

C. I. R.

NOTES ON LODE DEPOSITS IN SEWARD PENINSULA

By: N. L. Winkler, 1926.

Gold bearing quartz, coal, graphite and deposits containing silver, lead, copper, antimony, zinc, tin, tungsten, bismuth, iron, mercury, and platinum are found in the Seward Peninsula where several hundred lode properties have been located since 1900. Some of these properties were at one time in small production, others were quite extensively developed, but most of them never passed the early prospecting stage. The isolated location and adverse economic conditions stopped further development or operation. In most instances the prospectors became discouraged, and properly so, because of the average low metal content or lack of continuity. No lode mining is now being done, although a little intermittent development work, mainly for annual assessment purposes, is conducted at some of the properties.

The many lode prospects on the Seward Peninsula have from time to time been examined by members of the U. S. Geological Survey, and reported in its publications. The most recent work is that of Cathcart, (1) Cathcart, S.H., Metalliferous Lodes in Southern Seward Peninsula: U. S. Geological Survey bulletin 722, 1920, pages 163-261, who in 1920 examined and reported on all the lodes in southern Seward Peninsula. This report also includes a bibliography of previous reports by other members of the Survey on lode mining on Seward Peninsula.

Cathcart in his report states: "In this-(2) Cathcart, S.H., op.cit. page 173)- region concentrations of mineralization, especially of gold mineralization, are only relative. Dissemination is the rule. The concentrated deposits may be classed as veins and shear zones. Although the veins of Seward Peninsula have not shown great promise and have proved a source of discouragement to prospectors, because of their lack of continuity and the erratic distribution of the minerals which they contain, they are, however, important in a study of the general mineralization of the region. Shear zones are exceedingly common both in schist and limestone. Most of the shearing, because of its very general distribution, did not cause concentration of the mineralization but rather the opposite."

Mertie (3) also examined and reported--(3) Mertie, J.B., Jr. Lode mining and prospecting on Seward Peninsula: U.S. Geological Survey Bulletin 662, 1917, pp. 425-449--the principal lodes in Southern Seward Peninsula during 1917.

It was not considered advisable or was it permissible for me to make an investigation of the lode deposits during my six weeks field trip on Seward Peninsula during July and August 1926, but during the course of my placer mining field work several lodes were examined, and some notes on others were obtained thru conferences. The following notes are given as they may supplement the U. S. Geological Survey Reports mentioned.

GRAPHITE: *pk 43-3'*

Te/ker 43
Graphite is found at many localities in Seward Peninsula. The most favorable deposits are located in the vicinity of Graphite Bay, a shallow water arm of Imuruk Basin. About 120 tons of hand-picked graphite was shipped from the property of the Uncle Sam Alaska Graphite Mining Syndicate in 1912, but none has been shipped by them since. The Alaska Graphite Co. shipped about 35 tons in 1907 obtained from talus, and in 1917 a considerable tonnage was mined from an open cut and shipped. According to Harrington (1)—(1) Harrington, G.L., U. S. Geological Survey Bulletin 692, 1919, page 366—most of the production of 1916 and 1917 was made from an open cut where the lens on which mining was done had a width of 4 to 6 ft of graphite, and appearing at the bottom of the cut for a length of 30 feet. The footwall has a height of 20 feet. The impurities consisted of thin seams of quartz and schist. He notes another lens or series of closely spaced lenses of graphite on the east side of Glacier Creek having a vertical height of 400 feet or more exposed with an indicated thickness similar to that in the pit mined. Other exposures are also noted by him, some of these lenses, while partly obscured by talus, being at least 100 ft long, 50 ft wide, and a foot or more thick. *pk 43-2'*

This property is apparently the one owned by N. B. Tweet, and is the one to which my attention was called. A very large body or lens of pure graphite is claimed. A sample of several pieces given me, which looked very clean, showed upon breaking, thin seams of quartz and schist. This sample was examined by Paul Hopkins who reports:—"The sample marked 'graphite' consists of more than half flake graphite by weight. Quartz is present in visible grains and also within the larger flakes where it can be seen only after burning the flakes. None of the larger flakes appear to be free of silica. In my opinion, it would be necessary to grind to at least 100 mesh to free all the graphite from silica. The graphite appears to be all flake, as no amorphous graphite was seen under the microscope."

TIN & TUNGSTEN:

Renewed interest is bound to be taken in the tin lode deposits in the Cape York district Seward Peninsula; in fact it is reported that some British capital was expected to make an investigation of the Lost River Tin Mines this fall.

43-25 There are three principal cassiterite lodes in that district,--that at Lost River where the Lost River Tin Mining Co's property is located, at Cape Mt. where the Bartels Tin Mining Company, and the Empire Tin Mining Company's properties are located. Lode tin is also found on Potato Mt. and Ear Mt. 43-21

The following reports by the U. S. Geological Survey cover these: Harrington, G.L., "Tin Mining in Seward Peninsula", U.S.G.S. Bulletin 692, 1917, p.353-361.

Knopf, Adolph, "Geology of Seward Peninsula Tin Deposits", U.S.G.S. Bull. 358, 1908, 67 pages.

Steidtmann & Cathart, "Geology of the York Tin Deposits", U.S.G.S. Bull. 733, 1922, page 125.

The placer tin occurrences, prospecting and operation, will be reported under "Placer Mining in Alaska in 1926."

MERCURY:

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Cinnabar has been found in the placers on many of the creeks, notably on Daniels Creek at Bluff and Swede Creek which is about one mile to the east.

Prospecting for cinnabar lode two years ago led to the report that a large cinnabar deposit had been found at Swede Creek by Merritt, who was placer mining on that creek.

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Upon investigation Mr. Merritt informs me that it was only a small lens of high grade cinnabar which he mined and obtained a few hundred pounds of ore from it. The occurrence was found about half way up, 50 feet above sea level, in a limestone cliff about 100 ft east of the mouth of Swede Creek. High grade ore was found, specimens being shown, but the lens has been entirely removed and no other occurrence has been discovered. This cliff contains limestone much of which is pink to red in color, the redder portion could be mistaken for cinnabar. Analysis of this colored limestone showed it to be a pink calcite and the color probably due to manganese with probably some rhodonite present.

While no commercial cinnabar deposit has been found, there are no doubt numerous places in this vicinity where cinnabar occurs in the limestone.

To my knowledge no cinnabar deposits of any consequence have been found in Seward Peninsula.

G O L D:

Meegan, Olson and Summerville lode property at Bluff, Alaska.

Three wide schist zones known as the Sea-Gull, Idaho and Eskimo. Consist mainly of quartz-mica schist with numerous quartz veins ranging from small stringers to several feet in width. Traced for more than a mile. Mineralization of arsenopyrite and pyrite. Occasionally a little chalcocite is found and at times a little native copper is recovered on the plates, indicating its possible presence in the lodes.

Fourteen shafts, the deepest about 100 feet, have been sunk on the lodes, besides numerous trenches. A 145-foot tunnel and some winzes and crosscuts have been driven on the Idaho. None of the workings are now accessible.

The owners have held these claims for many years, and while several good offers are stated to have been received, the contention is that these deals have all failed because of the unreasonable attitude of one of the partners.

Small quantities of ore, quartz and schist, mostly oxidized, have been milled in the past which according to the partners has plated \$6 to \$7 in gold per ton with one ton of concentrates assaying \$50 to \$55 per ton in gold being obtained from 5 to 10 tons of the ore. The ore is milled on the property in a 6 cover rod mill operated by a 12 h.p. Witte gasoline engine, the pulp being passed over amalgam plates and then to two Monarch concentrators. The capacity of the mill is about 10 tons per day.

No ore has been milled for several years but it is planned to make a short mill run this fall, 1926. Ore on the dump from former mining is to be milled. It is also planned to sink another shaft on the Idaho lode this winter. About 5 tons of old concentrates were sacked this summer for shipment to the smelter.

This property has been reported in detail by Cathart (1):

(1) Cathart, S.H., "Metalliferous Lodes in Southern Seward Peninsula: U. S. Geological Survey bulletin 722, 1922, pp.188-197.

Wheeler Copper Prospect: K153-9

Consists of a group of seven lode claims owned by D. E. Wheeler, located at the head of Sherrette Creek and about 4 miles by trail south-east of the Wheeler or Iron Creek roadhouse. This roadhouse is on the line of the Seward Peninsula Railroad tram 60 miles northeast of Nome, Alaska. The claims have been surveyed for patent but not patented.

The main development has been done on the Warsaw No. 1 Claim--see sketch map--where ^{at} an elevation of 900 ft above sea level, a vertical shaft was sunk to a depth of 90 feet and an adit about 195 ft long driven to ultimately connect with this shaft. These workings could not be examined, the shaft being filled with ice and the adit closed with ice to with 50 ft of the portal.

The only mineralization to be seen in place was near the collar of the shaft where some small irregular seams of malachite occurred in the schist footwall. According to Mr. Wheeler good ore was found in the shaft to a depth of about 30 feet where a 5 ft. thickness of schist was struck. The rest of the shaft is in the footwall limestone without mineralization. No ore was encountered in the adit but some small streaks of chalcopryite and malachite were struck in the last few feet.

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The ore zone is a silicious replacement of a limestone bed which is partly schistose and underlain by a thin bed of schist. The hanging wall is a banded marmorized limestone. The zone apparently conforms to the bedding of the formation which at the collar of the shaft strikes N. 18° W and dips S.W. about 35°. Examination of the shaft dump shows a silicified limestone containing seams of heavy limonite mineralization, with a little malachite, up to 2 or 3 inches in width; and quartz with a little chalcopryite, mostly oxidized.

In 1917-18, sorted ore from the shaft was shipped to the Tacoma smelter in three lots. It was mainly a botryoidal malachite with some azurite. Sorted malachite ore from the shaft above a depth of 20 ft gave smelter returns per ton on about an 8-ton lot, of:-- gold, none; silver 0.33 oz.; copper 35.68 percent; iron 7.60 percent; silica 15.40 percent. A shipment of 4,739 lbs of sorted ore taken deeper in the shaft and containing mostly schist ore assayed gold 1.82 ozs. per ton; silver 5.16 ozs.; copper 17.18 percent. Another shipment stated to have been about 14 tons was made but no assays of it are available.

Several trenches have been dug on the Warsaw claim adjoining on the south, but the ore zone was not located. About 2000 to 2500 ft south of the shaft on the Queen claim and again on the Drone claim--see sketch map-- a different mineralization but similar type of ore zone has been exposed in a series of trenches at an elevation of 1500 to 1600 feet above sea level. The formation on these claims is a much contorted and folded limestone. Owing to the limited amount of prospecting done and its position, the relation between the various trenches cannot be definitely determined, but it is likely that there are at least two paralleling mineralized zones. Their average strike in the trenches is N. 10 to 15° W, the dip SE. 20-30°. The formation exposed in some of the trenches does not appear to be in place.

This ore zone, or zones, is a replacement of banded limestone along a zone of shearing and is mainly of quartz and silicified limestone with a characteristic banded mineralization of limonite, probably from the oxidation of sulphides, a little malachite and occasional chalcopyrite. The replacement apparently conforms with the bedding planes but as a rule extends irregularly into the limestone walls. The width of mineralization as exposed in the trenches is 3 to 5 feet in width and the degree of mineralization is variable.

Two samples were taken. Sample No.1 was taken across a 3-1/2 ft face in a trench on the Drone claim--see sketch--. The mineralization here was erratic and while the width of mineralization was a foot or more greater than that sampled, only the better mineralized portion was sampled. Sample No.2 was taken in the main trench on the Queen claim for the full width of 4 feet. The mineralization here is ~~is~~ distinctly banded and is heavier than in the other cuts, particularly in copper minerals.

These samples were assayed by Paul Hopkins of the U. S. Bureau of Mines at Fairbanks, and gave the following results:--

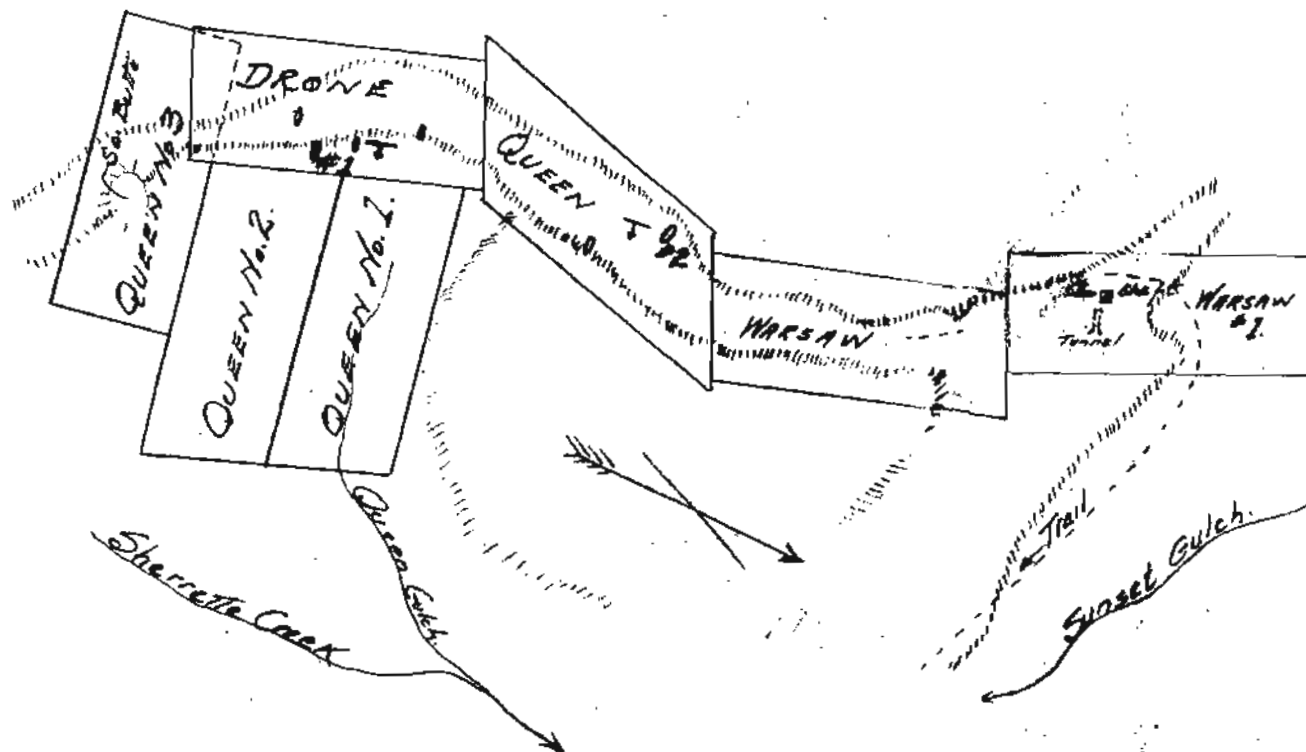
Sample	ozs. per ton		percent
	gold	silver	copper
#1	0.02	0.15	
#2	0.04	0.20	1.75

Similar replacement and mineralization is found farther south on adjoining properties, and apparently there are several zones in this area wherein the silicious replacement continues for long distances, being confined principally to certain conformable and comparatively thin beds. The copper sulphide mineralization, however, is not always present and its heavier concentration is of irregular occurrence within the zones. The fact that the copper carbonates have been found on the surface at so many places has lead to the local opinion that some very large copper ore bodies exist there. This is not the case as the sulphide mineralization is confined and relatively meager and such carbonates as have been found will disappear at a relatively shallow depth. The primary ores are low grade, too much so to be of commercial value.

The Wheeler property is generally considered one of the best copper properties on the Seward Peninsula which is probably due to the high grade sorted malachite ore shipped from the Warsaw No.1 claim. While, as noted, these workings were inaccessible, the copper carbonates were no doubt derived from a zone of similar primary mineralization and size as those sampled on the Drone and Queen claims.

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O.E. WHEELER. COPPER-GOLD PROSPECT
 IRON CREEK-SEWARD PENINSULA-ALASKA
 To accompany Report by H.J. Wimmer
 1926.



KX 53-9

Wheeler Galena Prospect: 453-6

Property is owned by O. E. Wheeler and consists of three lode claims,—the Iron Creek, Golden Gate and Sawtooth. It is located near the mouth of Iron Creek in the Iron Creek district, Seward Peninsula. The Pilgrim River, a tributary of the Kruzgamspa River, crosses the Central or Golden Gate claim.

Work has been done in the bank on both sides of the Pilgrim River, the highest point of elevation along the mineralized zone being about 50 feet above the river. While the relation between the various workings cannot be definitely stated, they are probably on the same shear zone along or near the contact of schist and the underlying limestone. The general strike of this zone is Northwest, the dip N.E. 15 to 30°. The formation in this vicinity is much folded and contorted and the limestone is partly schistose near the contact.

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On the east bank of the river on the Iron Creek claim, several pits have been sunk in the schist and limestone, and a 25-foot adit driven in the schist to cut the contact. The face of this adit was filled with ice and only a quartz mica schist, portions of which were mineralized with white iron pyrite, could be seen. According to Mr. Wheeler a flat lying small kidney of ore was encountered and removed from this adit. It was about 8 to 10 feet long, 6 ft wide and 18 inches in maximum thickness. Some specimens of this ore were found on the dump, showing a heavy limonite mineralization, with bunchy finely crystalline galena, and pyrite in a gangue of silicious limestone, quartz and some calcite. The opencuts ~~in the~~ overhead in the schist show some pyrite mineralization, and one cut in the underlying limestone exposed a small kidney principally mineralized with limonite. A greenstone, apparently of igneous origin, occurs in the schist some 100 ft north of the adit near its contact with the overlying limestone.

About 800 to 900 feet northwest of adit on the west bank of the river, on the Golden Gate claim, a cut about 30 feet long has been opened. It is stated that a small kidney of ore was removed from this cut, occurring in the schistose limestone some 20 or 30 feet from the schist limestone contact. The remainder of another kidney of similar character and occurrence is exposed in the face of this cut. It shows a mineralization of pyrite, finely crystalline galena and a little sphalerite in a silicified limestone, quartz and some calcite gangue. The ore on the dump is heavy in limonite and some bunchy galena. The main mineralization exposed in the face is confined to a 3 foot width, although finely crystalline pyrite is found to occur for a few feet above and as much as 10 feet below in the silicified limestone. A greenstone is also exposed near the outer edge of the cut.

A 20-foot shaft has been sunk about 50 feet beyond the cut in line with the contact but is entirely in the overlying barren schist.

One sample was taken in the face of this cut across 2 feet of the best mineralized portion exposed. Bunchy galena mineralization occurred in the lower foot sampled. Assay returns gave gold, 0.03 ounces per ton; silver 2.30 oza.; lead 2.95 percent.

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A sample of ore taken from the Iron Creek claim by Mr. Wheeler some years ago assayed, lead 22.87 percent; silver 20 ozs. per ton, and one from the Golden Gate claim,--lead 14.2 percent; silver 14.5 ozs. per ton. No shipments were made and it is not known how the samples were taken.

What little work has been done shows the ore to occur in small disconnected kidneys or masses and to be of too low grade under the conditions to offer encouragement for future prospecting.