

IR 195-36

TERRITORY OF ALASKA
DEPARTMENT OF MINES
JUNEAU, ALASKA

Preliminary Report of Investigations and Itinerary of J. C. Roehm,
Associate Mining Engineer, in the Ketchikan and Hyder
Mining Precincts
July 14 to August 18, 1945.

July 14-15 - En route Juneau to Ketchikan.

July 16-19 - At Territorial Assay Office, Ketchikan.

General Summary of Activities:

A total of 21 limestone deposits were examined and sampled on a trip around Prince of Wales and to the west coast of Dall Island. These deposits were selected after a study of available data and geologic maps and with special reference to harbor facilities, accessibility to shore line and deep water navigation, extensive tonnages, open-cut mining facilities and gravity mining, uniform character and grade, and high calcium content. Samples of each of these deposits, all of which are large, ranging from 10 to 50 pounds, are awaiting analyses in the Ketchikan Assay Office. Specimens of each deposit were collected for future reference.

170
A trip was made to Hyder, where the only activity on the American side, the Riverside tungsten mine, was visited. On the return trip properties of Hyder Mica Company were examined. These are located on Sitklan Island and the mainland at the mouth of Portland Canal. Further investigation of this vast mica area, which extends from Sitklan Island north through Boca de Quadra and possibly further north, is strongly recommended. The area offers possibilities for vast scrap mica production and possible large sheet mica, as well as the rare types of metals and minerals associated with high temperatures and large crystal segregations.

The Beaver Falls Power Facilities Project on Revillagigedo Island was examined as to safety conditions and particular geologic features in regard to the formation traversed by the tunnel and tunnel intake.

The Holden clay deposit was examined. This consists of a quantity of glacially formed clay which appears suitable for the manufacture of common brick. Forty pounds of the clay was shipped to this office, along with a brick, supposedly manufactured several years ago, that was found at the old site.

The Buckeye gold prospect, 15 miles south of Ketchikan, on Ham Island opposite Annette Island, was examined.

The Hoosier prospect, a gold, silver, lead, zinc occurrence on Annette Island opposite Ham Island, was examined and sampled.

Annette Island Mining Situation:

120
Ketchikan
The writer, while in Ketchikan, was approached by three different parties seeking information with regard to mining and obtaining leases on Annette Island. It appears that the natives of Metlakatla have become encouraged, how and by whom is not known, to start mining upon the island. They have an accumulation of over four hundred thousand dollars in their treasury and have been made to believe that by investing this in mining on the island great returns can be gained. They have applied to the Department of the Interior for permission to operate mines and to lease a large portion of the island. One individual, who talked to me, had been approached by the natives with respect to managing these activities. Upon the writer's questioning as to what they expected to use for ore and where their promising prospects are, it was learned that the Department of Mines and the Department of the Interior are supposed to have all the necessary information. Recently a few specimen samples have been received at the assay office of a copper-gold ore supposedly from Crab Bay on the southeast side of the island. The Geological Survey is said to have examined a few prospects in this vicinity last year. Professional Paper No. 1 and bulletin No. 347 contain some information in regard to Annette Island prospects. The inquirers were advised that this department would be glad to cooperate with them in making examinations and recommendations, and in assaying, providing commercial samples and values were submitted.

Among the many questions in this regard were three that the writer was unable to answer:

1. If the natives can apply ^{for} and obtain mineral leases, why cannot the white man do likewise? ^
2. What percentage of royalty and what will be the terms of the lease from the Interior Department?
3. Should the natives be granted leases and are they transferable?

The following is confidential information given by Bert Libbe, who has staked a gold prospect in Nadzahee Cove, and which was examined by the writer five years ago.

Two years ago Mr. Libe applied for a lease covering this prospect and was told that he could have two square miles or more if desired. A lease was drawn up by the counsel for the Interior Department here in Juneau and presented to Mr. Libe. While Mr. Libe did not mention all the terms, he said they would have been acceptable except for the royalty, which called for payment of 25 per cent of the gross returns.

The writer is of the opinion that before the natives of Metlakatla are induced to enter into some wild promotion scheme or operation, the island should be thoroughly prospected and information with respect to workable terms and royalties be obtained from the Department of the Interior. Thus, providing conditions warrant, this surplus money would be directed into worthwhile development.

0
2
the present time--some have been made by white men and some by natives. All are afraid to reveal their locations or do any development work because it is a mineral reserve, and each is afraid the other or somebody else will find his discovery. This is another one of the conditions that exists and acts as a barrier to the development of the mineral resources of Alaska.

Conditions affecting this mineral reserve appear to be few and simple and should easily be corrected. The island does not contain any large known mineral deposit or developed reserve of ore. Geologically the island consists of a small satellite granitic intrusion, probably genetically related to the Coast Batholith, which comprises over 80 per cent of the surface croppings. The remaining area consists, with the exception of two small ultrabasic intrusions, of a metamorphic shell apparently quite shallow in depth, mainly of Jurassic and Triassic sediments and volcanics, and a small area of older crystalline sediments. The mineral occurrences thus far known are small, and contain gold, silver, copper, antimony and small amounts of chromite.

The mineral reserve was created at about the time Father Duncan was granted rights for an Indian village at the site of Metlakatla. The reserve, according to many old timers at Ketchikan, was a governmental measure against a promotional scheme that was suspected at that time. Due to the fact that the island has remained a mineral reserve, much misinformation has been disseminated with regard to the mineral resources and the rights of the natives. Actually, with regard to the mineral reserves, very little is known by the government or anyone else. The natives do not have any more right to the mineral reserves than the whites. Other than gold, with possibly some silver, lead and copper, other metals appear to be lacking, and the geology is not favorable.

Present Mining Activities in the Ketchikan Precinct:

119
The only actual mining activity observed in the district consists of road building, the transportation of supplies and possibly a slight amount of development on the Lucky Nell prospect owned by Mr. Gervais of Ketchikan. This prospect is located 7-1/8 miles inland from Hollis on Twelve Mile Arm, Prince of Wales Island. This property has been under option to Mr. Tilley of Tacoma since 1936. A company has recently been formed and incorporated as the Lucky Nell Mining Company. There has been no further development since the writer's examination in 1938 (Summary Report of J. C. Roehm, p. 50). A small tractor with bulldozer and some supplies have been transported to the property, and two men were reported to be employed. Mr. J. J. Matuska is said to have an interest in the property.

115-35
The Santiago Mines, Ltd. of Vancouver, B. C. has obtained an option on the old Valparaiso property, formerly under option to H. Roessel and Dutton. The company has staked three claims and were supposed to begin operation last month, but to date have failed to return. Bert Libe, whom the company engaged during the first investigation and who was to act in a managing capacity, stated he believed they intended to form a stock company, but he has become very doubtful regarding their future activities.

Activities in the Hyder Precinct:

120
Activities in the Hyder precinct consist of underground development at the Riverside mine under the direction of A. E. Dirrim for the J. H. Scott Company, and prospecting on the properties of the Hyder Mica Company. This year the Riverside mine has seven men employed and expects to be developing only. Last year 1000 units of scheelite were produced and shipped. The development is described later in this report. The work of the Hyder Mica Company has consisted of surface stripping with some rock-cut work in exposing different showings of mica. The holdings comprise 14 claims on Sitklan Island and opposite the island on the mainland.

Ketchikan Precinct Commissioner's Office Data:

The following data was taken from the records of the Commissioner, Mr. Pat Gilmore, at Ketchikan:

Daniel Hume recorded a gold lode claim, "The Lookout" located along the beach in Dogfish Cove, Pennock Island. Mr. Hume sent a sample to the assay office, which he reported was from quartz seams outcropping along the beach. Assay returns showed over \$50 in gold. The writer offered to make an examination, but was informed by Mr. Hume that the prospect was not worthy of further investigation. However, he claims a legal discovery.

Intent to hold has been filed on the Haida mining claim 6 miles northwest of Kasaan.

Mrs. Helen Cooper has filed four claims, Victory Nos. 1 to 4, on Prince of Wales Island.

The Young Bros. of Kasaan have filed intent to hold on their group of Copper Came claims in Karta Bay.

Nelson and Tift have filed their intent to hold ten claims at the mouth of McLean Arm, Prince of Wales Island.

The Apex group of claims at the head of McLean Arm is being held by Axel Carlson and associates.

R. W. Burns is holding one claim located one-fourth mile inland from the head of Hunter Bay, Prince of Wales Island.

Bob Novatney is holding four gold claims in Helm Bay.

John Bufers is holding six gold claims in McLeod Bay, Dall Island.

A. Langloe is holding two claims named the Exchange Calcite Nos. 1 and 2, located in Exchange Cove, east side of Prince of Wales Island.

Bert Libe has relocated the Monte Cristo claim group formerly held by Geo. Arwik, Peterson and Wixen, located north of Bear Lake, 5 miles inland from Union Bay, Cleveland Peninsula.

J. J. Matuska is holding the Cascade, Lucky Nell and Puyallup groups, north of Hollis, Prince of Wales Island.

W. H. Roessel and associates are holding the Lucky Boy group of claims located in Dora Bay, Prince of Wales Island.

The estate of Martin Bugge is holding the Free Gold group in Helm Bay.

Roy Campbell and Geo. Lemmons are holding one claim, the Black Wolf, located at Hunter Bay, Prince of Wales Island. According to Geo. Lemmons this is a relocation of the old Goodhope copper-iron prospect.

Wendell Dawson has filed intent to hold 16 claims on Harris Creek, north of Hollis, Prince of Wales Island.

The Anne lode claim is being held by A. W. Egtvet. This is the old Anne gold lode claim located at Helm Bay.

Evelyn Philbrook is holding one claim and two fractions at the mouth of Gookachin Creek at Thorne Arm.

Bert Libe staked three claims surrounding the old Valparaiso claim at Dolomi on the east coast of Prince of Wales Island for the Santiago Mines, Ltd., of Vancouver, B. C.

Mr. Libe is also holding the claims at Helm Bay for his company, the Blue Jay Mining Company, which has been inactive and which is for sale or option.

Val Klemm is holding his two claims on the antimony prospect on Caamano Point.

Cy Perkins is holding the zinc claims on the old Mahoney prospect in George Inlet, however, he has turned an interest over to Jim Pitcher, who is to sell or option.

Jim Coleman is holding three claims near Kasaan.

The Fairbanks Corporation of Alaska, W. V. La Bau, Pres., and Celia Fairbanks, Secretary, is holding nearly 200 claims in Thorne Arm and portions of Revillagigedo Island. The holdings include most of the old gold workings at Thorne Arm and surrounding the Moth Bay zinc property. A request has been made to the Alaskan Delegate for funds to build a smelter, presumably based upon the size of the holdings of the company.

A. L. Howard is holding groups of claims including the Salt Chuck, Rush and Brown and Poorman mines at Kasaan Bay, Prince of Wales Island.

E. Steers is holding the Gold Mt. Lodge claim at Helm Bay.

D. J. Crawford is holding the Eureka and J J claims at Helm Bay.

The Sleeping Beauty Mining Company is holding its group of claims at Helm Bay.

H. F. Schaub and W. C. Stump are each holding a claim at the head of Martin Arm in Boca de Quadra. These were reported to be gravel claims.

Mrs. R. J. McEwan is holding six lode claims at Hunter Bay, Prince of Wales Island.

H. G. McCain has filed intention to hold 18 claims on Harris Creek near Hollis for outside interests.

Mrs. Bina Annette and the estate of Tom Stevens are holding 30 claims, including the Flagstaff mine, on Granite Mountain at the head of Karta Bay, Prince of Wales Island.

Fred McKay and R. G. Nibbe are holding the Rich Hill and Magnet claims near Kasan on Prince of Wales Island.

J. G. Calvin is holding 25 claims on Baker Island.

Dr. Dickenson and the Knuskolls estate are holding the Gold Standard group at Helm Bay.

A. R. Ziegler has filed intention to hold the Alaska Gold Mt. group at Smuggler Cove for the Alaska Gold Mt. Mines, Ltd.

W. H. Roessel and associates are holding six claims at Dolomi, Prince of Wales Island.

General Information:

Several inquiries by letter have been received from Canadian companies by owners of gold properties in the Ketchikan and Hyder districts regarding information and data pertaining thereto. Mrs. B. Annette wishes this department to send her all information that can be furnished in regard to the Flagstaff mine. She has a request from the Hudson Bay Mining and Exploration Company, Flin Flon, Manitoba, for all available data. The writer, at the request of M. H. Halpern for information on a promising gold operation, suggested this property and introduced him to Mrs. Annette. Mr. Halpern also wishes available data mailed to him, care of Elks Club, Ketchikan. He was furnished a list of the machinery and was allowed to read the summary reports made by this department during the operation of the mine. He is of the opinion, after several conferences with Mrs. Annette and heirs of the Stevens estate, that there is some disagreement as to the price and terms of the sale. He was informed by Mr. Gore, that there are no outstanding liens or debts against the property. He is also of the opinion that a reasonable deal could be made within a short time. Mr. Halpern hopes to option the property and incidentally raise the money to operate it. X 112-3

The party examining limestone deposits in southeastern Alaska was not contacted by the writer. They did, however, revisit the assay office and crush and quarter further samples and then returned to the States. They were aboard the motorship "Hatfield" and had with them a Forest Service official who acted as guide. Dr. Jenkins from the Department of Geology, University of California, was in charge of the party. Mr. Sprague of the First National Bank of Ketchikan knows who this party was representing, but would give out no information. Apparently the mission is very secretive. They were seeking only high calcium lime

which is used on a large scale for cement and in the building trades. They visited View Cove, the site of the Superior cement quarry, and questioned the watchman in detail regarding the operation and the quality of the limestone.

Following are the locations and dates of visits to limestone deposits examined by the writer. Detailed reports are to be included later in a report on "Available High Calcium Limestones of Southeastern Alaska."

July 20-22 - Three areas of Silurian limestone were examined and sampled at Waterfall Bay on the west coast of Dall Island. These included semi-crystalline to highly crystalline limestones, portions of which contain marble in attractive colors. The limestones have the appearance of being of good grade. In this bay and adjacent to the limestone is a water power site with a good volume of water and a fall of 70 feet between high tide and the lake level, less than one-fourth of a mile inland. The harbor facilities are excellent in this bay. KX 121-39

This same belt of limestone cuts across the east end of Gold Harbor south of Waterfall Bay. Here the base of the limestone was observed, a few feet above tide level, and consisted of several feet of marbleized breccia with colors ranging from light gray to grayish blue and nearly white in a cemented matrix of deep red shaded down to pink and a scattering of light green. This marbleized breccia rests as an unconformity on underlying quartz diorite. Further investigation of this breccia is warranted for its possibilities as a decorative stone.

July 23 - Limestone of the Wales Group Age was examined in Port Bazan on the west coast of Dall Island. Unsuitable harbor facilities were encountered here. The limestone is foliated and impregnated with numerous contact minerals, making it of doubtful purity.

An extensive deposit of limestone of the Wales Group Age, but apparently older than the limestone of Port Bazan, was examined in Walters Bay on the north end of Long Island. Good harbor facilities were found here and a suitable width of limestone for mining is present. The calcium content is rather uncertain. KX 121-40

In Coco Harbor a band of limestone was sampled. This is 200 feet in width and runs along the beach in easily minable bluffs adjacent to deep water. The last 40 feet on the hanging wall contains sand but the remaining portion appears quite pure. This harbor is on the east side of Dall Island below View Cove. KX 121-41

July 24 - The limestone quarry at View Cove was examined. Large sized pieces of limestone were obtained which show various colors and textures. The Superior Portland Cement Company expects to resume operations as soon as the government releases its ship. The watchman on duty has been notified that the company is sending 50 men as soon as they can be hired to overhaul the machinery and put the camp in readiness. At the present time the company is using its limestone at Concrete, Washington, together with high grade limestone imported from British Columbia. The duty on limestone into the United States is 50 cents per ton.

119
Directly across the bay to the south of the quarry site is Green Bay. This is another ideal quarry site with extensive outcroppings of the same age limestone. Extensive samples were taken from the beach croppings.

Small limestone bluffs were examined and sampled along the south shore of Breezy Bay, the next large bay north of View Cove on Dall Island. This is also Silurian Age limestone, however, at this locality it is in close contact with diorite intrusive and the rock is very brittle and extremely fractured.

Wadleigh Island, opposite the native village of Klawak on Klawak Inlet, west coast of Prince of Wales Island, was found to consist almost entirely of a massive brownish limestone of Devonian Age. The island is over 6 miles in length and a mile in width with the central portion rising to a height of over 700 feet. Harbor facilities are good on the Klawak side near the center of the island. This east side of the island was sampled from the beach to the top.

July 25 - The entire north side of Heceta Island is mainly Silurian limestone. Judging from the extent of this limestone on the island, areas of high grade or high calcium content no doubt exist. Two areas were picked for the harbor facilities and sampled. Of the two, Port Alice offers the best harbor and mining conditions. The other location is on the north side opposite Warm Chuck Inlet. These harbors, like Waterfall Harbor on the west coast of Dall Island, offer direct access to outside or Pacific navigation.

July 26 - The site of the old marble quarry at Calder was examined. While this marble is known to be of exceptionally high calcium content, the mining and harbor facilities are very poor. At Calder Bay 2 miles west of Calder, a 1500' nearly vertical bluff was sighted which proved to be Silurian limestone. The bluff is located less than 1000 feet from the east shore of Calder Bay and approximately half a mile from

2-1-15-41
deep water and there is an ideal loading and docking site at the east entrance of Calder Bay. This bluff is over a mile in length and by building a track along the 100' contour from the dock site along the bluff, millions of tons of this limestone could be mined annually, and at exceedingly low costs. The limestone along the bluff appears to be uniform in texture and ranges from light gray to bluish gray. Only one sample was taken near the central portion of the bluff. Should this sample show a high calcium content further sampling is recommended.

July 27 - The Silurian Age limestone in Port Protection on the north end of Prince of Wales Island was examined. Harbor facilities are poor in this bay, and the limestone suitable for mining is some distance from deep water. Near the mouth of Red Bay on the north side of Prince of Wales Island Silurian limestone occurs which grades into marble toward the head of the bay. This location is not favorable for deep water navigation and mining conditions are adverse.

Exchange Cove, located on the east side of Prince of Wales Island opposite the Kashevarof Islands, offers another favorable limestone mining site with fair harbor facilities. The limestone bluffs are located 600 feet back from the beach on the west side of the cove. This location represents one of the few favorable sites of this age limestone along Clarence Strait. Samples were taken at elevations from 50 to 1500 feet.

July 28 - The Silurian limestone outcroppings on Shrubby Island, one of the Kashevarof Islands opposite Exchange Cove, were examined. Good Harbor facilities were found along the east shore of Mud Bay on the north end of the island. The limestone contains several intrusive dikes and on the whole appeared to be rather impure.

Piledriver Bay on the east side of Shrubby Island offers fair harbor facilities. The limestone appears to be of good grade and begins with 100-foot bluffs a few feet back from the beach. Samples were taken from the beach to 600 feet in elevation.

July 29 - The engine of the boat broke down while in Clarence Strait. This required towing into Myers Chuck and also to Ketchikan.

July 30-31 - En route from Ketchikan to Hyder.

August 1 - The Riverside mine was visited and the writer went underground accompanied by A. E. Dirrim, Supt., formerly associated with the Bradley tungsten interests in California. Operations at the mine this season have been confined to development work both on the surface and underground. A new drift level has been started on the Lindeberg vein

KK-115-41

at an elevation of 750 feet and has advanced a distance of 50 feet. Several new rock cuts above this new drift level show widths of silver-lead ore up to 40 inches with some scattered scheelite. From the former upper drift level, elevation 525 feet, a double-compartment raise is being driven to connect with the 750-foot level at a point 50 feet inside the portal. The raise was intended as an oreway from the new level and was started on the low grade ore shoot near the end of the 525-foot level. This low grade shoot has a length of 200 feet on the 525-foot level and widths up to 6 feet. The WO_3 content was reported to average one half of one per cent, with very low values in gold. Therefore, the shoot was not mined and milled. Beginning at about 50 feet up in the new raise good grade of silver-lead ore began along the hanging-wall and the scheelite content increased. The present face in the raise and stope measures 6 feet in width, and the average content, according to Mr. Dirrim, amounts to 2 per cent WO_3 , 10 to 12 per cent lead, 8 to 10 ounces of silver and \$7 to \$8 in gold. The scheelite is mostly along the footwall associated with pyrite, and the silver-lead ore is along the hanging-wall with a slight scattering of scheelite. A line in the center of the vein marks very distinctly the two types of ore, with the scheelite ore having been formed prior to the silver-lead ore. Masses of steel galena are encountered in portions of the vein. This is sacked in the stope ready for shipment. A short stope on the west side of the raise is carried along with the raise, which shows the ore shoot to be over 50 feet in length, and its probable length nearly 200 feet, as the shoot shows on the lower drift level.

There has been little change in the underground development other than stoping since the writer's visit in 1941 (See "Summary Reports"). Safety conditions were found fair in regard to the present working places. The double-compartment raise is well timbered with staggered ladders and platforms every two sets.

Mr. Dirrim intends, providing he has sufficient funds, to develop between the upper levels and the surface and carry back into the mountain. He does not intend running the mill until he has sufficient ore developed to run continuously. Labor conditions were found good. He has seven men employed and is paying \$1.10 per hour up to 40 hours per week. The miners are Canadian, and the company has been granted permission by the Immigration authorities to hire Canadian labor.

Mr. Dirrim is handicapped by not having assaying facilities at the mine or in the area and does not have sufficient work to warrant hiring an assayer. Samples are sent to San Francisco and returns are considerably delayed. His average number of samples is four or five weekly.

The writer suggested that he write this office and ask for permission to send samples to the Ketchikan office, paying the fees and transportation. This could be done weekly on the mail boat and would be of considerable help in his development work.

From Hyder a return trip was made down Portland Canal to Sitklan Island where the property of the Hyder Mica Company is located. Fourteen claims are held by Sidney Anderson, A. R. Casey and Roy K. McLeod who comprise the company.

2
The geology of the island and the adjacent mainland to the north consists of a band of gneiss over 2 miles in width. Innumerable quartz feldspar dikes and sills with masses, probably sills, of hornblende have been injected into these gneissic bands. The quartz-feldspar porphyries appear to be genetically related to the quartz diorite mass to the east, while the hornblendites appear to have been derived from a different source magma and injected prior to the porphyries. Partly altered to highly altered pieces of the hornblendites were found engulfed as inclusions in the porphyries mainly along the borders. In fact it is within these zones, where porphyry is in contact with the hornblendites, that the most abundant mica and the largest mica crystals were observed. The writer is of the opinion that the green type of muscovite mica found in these contact zones of quartz-feldspar porphyry and hornblende masses was formed by broken pieces of the hornblende becoming engulfed within the porphyry magma and altered to the present form of mica through heat and the pressure of crystallization. The same mode of origin may apply to the great abundance of mica contained in many bands of the gneiss throughout the entire band, however, this mica is thinly disseminated throughout the formation and of small flake size and consists of both muscovite and biotite. Mica is found in and around the large and small gneissic inclusions in the porphyries. Away from the contact borders and the inclusions, mica is absent with the exception of fine flaky sericite which appears to have been derived from the alteration of feldspar.

Sheet mica books of economic size and of possible economic quality are widely scattered along these hornblende-porphyry contacts. The large sheets in the contact zones in the highly concentrated portions appear to be checked, curved and fractured and are extremely brittle. This brittleness is an economic factor to be considered in connection with its use as ground mica. The writer intends to study the economic conditions under which this mica may be utilized. For the present, it may be stated with a fair degree of certainty, that these zones contain minable tonnages, with a mica content ranging from 15 to 20 percent. Two zones are situated on the north side of Sitklan Island, 400 feet west of the most northeasterly point of the island. These mica contact zones average 8 to 10 feet in width and are less than 100 feet apart. Their lengths have not been determined, but they rise steeply from tidewater to over 100 feet elevation. This offers both open-cut mining and good transportation facilities for a small-tonnage operation.

Upon returning to Hyder, Mr. S. Anderson was consulted regarding the findings and was advised as to the economic aspects of mining and processing into ground mica mainly for use as artificial snow.

August 9 - Returned to Ketchikan via mail boat.

August 10 - The Beaver Falls Power Facilities project on Revil-lagigedo Island was investigated. This examination is covered in a special safety report as of this date.

August 11 - Ketchikan to Vallenar Bay.

The Holden clay deposit at the head of Vallenar Bay is situated on a 106-acre tract owned by Mrs. A. J. Holden and on a tract of 33 acres owned by Butch Smeltzer at the head of Vallenar Bay, Gravina Island. XX-121-25

The clay outcrops between high and low tide across the width of the bay and along the banks of Vallenar Creek. The deposit is covered along the beach line by from 3 to 8 feet of fine gravel and also a few small scattered boulders. Exposures measuring 10 feet in thickness are scattered along the bank of the creek where it empties into the bay. Rods driven by Mr. Holden to a depth of 10 feet were still in the deposit. Mr. Holden states that the clay is distributed up the creek valley for a distance of 2 miles.

The deposit is very recent, is laid down horizontally upon the valley floor, and has a known thickness of over 20 feet. The clay is glacial mud deposited from suspension in dammed glacial waters and is derived from disintegration of the Triassic slates that are found over the width of the valley and extending across the island.

The clay is exposed in banks that range from 10 to 20 feet in height and is covered with a scattering of gravel and vegetation up Vallenar Creek from one-fourth to one-half mile. A good tonnage of this clay could possibly be developed with the aid of an auger drill. The unknown factor at the present time is the suitability of this clay for the manufacture of clay products, as it appears to be present in considerable quantity. One small brick was burned at the assay office, the color after burning being red. However, cracks developed in the brick. This particular piece was overburned.

The clay is light bluish gray in color and of exceedingly fine uniform texture. Extreme fineness of grain is generally associated with slow drying, high shrinkage, low fusion and a tendency to warp. This clay may be suitable for the making of common brick, and baking tests are recommended.

Two 15-pound samples were collected. No. 1 sample is from the clay banks at the mouth of Vallenar Creek on the beach. Sample No. 2 represents the clay from a 20-foot bank located upstream half a mile from the beach.

August 14 - R. J. Finzel has two claims, the Buckeye Nos. 1 and 2, located on the west side of Ham Island. This island is situated off the east shore of Annette Island 15 miles south of Ketchikan. These claims were staked upon the discovery of fine gold colors which can be panned on the bedrock. The formations exposed along the beach consist of green and black schists which strike N. 30° W. and dip 20° E. The schists are minor folded and cross fractured, with the fractures and the lamellar structure of the schists filled with knife-blade sized quartz seams. Lime carbonate minerals and scattered pyrite crystals are common. At high tide level a shaft was sunk on a highly schistose band. Sample 1147 was taken across the south wall of this shaft at the collar, a width of 6 feet 8 inches. The gold colors distributed on the bedrock are believed to have been derived from these pyritized quartz seams.

Mr. Finzel has a gold-silver-lead prospect called the Hoosier, 500 feet inland from a small bay opposite the southern tip of Ham Island on Annette Island. The showing is located along the banks of a small stream that enters the bay on the northwest side. The formations consist of altered limestone schists interbedded with green chlorite schists in close relation to a granite which forms the central mass of the island. The showing occurs along a fault fissure zone which strikes N. 25° W. and dips 80° to 85° W. at the intersection of a fault zone striking N. 45° E. and dipping 60° E. The vein on the north bank along the fissure consists of heavy sulphides, both banded and in irregular masses, in a gangue of quartz and silicified green schist. The width ranges from 3 to 4 feet. The entire zone ranges up to 50 feet in width and contains many small mineralized stringers and seams of massive sulphides of galena, pyrite and some chalcopyrite. Large broken pieces of quartz are present in the creek, which probably originated within the zone.

The surface workings consist of a small rock cut on the north side of the creek and some stripping along the bank on the south side.

Mr. Finzel reports gold values ranging from \$35 to \$40 per ton. Samples 1148 to 1151 were taken across various widths on the north and south banks.

Excerpt from PRELIMINARY REPORT OF INVESTIGATIONS AND ITINERARY OF
J. C. ROEHM IN THE KETCHIKAN AND HYDER MINING PRECINCTS
July 14 to August 18, 1945.

From Hyder a return trip was made down Portland Canal to Sitklan Island where the property of the Hyder Mica Company is located. Fourteen claims are held by Sidney Anderson, A. R. Casey and Roy K. McLeod who comprise the company.

The geology of the island and the adjacent mainland to the north consists of a band of gneiss over 2 miles in width. Innumerable quartz feldspar dikes and sills with masses, probably sills, of hornblende have been injected into these gneissic bands. The quartz-feldspar porphyries appear to be genetically related to the quartz diorite mass to the east, while the hornblendites appear to have been derived from a different source magma and injected prior to the porphyries. Partly altered to highly altered pieces of the hornblendites were found engulfed as inclusions in the porphyries mainly along the borders. In fact, it is within these zones, where porphyry is in contact with the hornblendites, that the most abundant mica and the largest mica crystals were observed. The writer is of the opinion that the green type of muscovite mica found in these contact zones of quartz-feldspar porphyry and hornblende masses was formed by broken pieces of the hornblende becoming engulfed within the porphyry magma and altered to the present form of mica through heat and the pressure of crystallization. The same mode of origin may apply to the great abundance of mica contained in many bands of the gneiss throughout the entire band, however, this mica is thinly disseminated throughout the formation and of small flake size and consists of both muscovite and biotite. Mica is found in and around the large and small gneissic inclusions in the porphyries. Away from the contact borders and the inclusions, mica is absent with the exception of fine flaky sericite which appears to have been derived from the alteration of feldspar.

Sheet mica books of economic size and of possible economic quality are widely scattered along these hornblende-porphyry contacts. The large sheets in the contact zones in the highly concentrated portions appear to be checked, curved and fractured and are extremely brittle. This brittleness is an economic factor to be considered in connection with its use as ground mica. The writer intends to study the economic conditions under which this mica may be utilized. For the present, it may be stated with a fair degree of certainty, that these zones contain minable tonnages, with a mica content ranging from 15 to 20 percent. Two zones are situated on the north side of Sitklan Island, 400 feet west of the most northeasterly point of the island. These mica contact zones average 8 to 10 feet in width and are less than 100 feet apart. Their lengths have not been determined, but they rise steeply from tidewater to over 100 feet elevation. This offers both open-cut mining and good transportation facilities for a small-tonnage operation.