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Copy

REPORT

OF

MORGAN COWAN

ON THE

WARD COPPER COMPANY

IN THE

SEWARD PENINSULA

ALASKA

1916

lc 43-27

COPPER DEPOSITS ON KOUGAROK MOUNTAIN

The property known as the Ward Copper Property is located on the Northern slope of Kougarok Mountain in the North Central part of Seward Peninsula, Alaska. It is one and a half miles East of the South Fork of Serpentine River (Quartz Creek) and eighteen miles from the Fork's Mouth.

Easy grades can be found for transportation from the property South West to the American River. This river is a tributary of the Agiapuk River which reaches tide water in Imuruk Basin (Salt Lake). The distance from tide water to the property by this route is 60 miles.

There is another route to tide water by way of the Kougarok and Kusitrine Rivers to Imuruk Basin, a distance of 70 miles.

The general formation of this district is highly crystaline limestone and schist with granite and greenstone intrusion. The limestone lying to the West of the property forms a contact with the schist. This contact reaches from a granite intrusion at the summit of Kougarok Mountain (2900 ft. sea level datum) to an open cut at the North end of the property.

East of this contact, except where the limestone has overlapped the schist, the outcrops show quartz and schist.

The mineral bearing zone or ledge outcrops at the extreme North end of the property at an altitude of 900 feet and strikes South, eight degrees East.

There were two open cuts twenty-five feet apart made at this outcrop. The Westerly cut exposed the ledge to a width of nine feet and a width of four feet was shown at the Easterly cut.

The ledge formation is interbedded metamorphic schist and quartz with malachite, azurite, and small deposits of chalcopyrite.

Owing to faulted and foliated conditions at this point, it was impossible to determine the permanent dip of the ledge, but, from adjacent creeks where the bed rock was exposed at lower levels, a dip of seventy degrees is shown in the general formation.

Twenty-five hundred feet South of the open cuts, a shaft has been sunk to a depth of thirty feet. At the time of examination this shaft was ice filled within two feet of the surface. The formation here is of the same character as that shown in the open cuts at the North end of the peoperty.

It was evident from information obtained from those who worked in this shaft that the limestone contact was reached at the bottom. The ledge at this depth (30 feet) had a dip of 45 degrees to the East.

Specimens taken from the dump indicated the ore was increasing in chalcopyrites and there are good grounds for assuming that the character of the ore will become richer in sulphides at a further depth.

One mile and a half South of the shaft there is a large outcrop of quartz highly stained with malachite.

The intrusion of granite and greenstone occurs a mile and five eighths South of this outcrop.

Sample taken from the West side open cut at the North end of the property representing a width of eight inches contained 51.55 cu.

Sample from the same open cut representing a width of I6 inches contained - - - - - - - - - - - - - - - - 23.52% cu.

Sample from the same open cut representing a width of nine feet contained - - - - - - - - - I0% cu.

From the East open cut at the North end of the property sample representing a width of 6 inches contained 23. 03% cu.

Sample from the same open cut representing I4 inches in width contained - - - - - - - - - 47. I6%cu.

Sample from the same open cut representing 4 inches in width contained - - - - - - - - - I8. 67%cu.

Specimen taken two feet from the surface from shaft 2500 feet South of open cuts contained - - I2. 72% cu.

Specimen taken from outcrop I4 feet North of this shaft assayed - - - - - - - - - - - I2. 9I% cu.

Forty-two tons of ore averaging 37 per cent copper were taken from the open cuts at the North end of the property and shipped to the Tacoma smelter.

In taking out the ore from the open cuts, stringers of malachite and azurite were followed and no attempt made to develop the width of ledge. The only way to determine this would be by borings or the sinking of a shaft.

The lack of outcrops due to covering of slides of erosion on the mountain sides and mantles of tundra on the lower levels made it difficult to follow the formation.

As near as can be determined by malachite staining on the outcrops along the line between the granite and greenstone on Kougarok Mountain and that part of the ledge exposed by the shaft

and the open cuts, and the close proximity of the intrusions to the vein material, the copper bearing solutions distributing their mineral deposits derived their origen from these igneous intrusions.

There is satisfactory evidence that the mineral bearing formation here is a contact-metamorphic ore-deposit.

Who is the man behind the company-- 19/8

Thomas F. Ward.

The stability of any company is invested in the character of the men who form that company. In the case of the Ward Copper Company, its discoverer and developer is Thomas F. Ward, a man of long experience in the mining fields of Alaska, a man who has devoted his life and who continues to devote that life to the development of a property in which he has the greatest confidence.

To begin with Thomas Ward is a descendant of sturdy American men and women who were noted for their own integrity and their own undying faith in the land they loved and served. Among these direct ancestors were Meriwether Lewis and Cptain William Clarke, men who were not afraid to go out into the wilderness and conquer it for their country. His grandfather, Benjamin F. Ward, himself inheritor of fearless, pioneer blood, particularly believed in Alaska and it was through his influence that the United States finally purchased it. Benjamin Ward was the life-long and very warm personal friend of William H. Seward, who as Secretary of State, was the final great deciding factor in the Alaska purchase. A descendant of pioneer ancestors and of a grandfather whose chief interest in life was Alaska, Thomas Ward as a young man found his own heart drawn with a great faith to that isolated country. For more than twenty years he lived in Alaska and his whole thought for that long a time has been devoted to locating the ore which lay beneath the top surface of Alaskan soil.

If any man is, therefore, better fitted to know a good mining property, it would be difficult to find him. And, having found that property, there is no man better able to direct its development than Thomas Ward. He has an immense amount of grip, determination, faith, and all of this backed by more than twenty years of experience, not only in mines but in Alaskan mines.

The fact that the property is already yielding a high grade of copper is complete justification of Mr. Ward's faith. But more than this, it is a proof that Thomas Ward has discretion, judgment, two things of vast importance to stockholders when they inquire into the character of the man behind their investment. It will also be interesting to these same stockholders to know that the man behind the Ward Copper Company is a man in his fifties- no mere boy expecting to make his fortune and come back to the States to squander it- - but a mature man eager to "carry on" with a great purpose until the end.

Memorandum given by T. F. Ward in 1911

Since this report was made I have run an open cut 40 feet in length by 20 feet in width on ore with a perpendicular face in end of cut of 15 feet of copper carbonates that will run from 5 to 60 percent copper and from $1.00 to $10.00 a ton in gold.

Neither wall of vein has yet been reached. At present there are 50 tons of ore averaging 40 % copper on the dump and $50,000.00 worth in sight.

(signed) T. F. Ward.

Personally appeared before me, James W. Bell, a Notary Public in and for the District of Alaska, John D. Fields, who deposes and says:

That he is a qualified mining engineer and competent to act as such.

That he on September, 18, 1907, entered into an agreement with W. H. Campbell whereby he was to receive the sum of Twenty-five Dollars, ($25.00) per day and all expenses for making an examination of those certain mining claims known as the Excelsior group.

That he has no interest or interests in said property.

That he made said examination, and that the following report is true in each and every particular.

And he hereby agrees to make a re-examination with any competent engineer acting in good faith, said examination to be made within a reasonable time, and if the statements herein made are found not to be correct, he will stand all expenses and charges of said examination.

R E P O R T -

COVERING AN EXAMINATION MADE OF THE EXCELSIOR GROUP OF MINING CLAIMS, by John D. Fields.

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LOCATION.

These claims are situated on the westerly slope of Kougarok Mountain, at an elevation of twelve hundred (1200) feet above sea, in latitude 65:30, forty-five miles from tide water on Grantly Harbor, as per map appended.

HISTORY.

These claims were located by T. F. Ward July 25th, 1904.

TITLE.

The title was found to rest in the following named persons as per appended abstract of title and certified certificates of location:

The law was found to be complied with in the manner of staking and recording.

The boundaries of the claim were found to be marked with proper monuments and stakes and no conflicting monuments or stakes were found upon the ground. Examination showed that the requirements of the law had been met in all particulars.

GEOLOGY

The country for several miles in the vicinity of the claims was found to consist of stratified sedements, schist, graphic schist, quartzites and limestones, the limestones being the oldest of the series. These had been intruded by dikes and sills of greenstone, quartz porphory, rhyolite and granite. There had been two periods of folding, the first

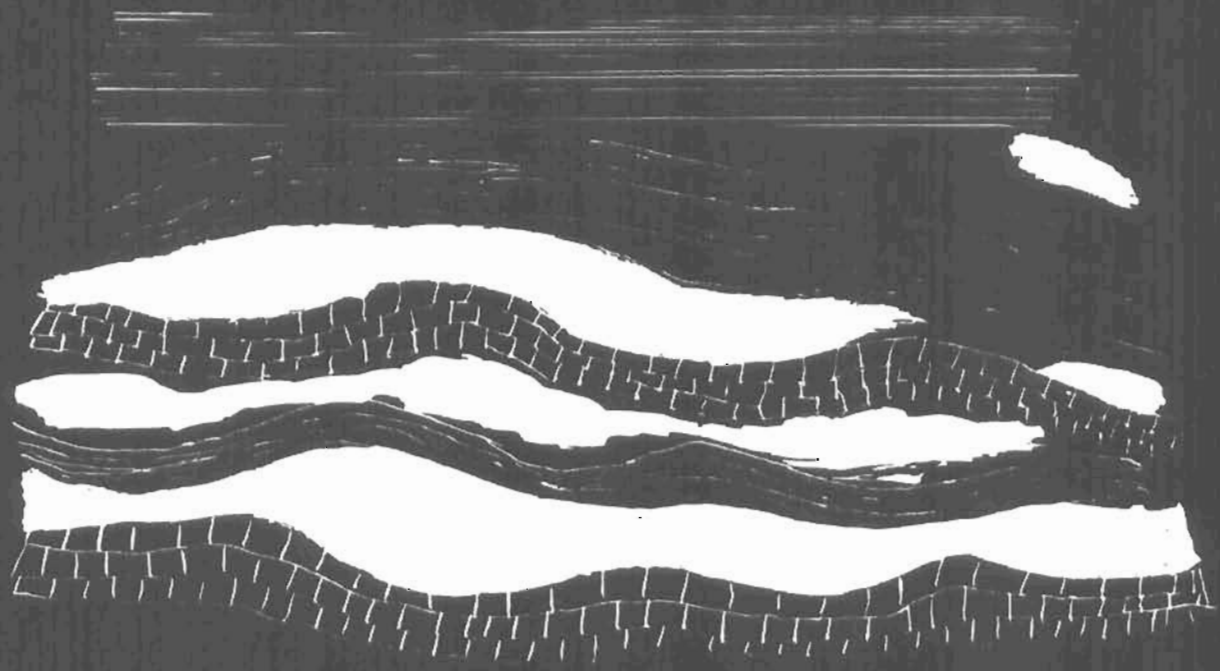


PLATE. I

period was a period of north and south; the second, east and west, the folding east and west causing a line of non-conformity between the quartzites and the underline, crystalized lime.

E X C E L S I O R C L A I M.

DEVELOPMENT WORK.

The Excelsior claim was found to have in the southeast end an open cut thirty feet long, eight feet wide with a twelve foot face. One hundred and twenty feet east of open cut one nine foot shaft. Forty feet north of open cut one six foot shaft.

GENERAL OCCURENCE OF THE ORE.

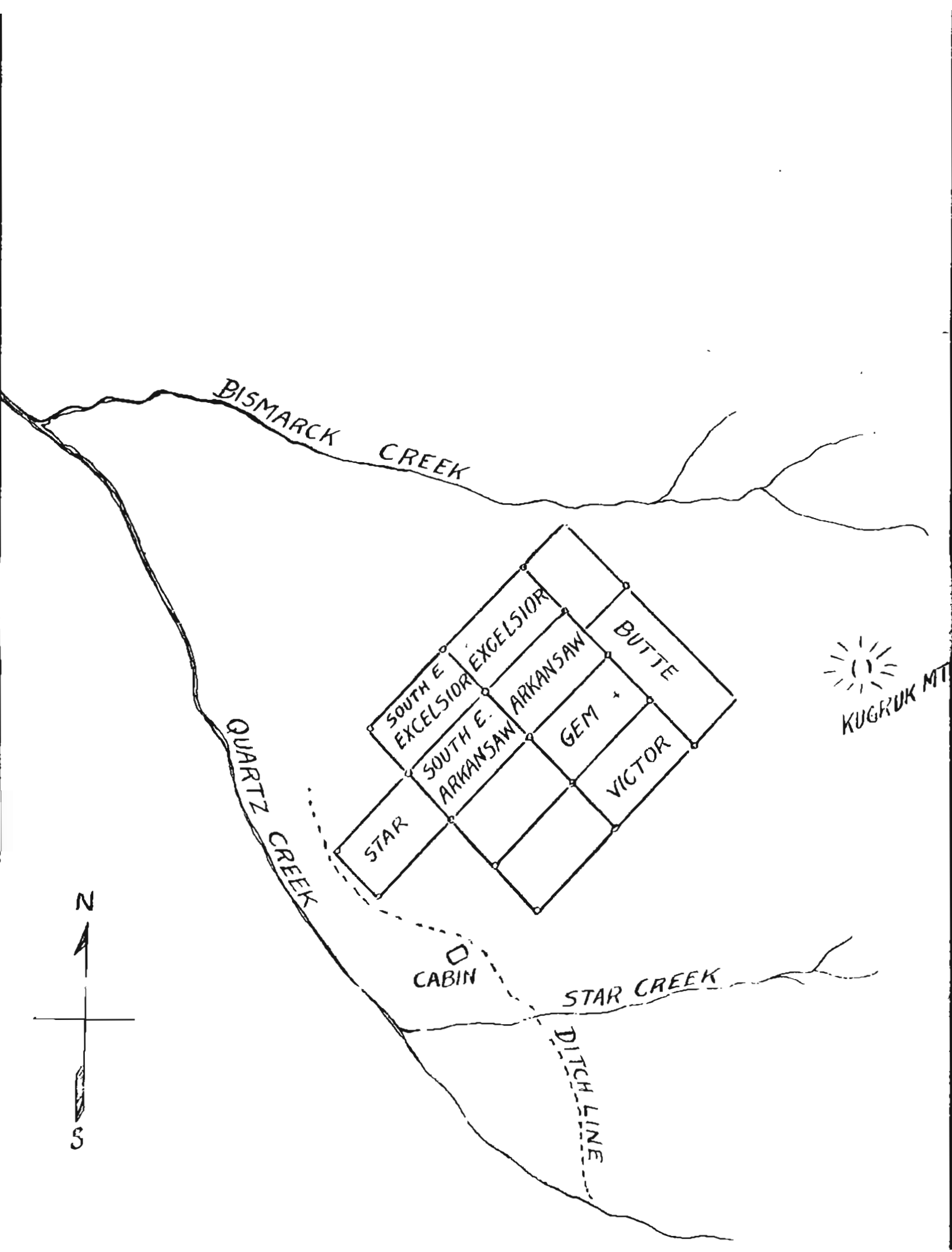
The ore bodies in the Excelsior lay in the siniclines of an east and west fold, as illustrated on Plate ONE. The genesis of the ore deposit as presented at this point is first a period of north and south folding and the metsomatic replacement of the lime by silica containing gold, silver and copper. Then an east and west fold in which the new-formed stratas of quartzite did not conform with the remaining stratas of lime, causing fissures to exist on the incline, in which carbonate copper was deposited. Three series of these ore filled siniclines are in evidence at the point at which the open cut was driven. These ore bodies have evidently had their origion from the fissure vein on the Butte. Their strike is north and south with a varying dip to the east. Illustrated, Plate ONE.

ARKANSAS CLAIM.

One 8 foot shaft. Two shallow shafts, caved in.

VICTOR CLAIM.

Shaft caved in.


BISMARCK CREEK
QUARTZ CREEK
SOUTH EXCELSIOR
EXCELSIOR
BUTTE
ARKANSAW
SOUTH ARKANSAW
GEM
VICTOR
STAR
KUGRUK MT
CABIN
STAR CREEK
DITCH LINE
N
S

SOUTHEAST EXCELSIOR. Development Work.

Shaft caved in.

SOUTHEAST ARKANSAS. Development Work.

Shaft caved in.

STAR. Development Work.

Shaft six feet in depth.

BUTTE CLAIM.

Development Work: One shaft 30 feet deep, 12 feet, timbered. One shaft 6 feet. One shaft 8 feet.

EXCELSIOR CLAIM:

ORE: An examination of the open cut in the Excelsior shows first eight feet of quartzite, which is capped by debris. This quartzite shows copper calcopyrites, small impregnations of azurite and malachite. This was found to contain 35/100 of an ounce of gold, value $7.23 - - 4 ounces of silver, value $2.72, and 1-2/10 percent of copper. Underlying this in siniclinicle folds of black crystalized lime, twelve inches of carbonate of copper, malachite and azurite.

Seven tons of this ore taken from the open cut was shipped to the Tacoma Smelting Company who gave the following value: Gold, trace,--Silver. trace,-- Copper 41.72.

At the mouth of the open cut 15 inches of ore lying in another siniclinicle fold, which gave a value: Gold, trace, Silver, two ounces, Copper 40-9/10.

Shaft forty feet north of open cut. This shaft shows two feet of malachite carbonate of copper ore lying in the fold between the quartzite and crystalized lime. Value: Gold, trace, silver, trace, Copper 41.72.

Nine foot shaft, Excelsior, small stratas brown hemitite iron, carrying trace of copper.

ARKANSAS CLAIM.

ORE: Shaft in quartzite. Average value: Gold 20/100 of an ounce, value $4.13. Silver 2-31/100 of an ounce, value $1.56. Copper 1-9/10.

VICTOR.

ORE: Shaft three feet quartzite. Value- Gold 21/100 of an ounce, value $4.33. Silver 1-67/100 ounces, value $1.13. Copper 1-8/10 percent.

BUTTE.

ORE: Six foot shaft, north end, four foot debris, the remaining two feet brown hemitite or iron. Average value: Gold 43/100 of an ounce, value $8.80. Silver 2-43/100 of an ounce, Value $1.65. Copper, - trace.

Thirty foot shaft, Butte. This shaft is sunk in the foot wall of a fissure vein. Strike, north and south. Dip twenty east. Shaft shows at the surface brecciated vein matter consisting of quartz, brown and red hemitite, malachite, azurite, with fluor-spar as secondary mineral. Average value: Gold 36/100 of an ounce, value $7.44. Silver, 1-60/100 of an ounce, value $1.08. Copper 1-8/10 percent.

GENERAL CHARACTER OF THE ORE DEPOSITS.

Shaft on north end caved in. No samples could be taken but ore is of the same general character as that in the six and thirty foot shafts.

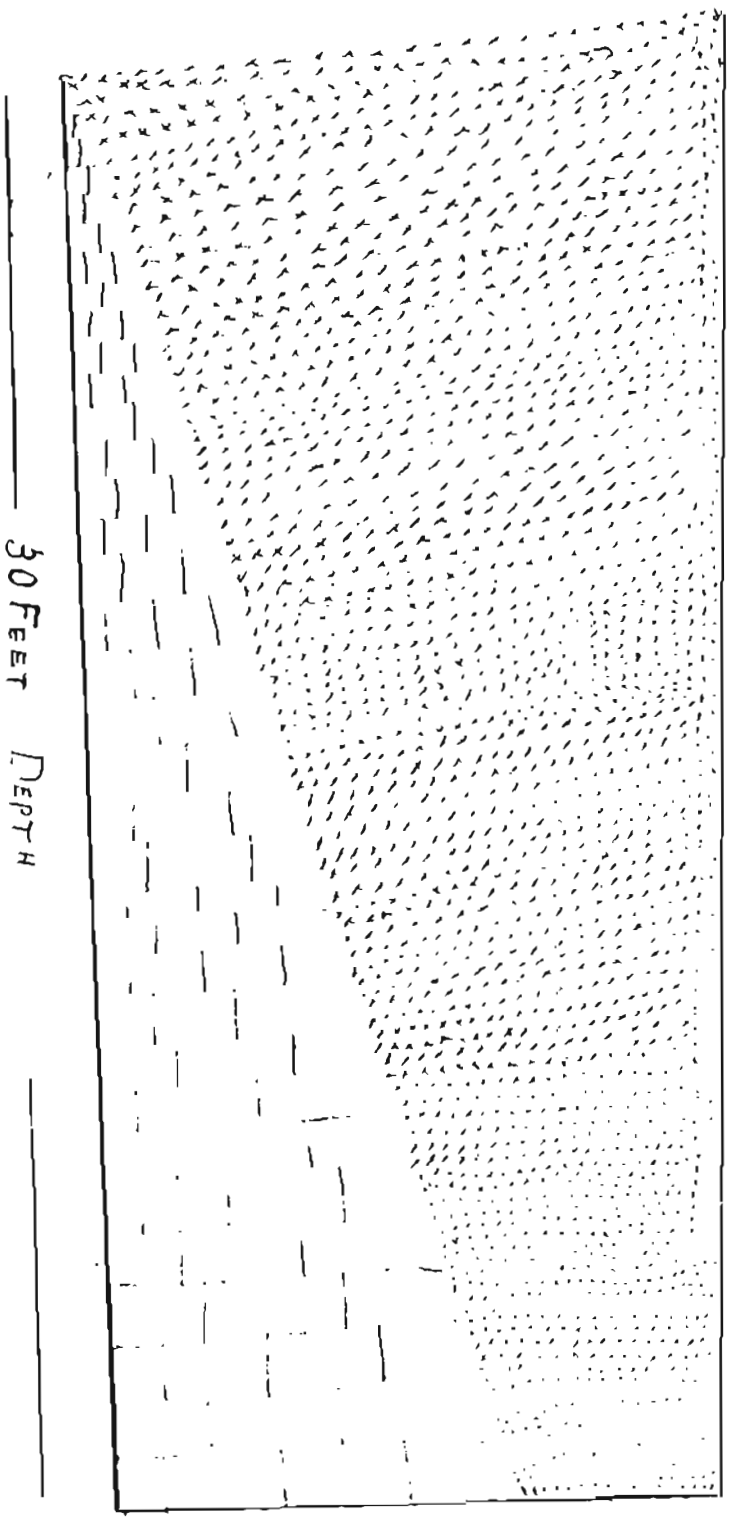


PLATE 2

H. A. ROWE

E. G. WILL

Nome, Alaska, 190

M

TO **ROWE & WILL** DR.

TRANSFER and FREIGHTING

MAIN OFFICE, 439 FRONT STREET, NOME

TELEPHONE MAIN 65

BRANCH OFFICE, SOLOMON

Jno. D. Field

TRANSPORTATION.

Provisions and supplies have to be transported from a point at tide water on Grantly Harbor to the grounds during the winter months. The route would be up Igloo creek, across the divide to North creek; thence down North creek to Agaipuk; thence up Agaipuk to American river to divide on Quartz creek; thence down quartz creek to camp.

The following letter from Messrs. Rowe & Will, a well-equiped freighting company, states what they would charge for transporting supplies and ore. This route is feasible for the construction of a railroad and as the properties are situated in the heart of a rapidly developing placer district it would only be a matter of a short time when this freight would be much lower.

COST OF EXTRACTION.

No definite cost of extraction can at the present time be arrived at. At the present time the wages for miners are $5.00 per day and board during the summer season, which commences May 1st and continues until September 15th, and $3.50 per day during the winter season, which covers the period between September 15th until April 30th, which including board would make an average wage of $7.00 per day. A large amount of ore could be extracted by open working on the Excelsior at a cost not to exceed $10.00 per ton. At no place on the deposits on the Butte have the shafts penetrated gossan, so no estimate can be made on the cost of extraction on these claims.

O P I N I O N.

When the general geological conditions are taken into consideration, and the high character and extent of the ore faces already uncovered, and the fact that this ore can be extracted, transported and reduced at a very large margin or profit, and the general favorable conditions surrounding the Deposit on the Butte, which indicated the probability of the existence of a much larger ore bodies, it is my opinion that this property should be further explored.

That there is a reasonable probability of a profit being returned on any money expended in performing this exploration or development work.

R E C O M M E N D A T I O N S.

I recommend that a force of not less than eight men be placed on driving a wide open cut on the Southwest end of the excelsior.

That a core drill be placed upon the Butte.

That a competent and reliable man who has the knowledge of the occurance of this character or ore deposits be placed in charge. I estimate that this will require an expenditure of $50,000. but results to be obtained will justify the expenditure.

John E. [illegible] M.E.

LIST OF SAMPLES.

Sample No. 1. General Sample of Gang, face of open cut.

Sample No. 2. Sample from six foot shaft. North end of Butte claim.

Sample No. 3. Sample from shaft on Victor claim.

Sample No. 4, From large debris on Victor, showing character.

Sample No. 5. Sample from thirty foot shaft, Butte.

Sample No. 6. Sample of malachite from bottom of mouth of open cut.

Sample No. 7. Sample of Azurite, from 6 foot shaft 40 foot north of open cut on Excelsior claim.