° W. The dip of the schistosity ranges from 35 to 45 degrees northeast. Most of the old workings were noted at about high tide level, and extending from 500 to 2000 feet northwest of a small tidal island which lies two-thirds the distance to the head. They consist of small rock trenches cross-cutting the strike of the schistosity into the red iron-stained, weathered low bluffs of the sulphide impregnated zone. No recent workings were observed. The greenstone schists appear to be of the same composition as those that underlie the limestone along Taylor Creek. Near the mouth of Towers Arm limestone bluffs were found overlying the greenstone schists. Apparently the limestone has been eroded from the schists on the claim group. Small remnants were noted in the schists.

Small specks of zinc and lead sulphides were noted in some of the larger pyritic seams. Specimen pieces were obtained only, since the sulphides are highly scattered, and sampling in the highly oxidized cuts was considered impracticable. Low values in gold, lead and zinc are apparently obtainable.

June 17 - Duncan Canal to Petersburg.

Petersburg
June 18 - Petersburg to Ketchikan, including a short stop at Wrangell.

Petersburg
Mr. Louis Berg of Sitka has eight men working on the trail and building camp at his property inland from the head of Berg Bay and south over the divide from Ground Hog Basin. Camp supplies and materials have been flown in from Petersburg and dropped. Mr. Berg expects to take in a compressor and do some underground work this season with a total crew of 15 men. *117-13419*

Ground Hog Basin properties were reported to be inactive.

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June 19 - The only actual mining and milling operation in the Ketchikan precinct is the Kelly Adams operation on the old Fuyallup mine at Hollis. Two men and two women are employed and nine ounces of sponge and concentrates has been recovered so far this season.

Wendell Dawson is preparing to operate and mill later this season. Mr. Dawson has been negotiating for a Veteran's loan, with which to do further development and operate. This loan was reported to have been held up due to terms of lease and title to property.

Clyde S. Maxwell, formerly on the Beaver Falls Power Project as sub-contractor, has a contract with the Lucky Nell Mining Company to build the road to the property and to perform some underground development. Mr. Maxwell has two men hired on the project at the present time. Aner Erickson was reported to be engineer for the company.

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Santiago Mines, Ltd. has six men employed under Heinie Tweet at Dolomi. They were reported to be fixing up living quarters and repairing the tramway to the lake. Aner Erickson was said to be engineer for the company. This company is negotiating with Mrs. Annette and the Tom Stevens Estate for the optional purchase of the Flagstaff Mine at the head of Karta Bay. The total purchase price was reported to be \$75,000 with nothing down and a payment of \$5,000 after four months and continued payments of \$1,000 per month as royalty payments applying on the purchase price. The Flagstaff was examined last fall by H. E. Dolle of the Sheep Creek Mining Company of British Columbia.

Bob Novatney has packed some high grade concentrates down to the beach from his property in Helm Bay. He expects to make a small shipment this year.

Superior Portland Cement Company was reported to have eight men employed at View Cove building a dock and repairing the buildings.

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AICOA Mining Company was reported to have a crew of 60 men employed at Edna Bay. They are engaged in diamond drilling and surveying a road and dock site for deep water transportation.

Dolomi
Helm
Karta

June 19 - A trip was made to Carroll Inlet with Dr. Dickinson to obtain samples of his white marble from patented claims. These claims are named Curio, Jeff, Mutt, White Rose Nos. 1 and 2. They are located one and one-half miles inland from the east shore of Carroll Inlet and along the banks of Carroll Creek. The trail to the claims had become so overgrown that it was not traceable. As a result a part of the day was spent without observing the marble in place. Samples of the white marble were obtained for analyses and display purposes. Sample 1205 consisted of several small pieces of very white marble taken from larger pieces.

HX-121-49

Note:- For Chapin's description of the Dickinson & Bell Claims, see U.S.G.S. - Bull. 642 - p. 104 - (Map of claims p. 103)
Also see Bull. 682 - Marble Resources - pp. 96 - 97.

B.S.J.

The analysis shows the following elements:

CaCO ₃	- - - - -	59.9	percent
MgCO ₃	- - - - -	41.76	"
Al ₂ O ₃	- - - - -	0.44	"
Fe ₂ O ₃	- - - - -	0.40	"
SiO ₂	- - - - -	0.40	"

Samples of the marbles were sent to marble firms in central U. S. for polish and tests. A sample of this marble has been requested by Mr. H. V. Davis, Commissioner's Office, 19th & F Streets, Washington, D. C.

June 21-22 - Ketchikan to Helm Bay and return.

The condition of the bunk house and mill were investigated at the Gold Standard property at Helm Bay at the request of Dr. Dickinson. Both buildings were found in need of new roofs. The bunk house needs to be cleaned out. The mill could be operated with some repair. However, recommendations were made against the operation of this property under existing conditions at the present time. The property is still held by Dr. Dickinson and the Richard Knucholls Estate.

Craig A new discovery was reported at the Blue Jay mine, owned by Bert Libe. The discovery amounted to higher values than heretofore known in a small block of ore along the drift in the cross-cut level working. Bert Libe and wife are living at the mine and doing repair work. A Denver jig, middling table with regrind, and a sand pump are to be installed to aid recovery. Three men are to be hired soon and both mine and mill are to be put into operation in July.

In the drift along the ore a 5-foot width of ore shows for 40 feet which, according to Mr. Libe's sampling, averages \$20 in gold per ton. The last underground work accomplished consisted of a few feet of drifting off the portal cross-cut to the northwest along the ore structure. The face shows large brecciated pieces of quartz with increased pyrite, which indicates the possible beginning of expected ore shoot No. 2. The structure, as determined by the writer with the aid of Mr. Libe a few years ago, shows an inclined S-type of fold. The convex portion of a part of the fold contains the No. 1 orebody, hence No. 2 orebody is expected in the remaining convex portion of the fold. According to indicated structure the folds plunge northwest along the strike of the schistosity at an angle of 30 to 40 degrees off horizontal. This indicates expensive mining and development costs.

Mr. Libe is holding the Grubstake group of four claims, the Monte Cristo Claim, Canyon claims Nos. 1 and 2, and the Hell Gate No. 2; all of which are in the vicinity of Bear Lake northwest from the head of Helm Bay. These claims cover the old Vixen, Peterson and Arwick property on Bear Lake. Funds for the building of a road from Helm Bay to this property have been requested of the Territory.

June 23 - Ketchikan to Blank Inlet, Gravina Island and return.

Ketchikan 120
 Ralph J. Finzel of Ketchikan has been trenching on quartz and schist showings on the Rainbow group of four claims. The location of this group is one mile inland from the head of Blank Inlet. High grade quartz float was discovered in this vicinity by Mr. Finzel in 1926. Development work that followed disclosed a wide siliceous zone in schists carrying heavy seams and impregnations of iron and arsenopyrite. This zone of heavy sulphides in the schists and quartz stringers ranges from 20 to 30 feet in width. The zone strikes N. 30° W. and dips from 35 to 40° NE., and is situated on a contact of black shales with limy phases and andesitic porphyry. The quartz in the zone occurs as cross-stringers, irregular bunches and small stringer veins. The porphyry is found on the hanging wall. Several shallow old cuts were noted along the zone, the latter traceable for nearly five hundred feet and on Rainbow claims Nos. 1 and 3. Two new cuts across this zone show the fresh sulphides in place in the quartz and schist. Minor folding is much in evidence.

Cut No. 1, located on the north end of Rainbow claim No. 1, shows a width of 15 feet of schist carrying heavily in sulphides in a gangue of quartz and black shaly schists. Samples Nos. 1210-1212, inclusive, are 5-foot channels across this width.

	Width	Oz. Per Ton	
		Au.	Ag.
Sample 1210 - Cut No. 1, footwall	5'	Tr.	Tr.
" 1211 - " " " next	5'	0.08	1.90
" 1212 - " " " hanging	5'	0.02	1.00

Samples 1206-1209, inclusive, are 5' channel samples across 20 feet in cut No. 2 on Rainbow claim No. 3.

Sample 1206 - Cut No. 2, footwall	5'	0.03	1.40
" 1207 - " " " next	5'	0.01	Tr.
" 1208 - " " " "	5'	Tr.	Tr.
" 1209 - " " " hanging	5'	0.03	1.40

June 24 - At Ketchikan.

Alaska Gold Mountain Mines, Ltd. has filed intent to hold 12 claims in Smugglers Cove on Cleveland Peninsula.

Intent to hold the Flagstaff group of claims was filed by Mrs. Bina Annette.

ALCOA Mining Company has filed location notices on 22 placer claims at Edna Bay and two at Exchange Cove, Prince of Wales Island.

Clyde S. Maxwell has filed four location notices of claims, Pioneer Nos. 1 and 2, and Constitution Nos. 1 and 2, inland from the head of Karta Bay, Prince of Wales Island. (To date Mr. Maxwell has been unable to locate the old prospects by these names in order to post his notices).

John Bufvers has filed notice of intent to hold the Gold Coin, Millsite, and Island Monarch groups at McLeod Bay, Dall Island.

The Fairbanks Corporation of Alaska has filed intent to hold a number of claim groups located at Thorne Arm, Moth Bay, and George Inlet. This corporation has filed two notices of posting oil tracts for application for lease along the east and west shores of George Inlet.

Alaska Gold and Metals Company has filed notice of intent to hold several claims at Salt Chuck, Prince of Wales Island.

A. L. Howard and Lindeman have filed notice of intent to hold the Iron King Group of claims in Kasaan Bay, Prince of Wales Island.

F. Murkowski and A. L. Howard have filed intent to hold the X group of claims at Kasaan Bay.

The Lake View, Alladin and Omar claims were located by John Bufvers, $2\frac{1}{2}$ miles inland from the head of MacKenzie Inlet.

H. D. Larned filed notice of intent to hold 18 claims on Harris Creek, Twelve Mile Arm.

Harry Townsend and J. F. Talbot filed location notices on the Jimette and Jeanabum lode claims at Hidden Bay, east coast of Prince of Wales Island. This was reported to be a sulphide body. *P. J. J.*

Dr. Dickinson has filed notice of intent to hold the Gold Standard group at Helm Bay.

J. H. Rodgers has filed notice of intent to hold the Free Gold group, Nos. 1 to 10, inclusive, at Helm Bay.

Van Zandt, Smith and Roesell have filed notice of intent to hold their claim group at Dora Bay.

Notice of intent to hold the G. C. No. 1 and the Sand Hill claims in Martin Arm, Boca De Quadra was filed by H. F. Schaub and W. C. Stump.

Mrs. Helen Copper has filed notice of intent to hold the Victory claim group of four claims.

Lucky Nell Mining Company has filed a millsite location at Hollis.

Robert Novatney has filed notice of intent to hold Helm Bay claims Nos. 1 to 4, inclusive, at Helm Bay.

Val Klem has filed notice of intent to hold on the Hot Air No. 1 and Black Hand claims at Caamano Point, Cleveland Peninsula.

George Roberts filed location notice on the Avalanche lode claim at Walkers Cove.

Edmund Lane filed notice of intent to hold the Moira Joan claim in Moira Sound, Prince of Wales Island.

W. H. Boedeker filed notice of intent to hold the May-Be-So claim on Maybeso Creek near Hollis.

John Bufvers and A. L. Howard filed locations of the Johnlee and Howbuf lode claims, located $1\frac{1}{2}$ miles inland from the head of MacKenzie Inlet.

Joseph F. Anglesen located the Stumble lode claim 3 miles south of MacKenzie Inlet.

June 25 - Ketchikan to Beaver Falls.

A. D. Murray, K. Pond and J. A. Deemer, who have the sub-contract for driving the water tunnel between Upper and Lower Silvas lakes, began drifting on the 20th of June this year. Work was suspended last year on December 14 with a total footage of 603 feet. An attempt was made to operate in January of this year, but a snow slide took away their cook tent and buried one man for several hours. As a result no attempt was made to operate.

The original plans regarding the location of the raise and the angle of cross-cut from the raise to the lake bottom have been changed. Present plans call for dams at the outlet of both lakes. This will raise the water of the upper lake 25 to 30 feet above the present water level. As a result the raise had to be moved back 60 feet from the original point in the drift to seek higher ground for the outlet. This lengthens the raise to 125 feet. Thence a new angle is required from the bottom of the raise to the point of intersection with the lake bottom.

The drift is straight, with only two sections with low ceilings, and a few sections of overbreak. The total length on date of visit was 634 feet, which gives a total footage, since June 20, of 31 feet. Other than the various sets of fractures, the diorite rock is very solid. The fractures in the face which parallel the strike of the drift, N. 49° E., show slight oxidation and cause an occasional water drip. Over the entire length of the drift, no flow of water was noted. Three new sets of fractures were noted. One set strikes N. 86° E. and dips 83° NW. Another set strikes N. 66° W. and dips 68° S. Low flat seams were noted which strike nearly north and south and dip 3 to 5° W. These sets are all thus far comparatively tight and show no slippage or movement. There is always the possibility that any one of these sets may, near the lake bottom, open up and cause considerable flowage of water in the tunnel.

Mr. Murray states that additional soundings were made last fall by two men who flew to the lake and used a rubber boat. The soundings were made near the proposed tunnel intake. Mr. Murray has not been advised of the additional information obtained. His plans are to have a deep sea diver, friend of his in Ketchikan, examine the section of the lake bottom before breaking through. This was strongly urged by the writer, and Mr. Murray was advised to have the diver note possible open fractures which may cut the cross-cut.

Safety Factors and Future Plans:

These sub-contractors on the tunnel project have only one man hired at the present time as mucker. Wages are \$1.46 per hour with no charge for board. One shift is worked only and drilling is done over the muck pile. This is necessary because of lack of ventilation facilities for eliminating the smoke after blasting. Air is allowed to escape after blasting which is the only method used for elimination of the smoke. After completion of over another 100 feet of the drift, the raise of 125 feet will be put through to the surface, and will provide ventilation and act as another escapeway during the remainder of the cross-cutting and break-through. A carpenter and an additional miner are to be hired when the raise starts. The procedure has not been changed since that given in "Report of Investigations" of August 10, 1945. Electric blasting caps,

with battery and caps and fuse, are carried on hand and stored in the bunk tent. Twenty-two boxes of 50% DuPont Gelatin are stored in the drift at a distance of 100 feet from the portal. This powder was stored here during the winter to keep it from freezing and still remains. There has been no provision for outside powder storage. The camp is almost in the direct path of snow slides, from which there will be no further danger until next winter.

Recommendations:

1. Larger supply of first aid materials
2. Forced air ventilation system
3. Improvement of trail from beach
4. Careful investigation of the lake bottom by deep sea diver for open fractures and amount of sunken driftwood
5. Use of hoist in raise and good timbering
6. Outside powder storage.

These recommendations were discussed with the sub-contractors, and they realize the danger. They feel that they are taking the chances themselves and that the contract is not of sufficient size to warrant additional expense for safety features.

June 26 - Return to Ketchikan.

June 27 - Leave Ketchikan for Kanagunut, Duke, and Hotspur islands.

Albert Johnstone made a discovery of molybdenite this season along the west shore of a small island, located in the narrows between Kanagunut and Sitklan islands. The island lies along the Kanagunut Island shore about one-third the distance or one and a half miles from the south entrance.

The discovery consists of two small parallel quartz veins exposed for a distance of 200 feet at high tide level and entering the water in both directions. The veins occur in a mica schist zone, which represents a contact between a dark graphitic schist as footwall and a garnet schist as hanging wall. The quartz veins occur on the footwall side of two narrow porphyritic dioritic dikes in the mica schist zone. The veins and dikes are parallel and 6 feet apart. The lower or footwall vein varies from 6 inches to 12 inches in width, while the upper vein varies from 6 inches to 3 feet in width. The veins are irregular and tend to widen into short lenses at irregular intervals. Lime carbonates and silicates are found in abundance surrounding these vein lenses.

Prince Rupert 122

Small flakes of molybdenite were noted disseminated in the quartz veins and in the zone of contact between the quartz vein and the dike. Small massive bunches of molybdenite and pyrite are found in the lime contact minerals surrounding the vein lenses. The largest of these lenses was 6 feet in length. Small seams of nearly massive molybdenite up to one-half inch in width occur along the walls of the lenses. Surface weathering has oxidized these contact mineral zones, forming deep rusty pockets or black and red oxides with some yellow, which is considered to be powellite, weathered product of molybdenite. Bunches of blue kyanite, graphite and vuggy quartz with considerable mica make up the gangue.

The small porphyry dikes appear to have been injected into the schists conformably with the schistosity which strikes N. 28° W. and dips 40 to 45° E. The occurrence of the molybdenite and iron sulphides appears to have been formed along with the quartz veins and lenses from hot solutions associated with the injection of the dikes, classified as contact metamorphic.

These few scattered occurrences along the length of the veins are not of economic importance. The entire island of Kanagunut consists of highly metamorphosed sediments and contains an abundance of high temperature quartz lenses. Some of these larger lenses may have bands or pockets of molybdenite of sufficient size to mine.

Garnet Occurrences on Kanagunut Island:

A wide zone of garnetization was observed along the north shore of a small embayment on the southeast end of Kanagunut Island, one mile north of Garnet Point, the southernmost tip of the island. The garnet zone is over 300 feet in width and is contained in thinly banded schists. There are three garnet veins in this zone, which parallel each other in strike, and each ranges from 6 to 8 feet in width. The veins parallel the schistosity, striking N. 28 to 30° W. and dipping 40 to 45° E. The veins are made up of a soft light to dark gray matrix containing an abundance of garnets. They are found in massive bunches and disseminated throughout the schist, making up from 15 to 20 percent of the volume. Garnets are found more or less abundant over the entire zone, but other than the soft veins they are contained in the harder schists, some bands being sillimanite and kyanite schists. This zone of garnetization is exposed along the beach for nearly 500 feet between high and low tide levels. Inland the ground is low, only a few feet above sea level, and heavily covered with timber and brush.

Some of the garnets have good form, and can easily be extracted from the soft veins, but most difficult to extract from the harder bands. They all appear to be more or less fractured and as a result are soft, since they crumble easily under the hammer. Small pyrite crystals and thin filaments of the schist are contained in the fractures of the garnets. It is

very doubtful if good specimens could be obtained for sale or use as jewels. There remains a possibility that the fractured pieces may still contain sufficient hardness to be used in industry, and that a suitable garnet concentrate might be milled. A few pounds were collected, and some may later be submitted to industrial firms for tests. The three vein zones could easily be mined and concentrated, however, mining would have to be done from shaft.

June 28 - Kanagunut Island to Duke Island.

Prime Report 122
A trip was made across the central portion of the ultrabasic mass that forms the central southern portion of Duke Island. The central core of the mass consists mostly of dunite with small scattered patches of large crystal hornblendite. Out from the central core hornblendite increases and becomes massive. The outer border phase consists of a contact between the hornblendite and diorite. The contact is indicated by increasing feldspar in the hornblendite which forms pegmatitic masses of segregations and large crystalline masses. This blended pegmatitic zone contains magnetite disseminated in variable amounts. The pegmatitic zones carry the greater concentration of the magnetite while some is found both in the diorite and hornblendite near the border contact zone. The contact zone has a width of over 400 feet.

There appears to be an insufficient amount of magnetite to form an economic ore under the present prices. The writer is of the opinion that there may be a possibility of a percentage of titanium with the magnetite, due to the rather unusual geological occurrence. Sample JCR. 1216 was made up of several pieces showing magnetite from several localities along this contact. Following are results of sample 1216:

Titanium Nil percent
Platinum Nil oz. per ton.

Basis for valuation will depend upon results of assay of this sample, not received on date of writing.

June 29 - Duke Island to Hotspur Island.

Val Klem was very much interested in finding the occurrence of well-shaped pyrite crystals, reported to be on the north end of Hotspur Island. Mr. Klem is interested in collecting mineral specimens for Mr. Emery Tobin of the "Alaska Sportsman." He was invited on the trip, and had formerly requested for assistance in locating the crystal occurrence. He had made former trips to the island, but failed to locate the crystal-bearing area. Now he wishes this occurrence not to become too well known, as an over supply would affect the market.

The pyrite crystal occurrence was located below high tide level, beginning 300 feet east of the cabin and fox kennels on the north end of Hotspur Island, and extending across a graphitic shale band approximately 300 feet in width. The shale strikes N. 32° W. and dips 42° E., and is irregularly cut by green lava dikes. Well shaped pyrite crystals occur irregularly throughout this band of shale and also on the contacts of the lava dikes and to some extent in the lava. Sizes vary from very minute crystals up to one and one-half inches in diameter. Those contained in the lava are hard to remove without breaking, while those contained in the soft shale can readily be removed with the aid of a sharp pointed pick. Numerous good crystals, some of which are bright due to water action, can be picked up from small low basins in the bed-rock and in the light layer of beach gravels.

To the northwest the shale-schist band goes under water. To the southeast the band strikes onto the island and is covered with timber and vegetable growth. Numerous crystals are located in the gravels at high tide level. These crystals are of fair shape but are rusty and tarnished.

The principal features of these crystals are: Fair crystal form with good sharp corners, large size, many twinned crystals, and an unusual hardness, which appears to be very resistant to weathering. The apparent hardness and weathering feature may be of scientific interest. A complete chemical analysis of several of these crystals might be of interest.

A small market might be developed for these crystals, providing time and care is taken to dig them from the formation and obtain bright crystals.

June 30 - July 1 - Ketchikan office.

Jim Matuska was reported to be replacing his small Straub mill on the Cascade prospect north of Hollis, which was removed by a snow slide last winter.

Mr. Armstrong has located a claim called the Little Joe No. 1 on Harris Mountain near Hollis. This was reported to be a small quartz vein showing free gold.

Anaconda Copper Company has had two men working under the direction of Harry Townsend on the Lake Bay copper property. Reports were that the company intends to dewater the shaft and drive 200 feet of drift.

July 2 - Ketchikan to Juneau.

1946

- SR - Petersburg & Ketchikan Precincts -
June 11 - July 2, 1946
- SR - Wade-Hampton Precinct - Aug. 6 - 8, 1946
- SR - Aniak & Tuluksak Dists. - Aug. 9 - 21, 1946
- SR - Otter Precinct - Aug. 21 - 24, 1946
- SR - Innoko and Mt. McKinley Precincts -
Aug. 24 - 29, 1946
- SR - Nulato Precinct - Aug. 29-30, 1946
- SR - Mud Mountain Slide Area - Sept. 3-7, 1946
- SR - For 1946 to Commissioner of Mines