MR Juneau 1-12 1929

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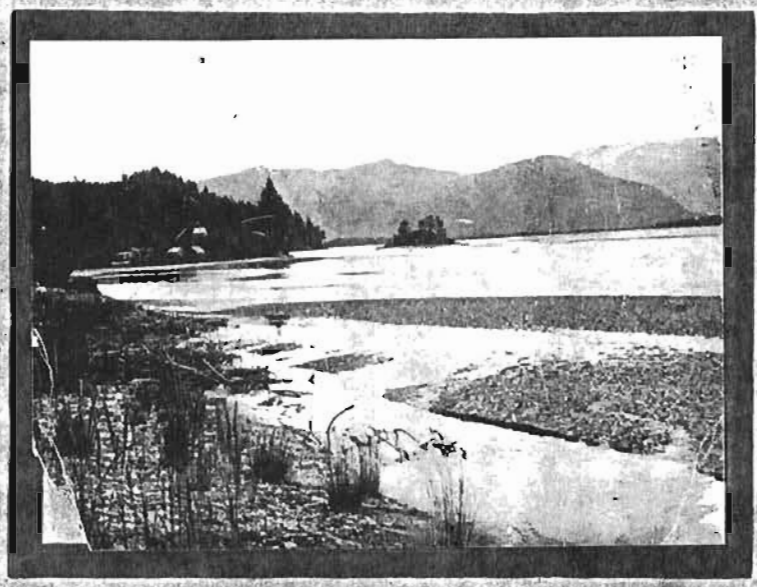

VIEW OF BERNERS RIVER

B. D. Stewart

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B. D. STEWART
Commissioner of Mines

Report on Jualin Mine Berners Bay Region Alaska

Southeastern Alaska Mining Corporation

Report on Jualin Mine

Juneau, Alaska

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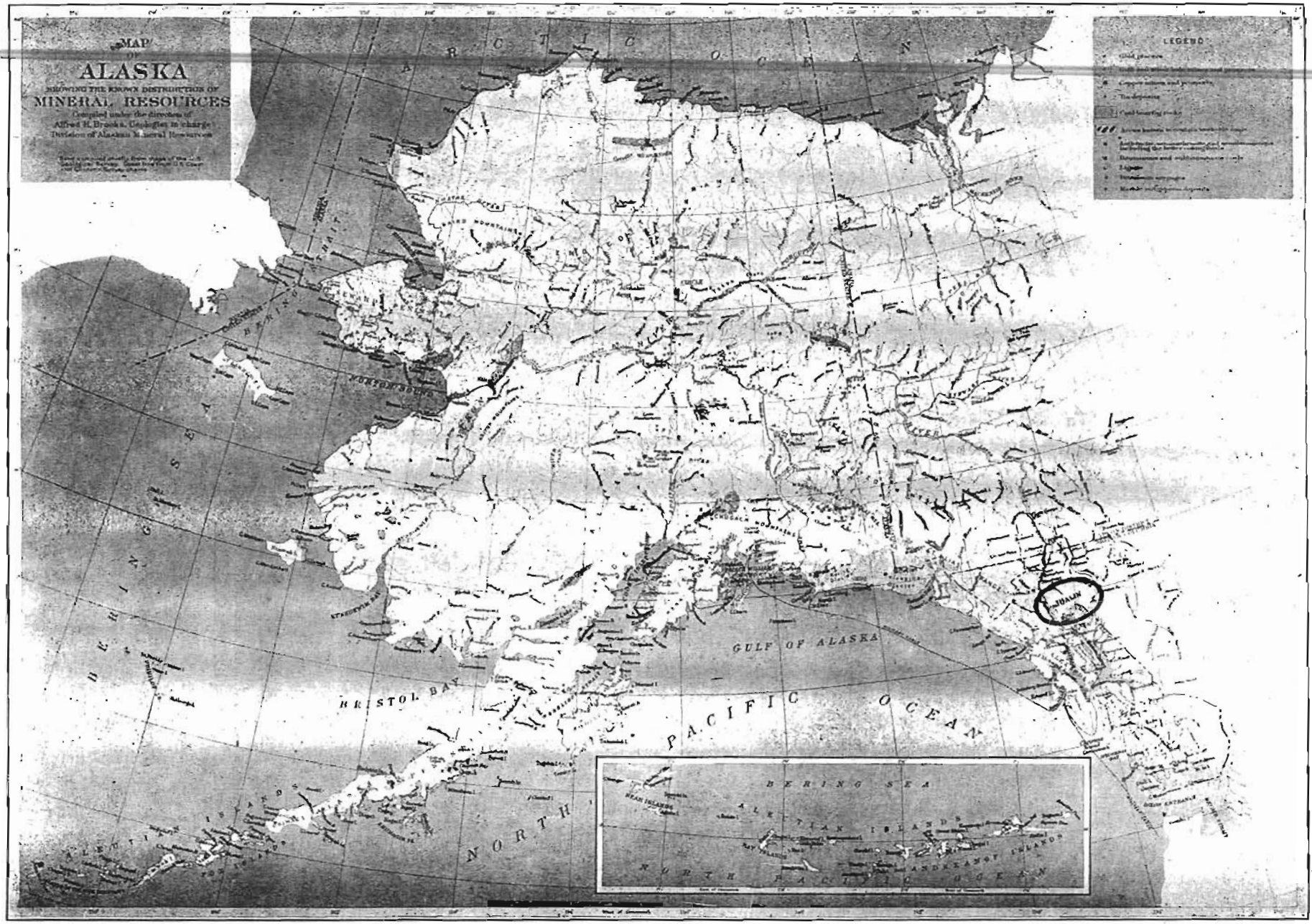


Map of Alaska.

INTRODUCTION

THE BERNERS BAY REGION, ALASKA

The Berners Bay region, which takes its name from a sheet of water 4 miles wide indenting the northeast side of Lynn Canal, is situated 45 miles northwest of Juneau, the capital of Alaska. The areal extent is approximately 50 square miles. The region is easily reached by water from Juneau.

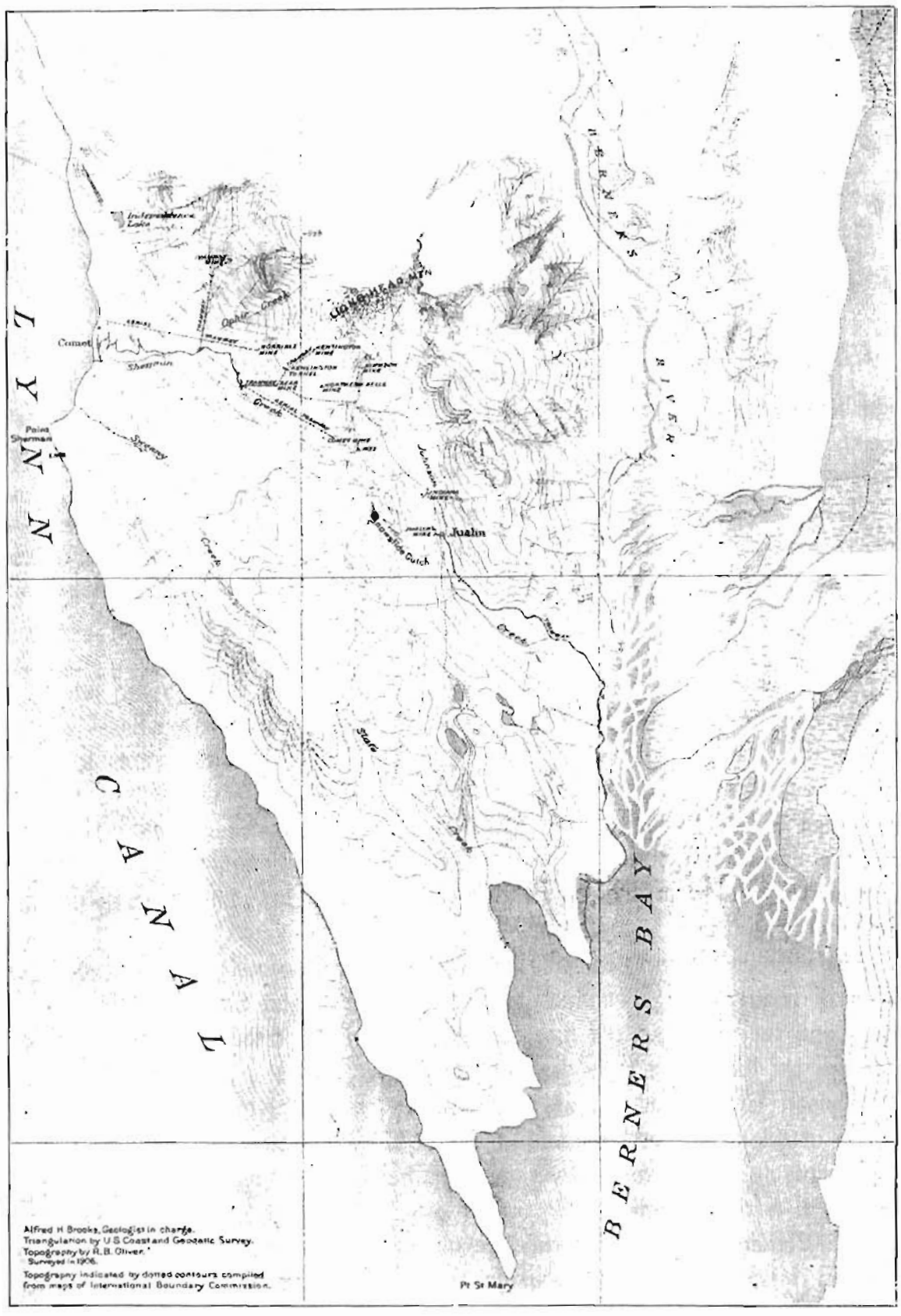
The head of the Bay is marked by extensive tidal flats formed by the distributaries of Berners River, which enters from the north, and by other large streams of glacial origin, which enter from the east and northeast. Harbors are not common in the Bay, but a bight known locally as the Jualin Cove affords safe anchorage for large craft.

The Berners Bay region is characterized by abrupt topographic relief. The northern part consists of a rugged assemblage of precipitous peaks which rise steeply from the shore of Lynn Canal to heights of 5,000 feet. The most notable of these form a group known as Lions Head Mountain, whose serrate profile is said to show, when seen from Chatham Strait, a resemblance to a couchant lion. Toward the south the altitudes become lower and the profiles of the mountains become smoother and rounder, until near the tip of the peninsula the low hills scarcely attain an altitude of 500 feet.

The streams on the peninsula are short, but on account of the heavy rainfall they carry relatively large volumes of water. Johnson and Sherman Creeks are the largest, and they are also the most important because of the fact that most of the properties are located in their drainage areas.

Johnson Creek heads in an amphitheater of ideal symmetry lying under the shadow of Lions Head Mountain and flows southeastward through a U-shaped valley, emptying into Berners River near the head of the tidal flats of the Bay. Its total length is only 4 miles.

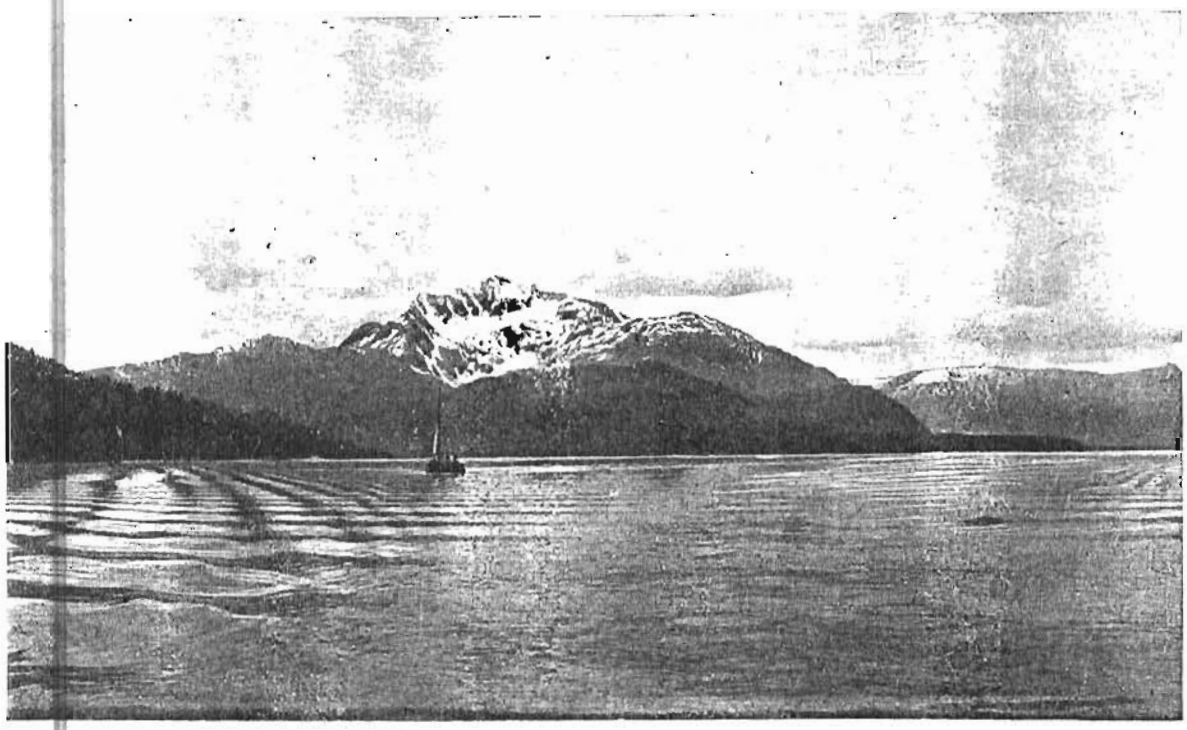
The Berners Bay region forms the northwestern extremity of the long zone of auriferous mineralization on the mainland of southeastern Alaska known as the



Map of Berners Bay Region.

Juneau Gold Belt. This belt has a total length of 100 miles and extends southeastward to Windham Bay, 60 miles southeast of Juneau. A large number of prospects are scattered along the gold belt, but at two localities, Juneau and Berners Bay, there is a marked clustering of properties or of potentially productive orebodies.

The old Treadwell Group of mines, the Alaska Juneau Mine and other properties of great possibilities are located in the Juneau Region; a large number of auriferous lodes are massed in Berners Bay — a comparatively small area — and on account of the favorable topographic conditions make that region an attractive mining field.



Looking North. — Berners Bay and Lions Head Mountain.

CLIMATE AND VEGETATION

No official climatologic data concerning the Berners Bay region are available but the records for Juneau and Skagway will serve to give a general idea of climatic conditions. As shown by the subjoined table, which was furnished by the courtesy of the Weather Bureau, the total precipitation is considerably less at Skagway than at Juneau. Although Berners Bay is approximately midway between these two cities, the climatic conditions seem to be closely similar to those obtaining at Juneau.

Climatologic data for Juneau and Skagway, Alaska.

Taken over a period of 10 Years by
Alaska Stations.

Mean Maximum Temperature,	Juneau	48.3
	Skagway	47.2
Mean Minimum Temperature,	Juneau	36.4
	Skagway	33.3
Mean Temperature,	Juneau	42.4
	Skagway	40.3
Maximum Temperature,	Juneau	88
	Skagway	94
Minimum Temperature,	Juneau	-10
	Skagway	-21
Mean Precipitation (inches),	Juneau	81.12
	Skagway	22.80
Mean Snowfall (inches),	Juneau	110.5
	Skagway	42.1
Average Number of Days with Precipitation,	Juneau	200
	Skagway	85

The foregoing statistics show the climate is temperate, the southeastern coast being bathed by warm currents of the Pacific.

All the physic conditions in way of transportation, development, climate, power, mining, etc., are favorable for economic all-year operations.

Showing dense vegetation and undergrowth.

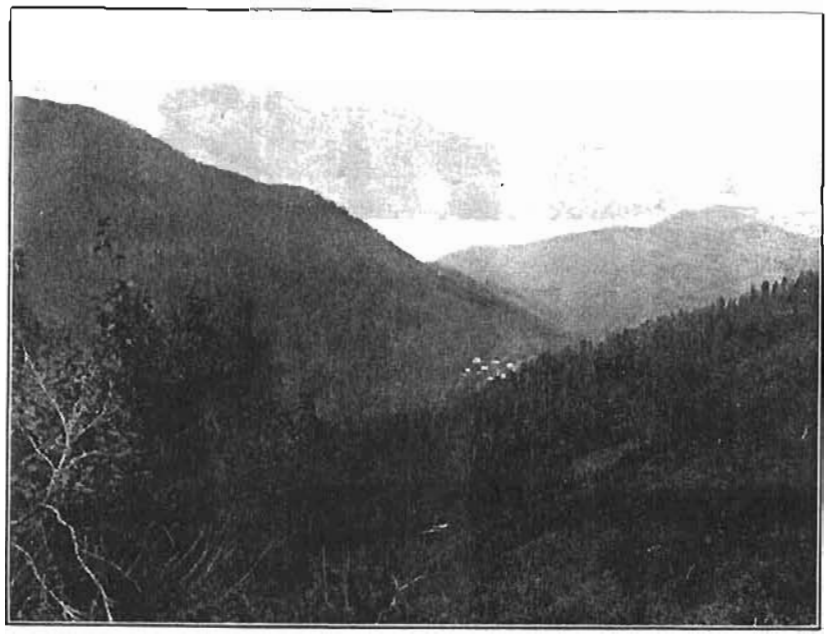
Vegetation

The region is well forested with spruce and hemlock. The timber line (the limit of erect tree growth) reaches 2,500 feet above sea level along Lynn Canal but stands several hundred feet lower on the mountains flanking Berners River on the west. As a rule the timber forms open stands, and the largest and finest trees attain a diameter of several feet. The undergrowth is rank and luxuriant and in many places forms impenetrable thickets.

Report on Jualin Mine

Location : The Jualin Mine is located on Johnson Creek at a distance of 4 miles from the north shore of Berners Bay which empties into Lynn Canal, some forty miles north of Juneau, the Capital of Alaska.

Summary History : The Jualin was discovered by Frank Cook, local prospector, in 1895, and firstly operated by the Jualin Mining Company of



Looking South. Bird's eye view of the Jualin Mine and Berners Bay.
(White spots are buildings of the upper camp.)

Boonville, Indiana. A milling plant consisting of 10 stamps, with a daily capacity of 30 tons, was erected on the property as soon as development started and operations were carried on intermittently during the summer months of : 1896 to 1901, and 1905 to 1908. The mine was closed down, after a depth of 210 feet had been reached, due to numerous difficulties consequent of poor equipment and lack of adequate power which prevented the handling of pumping, mining and milling at the same time.

Looking Northwest. — Jualin Mine. — Lions Head Mountain in the background.

In 1912 a Belgian Group secured an option to purchase the property and equipment thereon. Important surface improvements were made to provide the property with sufficient power equipment, buildings, etc. In 1914 the main shaft of the mine was put in shape and sinking resumed. As difficulty was encountered on account of the inflow of surface waters, sinking was stopped at a depth of 325 feet below the main adit level, while mining operations were carried on at the 310' level.

A drainage and haulage tunnel, size 7' × 8' and known as the Berners Tunnel, was then started at a point 7800' south of the mine. This work was eventually discontinued at 5000' (distance actually driven) as a result of the War. The effect of the War made it impractical for the Belgian Group to achieve the original plans and therefore a new Company, known as the « Southeastern Alaska Mining Corporation » has been formed to complete development and operate the properties.

The past operations of the Jualin Mine resulted in a production of 74,624 tons of ore of a gross value of $ 881,785.

Accessibility : Taking Seattle, Washington, as a base, the property is approximately 900 miles distance, or three days by steamer. It is reached by several lines of steamships which pass the property three or four times per week in summer and about twice per week in winter. A wharf has been constructed at the mouth of Berners River, and connects the tunnel with tide water by a tramway line 2 miles long, which makes transportation easy and economical.

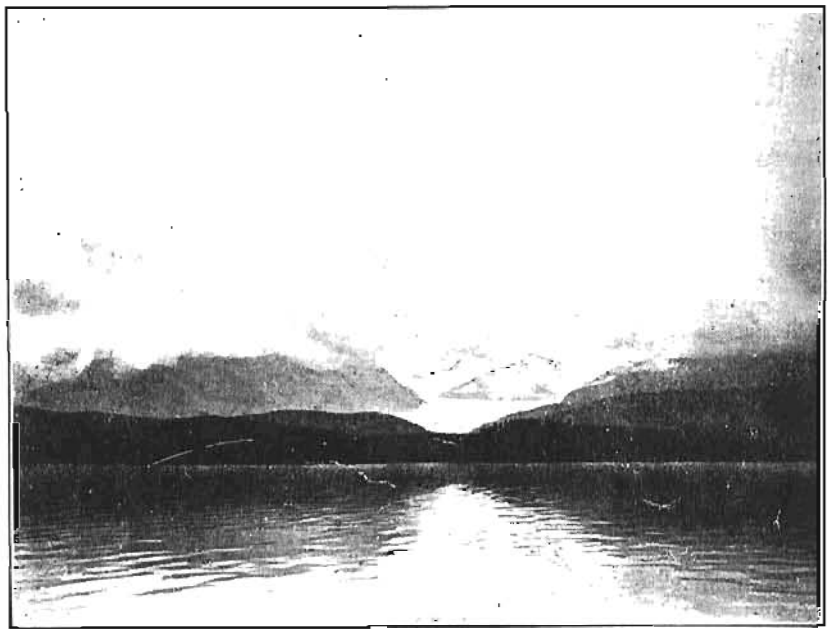
Property : The property consists of 34 adjacent claims covering an area of about 700 acres. The title of the Jualin property and locations are vested in the name of the Southeastern Alaska Mining Corporation.

Topography : Lions Head Moutain, which has an elevation of 5400 feet, rises 2 1/2 miles due north of the Jualin. This mountain has several glaciers on the side of the Jualin basin; its form is that of an amphitheater, the two wings extending from the summit reach on the south side almost to Berners Bay, enclosing the mine and forming a drainage area from which power is obtained. Johnson Creek, which starts in Lions Head Mountain, has an elevation of practically 750 feet where it passes the Jualin Mine. The entire basin is extremely rugged except where glaciation has rounded off and smoothed some of the higher points.

Geology : The Jualin Mine is located in an intrusive mass of diorite, locally known as the Jualin Diorite. This formation intrudes into a sedimentary formation consisting mainly of slates and graywackes, and occupies the area to the south and west of the Jualin diorite. These sedimentary rocks are the oldest for-

mation in the region locally known as the Berners formation. It consists of slates in beds of great width, interstratified with graywackes, greenstones of volcanic origin, and schists, also green quartz porphory schists of igneous origin. The schistosity trends N. W. and S. E. and is almost vertical.

The Jualin, Comet and Kensington Mines, the two latter adjacent to the Jualin Mines, are all situated in the Jualin Diorite, or in the contact of the sedimentary formation with the diorite. This is a massive granular rock, showing



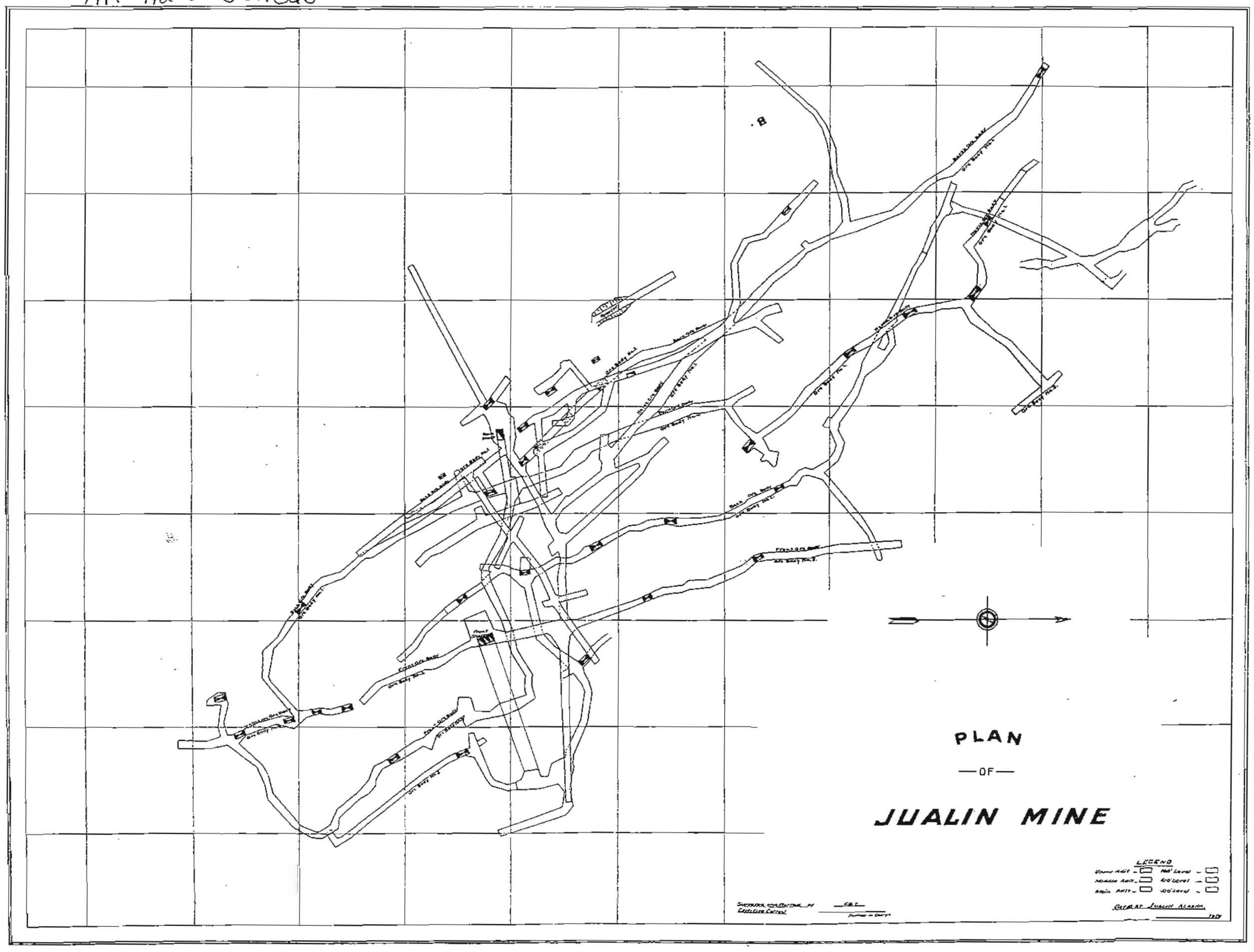
Range of Mountains of the Juneau Gold Belt between Juneau and Berners Bay.

plaglioclase, hornblende and biotite. At the Jualin Mine the diorite is fine-grained and blocky so that it resembles a granodiorite. Secondary minerals, such as epidote, calcite and chlorite, are everywhere present along the veins, due to alteration by the mineralizing solutions. On the footwalls of these veins in the Jualin Mine, the diorite has been altered to a schist from the movement and pressure along fault planes.

The Jualin diorite is younger than the Berners formation which it intrudes.

Ore Bodies and Character of Ore : There are a great number of veins and outcrops of ore occuring within this diorite intrusion, or along or near the contact of the enclosing formations. While many of these have promising but undeveloped surface showings, reference will only be made to those on which mining or development work has been carried on.

MR 112-6 Juneau

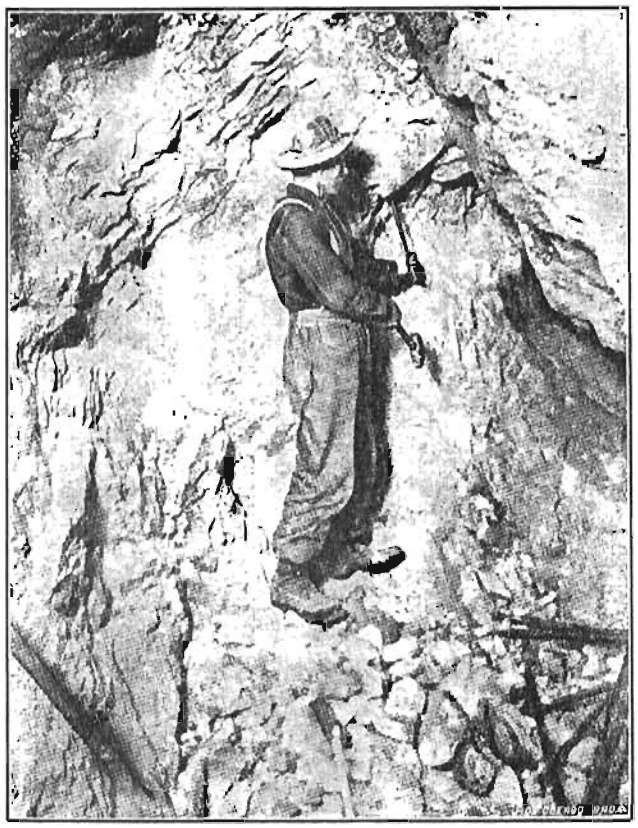


Veins of the Jualin Mine and ore values : Three parallel veins, outcropping at an elevation of 800 to 850 feet, have been mined in part; one of them to a depth of 400 feet.

No. 1 Ore Body is from 1 to 20 feet wide, averaging 7 feet. Value $11 to $15 per ton.

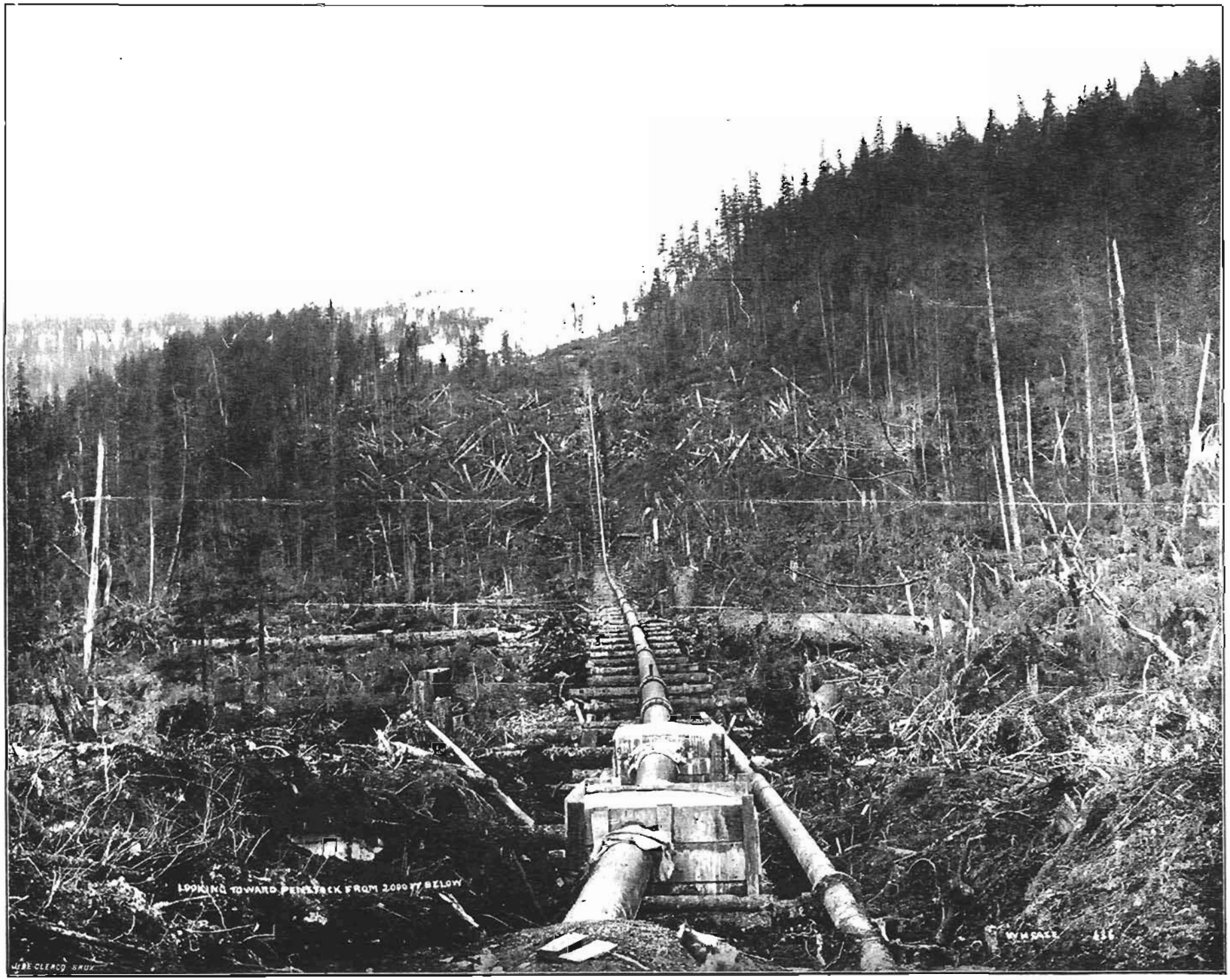
No. 2 Ore Body is from 6 inches to 4 feet wide, averaging 3 feet. Value $15 to $ 25 per ton.

No. 3 Ore Body is from 1 to 7 feet wide, averaging 5 feet. Value $ 10 per ton.



Vein of auriferous quartz 7 feet wide, value $ 30 per ton.

The average value of ore as shown by mill records is $ 11.80 per ton. This is considerably higher than the average in the southern portion of the Juneau Gold Belt In one of the Jualin veins ore was extracted which ran $ 30 a ton over a width of 7 feet. A series of faults occur throughout the Jualin and neighboring properties, all formed subsequent to the orebodies. Their stratagraphical throw range from 10 to 43 feet, and are of no hinderance to mining operations, or have no influences on



Hydraulic Pipe Line.

values, but they have seriously affected the progress of development in depth, on account of surface waters which seeped through.

This situation was responsible for the starting of the Berners Main Adit Tunnel, to do away with water trouble, and cut the orebodies at a lower horizon.

All of the last work done at the Jualin property has been in the driving of this main tunnel which is now in 5,000 feet, with about 2,500 feet to go to reach the Jualin orebody.

Past production and operations : Past production of the Jualin Mine, shown from the mill records, amounts to 74,624 tons of a gross value of $ 881,785. These operations were conducted in a small size old type milling plant, under grass root and expensive conditions, but were profitable to the depths reached.

Summary statement showing total production of the mine in tonnage and value of ore

GROUPS	Tonnage Milled	Average value Per Ton	Gross Value of Tonnage	RECOVERY		% Per Ton
				Total Recovery	Average Per Ton	
Boonville Group. . . .	48,933	$ 11.50	$ 572,729	$ 474,640	$ 9.70	84.3 %
Belgian Group	25,691	$ 12.03	$ 309,056	$ 277,833	$ 10.81	89.9 %
	74,624	$ 11.81	$ 881,785	$ 752,473	$ 10.08	85.3 %

Cost of mining and milling were $ 5.70 per ton, during summer operations, and about $ 8.00 during winter, averaging $ 6.50. Taking into consideration the mining methods which prevailed at the time, coupled with the pumping charges, etc., in comparison with the economic mining methods which will be available when the Berners Tunnel is completed, it is estimated that ore can be developed, mined and milled at the Jualin Mine for $ 4.50 per ton, and less with increasing tonnage.

Past development : *Equipment.*

A Power House was located on what is known as the « Jualin Mill Site », at at a distance of 2 miles from tide-water.

In order to develop an efficient power system, a dam was put in at the present camp site of Jualin, on Johnson Creek; from this a flume line 3' × 2' and 4,300 feet in length was run, on a gradient of 4/10th of 1 foot to the hundred, to a point 570 feet above the proposed power site and ended in a pen-stock 9 × 9 × 10 feet; from this pen-stock the power house was connected with 3,800 feet of hydraulic piping grading in size from 24" to 14" where it enters the power house.

Power House (Lower Camp).

Lower Camp : Three workmen's cottages.

(Tunnel) A fully equipped blacksmith's shop with oil furnace, air drill sharpener, etc.
Boarding house.
Auxiliary Bunkhouse for 220 men.
Dry room fully equipped.
Commissary.
One large wooden oil tank of 80,000 gallons capacity.
Two houses for the storage of oil.
One stable and barn, for the housing of 16 head of stock.
Powder house for priming.
Powder house for the storing of explosives.

Wharf : One warehouse.
Small barn.
One large wooden tank of 80,000 gallons capacity.

Development Work :

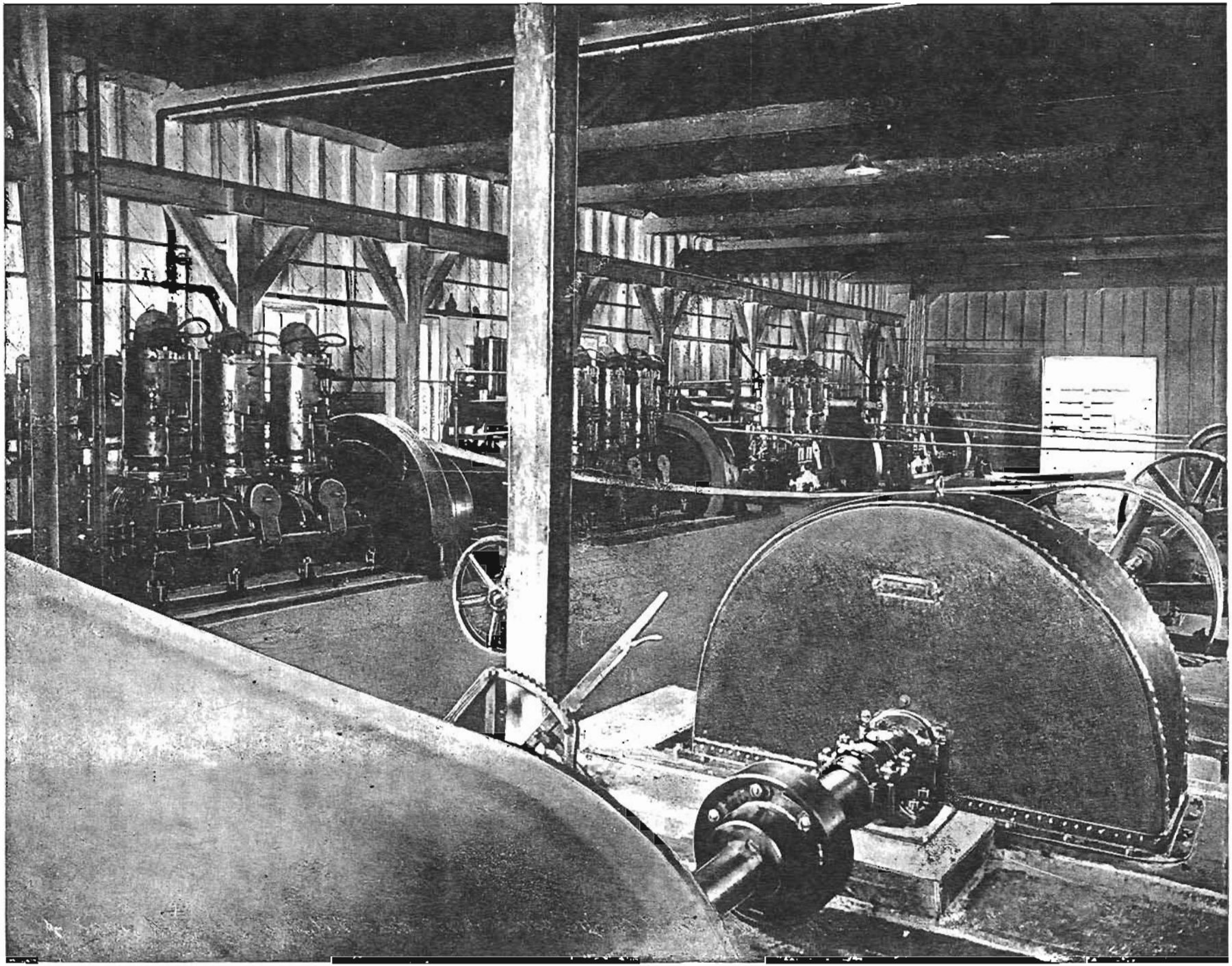
The sinking of the front shaft was continued to a depth of 325 feet below the main adit, and a new level was opened up at 310 feet. Veins Nos. 2 and 3 were located by cross-cut. No. 2 vein was opened up and stoped, and gave the best results ever obtained in the mine, ore grading very high in some sections (see assay sheet page 35).

During the stage of these operations exploration was carried also on the 160 foot level in an attempt to locate No. 1 vein. It was struck some 40 feet N. E. from orebody No. 2.

A cross-cut, driven N. E. of Vein No. 1 drift, struck a body of quartz (No. 5 on plan) at some 100 feet distance. This body of quartz is 6 feet wide, has well defined walls and runs along the N. W. line of orebody No. 3. This vein warrants further development and it might prove to be the extension of Vein No. 3 some 540 feet distant.

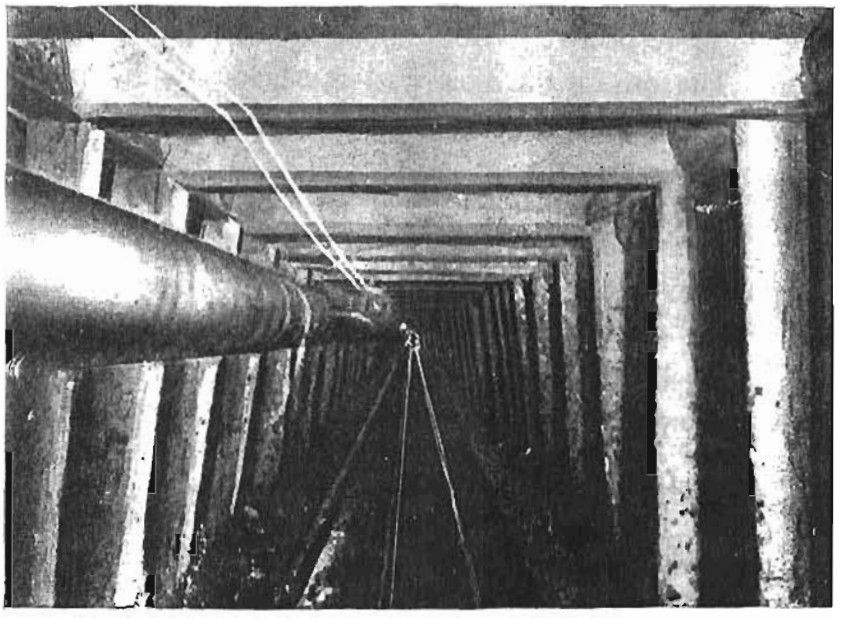
Ledge No. 4 was also struck on the 160 foot level. Some development work was made there and excellent results were obtained.

A flat diamond drill hole was put in a N. E. direction in an attempt to pick up No. 1 vein on the 310 foot level. This hole struck a body of quartz 5 feet wide at a distance of 125 feet. This was a short time before the shutting down of the mine. The face of this ledge is spectacular, being heavily mineralized and peppered with free gold.



Auxiliary Power Plant. — Group of 4 semi-Diesel engines. — 600 H. P.

Berners Tunnel Development : Soon after the Belgian Group entered the property it was decided to drive a main tunnel, from a point on the Thomas No. 1 Lode Claim to connect with the front shaft at the mine, for the purpose of draining the mine workings and to serve as a main haulage for ore to a mill to be erected at the Undine Mill Site, near the portal of the Berners Tunnel. Therefore, and with the economic development of the mine in view, a 7' x 8' tunnel was started and driven a distance of 5,000 feet, leaving about 2,500 feet yet to be driven before reaching the Jualin orebodies. This tunnel, when completed, will tap the Jualin orebody in the south shaft section at 500 feet below



BERNERS TUNNEL (White spot shows Portal) 400' driven in glacial clay supported by timber, and from thereon in solid rock.

the surface and at the Jualin mine, 250 feet below the bottom of the shaft. The tunnel will not only drain off the surface water from this mine, but also from the Comet and other adjacent mines of the Kensington, if extended further than the Jualin, and at the same time will serve as a general working level and transportation system for all these orebodies in depth.

Berners Tunnel Prospects : Two zones heavily mineralized with iron sulphides carrying gold values were encountered in course of driving the tunnel. At a distance of 3,200 feet from the portal, a ledge of quartz 7 feet wide was struck, heavily mineralized with iron and copper sulphides. It is intended to make development on this ledge to determine its commercial value.

At 5,000 feet, distance now driven, the tunnel enters in the diorite section which underlays the best prospecting ground of the Jualin property, and it is most likely that new orebodies will be found besides the known veins and outcrops referred to in this report.

Past mill practice and recovery : The old mill burned down during past operations, it was equipped with two batteries of 5 stamps weighing 750 lbs. each. The milling practice used was the following : The mine ore went to a 1" grizzly, and the over-size to a 2 D. gates giratory crusher delivering a product of about 1 1/4" to the stamp bin; stamps discharged through 35 mesh screens on two amalgamating plates 49" × 132" each; the tailings from plates were retreated on Isbell vanners. This practice gave around 90 % of extraction of which 75 %, 10 % and 5 %, respectively, from amalgamation plates, concentrates and inside amalgamation. The ore for the most part is silicious with fine grained diorite as gangue. This method can be largely improved by equipping the mine with an up to date plant, and the percentage of extraction raised to 95 %.

Expenditures : Cash disbursements made in connection with the Jualin Mine by the Belgian Group amounted to about $ 900,000, for equipment, development, option payments, etc.

The following is an estimate of value of the development work, now finished and paid for, as well as the equipment on hand which will be used in all future operations :

Main Adit Tunnel and development.	$ 252,000
Power plant, compressors, etc	$ 227,500
Mining equipment and material on hand . . .	$ 25,000
Surface buildings, Upper and Lower Camps. .	$ 61,700
	$ 566,200

As aforesaid the actual amount of money expended for purchase, prospecting, etc., on the Jualin Mine, is larger than $ 566,200, but is not considered herein as a future asset. The equipment of power, buildings, etc., have been figured at a depreciated value although they are all in good condition. Therefore the amount of $ 566,200 can be taken as a minimum.

Surface prospecting during 1928 : During the early days of the Jualin operations, a shaft was sunk, at a depth of about 50 feet on a quartz outcrop laying on the shear zone, 650 feet southeast from the Main Adit of the Mine. Survey shows that this ledge is in line with Vein N° 3 of the Mine, and the character of the walls and quartz are simular. The ore taken from

Sketch Map
OF THE
Jualin Mine Adit Level
and Adjacent Surface Workings
1928

Minerva Lode

Johnson

8,350 FEET PROPOSED EXTENSION OF BARNERS TUNNEL

Banshee Lode

Portal of Jualin Adit 540 FEET

JUALIN MINE

Creek

Quartz Outcrop

Cover Lode

THOMAS No. 6 FRACTION

Power Shaft

Back Shaft

LINE OF EXTENSION OF JUALIN ORE BODY OR SURFACE 650 FEET

Shear Lode zone

QUARTZ VEIN

SOUTH SHAFT

QUARTZ VEIN SOUTH SHAFT

SECTION

CROSSCUT CONNECTING STOPES

EXPECTED POINT OF INTERSECTION 515 FEET FROM SURFACE

Undine

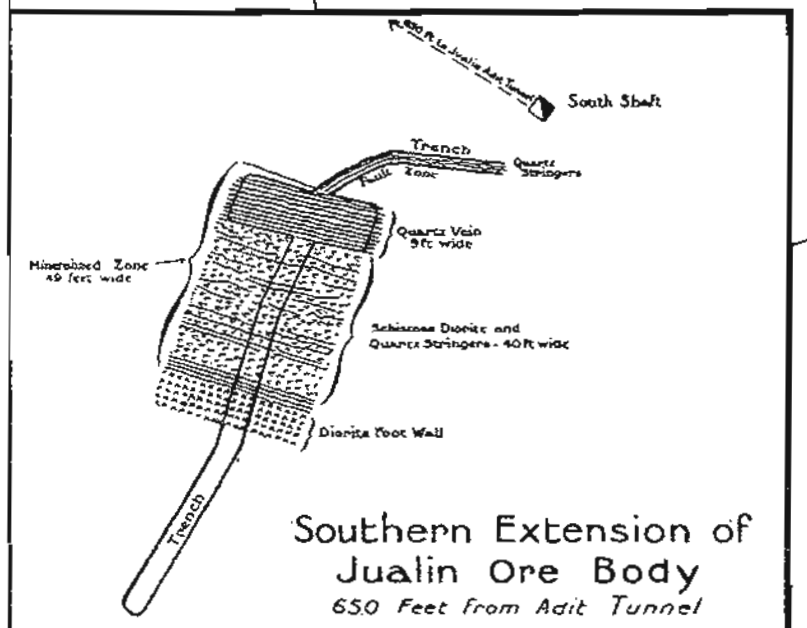
PROBABLE LINE OF EXTENSION OF JUALIN ORE BODY 1,500 FEET

Diana Lode

Diana Lode Outcrop

SHAFT

Falls Lode



Southern Extension of Jualin Ore Body
650 Feet from Adit Tunnel

JUALIN, ALASKA
AUGUST 20th 1928

this shaft, in the early days, resulted in a small production of $ 3,000 which is better than $ 20 per ton.

Surface work was made in this section during the summer of 1928 in order to strip the shear zone by cross-trenching.

At 66 feet distance in a westerly direction, a quartz ledge of 9 feet wide was uncovered carrying gold values. The mineralized zone, in which this ledge was found, is 49 feet wide which is shown by the diorite foot wall encountered.

Cross-Trench in South Shaft Section.
(White lines indicate part of shear zone uncovered.)

This work adds an important section to future Jualin operations and should prove to be very valuable when the extension of the Berners Tunnel will reach the section, as it shows the southern extension of the Jualin orebodies.

Program of further Development :

The outcrops of the south shaft are located at a distance of 2,500 feet N. W. from the actual face of the Berners Tunnel, which tunnel will intersect the ledges at a vertical depth of 515 feet.

Raising will be started from the tunnel level to the surface, and the veins opened up and developed for operations. While this is being done the property will be equipped, as a starter, with a concentrating plant of a daily capacity of 125-150 tons.

Quartz vein 9 feet wide uncovered on surface, 69 feet West of South Shaft.

The south-shaft workings will then be extended to connect them with the Jualin, and the Jualin orebodies will be opened up and developed.

Later on, a central shaft will be sunk to open up further the orebodies at depth, below the Berners tunnel level.

Ore to be developed when the Tunnel reaches the South-Shaft and Jualin sections : There is every mark that further development in the section above the 310 foot level (old workings) will disclose an additional tonnage of ore.

With the distinctive features of geology and mineralization as they exist at the Jualine Mine, it can confidently be looked forward that the results, already obtained in the past and those which are now anticipated from further development above the 310 foot level, will be likewise as profitable with depth, and increased progressively as the other orebodies are opened up.

No particular reference nor tentative estimates are made in this paragraph as to « Possible Ore » from the lateral section of the known outcrops and ore under the Berners tunnel, but the conditions are such as to be confident of remarkable results with systematic development.

Estimates of probable ore above the Berners Tunnel are 200,000 tons at a gross value of $ 11.80 per ton. These estimates are applicable to the veins of the south shaft section and orebodies Nos 1 and 2 at the Jualin Mine, and do not include Nos 3, 4 and 6. There is every reason to believe that a large tonnage of ore will come from No 1 with further development from the 310 foot level on up to the Main Adit (old workings). The vein has already been struck at the 160 foot level as indicated hereabove. No 1 is the strongest fissure vein ever found on the adit level and from which the old Jualin Mine Company (Boonville Group) secured the largest tonnage to supply the mill. The stoping width of this orebody, from the Jualin Adit up to close to surface, was 7 feet over a length of 500 feet.

In the Anderson Raise, located at the northern end of No 1 vein on the Jualin upper adit level, there remains a full face of quartz over 10 feet wide where development work has still to be done and which very likely will disclose another very important addition to ore reserves above the Berners Tunnel.

Estimated operating profits per ton of ore milled : When the Berners Tunnel will be completed the operating costs will not exceed $ 4.25 per ton, based upon a milling capacity of 250 tons per day, which should leave the following gross profit :

Gross value of ore per ton, based on past production.	$ 11.80
Loss in extraction, 5 %.	.69
	$ 11.11
Operating costs.	4.25
Gross profit . . .	$ 6.86

Diana and Falls Claims :
(Held under option.)

Negotiations have been under way to acquire under option the Diana and Falls property which is contiguous to the Jualin Mine.

As a result of surface work accomplished during the summer of 1928, to prove the southern extension of the Jualin orebodies down the South-Shaft section, it became evident that the acquisition of the Diana and Falls Claims would be most important. In fact, the shear zone, which has been proven down to the south-shaft section as aforesaid, strikes S. E. towards the Diana Claim, the side line of which is only 650 feet distant from the south-shaft.

This situation has made it advisable to tie up the Diana-Falls Claims in order to ascertain their value and to operate them in conjunction with the Jualin orebodies.

The negotiations to option these properties have now been successfully concluded.

The Diana and Falls Lode Claims are contiguous on the northeast to the Cover and Undine Mining Claims and on the southwest to the Contact Nº 1 and Contact Nº 2 Claims of the Jualin property.

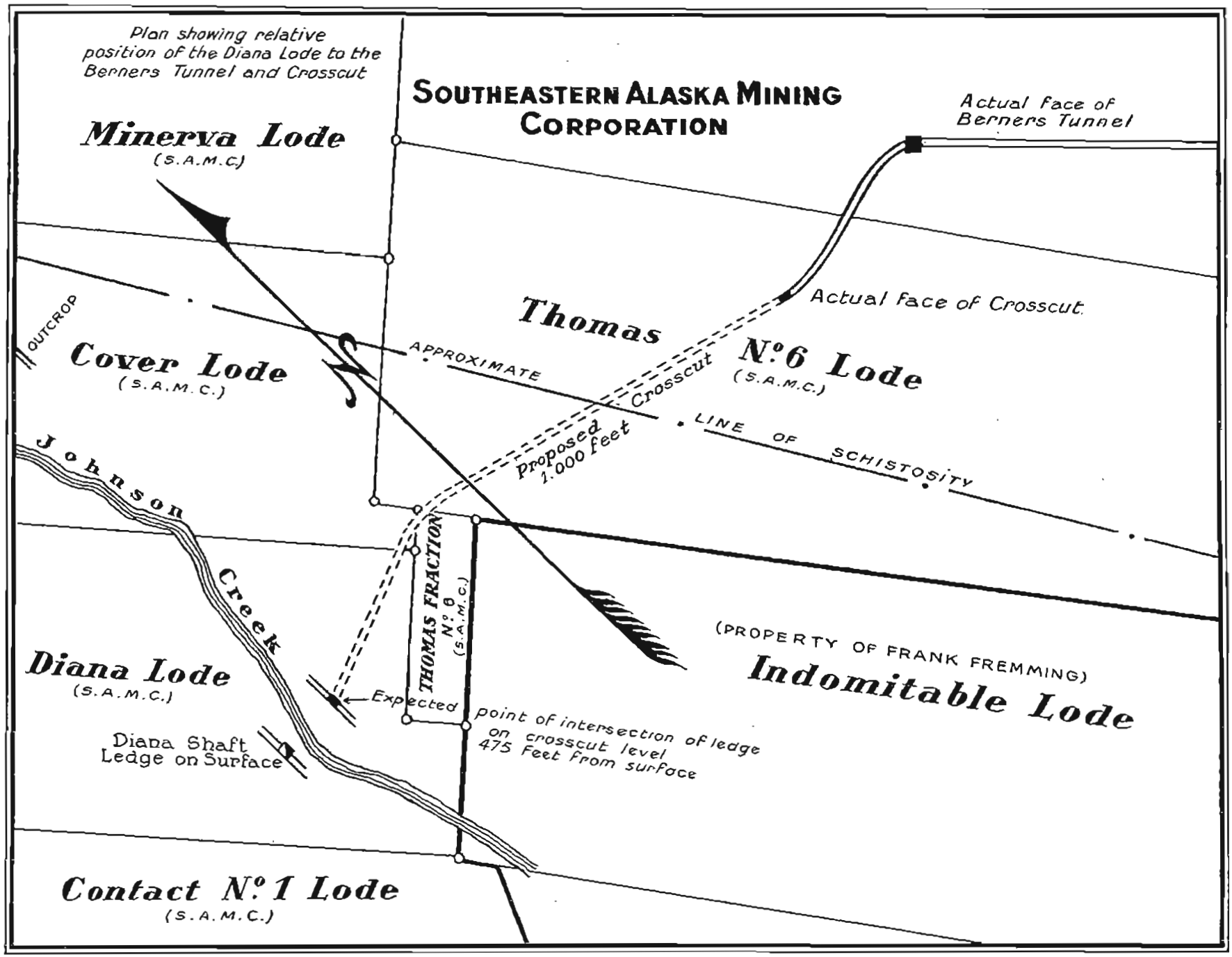
Geology : The area is underlaid by Jualin diorite in contact with the sedimentary formation.

Orebody of the Diana : The ledge, as exposed in the Diana Lode Mining Claim, lays in the contact between the two formations. It strikes N. W. and dips to the N. E. at an angle which will average about 70º. The filling material is composed of schistose gangue and quartz heavily mineralized with copper sulphides carrying gold values.

Past work : In the early days a test shaft was sunk on the lode to a depth of 55 feet on the right bank of Johnson Creek. The lode has been exposed from the top to the bottom of the shaft where it enters the hanging wall side. It has been impractical to crosscut to the hanging wall due to its proximity to the Creek.

Value of ore : The average of the assay returns of sampling in the shaft is $ 10.40 per ton.

Plan of development : The Berners Tunnel will afford an easy access to the Diana Ledge for development and operations. A 900 foot crosscut can be driven, from the tunnel level, which would tap the


Plan showing relative position of the Diana Lode to the Berners Tunnel and Crosscut
SOUTHEASTERN ALASKA MINING CORPORATION
Minerva Lode
(S.A.M.C.)
Actual face of Berners Tunnel
Actual face of Crosscut
Thomas
No. 6 Lode
(S.A.M.C.)
OUTCROP
Cover Lode
(S.A.M.C.)
APPROXIMATE
Crosscut
LINE OF SCHISTOSITY
Proposed 1,000 feet
Johnson Creek
THOMAS FRACTION No. 8 (S.A.M.C.)
(PROPERTY OF FRANK FREMMING)
Indomitable Lode
Diana Lode
(S.A.M.C.)
Expected point of intersection of ledge on crosscut level 475 Feet from surface
Diana Shaft Ledge on Surface
Contact No. 1 Lode
(S.A.M.C.)

orebody at 475 feet below the surface. A raise will be made, from the cross-cut level to the surface, for development and ventilation; and then the orebody will be further opened up for operations.

The Diana Lode will be opened up and operated simultaneously with the south-shaft and Jualin orebodies.

Estimates of Expenditures : The estimates of expenditures to put the Jualin Mine on an operating basis are the following :

New wooden pipe to replace the old flume line, repairs to the hydraulic pipe line, to power-plant, road, tramway, buildings, etc..	$ 25,000
Equipment of boarding house, blacksmith shop, battery locomotives, cars, telephones, wireless, lighting, assay office, mining equipment, etc	$ 20,000
Completion of Berners Tunnel and Jualin Development	$ 125,000
Development of Diana and Falls Claims.	$ 40,000
Milling Plant	$ 50,000
Administration	$ 15,000
Reserve for contingencies	$ 20,000
	$ 295,000

Time required to put the Mine on an operating basis of 125-150 tons per day. The plan is to complete the driving of the Berners Tunnel to the south-shaft ledges, a distance of 2,500 feet. When the south-shaft section is reached by the tunnel, the ledges in this section will be opened up and operated, and drifting will continue, on the strike of the shear zone, to reach and develop the Jualin orebodies.

In the meantime, a crosscut 900 feet long will be driven to tap the Diana Lode.

All of the foregoing should require about 10 months, so that the mine should be on a self-sustaining basis inside of 12 months from the time of starting, and operating with a capacity of a milling plant of 125-150 tons per day.

Probable gross profits per year after first stage of operations : It is fully expected, at the end of the first stage of operations, viz, about three years, that the orebodies will be sufficiently opened up to warrant a substantial addition to the first milling plant, so that the capacity could be raised to 250 tons per day. This should result in the following gross profit :

Extraction : 85,000 Tons at $ 11 net,	$ 935,000
Less operating costs of Mining and Milling, and general expense, 85,000 tons at $ 4.25, ...	$ 361,250
Probable Gross Profit Per Year.	$ 573,750

CONCLUSION

The results already obtained with past operations in the Jualin Mine and neighboring properties, and the excellent geologic features of the ground underlaid by the diorite, for persistence of fissuring and mineralization to great depth, make the whole field a most attractive one for development and further exploration.

It is through unavoidable circumstances, for which the War and ensuing general disturbances in economical conditions have been responsible, that the valuable orebodies, laying in the northwestern section of the Berners Bay region, have not been operated further. This remains to be done by the completion of the BERNERS MAIN ADIT TUNNEL and the sequent development of the orebodies.

Furthermore, the immediate use of equipment on hand, such as Hydraulic Power Plant, Auxiliary Oil Engines, Buildings, Mining Equipment, Electrical Equipment, etc., and the use of the Berners Tunnel which has already been driven a distance of 5,000 feet, and all paid for, are most important assets in order to reach rapidly a productive stage.

Furthermore, the existing conditions of the known outcrops and the prospecting done outside the known vein system of the Jualin Zone, bear great strength to the belief that further development and exploration will open up new large bodies of ore.

Southeastern Alaska Mining Corporation.

January 15TH 1929.

History of Production from Jualin Mine

Yield of Gold as shown by Bank Statements and Smelter returns

PERIODS	VALUE OF GOLD BULLION AND CONCENTRATES		REMARKS
1896	$ 25,511.27		Boonville Group — Most of the stoping during this period was made by hand drilling above the Adit level of the Mine, the largest tonnage coming from Nos. 1 and 3 veins. Operations were carried on only during summer months. Sinking was resumed in 1901, but due to insufficient equipment, the Mine was closed down after the water level was reached, 70 feet below the Adit level.
1897	$ 78,480.22		
1898	$ 45,769.39		
1899	$ 49,292.27		
1900	$ 81,476.64		
1901	$ 46,741.00		
		$ 327,270.79	
1905	$ 74,428.61		The Mine was re-opened in 1904 by the Boonville Group and some equipment provided for pumping, but trouble was encountered as workings were extended down to the 160' and 210' levels on account of the inflow of surface waters which could not be handled with the equipment on hand. This hampered considerably development work. The Company not being financially strong enough to provide for new power installation and equipment, the Mine was closed in 1906. The production during 1907-08 was gained through a lease and cleaning up the old stopes above the Adit level.
1906	$ 50,891.79		
1907-8	$ 22,049.66		
		$ 147,370.06	
1915	$ 19,090.46		The Mine was optioned to the Belgian Group in 1912 and surface improvements and installations were made as described in the foregoing pages of this report. Due to the water trouble experienced in past operations, it was decided to drive the Berners Tunnel to drain off surface waters ; this tunnel was advanced only 1,700 feet when stopped on account of the World War breaking out. Because of financial conditions brought about by the war and the ensuing need of money, No. 2 vein at the Mine was opened up at the 310' level and stoped. During a small part of 1915 and 1916, the yield came from ore gained in development work. Afterwards, over $ 200,000 were extracted by stoping. Further development was checked by continuous water difficulties, and also by the result of the U. S. A. entering the war.
1916	$ 72,051.47		
1917	$ 186,691.07		
		$ 277,833.00	
	Total :	$ 752,473.85	

The remarkable results obtained at the 310' level under these difficult conditions give great promise for the future, moreso when it is taken into consideration that this production was obtained in developing only a very small section of the property. In fact, the whole production has come from a very small area on the property, development having only been carried on in the past within an area of about 4 acres, and vein No. 2 operated down to a depth of 310 feet below the Adit level.

Assay Sheet

Orebody No. 2 — Raise No. 1

From 310' to 160' Level
Stoped Section

SOUTH FACE			NORTH FACE		
No.	Width	Value per Ton in Dollars	No.	Width	Value per Ton in Dollars
1	3'	21.40	1	1'	8.20
2	2'	4.20	2	1'	49.90
3	3'	8.40	3	3'	16.80
4	3'	14.20	4	3'	30.60
5	2'6"	22.90	5	5'	19.60
6	2'6"	20.40	6	3'6"	23.10
7	2'	11.00	7	3'4"	16.30
8	2'6"	27.70	8	2'6"	11.40
9	4'	93.60	9	2'6"	8.00
10	2'	11.00	10	3'	18.80
11	1'	16.90	11	2'8"	176.10
12	2'4"	12.00	12	3'	24.40
13	2'6"	55.50	13	2'8"	76.10
14	3'3"	20.30	14	3'6"	19.90
15	4'	8.60	15	3'2"	29.90
16	3'	78.10	16	4'	44.00
17	3'	439.70	17	2'	44.10
18	2'	3.70	18	8"	6.00
19	1'6"	28.00	19	2'	89.00
20	4'	3.40	20	4'	35.70
21	4'	19.90	21	4'	4.80
22	4'	4.00	22	4'	33.30
23	4'	22.40	23	4'	17.30
24	2'6"	218.00	24	3'4"	35.80
	Average Width	Average Value per Ton		Average Width	Average Value per Ton
	2'9"	$ 48.55		2'11"	$ 34.80

Average North and South Face	
Width	Value per Ton
2'10"	$ 41.65

Assay Sheet

Orebody No. 2 — Raise No. 2

From 310' to 160' Level

Stoped Section

SOUTH FACE			NORTH FACE		
No.	Width	Value per Ton in Dollars	No.	Width	Value per Ton in Dollars
1	1'	5.00	1	1'2"	4.00
2	1'8"	3.90	2	1'4"	2.90
3	1'6"	8.10	3	2'8"	12 00
4	2'6"	8.60	4	2'	9.40
5	4'	2.00	5	2'	3.10
6	2'	124.60	6	1'	201.50
7	2'	14.80	7	1'4"	18.00
8	2'	4.50	8	3'	1.40
9	3'	10.00	9	1'6"	515.20
10	2'6"	20.20	10	1'6"	19.00
11	3'	13.00	11	2'	31.20
12	2'	75.30	12	1'	11.40
13	2'6"	24.00	13	2'	35.60
14	2'6"	31.90	14	2'6"	32.20
15	3'	64 00	15	2'6"	522.00
16	2'	437.80	16	2'	81.40
17	2'	615.60	17	1'8"	485.80
18	2'	597.40	18	10"	1.044.60
19	2'	104.80	19	2'	46.40
20	1'8"	368.00	20	2'4"	108.90
21	6"	5.10	21	1'2"	19.00
22	3'6"	2.00	22	3'6"	2.00
23	5'	0.40	23	5'	0.40
24	4'	0.60	24	2'	2.40
25	6"	2.20	25	10"	32.90
26	8"	6.80	26	1'	6.20
27	1'6"	0.70	27	1'	0.80
	Average Width	Average Value per Ton		Average Width	Average Value per Ton
	2'3"	$ 93.38		1'10 1/2"	$ 120.35

AVERAGE NORTH AND SOUTH FACE

Width	Value per Ton
2'1"	$ 106.85