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SUMMARY REPORT OF INVESTIGATIONS IN THE CHISTOCHINA-SLANA RIVER, NABESNA, TIEKEL, VALDEZ, PRINCE WILLIAM SOUND AND KODIAK MINING DISTRICTS
and
ITINERARY OF J. C. ROEHM, ASSOCIATE ENGINEER TO COMMISSIONER OF MINES, TERRITORIAL DEPARTMENT OF MINES, JUNEAU, ALASKA,

Sept. 1 to Oct. 27, 1936.

Sept. 1. The Chistochina and Slana River areas were not visited, however, reports from these areas indicated a very successful season. Mining was confined to placer only as no reports of lode mining or lode prospecting were received.

Slate Creek area was visited this season by Col. Steese, and further placer interests were taken over by him. Just which and where they were was not learned. Rumors to the effect that through these newly acquired interests, a road 50 miles in length, from Nabesna road to Slate Creek, is most assured.

The largest placer operation on Slate Creek is that of Bundt and Paulsen. They have 14 men employed and their operations consist of hydraulicking with three giants.

J. M. Elmer has 9 men employed and he is operating one giant.

Jack Plementos is shoveling-in on upper Slate Creek. G. Algrem and Gus Fransen are also shoveling-in on Miller Gulch.

On the Middle Fork of the Chistochina, the Middle Fork Mining Company had 5 men engaged in drilling with an airplane drill.

Data as to the amount of gold recovered from this district was not received.

2-3. Valdez en route to Ahtell Creek.

4. The properties of the Ahtell Mining Company consist of 23 placer claims on Grubstake and Ahtell Creeks, and a group of 8 lode claims at the head of Grubstake Creek. This group of lode claims is known as Comstock Group. The owners of this syndicate company are Chas. Swanson, Gus Johnson, L. DeWitt and G. M. Olsem. L. DeWitt is president and the address for the company is Slana Roadhouse.

Grubstake Creek is located 7½ miles north and west by trail from Mile 69½, Nabesna Road. It empties into Ahtell Creek from the east through a steep narrow valley, and upon entering the wide glacial valley of Ahtell, it has built a large alluvial fan. This fan covers several acres, and it was reported to pan gold; however, it is no doubt underlain by glacial moraine gravels. The stream itself is small, 4 to 5 feet in width and only a few inches deep during normal conditions, and it has a length of a mile and a half. It starts well up on a bare mountain at an elevation of 4500' and flows across a wide glacial hanging valley, and then into a narrow steep valley, 100 to 200 feet in width for a distance of 3000' into the glacial valley of Ahtell. The elevation at its mouth is 3100', thus a fall of 1400' over its entire length. Its largest tributary is Rainbow Creek whose length is one-half mile and joins Grubstake from the south at about midway of latter's length. Rainbow occupies the wide glacial valley to the south. Above the junction Grubstake Creek is partly fed by underground cold water springs. The source of these springs is believed to be a small pothole lake located one-quarter mile north and 100' above the creek bed. This lake is small, only 400' in length and 200' in width. It is in a position in the center of the glacial valley between two talus slopes, with no surface drainage other than melting snow and rain from the slopes. The The supply of water for operations is seasonal from May until the middle of September and not of great volume. However, the flow from the springs makes for a persistent supply. The surrounding country does not present evidence of a well worn placer topography. The mountains are slightly rounded on the tops. The valley and bed of Grubstake Creek is very narrow and apparently young. Ahtell Creek is a medium sized stream occupying a large wide glacial valley. The large valley that upper Grubstake Creek crosses, and occupied by Rainbow Creek was believed by the owners to be an old pre-glacial channel. This valley ends a mile to the south with numerous steep ravines and extends northwest into Ahtell valley making a dry hanging valley. The gravels of this valley are glacial to a depth of 14' under which stratified layers of glacial silt were found. Below this silt they are unknown, as bedrock was not reached. Considerable slide rock is found along the walls of this valley and high talus slopes. Further the presence of the pothole lake gives positive evidence of a glacial valley.

Gulkana 77

Gold was found on this creek in earlier days, as evidence of old placer workings were seen part way from the mouth. However, the conditions of a broken granite bedrock, considerable slide rock and poor pay were probably the reasons for abandoning this creek at that time. Had they followed further up the gold discovered in 1934 would have been found. The discovery in 1934 appears to have been a rich spot 18 by 20 feet in length and width and was mined to a depth of 14 feet at which depth glacial silt with only fine colors was encountered. From this pit $700 in coarse and fine gold was recovered. Last year operations were moved below to No. 1 Below Discovery, 400' below discovery pit. Here

the creek valley narrows to 200' and bedrock was encountered at a depth from 10 to 15 feet. From a pit 200' in length and 30 to 40 feet in width, 1700 yards was hydraulicked with one giant and $1800 in gold was recovered. This year operations were moved 300' further down stream in order to pick up the start of the pay. Here from a pit 150' in length and 30 to 40' in width, 40 ounces of gold has already been recovered this season from 1100 yards and 20 more ounces are expected from the black sand concentrates. Conditions this year were not so favorable due to the fact the bedrock was considerably fractured and some gold was lost.

This company has a new 22 H. P. caterpillar tractor and a road suitable for tractor only, from Mile 69, Nabesna road, to the property. A 1400' pipe line was put in last year with reduction from 15" to 7" with a 50' head and one giant with 3" nozzle is used. A cabin was constructed on Discovery claim and a camp was built on Ahtell Creek at the mouth of Grubstake. The source of the placer gold is believed to be the result of erosion from a highly altered and mineralized acidic lava flow located at the head of Grubstake Creek. This flow is exposed over a length of 4000' and has a width that varies from 150 to 200'. Its strike is S. 35° E. and a dip 75 to 80° NE. It occurs on a contact between a hornblende granite and a fine grained older granite or syenite. Bands of successive flows of various widths can be faintly determined and they vary in color from light yellowish to light green. Due to an oxidized mineralization they appear on the surface brownish to red. The composition is high in silica and contains ferromagnesium minerals with numerous granitic contact minerals. From its composition, its hardness, and very sharp angular fracture, this lava approches the rhyolite family. The mineralization, which occurs as disseminations and bunches, is more abundant on the hang wall and it is distributed in areas of more or less intensity. It consists of, in order of abundance, a very yellowish pyrite in fine to large well developed crystals, chalcopyrite, molybdenite and galena. The gangue minerals are the minerals of the lava composition plus contact minerals.

Grubstake 17

Samples were taken of pieces showing good mineralization to determine the gold and silver values of the mineralization. No attempt was made to sample across widths, since no work has been done and sampling across the surface would not give average values. And further, unless this mineralization runs exceptionally high, further sampling would not be warranted. However, due to the fact that fairly coarse gold can be panned on Grubstake Creek to this showing, and also on Porphyry Creek, a parallel creek one-quarter mile north; and since Rainbow Creek, which does not cut this flow, does not pan gold, further, that the gold found occurs in bunches with small copper and silver nuggets and associated green boulders, and the gold is fine to coarse with very rough edges, it is believed this mineralized flow is

the main source of the placer gold. This will be more apparent if the samples of mineralization carry gold and silver values. The yellowness of the pyrite gives the impression that this mineralization carries gold values.

Fred Bronnicke is prospecting on lower Ahtell Creek, and it was reported, he had seven placer claims staked, and that small pay was found. Carl Carlson has a silver prospect on Silver Creek, located 2 miles from Nabesna Road at Mile 69½. Silver Creek is a small tributary of lower Ahtell. Small silver nuggets were found in this creek and several holes have been dug along its banks. The lode discovery consists of a few small stringers of quartz amd calcite with some galena showing in a quartz-feldspar porphyry. Thad Kunkel is putting in a bedrock drain on Flat Creek, another tributary of Ahtell. He was reported to have hit pay.

5. Located 5 miles north of Mile 84, Nabesna Road, at the head of Rock Creek, is a group of seven claims known as Rock Creek Molybdenum Group. These claims were staked in August of this year and are located at an elevation of 5350'. This group is owned by L. DeWitt, Wm. Fram, Vern Horn and Geo. B. Todd. An area of gneiss, 1200' in width and several miles in length, strikes N. 30-35° W. and dips to the north. To the north is a hornblende granite and to the south is a purplish lava. The color of this gneiss is red to pinkish yellow which originates from the pink feldspar. This gneiss contains bands of micaceous schist of dark color. Pegmatite dikes and areas of pegmatitic segregation are common. This gneiss is fractured by two series, one strikes N. 45° E. and dips 65° S. and the other of lesser extent is at right angles to the first. Mineralization of pyrite and molybdenite occur on the fractures of the most highly fractured areas. A slight movement is shown along some of the fracture planes. The best showings of molybdenite are in the pegmatite dikes, where they are in close proximity to the dark biotite micaceous gneiss bands. The mineralization here is large and small crystals of molybdenite with some pyrite crystals and magnetite. This mineralization is sparsely distributed in certain areas of the gneiss itself. The molybdenite is associated with large flakes of biotite, orthoclase and quartz and pyrite. Some of the molybdenite crystals are over one-half inch in length.

The showings consist of two trenches 15' apart exposing a 5' pegmatite dike with a hang wall of dark mica gneiss. Both show disseminated molybdenite with the greatest amount in the pegmatite. Five small areas of mineralization were seen, but no continuous body or vein. Assays from this dike were reported as containing low gold values. Occasional crystals of molybdenite were seen in the slide rock.

Nabesna Mine

6. Operations at Nabesna mine have been suspended to a small scale capacity since the 15th of May. The installation of a 25-ton cyanide plant in the mill and an additional new caterpillar diesel power that runs a new 60 k.w. generator, has taken up most of the summer season.

A total of $30,000 in this new equipment has been spent. Considerable time has been lost this fall waiting for a Dorrco filter to complete a continuous flow in the mill. At the present time the cyanide plant is in operation at a capacity of 5 tons in 24 hours. This is an experimentation on the tailings and a small amount of ore from the mine. The tailings are pumped into the mill by means of a Worthington centrifugal pump. Some ore is taken from the old stopes above the 250 level. This ore is that which caves from thawed areas in the stopes and it was found to contain sufficient values to mill. The mill is expected to reach full capacity in October and ore will be taken from 350 and 450' levels.

Since the closing down of the mill in May, development work has been continuous in the mine on the 350, 450, 550 and 650 levels. August 1 the bearings of the large Worthington compressor burnt out and development has been limited to one machine per shift since. Two shifts are working and operations are confined to raising on the 450 level. Here 110' south of 650 raise is an ore body exposed on the 350 level and this raise is to connect up with this body.

Forty men are employed at the present time and a total of fifty will be employed when operations return to full capacity. Two men are driving a prospect tunnel by hand methods on the surface above the 100' level. A detail flow sheet of the mill and mine development will be contained in a separate report.

Ventilation and safety factors are not given enough consideration in this mine. The reason for this is lack of knowledge and experience in these factors; and as a result, conditions have been induced that are contrary to these factors. Considerable of the drilling is dry and the result is a considerable dust accumulation. Smoke was encountered in several levels and dead air in several drifts. This smoky condition is brought about by the fact that it does not have an escape. Wooden doors are placed on all adits from the 250 level to the 650 level. A ventilation circuit exists from the 650 level up 650 raise to stopes between 250' and 100' levels. However, the tendency and purpose of the doors is to be closed in order to keep the coldness outside. On 650 level two small fans were seen which had been used while drifting was in operation on this level. I explained the importance of keeping as many doors open as possible to create a draft to draw out smoke and gas. Also to blow air in all places of blasting between shifts, as it was found that the compressor was shut down immediately at the end of the shift. I further explained this condition to Mr. Humphrey, and urged him to do what he could in a way of instruction to help this condition. Several reports from miners were to the effect that gas and smoke conditions were exceptionally bad during the winter months.

Another condition, where there is possible chance for accident, is the 650 raise from 250 level to 650 level. This raise, which is 4 by 6 feet in cross section is used as a skip-way with the manway ladder between the rails. This raise has a dip 58° and 468' in height. This raise has only light stulls on the footwall that holds both ladder and rails. The skip is used only for tools, steel and powder; however, only at an occasional place could a man step off between levels to escape skip. Further, bars are lacking on all the levels away from this raise. Further, no provisions have been made for thawing powder, and it is brought into the mine frozen in the winter time.

First aid supplies are kept in the mill, camp, 250 and 650' adits.

Wages are $6 and board for miners, $5 for muckers and mill men with board.

The installation of the cyanide plant in the mill is to meet the problem of a more complex ore found in depth. Both chalcopyrite and sphalerite are increasing in amounts in the sulphide ore and the result has been a lowering of gold values. Here again is the problem of a successful cyanidation of a massive sulphide ore with increasing copper and zinc sulphide, and experience will determine the more or less success of this operation.

In the mine itself geological conditions show good prospects for more ore in several places in the vicinity of the diorite-limestone contact. The plunge of the ore bodies and general trend of zone has not been taken into consideration. The result has been that only a small amount of ore has been encountered on the 550 level and ore has been missed on the 650 level with the exception that some of the diorite is mineralized sufficiently and reported to run $5 to $6 over a few feet. These facts, I took up with the management, showing definitely the northward pitch of the orebodies. The temperature conditions showing the more basic ore in the south drifts as compared to north drifts. Suggested a plan to develop for more ore and gave numerous other suggestions.

8. Wm. Sitts was reported as shoveling-in at the head of Falls Creek in the Tiekel district.

Mike Knowles was reported as on his property on Mill Creek, a tributary of Stewart Creek. He was further reported as having found more gold showings.

KK-86-127

Stanley Nickols of Valdez has two men working on placer at the head of Fourth of July Creek. He attempted to drill some placer ground there, but large boulders were encountered and the poor condition of the Keystone drill were reasons for stopping operations.

KK-86-122

Mr. Hocking, representing Anchorage capital, made an examination of Hurtle Creek Gold Mining Company's holdings, located on the West Fork of Hurtle Creek, 2 miles above its junction with East Fork.

Carl Carlson and Thomas Shallow are prospecting for placer in the Tonsina district.

KK-86-125

Assessment work was done this year on the Holland-Townsend property located at Mile 39½, Richardson Highway.

This was the extent of activities in these districts this year.

KK 86-44

10-12. En route Shoup Bay to Mayfield. The Alaska Mayfield Mining Company has under option a total of 20 claims--the Mayfield group, named the Mayfield I to V, and the Golden Harvest 1-15 include the Mayfield showings and the Bessie Williams prospect. A mill site claim is located on the edge of Anderson Glacier. Both groups, which adjoin, are located on a peninsula of land on the north side of the junction of Anderson and Columbia glaciers, and this junction is located 9 miles via trail from the head of Shoup Bay, Valdez Glacier area. This property is very inaccessible due to very rugged topography and the presence of glaciers. This company is an Alaska formed stock company of $300,000 capitalization and 600,000 shares. Emil Helikal is president and Alec Kasenik is mine manager and the address of the company is Cordova.

In 1935, six men were employed during the season. Two camps were built, one at Shoup Bay and the other on the property. A total of 65' of drifting was done by hand, some open cuts and the trail was repaired. This year four men were employed most of the season and 30' of drifting was accomplished. A new tunnel site was surveyed by Mr. Poy, who also made a report for New York interests.

The total old and new workings consist of two tunnels, 65' vertically between, with a total length including short cross-cuts of 575'. Several small cuts on the surface exposure of the vein and stripping.

The main showing on the Mayfield consists of a curved lense of milky white to dark banded quartz. Its exposed length is slightly over 100' and varies in width from 1 to 5'. This lense has a strike of 45 to 50° W. and dips 46 to 47° NE. Two small stringer veins join this lense on the footwall at its widest portion of 5'. These veins are a few inches to 18" in width and are exposed on the surface for only a few feet. A strong fault, with a well developed gouge, occurs on the hanging wall. This fault is best seen in No. 2 tunnel where its strike is N. 60° W. and dip 68° N. In No. 1 tunnel 65' vertically above No. 2 and 50' below the surface outcrop, three veins were cut and two were followed a few feet with drifts. As cut by the tunnel these veins are 18", 39" and 6" respectively. They vary in strike from N. 48° W. to N. 58° W. and vary considerably in dip along their strike. In No. 2 tunnel the fault was hit and followed 100' and the ore was hit on this fault on the footwall side. Over 80' of drift was completed on this orebody which has a width from 12" to 4½'. The country rock is closely folded graywacke and argillites. The schistosity appears to be parallel to bedding with a strike of N. 80° E. and dips 60° N. Thus both quartz lense and fault cut the schistosity with low angles.

The mineralization is pyrite, chalcopyrite, galena and sphalerite in a gangue of quartz, graphite and wall rock pieces. This orebody was reported to average $50 in gold and assays as high as 6 ounces in silver were received. Two samples were taken, one in each tunnel across an average width of the vein.

On the Golden Harvest claim No. 13 a 6" quartz vein was reported exposed 150'. Further, it had loose walls and was reported to assay over $100 gold.

KX-86-45

13. The property of the Ruff and Tuff Mining Company is a group of four claims, located 4 miles northeast of the Mayfield on the south side of a peninsula of land between Columbia and King glaciers, 2 miles west of the Gold King, and 5 miles SW. of the Cameron Johnson. This property is very inaccessible due to its position between glaciers and elevation of 2500', and to reach it on foot the hazardous Mayfield trail has to be followed. From the Mayfield one has to cross summit between Anderson and King glaciers and across King Glacier. In the winter a favorable plane landing may be made on King Glacier within one-half mile of camp. In summer a landing may be made on spots with either wheels or skis on Columbia Glacier 5 to 6 miles distant. Reeves Airways of Valdez has a plane equipped with skis for summer landings and takes off and lands on tide flats near Valdez.

The geology consists of a small sill of altered diorite, 370' in length in closely folded, graywacke and argilaceous slates. Its lenticular axis conforms to the strike of the schistosity and apparent bedding of the highly schistose sediments which strikes nearly east-west and dips 60-65° N. This sill was intruded either during folding or before and since it was of a more plastic nature schistose structure

was not produced, but the opposite effect of cross fracture was the result with numerous fractures nearly at right angles to the schistosity. These fractures are filled with silica making numerous quartz stringers and gash veins.

Four short veins varying in dip and strike lead into the sediments from the hanging wall of the sill. These vary in exposed length from 30' to 80' and from 12 inches to 3 feet in width. No work has been done on these veins. Work this season consisted of an opencut into the west end of the sill. This cut is 70' in length and 25' at greatest depth and at the end of which a tunnel 7' in length has been started. A small irregular quartz vein was followed with this cut, and it is well mineralized. The mineralization consists of a very yellow pyrite, galena, chalcopyrite, sphalerite and hematite with free gold.

The gangue minerals are quartz, chlorite, calcite and a greenish mica was seen along in spots on the hang wall. Free gold can be seen in most of the larger veins and many of the small veinlets. Assays over $100 was reported as common across the larger veins. The mineralization is strong and mainly confined to the veins and sediments. No samples were taken for assay due to following reasons: With the free gold showing good values are definite, not enough work has been done to sample correctly, and to take surface samples from oxidized portions would have been above average. Also, due to the broken up conditions of the veins along the hang wall exact lengths and average widths could not be taken.

This property was discovered by C. C. Elwood and Andrew Thompson of Valdez in the summer of 1934. R. Reeves optioned the property and sold his option to J. Hoar for the sum of $800. Mr. Hoar, present manager, and associates formed the Ruff and Tuff Mining Company in the state of Washington. The capitalization is $50,000 and a total of 2,000,000 shares and the company is registered in Alaska.

A 10-ton Gibson mill was landed the day of visit on Columbia Glacier 5 miles north. This is to be run with a small gas engine. A model T Ford motor is used as a compressor with a special head giving two cylinders for explosion and two for compression. One machine can be operated with a small receiving tank. A small bunk house and mill total structures on the property.

Timber is lacking in this area and water power lacking other than small streams during summer from hanging glaciers. A small creek furnishes abundant water for milling and this is seasonal.

While nothing large or persistent was evident from surface showings, the conditions encountered in depth and in opening this prospect will be interesting. Newspaper reports since stated the mill was in operation and $760 a day in gold was being recovered.

KX 86-46+47

14. The Cliff Mine now held under option by Chugach Gold Mines, Inc., resumed operations in May, 1935. Development work has been continuous since with the exception of March and April of this year. At which time a fire burned the carpenter and blacksmith shop. Work was concentrated on the 100' level and the Hughes intermediate level. No attempt has been made to pump old workings. 2000' of drifting and crosscutting has been completed to date. The Hughes vein, which strikes N. 40° W. and dips 60° NW., was followed on both the 100 and Hughes intermediate levels. This is a strong fissure vein cutting the formation which strikes nearly east-west and dips 45-50° N. A few small lenses of quartz with short lengths and narrow widths and containing spotty gold values were found. Some of these lenses were reported as containing sufficient values to be mined. While drifting on the Hughes vein on the Hughes intermediate level the Chugach vein was discovered. This vein cuts off the Hughes vein, and it is a narrow quartz vein which strikes N. 40° W. and dips 60° N. It has a developed length of 270' in this level and varies in width from 3" to 22". It was reported to carry good gold values and free gold shows in several places. One raise has been started and a chute has been built ready for stoping.

The Hughes intermediate level is being carried north through the hill to open a ventilation circuit through the mine. This makes for good ventilation, but increases the danger of fire at the two adits on the beach. The mill is built at the face of the cliff and the 200' level adit is on the same level as the floor of the mill and a wooden structure only a few feet in length leads to the adit. The same condition exists on the 100' level adit at the top of the mill. Two wooden doors of light construction are placed in this adit. While there is no law in regard to building a certain distance away from adits, there is Part B, Section 17 which requires fireproof doors. Thus a door in each adit of steel or other fireproof material and casing are necessary to eliminate this danger. Already in the history of this mine two fires have occurred. The mill in 1911 and shops this year. A fire hydrant was placed outside the mill this summer. Further, a small danger of accident exists in the small raise from the 100' level to the Hughes intermediate level, 185' of incline. This manway is only 4 by 4 feet and contains a poor ladderway alongside a skipway. The skip is operated from the intermediate level and is used for steel and supplies. This raise is crooked and a small stream of water sprays down. Thus any one climbing in the raise might be hit in operating skip. A guard rail across both manway and chute way on this level is needed.

This mine is under the management of Charles Simenstad and mine foreman, Oscar Magnuson. Seventeen men have been employed this year and wages are $4.50 for miners, and $4 for muckers with board. A diesel power plant is to be added this fall and more complete milling machinery. Later reports were heard that the mine had closed in October for 30 days awaiting delivery of machinery.

16. T. J. Devenney has been working on his property 5 miles east of the Cliff and one mile west of the end of Middle Creek road from Valdez. Nearly 100' of drifting and 30' of crosscutting has been done this year. Two men were employed. Nothing further has been found since the last report on this property. However, a few more feet of crosscutting is necessary before vein will be struck on the lower level.

17. Two attempts were made to reach the Cameron-Johnson mine, but due to the fact that the trail leads over 5 miles of Shoup Glacier and with the low prevailing fog, it could not be found.

The following information was received from G. P. Oien, who promised to send blue prints of workings. This mine is located on the east slope of Gameron Hill, 4½ miles air line north of Shoup Bay and 10 miles via trail. This property was originally staked and known as Cameron-Johnson. In 1914 the Valdez Gold Company was organized. Recently the Valdez Gold Consolidated incorporated. It is a 3 million share corporation with par value at 10 cents.

The formation is a schistose graywacke and slate. The slate bands are very narrow with 10' being the average width. The strike is east-west and the schistosity dips 60 to 65° N. Five veins were reported varying in width from a few inches to 4 feet. They are all parallel and strike and dip with the formation, and in varying distances apart. Work this year has consisted of the rebuilding a section of the mill. A 1500-foot 11" to 8" pipe line was constructed to the mill. A new tram line 3800' was built. Bunk houses and cook house were rebuilt. The main tunnel was cleaned out and retimbered and some trail work was accomplished. Considerable difficulty was encountered in getting in supplies as some were dropped from an airplane, as a safe landing could not be made, and the result was considerable loss.

18. A new discovery of August, 1935 was reported found 4 miles due west across Columbia Glacier from the Ruff and Tuff prospect. This discovery is known as the Gibralter and consists of 3 claims, and it was discovered by C. C. Elwood and Wm. Quitsch. It was described as a curved lense 240' in length and a few inches to 7' in width. Two small lenses parallel the first of 100' lengths and 12 & 18" widths, widest portions.

Samples that were seen from this first lense, showed a milky white banded quartz. The mineralization was pyrite, arsenopyrite, galena and free gold. Assays of $50 a ton gold were reported.

19. A group of 5 claims was staked the first of this month, 3 miles from the beach on the north side of Avery River, Port Wells district. This group was named the Mohawk group and it is owned by John Groth, L. Watson and A. Buffo of Valdez. This property is a re-staking of the old Beauty Bird and North Star. No new work has been done and the old workings were reported caved, thus it was not visited.

One vein was reported exposed 2500' with a NE. strike and a dip 75° NW. The width varies from 6" to 5'. Samples of ore seen from this vein showed a white quartz containing numerous pieces of wall rock and crystals. The mineralization was pyrite and free gold. A gouge was reported along this vein.

Harry Townsend and Mr. Poy made an examination of the Culross mine in Culross Bay, Prince William Sound, this year.

20-22. En route to Passage Canal & Poe Bay.

C. C. Elwood has been prospecting on King River, Prince William Sound. He reported several serpentine dikes cutting graywacke and slate. Some colors were found in the creek but no quartz veins were found of importance. The Portage Gold Mines, Ltd., a Canadian organization, has a small group of claims under option 3½ miles inland from the head of Poe Bay, northwest side of Prince William Sound. This company is capitalized at one million shares at one dollar par value with head office in Victoria. Operations began during the summer season of 1934. Preliminary work, which consisted of the building of a caterpillar road from the beach to the foot of a glacier, camp building and last season the installation of mining machinery. This season development work has been in progress. 278' of crosscut tunnel was driven. The vein was cut 200' below vertically from the surface outcrop. A drift 80' in length was driven west on the vein and 140' east. A raise was up 30' at time of visit. The surface outcrop is at an elevation of 1000' and consists of a banded quartz vein in black slate, 150' exposed length and has an average width of 12 inches. The average assay values over the entire exposed length were reported to average 1½ oz. of gold. A section 35' in length of this length averages between 2 and 3 oz.

The strike of this vein is N. 60° E. and dips 58° to 60° NW. The slate formation strikes N. 70° E. and dips 69 to 70° NW. This gives a difference of 10° in both strike and dip between vein and formation. The vein is in a strong shear which consists of a gouge 3' in width. This gouge consists of highly crumpled slates caused by small minor folding due to slight recessive movements on the shear. In this shear in the drift small lenses of quartz occur. They average in length from

a few feet to 30' and vary in width from a few inches to 20". Free gold can be seen along the dark graphitic bands and a 1% mineralization consists of pyrrhotite, pyrite, galena, sphalerite and chalcopyrite. A total of 9 men were employed this season under the management of Mr. Smythingale. W. B. George is president and A. D. MacFarlane, secretary for the company. This property was staked and optioned by Dominick Vietti.

23. The El Primero Mining and Milling Company property, known as the Granite mine, is located on the west side of Port Wells directly opposite Esther Passage. This mine has been in operation this season with a force of 18 men. Work in the mine consisted of drifting and stoping on three levels. On the 110' level 300' of drifting was done and 125' of crosscutting. On the 210' level 30' of drifting was done and 50' of crosscut. The mill was run intermittently during the season and a total of 300 tons were milled. Operations were started in April and closed the middle of October. RK 95-33

Considerable new machinery has been installed within the last three years. A new $51,000 hydroelectric power plant was completed last year. This furnishes year round power.

Three parallel veins occur along a slate granite contact. Where these veins enter the slate they adopt a highly banded nature and show a strong mineralization and considerable free gold. In the granite the veins are slightly banded, wider, and show considerably less mineralization, and carry lower gold values. One small vein was discovered wholly in slate and it is being mined. One small block or lense a few feet in length was found and mined last year. This was exceedingly rich.

This mine is owned and operated by B. Carvey and under his supervision working conditions are very good, with good ventilation and considerable thought has been given to safety factors.

24. Four claims were located across Port Wells on Barry Arm, 4 miles from the Granite mine, 1/4 mile from Mosquito Creek and 200' back from the beach. H. G. Cloes and one man were engaged in stripping a small vein in graywacke and slate. This was not seen as the mail boat arrived here at night. The white quartz samples contained a mineralization of pyrite, chalcopyrite and galena. If samples contain values work will be done on this property next season.

A new discovery was made this summer by Al Roth and W. M. Johnson on the south side of Harriman Fiord directly opposite from the old Sweepstakes mine. This is 4 miles northwest of the Granite mine. The discovery was reported as a quartz vein a few inches to 30 inches in width and it has been traced for a distance of 600'. The vein has recently been uncovered by the melting of the ice on Toboggan Glacier.

Its strike was reported as north and south and to have a vertical dip. The position of the vein was reported as between two granitic dikes in a black slate and graywacke formation. Samples that were seen from this vein showed a white quartz with banded structure and some crystals and vugs showing. The mineralization consisted of arsenopyrite, pyrite, chalcopyrite, and galena. Two claims were staked, the Fiord No. 1 and No. 2.

In Mineral Creek near Valdez there has been very little activity this year. The Little Giant closed operations temporarily on May 17 and it has not operated since. 700 feet of drifting was done on the Rose vein prior to closing. On the Big Four last year some ore was milled, but this property has not been in operation this year. KX-86-9

Valdez

A few feet of drifting was done on the Star, a parallel vein to the Little Giant.

T. Johnson has been working with his two boys on the Hercules property. It was reported he milled $2400 gold in four weeks.

An attempt was made to reach the Ramsey-Rutherford mine, but due to fog the trail off the glacier could not be found. Mr. Spiegelberg was employed in the mill part of the season, and promised to send a report of activities. He reported six men working, considerable ore in sight, and considerable loss in tailings were reported in the mill. KX-86-115

Considerable opposition was expressed in several ways in regard to looking at properties in this district. The main reasons were that formerly their properties were turned down and assays taken did not represent correct values. This was the only district visited that this condition was found to exist.

25. En route to Seward. — Nuka Bay District — KX-104-2

The Sonny Fox Mining Company, known as the Babcock and Downey property in Nuka Bay, was in operation this season and milled some ore. Due to a very dry season, there were periods during which there was not enough water to operate. Further, reports that the 15-ton Denver quartz mill would only put through 2 tons of ore in an 8-hour shift.

Seldovia 10

The Nukalaska Mining Company had a successful season according to manager M. B. Parker. Operations started late in April with active mining in May and closed September 23. An average of 20 men were employed during the season. Twenty-three days of 24-hour milling was carried out and a production of $50,000 was reported. Three ton of concentrates were shipped to smelter this fall, making the fourth shipment this season. Further ore was blocked out to be milled next year. KX-104-3

Other properties were reported as inactive in this area this year with the exception of assessment work. Mr. Capps of the U. S. G. S. was reported to have visited most of these properties this year.

Kodiak Island.

27-30. En route to Kodiak.

Oct. 1. Located three-fourths of a mile from the beach on Kizhuyak Point between Kizhuyak Bay and Old Woman's Bay on Kodiak Island is the Ouzinkie group of four claims. Kizhuyak Bay is located on the north end of Kodiak Island. The showing on these claims is a large banded quartz vein that averages in width 14 to 17' and traceable for 900'. It is exposed as surface outcrop for 500'. The vein is in granite gneiss and strikes with the foliated bands of gneiss N. 40° W. The dip is 80-85° W. KK131-1

An old tunnel 51' in length with a 6' crosscut on the end follows the vein on the Ouzinkie No. 1 claim. A shaft on top of hill at an elevation of 765', and located 500' north of tunnel, had a depth of 22'. Beginning 100' south of the shaft in the center of this vein is a lense of nearly massive sulphides. This lense is exposed over 200' and runs in width from nothing to 3', widest portion. The shaft was sunk on this lense and it widened to four feet in width in the bottom. The mineralization of this lense is very basic and complex consisting of pyrite, arsenopyrite, tetrahedrite, nickel sulphide, and stibnite. The quartz is banded with bands 8 to 18" in width, is of a glassy nature in places to a white in others. Some of the bands show considerable evidence of strain. The quartz itself is only very slightly mineralized and a slight mineralization occurs on the band seams. Samples were taken in the tunnel and from surface of the vein near the shaft.

This property is an old discovery staked by Nick Lacianoff and Jim Gleghorn in 1905. The shaft was sunk in 1906 and 1907. This group was then called the Bear group. It was re-staked in 1924 by Geo. Comstock and re-staked two years ago by Erskine and called the Ouzinkie group. The owners are Mr. Griffen, Geo. Comstock and W. J. Erskine.

Several more of these large quartz veins, some of which contain similar sulphide lenses in the same banded gneiss, were reported inland from the head of Kizhuyak Bay.

2. The Kizhuyak group of four claims, owned by above owners of Ouzinkie group, is located in Antone's Bay on the west side of Kizhuyak Bay. Here on a contact of granite gneiss and highly folded argillites occurs a contact mineralization the result of segregation in the gneiss. Several of these small segregations were seen along the shore of Antone's Bay. The gneiss is fractured and banded, one series of fractures strikes N. 60-65° W. and dips 85° SW. Some of these fractures contain small quartz veins. On Antone's Island on the same strike of this contact and mineralized zone, a 30' tunnel has been driven on a 5' quartz vein. Here the zone has developed more into a shear zone. This vein is traceable for over 400'. A few opencuts now partly filled are distributed on the surface of this vein at an elevation 50' above sea level. This vein strikes N. 3° E. and dips 78° W. The quartz in most places shows only a slight mineralization while occasionally some of the bands contain massive sulphides and some massive bunches of 3 or 4' in diameter occur in the vein. This vein has free walls and the quartz is strained and fractured. KK131-9

The mineralization consists of pyrite, arsenopyrite, chalcopyrite, stibnite and a nickel sulphide. The gangue minerals are quartz, feldspar and at places muscovite. A sample was taken across vein in the tunnel and from massive sulphides on the dump.

3. At the mouth of Terror Bay along the east shore, directly across from the south end of Uganik Island, there is located a group of 9 claims, named the Rambler group. This group is owned by W. E. Baumann, E. Strickler and Charles Skinner. Here a small nearly flat vein was discovered by Baumann in 1904 and found to contain free gold. It was staked in 1933. This vein is located 50'above high tide on a 70' bluff. It strikes east-west with a 10-15° dip to the north. It consists of banded quartz 3 to 14" in width and averages perhaps 6". It is exposed along the bluff for 500'. The hanging wall is a greenish dike a few inches to 14" in thickness and has the same dip and strike as the vein. It was found where the vein had its greatest width the dike had also. Both cut the schistosity of the slates which strike N. 27° east and dip 42° NW. These slates are highly metamorphosed. The dike contains a porphyritic texture, dull green in color, the phenocrysts are a bright green color and appear to be olivine. A small amount of feldspar can be seen in some phases. The dark banded quartz contains pyrite, galena, chalcopyrite and free gold. The gold appears to be associated mainly with the galena. The gangue minerals are white quartz, calcite, graphite and pieces of slate.

A 2-ton Gibson mill run by a 1½ H. P. gas engine was tried, one ton of ore was milled and $100 in gold was recovered. A Straub ball mill has been ordered as the Gibson was found to be too small in capacity. Some small stringers were found one-half mile back from the beach at an elevation of 1400'. They contain considerable free gold. This property warrants more prospecting as east-west fissures are evident from the topography.

4. A group of four claims, named Sonny Jim was staked on the point of land between the mouth of Terror Bay and Uganik Straits. This group is owned by H. Mayle and S. Gilmore. The geology in this section is very favorable for gold. The formation consists of metamorphosed black graphitic slates and graywacke. The slates are highly crumpled and contain many veinlets of quartz. A large granite mass lays 3000' west and between the slates and granite are dikes and masses of diorite porphyry. The slates strike N. 18° E. and dip 55° N. Three lenses of quartz and a few small veins are exposed on the beach. in a narrow lagoon over a distance of 800'.

No. 1 vein is a small quartz vein located at the mouth of a lagoon, west side; its width is 3 to 10" and exposed 200'. It is very irregular in strike, but persistent. It cuts the schistosity with a strike N. 75° W. and a dip 85° S. This vein contains visible gold. A small opencut was in progress at time of visit. Four parallel stringers dip toward this vein at distances of 50 to 100' away.

No 2 showing is a quartz lense located 800' south at the head of lagoon and is evident from an opencut on the beach. This lense is 26 to 30" in width, strikes No. 65° E. and dips 71° N. It has free gouge walls and contains sparse mineralization. The length of this lense could not be determined.

No. 3 showing - Located across the lagoon 200' east and what appears to be the continuation of No. 2 with a 100' displacement to the north is a showing of 6' of quartz. This lense strikes N. 70° E. and dips 73° N. This lense can be traced over 300' and it is only a few feet above sea level. Strong movement is evident on the walls and it is nearly horizontal. On the hanging wall of this lense is 8" of a well banded bluish quartz. This is well mineralized and differs from the remaining width of a white quartz and sparse mineralization. Assays of $18 were reported from this cut.

No. 4 showing - 200' east and across lagoon from No. 1 vein is a large lense of white quartz. This lense is 600' in length and averages 3 to 6' in width. It has a banded structure and it is considerably sheared with free walls and shows evidence of strong movement. The mineralization, which is sparsely distributed, is notable in its content of pyrite, pyrrhotite, chalcopyrite, galena and occasional free gold. The gangue minerals are quartz, (banded nature) calcite, chlorite, greenish mica, sericite, and pieces of wall rock.

This section warrants further prospecting and work. It is possible that more of these quartz lenses could be found, and with this mineralization a high grade lense may exist in this vicinity.

A group of two claims, named the Apex group, is located on the peninsula between Vickoda Bay and Uganik Straits. This group is owned by H. Mayle and S. Gilmore. This showing was reported as a 3' vein alongside a greenish dike. Samples seen from this property contained a mineralization of pyrite, chalcopyrite, galena and free gold.

A sample was taken from these samples to check an assay of the owners of 5.44 ounces of gold. Gangue minerals were quartz, sericite, small greenish inclusions of dike material and pieces of slate.

Thomas Shannon has been prospecting this season on Uganik Island.

A. Larson and Coyote Kid (name unknown) were reported prospecting in the south arm of Uganik Bay.

John Jones is prospecting in Uyak Bay.

Joe Strand, Frank Peterson and J. Swanson were reported mining beaches at the mouth of Red River.

Alec Petroff and Pete Ashukuk (natives) were reported to have mined 6 ounces of gold from beaches of Tugidak Island.

10. The Brown Bear group of 21 claims is located one-half mile from the beach at the head of Barling Bay, 5 miles southwest of Old Harbor, on the southeast side of Kodiak Island. This group is owned by Fred Henton, Charles Cook, N. Christiansen and R. E. Krautiter, all of Old Harbor, Kodiak Island. KI 131-19

The discovery is a flat lying quartz vein which follows the bedding of highly altered and metamorphosed argillites. This vein is 3 to 4' in width, strikes N. 55 to 65° E. and dips 20 to 38° S. The argillites have been uplifted by a basic granitic mass which has faulted the sediments into small blocks. This has produced a faulted vein into blocks giving outcrops at various elevations. Some smaller veins parallel this larger vein on the hanging wall.

Two short tunnels were started under the vein, but due to flatness of the vein, it was not encountered in either tunnel. No. 1 tunnel is at an elevation of 400' and is 31' in length and No. 2, elevation 550', is 23' in length. Several opencuts have been made on the vein and on a mineralized aplite dike higher up the mountain.

The mineralization consists of a strained and crushed arsenopyrite, pyrite and pyrrhotite. The gangue minerals are quartz, sericite, chlorite, and pieces of slate. Reported assays were $18 over 5'. Several samples were taken for assay.

Kodiak 131

This completes the activities and prospects on all of Kodiak Island including the total men placer mining.

The desire for instruction and help was expressed by several on this island. The possibility was mentioned that possibly Mr. Wilcox could arrange for giving his classes there. Mr. W. J. Erskine was greatly in favor and stated he would gather between 15 and 20 men for the course if a months time was given him aforehand.

The same arrangement could be made at Seldovia, where 30 men are placer mining on the beaches. They take out $2-$5 with long toms at half tide. Considerable interest was shown for prospecting, but knowledge as to minerals is lacking. A number of these placer men stay in the vicinity during the winter. Mr. Charles Shark, a merchant there, will be glad to cooperate in getting the men together if courses can be arranged. Some good looking quartz samples were seen from this vicinity. Since this town is located on the end of Kenai Peninsula, and since geological conditions are favorable, it might be worth while to have a series of courses given there.

This was taken up with Mr. Wilcox, who stated his schedule was filled this year, but expects to have an assistant this year for towns he will be unable to cover. These two towns might be mentioned to the University in this respect.