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MINING REPORTS

by H.H.TOWNSEND

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1924

BRIEF NARRATIVE REPORT ON PROSPECTS IN ALASKA

EXAMINED IN 1924.

Respectfully submitted to B. D. Stewart, Supervising Engineer for Alaska, by Harry Townsend, Associate Engineer, U. S. Bureau of Mines, Department of the Interior, March 27, 1925.

INTRODUCTION

The lode prospector in Alaska is undoubtedly working against heavy odds, but still has much in his favor. Transportation in the interior is improving year by year, and cheap transportation along the coast, with the numerous deep water inlets, has always been a great advantage.

A country that has produced mines like the Treadwell, the Kennecott Bonanza, the Mother Lode, and the Chichagoff, is surely worth prospecting.

The outstanding achievement of 1924 was the successful reopening of the Chichagoff Mine by Mr. George T. Jackson. Less spectacular, but extremely important to Alaska, is the continued operation of the Alaska Juneau Gold Mining Co. with a profit under the management of Mr. Fred W. Bradley and Mr. Phil R. Bradley. The Kennecott group of mines, managed by Mr. E. T. Stannard and Mr. B. B. Nieding, continued as the backbone of lode mining in Alaska.

On August 23, 1924 the writer of this report was appointed as a lode mining engineer with the U. S. Bureau of Mines, working under the direction of B. D. Stewart, Supervising Mining Engineer for Alaska, U. S. Bureau of Mines. The purpose of the appointment is to give the prospector direct advice in the field as to the best place for him to put his hard work. Geological sketches are made of all the workings seen. These sketches are

mimeographed in colors, so a dozen or more copies of each can be furnished the prospector. Samples are taken and the width, place taken, and assay results are noted on the sketches. The samples are assayed by Mr. Paul Hopkins of the U. S. Bureau of Mines at Fairbanks.

This service furnishes the prospector with something he may already know, but it is in the proper form to answer inquiries for information from mining companies. Requests for these sketches are referred to the prospector himself, so if he has another deal pending or for any other reason, he need not send the sketches unless he wishes to send them. These sketches are my real report, and this report will be brief and general.

PROSPECTS EXAMINED NEAR NORTHERN PART ALASKA RAILROAD

PORTAGE CREEK DISTRICT NEAR CHULITNA

The first district visited was the Portage Creek area, ten miles east of Chulitna. Chulitna is Mile 273.8, Alaska Railroad. I had the great pleasure and advantage of making this trip with Geologist S. R. Capps of the U. S. Geological Survey, who is very familiar with all the country within hundreds of miles of the Alaska Railroad. His report on the "Geologyand Mineral Resources of the Region Traversed by the Alaska Railroad" should be in the hands of all prospectors and others interested. It is Bulletin 755-C, U. S. Geological Survey, Department of the Interior and can be obtained by writing to the U. S. Geological Survey, Washington, D.C.

76-11 see also 3 sketches

We saw the Mint Ruby Silver Mine belonging to Mr. A. Moose Johnson and Mr. Harry A. Wertz. Mr. Huie Goodell had also started prospecting in the district, and we saw what he had found up to date. On the whole the district looks good for further work and prospecting. One sample four feet wide on the Mint Ruby Silver assayed 0.14 ounce in gold and 32.2 ounces in silver.

The country rock is blocky slate, and is cut by a resilicified quartz porphyry dike striking a little west of north and dipping 70 degrees westerly to vertical. Along the shearing on the westerly side of the dike are quartz lenses mineralizedby arsenopyrite,pyrite, chalcopyrite, and pyrargyrite. There are some spectacular crystals of pyrargyrite or dark ruby silver. The dike is also mineralized. One sample six feet wide across the dike assayed 0.03 ounce in gold and 12.60 ounces in silver.

There is a fair horse trail to the property. Copies of three geological sketches of the workings of the Mint Ruby Silver and copies of a geological sketch of a cut on the Grubstake No. 1 Claim have been sent to Messrs. Johnson and Wertz at Chulitna, Alaska. see sketch Copies of a sketch of the workings on the Ella B. Claim have been sent to Mr. Huie Goodell, Anchorage, Alaska. see sketch

LIBERTY BELL MINE

From Chulitna I went to Ferry at Mile 371.5, Alaska Railroad. About ten miles east of Ferry on Eva Creek is the Liberty Bell Mine. A short time previous to my visit, Mr. Fred Searls, Jr., one of the best mining geologists,had made a very complete examination for the owners. The vein is a flat fault vein in schist overlaid by quartzite. Development is proceeding in miner-like fashion under the superintendence of Mr. S. R. Moore. On accountof the vein being flat, it takes considerable work to develop a large tonnage; and as the owners are mining men, they intend to have a large tonnage developed before erecting a mill, or deciding on the size of mill. KK-58-53

An interesting feature of this mine is the presence of the sulphide of bismuth, bismuthinite. When this mineral is present the gold values are much higher than usual. The main values are in gold, but there is enough arsenopyrite to make the arsenic values commercial as a by-product, and it is quite possible

that the bismuth content will be a source of revenue. A wagon road was being improved by the Alaska Road Commission at the time of my visit.

NUKA BAY PROSPECTS

As the season was getting late, I jumped to Nuka Bay, as I had instructions from Mr. Stewart to see this district before any danger of an early snow. Nuka Bay is about eighty miles southwestof Seward. Most of the prospectors hadleft the district for the season, but Captain Charles Emswiler of the gasboat "May" was able to give me directions that enabled me to find the trails to the various workings. Any of the prospectors of the Nuka Bay district can be reached by addressing them in the care of Tecklenberg's Store, Seward, Alaska.

HARRINGTON PROSPECT

The first prospect examined was that belonging to Mr. Otis Harrington at the head of the West Arm. The main outcrop is about 1500 feet above tidewater. There are a number of cuts and one timbered shaft on the quartz vein, which is from one to three feet wide. The country rock is graywacke and slate striking N 8 degrees W and dipping about 25 degrees easterly. The strike of the quartz vein is nearly east and west and the dip 65 degrees to 75 degrees southerly. Copies of two sketches of workings on this prospect have been sent to Mr. Harrington, with the assay results of six samples running from twenty cents gold to $4.80, and one sample 3 feet wide assaying $90.80 in gold.

ALASKA HILLS

At the property of the Alaska Hills Mines Corporation there was considerable activity. Three men were working in the lower tunnel, where the vein had been reached, and drifting on the vein in search of the ore shoot (afterwards reported found within a few feet) was just being started. The upper tunnel, about 70 feet higher in elevation and

twenty two feet long, is on the vein. A sample 1½ feet wide and not reaching the hanging wall, assayed $77.20 in gold. A winze is sunk in the footwall of the vein 35 feet. At the bottom of the winze the strike of the vein is S 75 degrees W and the dip 50 degrees northerly. In the upper tunnel the vein clearly cuts the slate formation, while in the lower tunnel the formation and vein have nearly the same strike and dip.

Ten men were at work on the mill. The building was practically complete, and most of the machinery in place. The main features of the mill are a 7x10 Blake crusher, a 40 ton Worthington ball mill using 6 inch balls, three Deister-Overstrom concentrating tables, amalgamator, and classifier. There is a 1000 foot long 16 inch pipe line and a 66 inch Pelton wheel for power. An aerial tramway 1605 feet long connects the working tunnel with the mill. The mill capacity was far ahead of the tonnage developed at the time of my visit, but if sufficient tonnage is developed, the mill will be an asset.

At an extremely high tide a barge can be floated within a short distance of the mill. I made a compass survey that helped them with a connection underground. There is a trail about two miles long connecting the head of the West Arm of Nuka Bay with the camp at the mill.

BURMAN AND CARLSON PROSPECT

Across the head of the West Arm from the Harrington and Alaska Hills properties is the Burman and Carlson prospect. They have a large number of open cuts on at least four quartz veins with an easterly and westerly strike, and the main vein has a northerly dip of about 75 degrees. There is a twenty foot tunnel on a 14 inch vein with remarkably smooth even walls. This vein dips 53 degrees northerly, and cuts the slate and graywacke forma-

see also 2 sketches KX-104-27

Earl Pilgrim (2)

tion, which latter strikes a little west of north and dips 55 degrees westerly. The assay results from my samples on this property are not encouraging, but the veins certainly look live and may have good ore shoots. Copies of two sketches of workings on this prospect have been sent to Messrs. Burman and Carlson, P.O. Box 1664, Anchorage, Alaska. There is a good trail about a mile long from the head of the bay to the property.

HATCHER PROSPECT

The Robert Hatcher prospect is on the east side of the North Arm of Nuka Bay, and the vein outcrops on the beach. Here the vein varies from 1 to 5 feet in width and strikes easterly and westerly, dipping 70 degrees southerly. There is an open cut just above the beach, with a 15 foot vertical face. A sample across 3½ feet did not give encouraging assay results. There is reported to be a much better outcrop a thousand feet up the mountain, butthis was not examined as a gale sprang up that made it impossible for the boat to remain. Copies of a geological sketch of the cut on the beach have been sent to Mr. Hatcher.

See also sketch

LANG PROSPECT

The Lang prospect is on a quartz vein that outcrops at the beach on the west side of the North Arm of Nuka Bay. The bedding of the graywacke and slate country rock is obscure, but probably nearly flat. The vein is 6 to 14 inches wide, striking S 35 degrees W and dipping 60 degrees northwesterly. A sample, which I moiled across 14 inches, assayed $18.80 in gold and 0.25 ounce in silver. There will have to be more open cuts and many more samples before any estimate of the value of this prospect can be made.

GILLESPIE AND ROSNESS PROSPECT

The Gillespie and Rosness prospect on the west side of the North Arm of Nuka Bay, has a quartz vein 6 inches to 4 feet wide, out-cropping at the beach. The wide part of the vein is usually under tidewater. A sample across ten inches did not give encouraging results, but nothing can be said about the value of this prospect, without more open cuts and more samples. The vein strikes N 20° W and dips 80° easterly.

WILLOW CREEK

Early deep snow prevented the making of several trips planned, notably to the Willow Creek district and to the Hope-Sunrise district.

According to reports from reliable sources, the Willow Creek District was the scene of considerable activity in 1924.

The Union Development Co. carried on work started by the Kelly Mines Co. on the Alaska Free Gold property. The main drift was driven ahead about 160 feet and a raise put up about 140 feet. Work on this raise will be resumed in the spring. The purpose of the raise is to reach the oreshoot, which pitches northerly at a flat angle from the upper workings.

FERN MINE

The Fern Gold Mining Co. developed a series of ore shoots, that are nearly continuous for seven hundred feet. Everyone familiar with the district considers this strike to be a very important one. It is said that $64,000 was cleaned up by amalgamation of the free gold. The concentrates were stored and in 1925 The Fern will operate with a larger mill and a cyanide plant. Work was carried on all winter 1924 - 25.

MABEL MINE

Messrs. Horning and Bartholf worked the Mabel Mine and ran the mill. They brought out the first Willow Creek clean-up of the 1924 season.

Important work was done in 1924 at the Lucky Shot Mine, at the Gold Bullion Mines and at other properties in the district.

PROSPECT IN SCHIST

Mr. C. C. Thorpe reports the discovery of a quartz vein 16 inches to 4 feet wide cutting the schist formation at Grubstake Creek in the Willow Creek District. He reports that they have stripped the vein on the surface for a length of 220 feet and have done 52 feet of tunnel work, and some additional open cut work. This prospect is interesting, because it occurs in the schist outside the granite area.

ALASKA MINERALS OR HIRSHEY MINE

KX 95-4

The Alaska Minerals Company operated the Hirshey Mine successfully until late in the fall. This mine is twelve miles south of Hope, Alaska. The ore is said to be cut off by a fault, but this ought not to be much of a difficulty as Mr. Sumner S. Smith, the President and Manager, is an old hand at solving complex fault problems.

OTHER PROSPECTS EXAMINED ON KENAI PENINSULA.

KX 95-133 See also sketch

Before going to Southeastern Alaska, I examined a few prospects on Kenai peninsula, that were still free from snow.

STRONG GROUPS

At Indian, at Mile 88.7, Alaska Railroad, there is a prospect owned by Mr. P. R. Strong. Copies of a geological sketch of the tunnels on this prospect have been sent to Mr. Strong. One sample was taken across seven feet of graywacke and slate with quartz stringers and some arsenopyrite and pyrite. The assay results of this sample are not encouraging but Mr. Strong is quite justified in claiming that the prospect can not be valued by the results of one sample.

CASE-WHITNEY MINE

KX 95-21 see sketch

Mr. Al Sollers kindly volunteered to show the Case-Whitney property on Grant Lake to the writer,

as well as a couple of his own prospects. Grant Lake is connected with Trail Lake at Mile 28, Alaska Railroad by a good trail about a mile long. Mr. Sollers built this trail in order to take machinery to his saw mill at the foot of Grant Lake.

The Case-Whitney Mine is located on the northerly side see sketch of the right angle turn of Grant Lake. It is reported that most of ore, taken out and milled in an arrastra by a water wheel, came from the shaft now caved. The tunnel follows a contact fault between graywacke and slate. The quartz vein mined strikes easterly and westerly dipping vertically. This vein does not show in the tunnel in my opinion, but its dip may possibly have changed, or it may have been faulted by another fissure vein that shows both on the surface and in the tunnel, striking northwesterly and southeasterly and dipping 70° northeasterly. What I believe to be a third vein has been drifted on westerly in the slate. A sample across 16 inches from this vein assays $5.60 in gold with .3 ounce silver. This vein will probably be not no copper BETTER if found in the graywacke as the good grade ore has all come from a vein in the graywacke. However, there is no real reason to assume that there are not good ore shoots in these veins in the slate. Copies of a geological sketch of the tunnel and surface have been sent to the owners.

DIKE PROSPECT On the Dike Prospect owned by Mr. Al Sollers there is a mineralized zone of quartzite and graywacke with slate on both walls. The strike is 512° W and the dip 75° southeasterly. In open cuts, on a cliff, four five foot samples were taken but did not give encouraging results. KX 95-167

Over the mountain from the Dike Prospect are the

Hayden and Skeen Lechner mines. I climbed to the Hayden tunnels, but was unable to enter on account of snow having drifted into the portals, filling the tunnels for some distance.

From Mile 29, Alaska Railroad, a good highway is being built to Sunrise and Hope; at Mile 14 on this highway I attempted to examine two prospects, but was considerably handicapped by fresh snow.

GILPATRICK PROSPECT

On a Prospect owned by J.C.Gilpatrick and associates two tunnels were entered. The most important tunnel was blocked with snow and another was caved at the portal. Sketches have been sent to Mr. Gilpatrick of the two tunnels entered. No report on the property is given here as snow conditions made a complete and fair examination impossible.

LAURA K PROSPECT

Two tunnels were entered on the Laura K Prospect with the owner, Mr. Dan McMillen. In one, at the end of a cross cut, there is a drift 35 feet long on a quartz vein up to 16 inches wide. The vein strikes N 60°E and dips 60° northwesterly. At the northeast face the vein pinches, and at the southwest face it spreads through the graywacke country rock in stringers. A sample at the bottom of a ten foot deep winze across 16 inches of quartz assays $134.00 in gold and 1.8 ounces silver. A sample across 2½ feet of quartz and graywacke assays $9.60 in gold and 0.3 ounce silver. In the other tunnel there is a quartz vein 6 inches to two feet wide. A six inch sample assays $3.60 in gold, but at another place a sample 2 feet wide assays $11.60 in gold. Copies of geological sketches of these tunnels have been sent to Mr. McMillen. The tunnels are high up on the mountain and the surface was covered with snow.

PENELOPE MOHAWK PROSPECTS

The next prospect examined belongs to Mr. Edward Fredrick and Mr. C. G. Johanson. Their camp is at the end of the highway running north from Seward and is across Kenai Lake from Mile 18, Alaska Railroad. The Penelope and Mohawk prospects are about a mile west of the upper end of Kenai Lake and the workings are close to Porcupine Creek. Seven samples were taken on two small quartz veins. These samples gave low results for the narrow widths, from trace to $5.60 in gold, but the same veins have yielded small ore shoots in old workings and the new work may also be successful. Copies of geological sketches of the new work, with assay results, have been sent to the owners.

PRINCE WILLIAM SOUND

Contemplated examinations in Prince William Sound had to be abandoned on account of early snows.

GRANITE MINE

The Granite mine and mill in the Port Wells district were operated until the latter part of August, and it is the intention of the management to resume operation early in 1925.

200 feet of development work was done on the Herman Eaton property according to reliable report.

CLIFF MINE

"Red" Ellis, the owner of the Cliff Mine near Valdez, made a good start toward reopening the Cliff Mine.

There was considerable activity at Shoup Bay and in other parts of the Valdez District.

DICKEY RUA COVE PROPERTY

W. A. Dickey and sons did 96 feet more work in the long tunnel of the Copper Bullion, Rua Cove. Knight Island. If electrolytic iron becomes a commercial success, the heavy pyrrhotite mineralization at this property will become a big asset, instead of the drawback it is now generally considered.

BEATSON MINE The Beatson Mine of the Kennecott Copper Corporation together with the adjoining Girdwood Mine, recently acquired by the Kennecott, continued to be the only major operation on Prince William Sound.

SOUTHEASTERN ALASKA

JUMBO PROSPECT The Jumbo group of fifteen claims is located on the mountain back of and about a mile from Douglas. There is a large dike, seventy feet wide, of pyritized diorite. The dike strikes N 60 degrees W and dips 80 degrees northeasterly at its NE wall and 60 degrees northeasterly at its SW wall. The country rock is slate striking northwesterly and dipping 80 degrees northeasterly. In the dike there is a jointing structure N 60 degrees E and dipping 65 degrees southeasterly. A cross cut 120 feet long has been driven through the slate hanging wall, the dike, and eight feet of the slate footwall. Two four foot samples across the slate footwall and seven ten foot samples across the dike did not yield encouraging results. In my opinion the main hope of this prospect is the fact that the most placer gold is found above the dike already explored, and just below another dike not yet prospected. Copies of a geological sketch of the tunnel have been sent to the owners. see sketch

PEKOVICH FUNTER BAY PROPERTY The property of the Admiralty Alaska Gold Mining Co. was visited. Mr. W. S. Pekovich is the principal owner and in charge at this property. An average of ten men worked from April tenth to late in the fall. The main tunnel was advanced over eleven hundred feet. This tunnel is in greenstone, while the main outcrops, far up the mountain, are quartz veins, and a basic dike in schist country rock. In the writer's opinion, if a decision is made to explore the Mertie vein, it should be tested first by open cuts and a short tun- XX-112-10 see sketch

nel near the surface. If the results of this test are favorable, a raise from the face of the long tunnel at right angles to the dip of the Mertie vein will be good development work. If the results are unfavorable, some of the quartz outcrops might be tested near the surface, and then, if justified, a raise from the tunnel could be directed toward the downward extension of the most favorable showing.

The Mertie vein is a mineralized basic dike over a hundred feet wide striking northerly and dipping 60 degrees westerly. This dike is considerably leached at the surface and, being easily eroded, there is much foreign material present, that was packed in when a glacier covered the surface. Five samples, representing a total width of fifty five feet of this dike, assayed from 0.15% nickel to 0.97% nickel and from 0.18% copper to 0.47% copper. The samples were considerably leached. Copies of geological sketches of the Mertie vein at the main outcrop and of two places in the tunnel have been sent to Mr. W. S. Pekovich, Funter Bay, Alaska.

see also sketch

WILLIAMS HAWK INLET PROPERTY

From Funter Bay I went to Hawk Inlet to see the property of Mr. Charles Williams. Mr. Williams has a number of large quartz veins. Geological sketches were made and samples taken of four of these veins. On the main vein there is an ore shoot proved over 300 feet long by a drift and a shaft. Most of this work was done by Mr. R. K. Neill of Spokane, Washington. As Mr. Williams has the results of Mr. Neill's thorough sampling, I only took two samples in the tunnel. One sample fifteen feet wide assayed $6.80 in gold and 0.4 ounce silver. The other eighteen feet wide assayed $7.60 in gold and 0.5 ounce silver. One sample on the Iron Swamp vein seventeen feet wide assayed $2.40 in gold and 0.3 ounce silver. Other

see also 5 sketches

samples on other veins than the main vein gave low results. A large outcrop on top of the mountain was not sampled as it was covered with deep snow.

A good road, but narrow in places, about a mile and a half long, has been built from the beach to the tunnel camp, which is about 1000 feet above sea level. Exceptionally fine buildings have been erected near the tunnel. Five geological sketches have been sent to Mr. Charles Williams, Care Mr. Fred J. Wettrick, Arctic Bldg., Seattle

CHICHAGOFF MINE

The property of the Chichagoff Development Co. was next visited. Under the capable management of Mr. George T. Jackson, this property is the smoothest running mine I have ever had the pleasure of seeing. In accordance with the wishes of the management, no details about this mine are published in this report.

HIRST-CHICHAGOFF MINE

I also found the Hirst-Chichagoff, at the head of Ogden Passage, in fine condition, with Mr. Dan Williams in charge. Mr. Williams had successfully solved a fault problem, and the miners were stoping a six foot width of good grade gold ore. The Hirst-Chichagoff gold quartz ore occurs in shoots in sheared graywacke along the hanging wall of a fine grained igneous dike, striking N 20 to 25 degrees W and dipping about

KLAG BAY MINING CO.

About a mile and a half south of the Chichagoff Mine, the Klag Bay Mining Co. is exploring a wide shear zone in graywacke for possible ore shoots.

shoots. At the time of my visit they had not located any [illegible] resembling the strong shearing of the Chichagoff.

HODSON PROSPECT

A prospect belonging to C. A. Hodson on the mountain back of the Hirst-Chichagoff was visited with the owner. There is a dike on his ground, striking N 18 degrees W, that may be the extension of the indicating dike of the Hirst-

Chichagoff. Mr. Hodson is going to do some open cut work to determine if there is any ore along the hanging wall of this dike.

Mr. Hodson also guided me to a tunnel on a prospect belonging to Mr. Ole Bergland and to a tunnel on Mr. Henry Bahrt's property. Samples in the Bergland tunnel gave low assays. In the Bahrt tunnel a fault vein carries two small ore shoots about fifteen feet long each and up to 20 inches wide. A winze was sunk on one, but was full of water. see sketch of each

HYDER DISTRICT

An attempt was made to reach the Hyder district before the snow, but on my way over a foot of snow fell on the beach and many feet in the hills.

RIVERSIDE MINE

However the Riverside mine was visited. Mr. Jack Littlepage is making a fine record as the manager of this property. According to the wishes of the management no details are published in this report. The new mill was nearing completion in the late fall, 1924; there was a large tonnage of ore stored in the mine; and a fair sized galena ore shoot was improving on depth. The capital was furnished by Mr. H. C. Strong and associates of Ketchikan, Alaska. It is safe to say that this mine, while not a large property, will be a credit to Alaska and Alaskan enterprise. XX-118-41

Harry Townsend