PLATE 1.

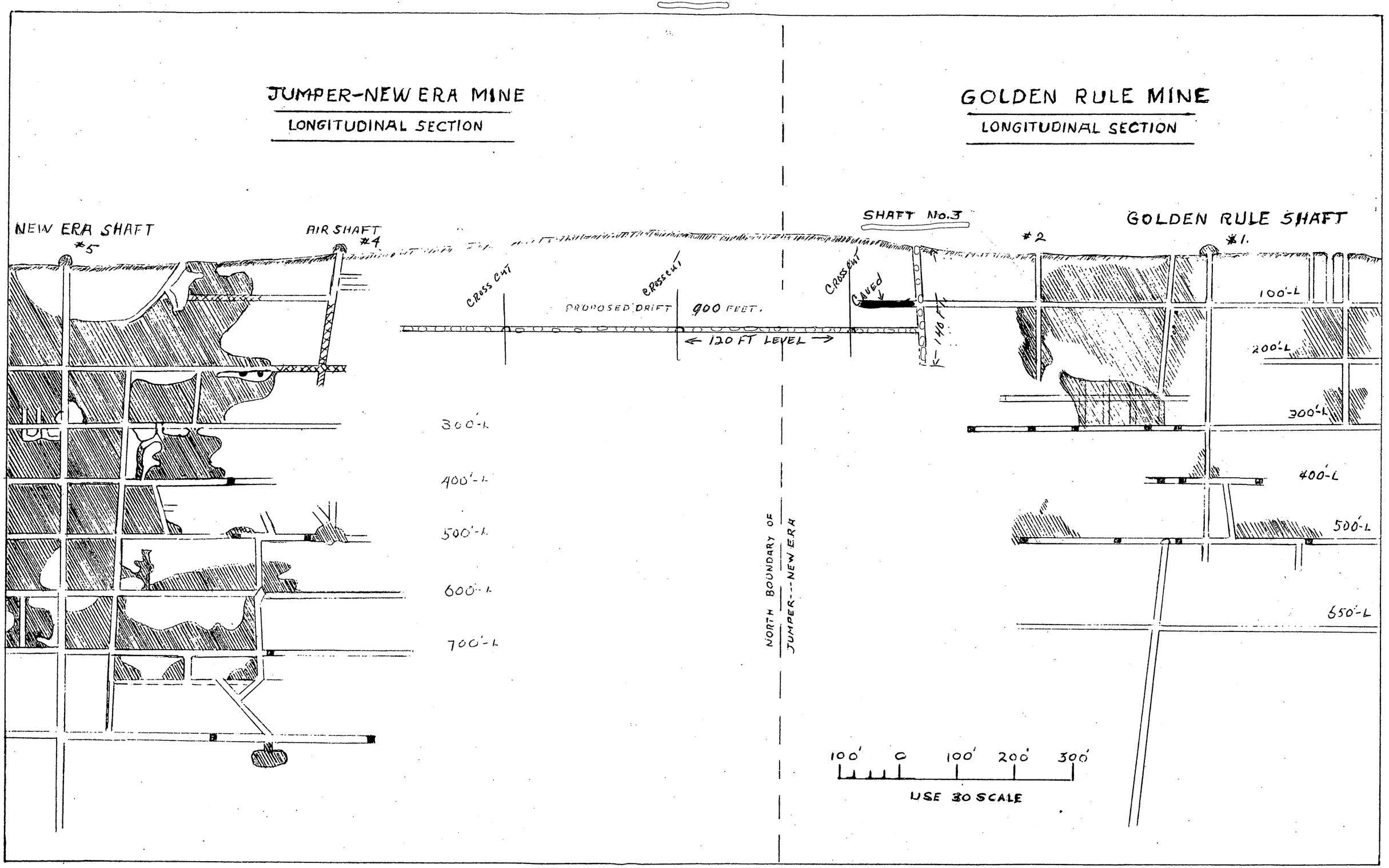
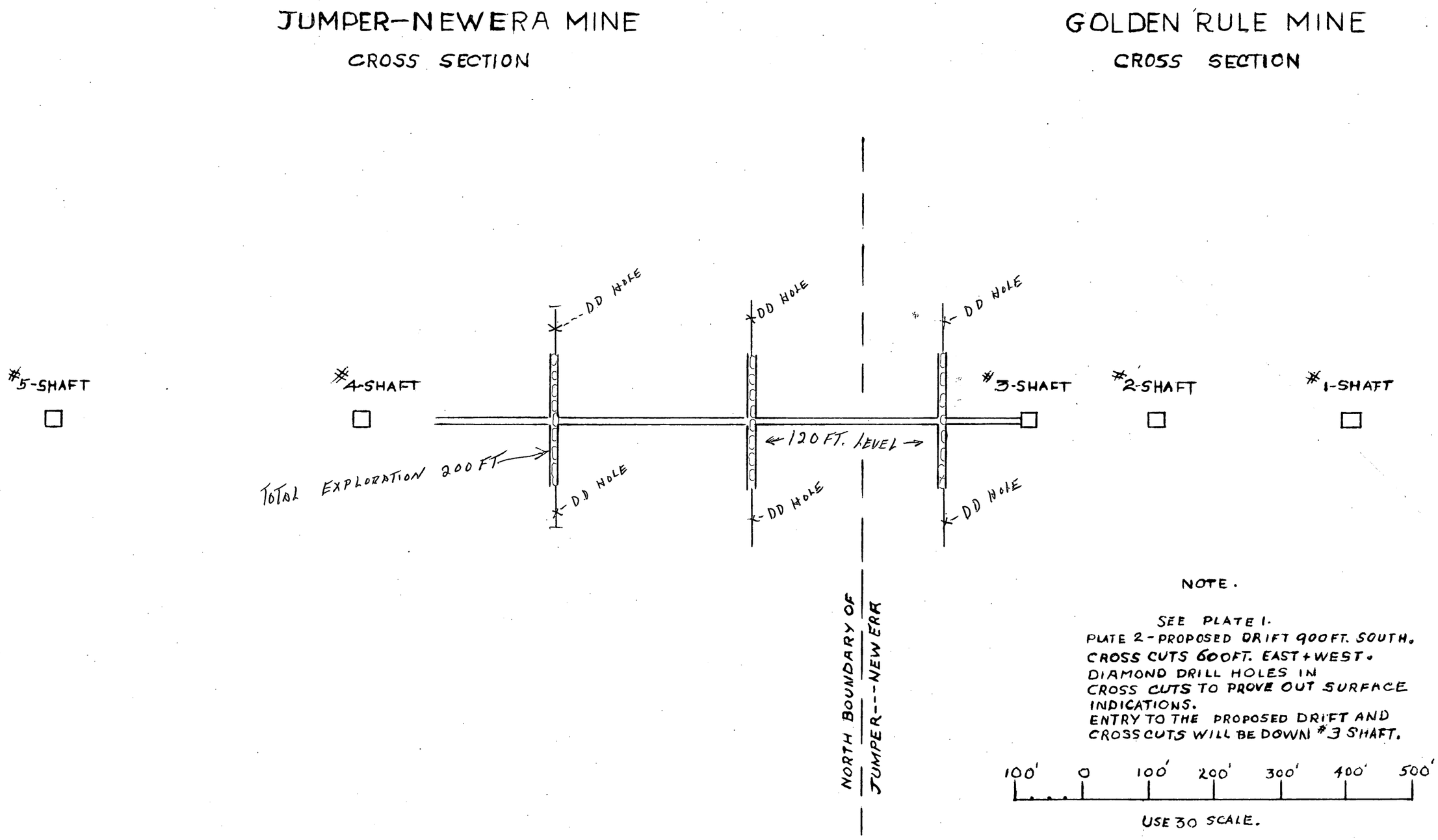
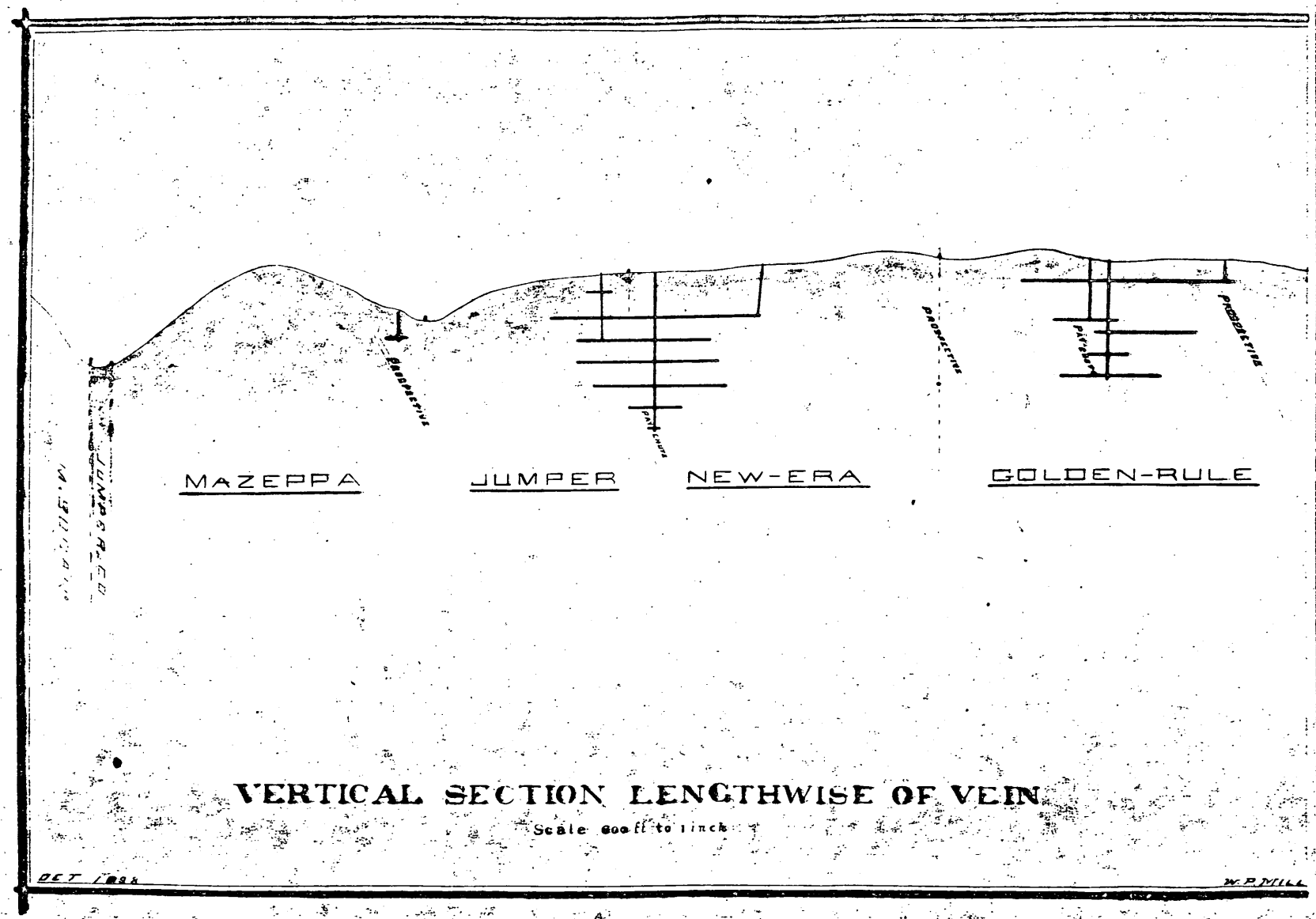

JUMPER-NEW ERA MINE
LONGITUDINAL SECTION
GOLDEN RULE MINE
LONGITUDINAL SECTION
NEW ERA SHAFT
#5
AIR SHAFT
#4
SHAFT No.3
GOLDEN RULE SHAFT
#2
#1.
CROSS CUT
CROSS CUT
CROSS CUT
PROPOSED DRIFT
900 FEET.
CAVED
140 FT
120 FT LEVEL
100'-L
200'-L
300'-L
400'-L
500'-L
600'-L
700'-L
400'-L
500'-L
650'-L
NORTH BOUNDARY OF
JUMPER---NEW ERA
100' 0 100' 200' 300'
USE 30 SCALE

PLATE 2.

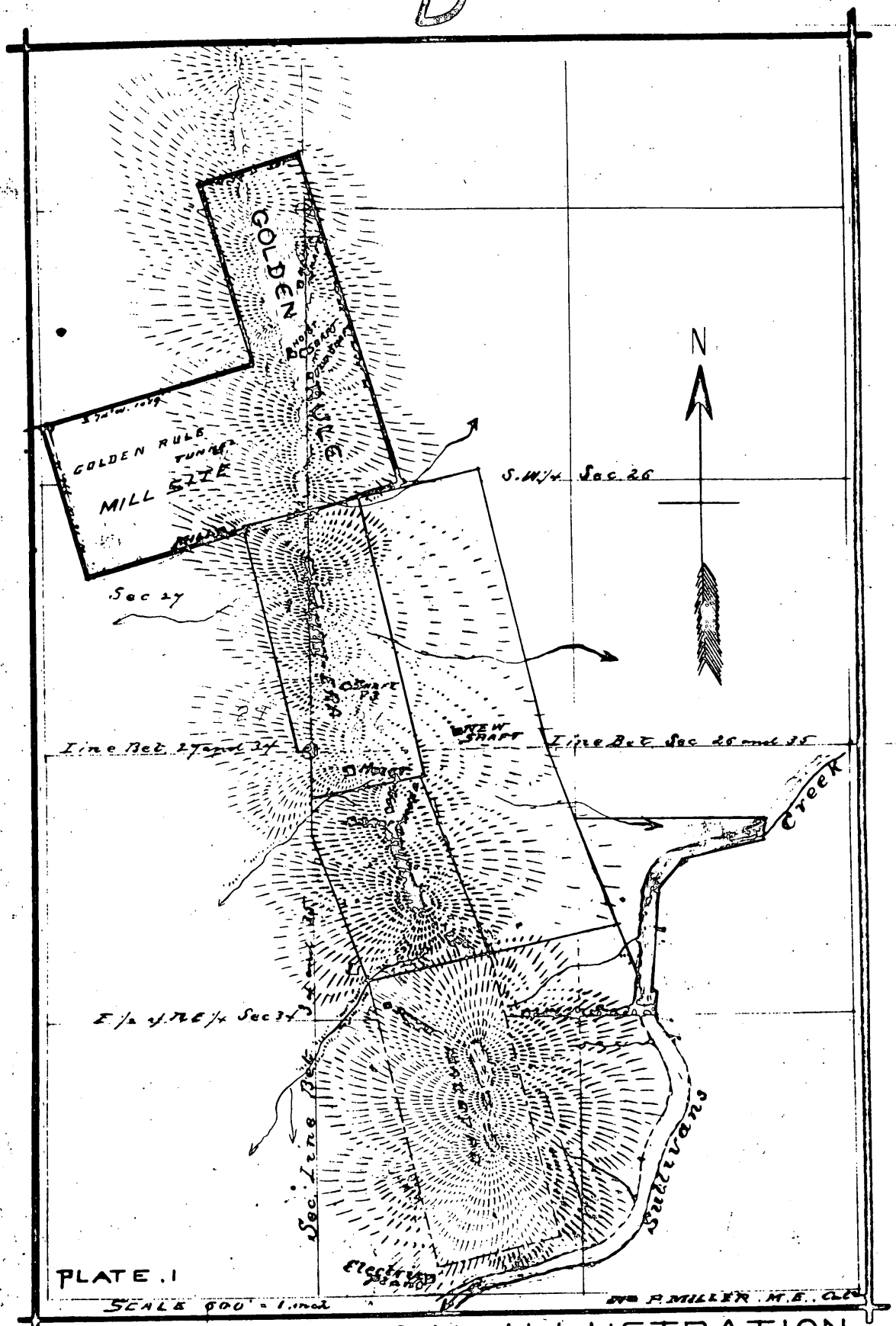

JUMPER-NEWERA MINE
CROSS SECTION
GOLDEN RULE MINE
CROSS SECTION
#5-SHAFT
#4-SHAFT
#3-SHAFT
#2-SHAFT
#1-SHAFT
DD HOLE
DD HOLE
DD HOLE
DD HOLE
DD HOLE
DD HOLE
← 120 FT. LEVEL →
TOTAL EXPLORATION 200 FT
NORTH BOUNDARY OF JUMPER---NEW ERA
NOTE.
SEE PLATE 1.
PLATE 2 - PROPOSED DRIFT 900 FT. SOUTH.
CROSS CUTS 600 FT. EAST + WEST.
DIAMOND DRILL HOLES IN
CROSS CUTS TO PROVE OUT SURFACE
INDICATIONS.
ENTRY TO THE PROPOSED DRIFT AND
CROSS CUTS WILL BE DOWN #3 SHAFT.
100' 0 100' 200' 300' 400' 500'
USE 30 SCALE.

1 1971
CODE


MAZEPPA
JUMPER
NEW-ERA
GOLDEN-RULE
PROSPECTING
PROSPECTING
PROSPECTING
PROSPECTING
PROSPECTING
VERTICAL SECTION LENGTHWISE OF VEIN
Scale 600 ft to 1 inch
OCT 1884
W.P. MILL

III

"D"



TOPOGRAPHICAL ILLUSTRATION
OF THE
GOLDEN-RULE AND JUMPER Co. MINES

REPORT ON THE

JUMPER

MINE

March 10, 1941

By: Bert C. Austin, M.E.
San Francisco, Calif.

Vein System), and that all three vein outcrops that may be exposed by this trenching be systematically sampled. If this sampling indicates ore shoots, further development should be done by diamond drilling from the surface and cross-cutting from underground levels.

There is no actual ore block, and no milling equipment is recommended until such time as sufficient ore is either blocked by underground development or by surface trenching.

An operation of 250 tons per day would call for an estimated cost of $4.25 per ton. It is estimated that the cost per ton will be $2.80 if sufficient ore can be developed to justify an operation of 500 tons per day, and it is recommended that development be carried on with a 500 daily tonnage as an objective.

Yours very truly,
B. C. AUSTIN

BERT C. AUSTIN

BERT C. AUSTIN
MINING ENGINEER

BALFOUR BUILDING
SAN FRANCISCO

TELEPHONE
DOUGLAS 7180 EXBROOK 3796

CABLE ADDRESS
AUSTIN, SAN FRANCISCO
USUAL CODES

March 10, 1941

LETTER OF TRANSMITTAL

LOBICASA COMPANY
Post Office Box 812
Sacramento
California

ATTENTION: Mr. John Sandburg

Gentlemen:

I herewith transmit to you my report on the JUMPER MINE which is located on the Mother Lode about three miles southwest of Jamestown, Tuolumne County, California.

C O P Y

The property consists of approximately 150 acres and covers about 3800 ft. on the Mother Lode Vein system. No examination was made of the Mazeppa property although you hold bond and lease on both the Jumper and Mazeppa properties.

There are three well-defined veins within this property; the Slate Vein or East Vein has been the most productive, and it is believed that by following well-defined geological structures in this vein, profitable ore shoots may be developed within the Golden Rule area.

This property warrants development and further examination.

During the past year, the Jumper property has been unwatered to the 500 foot level, and 3654 tons of ore milled from various points on the slate vein. The milling returns indicate a gross value of $5.13 per ton.

It is estimated that the average grade of ore during the total operation of this property was $10.00 per ton, and that the production has been $6,000,000.00 (Gold at $20.67 per ounce.) The greater part of this production came from the Jumper-New Era area and above the 1000 ft. level.

It is now recommended that a series of trenches be made across the property at various points indicated on the surface map (Map No. 7-Plan of

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Copy - Reports by .....Miller

Copy - List of Assays Assayed by H. W. Gould & Company

Copy - List of Mill Samples .....

MAPS

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3. Plan Map
4. Longitudional Section Sample Map -Golden Rule-
5. Longitudional Section
6. Section of Cross Section
7. Plan of Vein System
8. Geological Sections

BERT C. AUSTIN
MINING ENGINEER

BALFOUR BUILDING
SAN FRANCISCO

TELEPHONE
DOUGLAS 7180 EXBROOK 3796

CABLE ADDRESS
AUSTIN, SAN FRANCISCO
USUAL CODES

March 10, 1941

LOBICASA COMPANY
Post Office Box 812
Sacramento
California

ATTENTION: Mr. John Sandburg

Gentlemen:

As authorized by you under date of February 4, 1941, an examination of the JUMPER MINE hasbeen made. Gold values are quoted at $35.00 per ounce unless otherwise stated.

LOCATION

This property is located on the Mother Lode about three miles southwest of Jamestown, Tuolumne County, California. It is about 130 miles east of San Francisco and seven miles southwest of Sonora, the County seat of Tuolumne County, California.

TRANSPORTATION

This property is on a paved highway, a branch of No. 49. The railroad station, postoffice, telephone and express offices are at Jamestown. Freight rates from San Francisco to Jamestown are between $5.00 and $7.00 per ton. It will probably be more convenient and cheaper to deliver all supplies and equipment directly by truck rather than by way of rail to Jamestown.

TOPOGRAPHY

The elevation is between 1200 feet and 1300 feet. The general topography is the rolling foothills of the Sierra Nevada mountains. There is no timber with the exception of scrub oaks and a few digger pine. The rainfall is about 20 inches during the winter months with practically no snow. The summers are dry and warm.

LABOR AND SUPPLIES

Labor is plentiful. The average wage for shift of

COPY

eight hours is Five Dollars. The towns of Jamestown and Stent are near enough to the property so that all employees can board either at the hotels or with private families. This eliminates the necessity of boardinghouse or living accommodations at the mine.

Supplies can be purchased and shipped directly from San Francisco or Stockton by truck or rail. The towns of Jamestown and Sonora carry a fairly good stock of general mining equipment and mine supplies.

POWER

Electric power has been installed at the property, furnished by the Pacific Gas and Electric Company under regular Schedule P. A copy of this schedule is attached to this report.

WATER

The Jumper Mine at one time owned water rights on the Sullivan Creek. This water was available only part of the year. A better source is from the Smith Ditch. This ditch and water right, diverting water from Woods Creek just above Jamestown, can be purchased reasonably and is a good and sufficient water supply. The price of water from the Smith Ditch was ten cents per inch per 24 hours; whereas, the Pacific Gas and Electric Company charges have been 25 cents per inch per 24 hours. The mine makes a small amount of water but not sufficient for milling operations.

PROPERTY AND TITLE

The Jumper Property consists of:

Jumper Lode Quartz Claim	Patented	12.45
Jumper Millsite	"	4.80
New Era Quartz Mining Claim	"	18.27
Golden Rule Mining Claim & Millsite	"	38.41
M. Bogan & Forguer Tract	"	76.35
	Total	150.28

Held under Bond & Lease with the Jumper property is the Mazeppa Mining Claim with Millsite and Tunnelsite- Patented 22.65

(forward)

Total acreage as per your bonds
and leases, copies of which are
on file at your Sacramento office 172.93

The title of the Jumper property is vested in J.W. Schiffman, Nan Boyle and the Hertz Estate, all of Jamestown, Tuolumne County, California.

The title of the Mazeppa property is vested in J.W. Schiffman. No investigation of the titles was made, but it is assumed that they were in order at the time the Leases were drawn. The Jumper property covers the Mother Lode vein system for approximately 3800 feet and the Mazeppa property about 1500 feet. The claims are so located that they undoubtedly protect any outcroppings and apex rights within the property's boundary lines.

EQUIPMENT AND IMPROVEMENTS

The only equipment on the Mazeppa property is a 10 stamp mill which is not in the best of condition. This mill has been used for testing ores from the Jumper property.

The equipment and improvements on the Jumper property consist of:

GOLDEN RULE SHAFT EQUIPMENT

1 75 h.p. hoist, 400 revolutions per mnte.
1 1200 ft. cable
1 skip and cage
1 Gardner Compressor 12 by 12 short coupled to 75 h.p. motor capacity, 350 cu. ft. pr. minute
1 500 ft. 4 in. airline
2 R58 Ingersoll Stopers
2 R 48 Ingersoll Stopers
1 small Jackhammer, mounted
1 water tank with hose and airlines
1 steam pump 2½ by 3½, 300 Level
1 5 h.p. Sterling pump, vertical 1½ in.
4 ore cars, roller bearings, capacity 16 cu.ft.
1 600 ft. 3 in. pipe line installed
1 500 ft. of 4 in. airline installed
1 1000 ft. of 2 in airline installed
1 1000 ft. of 1 in and 3/4 line installed
1 1200 ft. 12 pound rail track installed
4 tons 12 pound rails on hand.

GOLDEN RULE SHAFT IMPROVEMENTS

New head frame and shaft retimbered to the 500 ft. level with power lines connected from main Pacific Gas and Electric high power lines to Golden Rule Shaft-New Era Shaft and Mazeppa Mill.

Development work done from the Golden Rule Shaft during the past year:

1. Repairing 80 ft. level crosscut
2. Repairing 300 ft. level
3. Repairing 400 ft. level
4. Repairing 500 ft. level
5. Installing airlines and waterlines to the New Era Shaft.
6. A connection made from the 300 ft. level to the MOYLE MINE
7. Installing 14 ore chutes on 300 and 400 ft. levels.

A total repairing and reopening in the Golden Rule area of 2,386 feet.

JUMPER SHAFT

At the Jumper Shaft the head frame has been repaired and a 15 h.p. Fairbanks Morse Electric Hoist installed. The Shaft has been unwatered to the 500 ft. level, and a 50 h.p. pump with 500 ft. water column installed and connected with the pipe lines from the Golden Rule Shaft through the 500 ft. North drift. This pumping installation at the Jumper Shaft at present is pumping both the Golden Rule and Jumper Mine water to the surface.

HISTORY

As near as can be learned, the Jumper Property was first opened by surface workings both on the New Era and Golden Rule properties. The following excerpts are quoted from the files of the Mining and Scientific Press, Mining Bureau, San Francisco:

1885	Vol 50, p 112	Fitzgerald Bros. have reopened Jumper and have a prospect.
1885	Vol 51, p 104	Fitzgerald bond to Fisher of San Francisco.
1895	Vol 70, p 266	Rich strike made No. 1-level one blast $3000 body of ore carried eleven ft. wide but expected to be wider. None of tich rock treated but ore considered waste milled yielded $12.50 per ton. Some and considerable quantity on hand will mill $20,000 per ton (p. 298). Rich ore coming from both levels. Drifting North and South. Ore improving and ore body extensive. Need larger mill.
1896	Vol 73, p 117	Fitzgerald's paid off by Jumper Company for Jumper (p 322) Month's cleanup, Sept. $160,000. October cleanup $200,000. (20 stamp mill) p.342.
1897	Vol 77, p 234	Annual production of between $400,000 and $500,000 owned by Scotch Jumper Gold Syndicate. Shaft 700 ft. deep, 3000 ft. of drifts. New shaft started will be 2000 ft. deep to make contact, crosscutting on 700 - 20 stamps 50 ton per day., 90 men working. Kelly Supt., good Mgr.
1897	Vol 74, p 94	Fitzgerald boys pd. $80,000 for New Era.
1899	Vol 78, p 590	60 stamps dropping 50 on Jumper ore and ten on Golden Rule ore.
1899	Vol 79, p 694	Crosscutting on 1100 level 40 stamps dropping.

1900 Vol 80, p 97 (correspondent who rented mine states)	'Went through the fourth and fifth levels. Enough ore in sight to last a generation (his opinion) on these two levels without going deeper. Taking rich ore now from 850 and 1000 ft. levels, 120 men at Jumper, 40 at Golden Rule
1901 Vol 82, p 117	Strike reported made on 700 ft. level in Jumper. New ore shoot entirely.
1901 Vol 82, p 171	Supt. report shaft down 1356 ft. and 103,000 ton of ore in sight.
1901 Vol 83, p 207 Nov)	A rich strike reported in Jumper crosscutting from 200 ft. level south of main shaft. Entirely newore body and parallels old ore vein. Vein is 12 ft. wide and estimated at $40 per ton.
1902 Vol 84, p 209	Report of Mgr. of Jumper to shareholder's meeting in Glasgow showed gross yield of mine in 1901 as $417,300. Sixty stamp mill was run 11 months, crushed 54,344 tons. Balance sheet shows a profit of £32,019-85cd. Ore reserves in sight estimated 155,575 tons.
1903 Vol 86, p 172	Stopes caved and on 500 level 200 ft. more to connect with Rule drift.
1903 Vol 87, p 22	Connected with Rule
Miner's Strike	
1906 Vol 93, p 190	encouraging prospect in winze sunk from 1400 ft. level.

1906	Vol 93, p 373	Rich ore reported struck on 1500 ft. level of Jumper.
1907	Vol 95, p 604	Work suspended, hoist cannot go deeper.
1908	Vol 97, p 445	Shut down to put in power development work continues.
1909	Vol 97, p 171	California general mining company syndicate of London and Paris people bought Jumper from Jumper Gold Syndicate (p 770) 350 ft. shaft on West Vein started.
1910	Vol 100 p 507	New Shaft report likely to be sunk.
1911	Vol 102, p 479	Jumper sold R.S.Rainsford. Gen Mgr. Cochrane retained as Supt. (p 740) Twenty of the 60 stamps dropping 80 men. Mighty to 100 tons per day.
1912	Vol 104, p 120	Contract for raise from 500 to 200 N. Let.
1913	Vol 106, p. 874	Bought 33 tons of Rail. Repair shaft.
1914	Vol-	Lessors...good reports.
1915	Vol III, p 906	Leasors taken out over $100,000 past year.
	Vol III, p 144	Thirty-five leasors (7sets) $10,000 mo. for last 10 mos. Only 4 sets making more than wages. Paying 25% Royalty and $1.00 per ton for milling."

GOLDEN RULE DATA
from
MINING AND SCIENTIFIC PRESS
(Ferry)

Thirteenth Report of State Mineralist states

that Golden Rule produced $38,000 in 1870 and $10,000 in 1871, depth 200 ft.

"1866	Vol 13, p 17	(complete annual report of G.R. published) states Mill run principally on what was considered as too low grade for the 8 stamp mill (2000) ton averaged $7.00 including rock taken from shaft while sinking. Rock crushed from July 1, 1865 to July 1, 1866 yielded $23.19 pr. ton. (p 262) Vol 13), 165 ton yielded 175 oz. retorted gold amalgam.
1867	Vol 14, p 374	average yield of G.R. $10.00 to $12.00 vein eight feet wide.
1868	Vol 16, p 9-17	articles on possibility of tillaurium in ore.
	Vol 17, p 54-7	Seven to 9 feet of ore, 15 stamp 1 ton to stamp paying uniformally about $10.00 pr. ton.
1869	p 246	Ore running from Five Dollars to Ten Dollars.
1871	Vol 22, p 147	Crushing 15 ton per day. $10.00 average vein 7 to 9 feet width 90% slate hanging wall, serpentine footwall feldspar. Free gold found in each of the above formations often 4 in. deep in footwall. Five stamps.
1895	Vol 94 p 122	Golden Rule sold for $100,000.
1896	Vol 72 p 31	Specimen gold (p 511) installed steam hoist 10 stamp mill and started sinking shaft. Previously worked through tunnel.
1897	Vol 74 p 194	Crosscutting on 500 ft. level cut two veins, one 16 ft. the other eight ft. wide (p 214) drifting on good rock on both veins on 500.

1897	Vol 75 p 170	Drift on 300 shows free gold (p 527) Veins to East show quantities of rich ore.
1898	Vol 77 p 85	Good rock struck in Golden Rule
1899	Vol 79, p 346	Profits for month of June stated to have been $15,720 10 stamps.
1903	V	General Miners' Strike

Mineral Resources West of Rockies 1871 and 1872 - page 62 - Golden Rule has 15 stamps run by Water Power 50 foot wheel crushing 15 tons in 24 hours average $10.00."

The property evidently changed hands several times and when the plants were destroyed by forest fires in recent years, the New Era or old Jumper Mine had been equipped with an 80 stamp mill. Very little work has been done since 1915, with the exception of leasors and the recent development of the past year.

PRODUCTION

There are no authentic records of production or of total tons of ore treated. Mr.Albert J.Jones, Mining Engineer, in report dated April 18, 1939, states:

> "Past production reported by the State is $5,000,000.00 for the Jumper-New Era, and $1,000,000.00 for the Golden Rule. Other reports carry the production at $10,000,000.00. The Mazeppa we have no records of."

The State Mining Bureau, Bulletin No. 108, 1934 reports:

"JUMPER, GOLDEN RULE and NEW ERA MINES

The geology of these mines, one-half mile south of Stent, is well shown in the accompanying sections.

GOLDEN RULE MINE was operated in the 1860's and 1870's, and was said to have produced $48,500 in 1870 and 1871. At that time it was worked by means of open cuts and a shaft 200 ft. deep. About 1895 it was reopened and developed by a crosscut adit 528 ft. long from the footwall side, with drifts north and south for nearly 1000 ft.- but at a depth of only 70 ft. This work was done on a zone of chlorite schist containing gold and auriferous sulphide; on the footwall side of this zone there were said to be narrow veins of quartz and calcite, rich in gold. A vertical depth of 530 ft. was finally reached in the shaft and a winze 800 ft. deep was sunk from the 493 ft. level. The mine produced about $90,000 from 1899 to 1902, but total output before transfer to the Jumper is unknown.

NEW ERA MINE was also workedas a separate unit, through four shallow shafts, for some years prior to 1895. The greatest depth reached was only 100 ft. There is no separate record of production. Ore was crushed at the App, and it was said the ore-shoot was 750 ft. long. About 1895 this claim also became part of the Jumper, and as such waslater developed to a depth of 1800 ft. through a shaft 1400 ft. deep and a winze sunk 400 ft. below the 1400 ft. level.

Although the Jumper and above claims were reputed to be particularly rich 'pocket' producers, this did not show in the average gradesof ore milled. The principal operations extended from 1896 to 1914, when the mines were worked for company account by Jumper Californian Gold Mines Company. Thereafter, until 1919, the work was done by lessees. The period of heaviest production was from 1896 to 1904. For the years when tonnage figures are available, the average value recovered was $5.25 a ton. As shown on the sections, the mine was extensively stoped down to the 800 ft. level, but little below there. In July, 1899, when operations were in the zone from 300 ft. probably to 600 ft. level, the mill ran 23 days, and crushed 3500 tons of ore which yielded $27,500 or $7.85 a ton. During the same month, 810 tons from the Golden Rule east vein yielded $4,350 or $5.37 a ton, whereas 700 tons from the middle vein returned only $1,110 or $1.58 a ton. Average yield of course in such a case, while interesting and valuable to know, does not tell the whole story; because from time to time, as in April 1895, rich strikes were made in theJumper. At that time, one blast on No. 1 level knowked down $3,000 of

'high-grade' and for some days very rich ore was found; a quantity of it was said to be worth $10 a pound.

While large quartz masses with some gold and auriferous sulphide occur in the ankerite, the principal ore-bearing vein was in amphibolite schist on the east of the ankerite. Along the footwall of a silicified zone in this amphibolite schist, a narrow vein of quartz and calcite occurred with a small gouge. This vein was frequently rich in free gold. A dike of diabase was intruded into this zone and was noticed to be a larger on the Jumper than on the Golden Rule. The dike itself was often mineralized and filled with quartz and calcite stringers, forming ore. The superintendent, M.B.Kerr, believed the calcite stringers were responsible for the presence of coarse gold. This principal vein in the Jumper strikes N. 16° W., and dips 70° NE., and the calcite seams strike northwest across it, and generally dip north. The width of the principal pay zone is from 50 to 50 ft. Petzite occurs at times with the gold. The west vein contained low-grade material in large amounts.

The Jumper had a mill of twenty 1030-pound stamps in the 1890's and this was later increased to 40 stamps. Sulphides were apparently too low grade to save.

For several years after the company quit, lessees worked in the levels above 50[illegible] ft. Their total annual output vaired from $8,000 to $85,000, and the value per ton was from $1 to $15, reflecting the uncertain occurrence of 'high-grade.' During the best year, only four sets of lessees out of seven made wages or better. Since 1919, the mill has not been operated and only a few thousand dollars production has been reported.

The incomplete records of output since 1896 indicate a gross of about $3,000,000."

It would appear from all the data that can be obtained, and allowing for some high-grading, that this property did produce approximately $6,000,000 gross, and that the total tonnage mined was 600,000 tons, or an estimate of $10.00 per ton. There are

no authentic figures to verify this estimate, but during the operations of this property a great deal of high-grade ore was recovered and undoubtedly considerably high-grading was done. Therefore, it would be possible for the property to produce in excess of whatever production records are available.

At the time of actual closing of the property's 60 stamp mill operations, an endeavor was being made to treat a large tonnage rather than do selective mining. This operation proved a failure as the heads dropped to less than $2.00 per ton, old price of gold, and the working costs were above $3.00 per ton. As far as can be learned the ore at this time was being mined from the Slate Vein and most of the ore was coming from the Golden Rule area.

GEOLOGY

The Jumper Mine has been one of the most important of the so-called Southern mines of the Mother Lode. To the North are the California Standard, Santa Ysabel, Sweeney Dutch App group, the Harvard, the Crystalline, Alabama, Rawhide and Carson Hill mines. To the South are the Mazeppa and Eagle Shawmut Mines.

Within the Jumper property there are three well-defined veins, and possible four; the East or Jumper Vein, the Middle Vein, and the West Vein, all of which have been more or less productive and are of the Mother Lode system. These veins strike North, 16 degrees west and dip about 65° to the east. At the Golden Rule Shaft the Middle Vein is 200 ft. east of the West Vein and the East Vein 150 ft. East of the Middle Vein.

The true foot wall is a serpentine and the hanging wall an amphibolite schist. The material between the veins is slate, schist and diorite, and on the West Vein there is evidence of quartzite. The slates are the black and gray slates, and within the veins are found stringers of quartz as well as diabase intrusions. Undoubtedly, the greater production from the Jumper claim, as well as from the New Era claim, has been made from the Slatevein.

The property at the present time is unwatered only to the 500 foot level, and very few of the old stopes are accessible.

The Slate or Jumper Vein is a fissure from three to ten ft. in width, with a slate filling showing quartz stringers varying from a few inches to a foot in width. In the productive areas of this vein, diabase intrusives are in evidence. Apparently, the earlier quartz stringers, which were deposited prior to the intrusives, were more or less barran and dip to the south. Following the deposition of these first quartz stringers, the vein was refractured by faulting and pressure. Following, there was a second deposition of quartz stringers which dipped to the north; whereas, the first quartz stringers dipped to the south, and the intrusives being contemporaneous with the second quartz deposition. The second quartz deposition was highly mineralized and undoubtedly was responsible for the higher grade gold values with the vein. This would account for the fact that the intrusives within the vein are considered "markers" for ore deposition. They are in no way responsible for the ore deposition, but having intruded the vein at the same time as the gold bearing quartz, they naturally follow the values and are apparent to the eye.

In the mining of the Slate or Jumper Vein it will be well to follow the intrusives and to give attention to the north dipping quartz stringers. It is noted that small faults have occurred, designated within the mine as crossings. These faults and so-called crossings are the results of the lines of weaknesses that occurred and are responsible for the second deposition within the vein.

The West Vein as well as the Middle Vein show considerably more quartz than the Slate Vein, and undoubtedly offers opportunities for ore deposits. At this time, however, the condition of the mine is such that very little study can be given them from a geological standpoint. It is believed from past history that whatever ore might occur within the Middle Vein and the West Vein will probably be of a lower grade than that of the Slate or Jumper Vein.

The taking of moiled or cut samples from a vein, the values of which are as eratic as the Slate or Jumper Vein, will never give accurate results, but they may indicate the position of values if sufficient samples are taken, and the samples are of good size. Probably, the better way to determine the actual valueswithin such a vein is to follow the gologcial indications, such as the

intrusives as well as the north pitching quarts stringers, and test the property by mill runs. A geological plate by Miller showing general formation is attached to this report.

OPERATING COSTS

The operating costs on the Mother Lode vary greatly, due to the size of the ore bodies, depth mined, and the character of the veins and wall rocks.

The costs at the Argonaut Mine for 1940, treating 250 tons per 24 hours from a depth of approximately 6000 feet, was $7.40 per ton.

The costs at the Central Eureka Mine for 1940, treating 150 tons per 24 hours from an average depth of 3000 feet, was $11.20 per ton.

The costs at the Carson Hill Mine for 1940, treating 1500 tons per 24 hours, was a little less than $2.00 per ton. A part of this ore was Glory Holed and a part mined from a depth of 4000 feet.

The Harvard Mine, now being developed on a large scale, will probably anticipate the treating of ores at a cost not to exceed $1.50 per ton.

If sufficient ore is developed at the Jumper Mine to justify the installation of a 250 ton mill, and all ores are mined from underground - but above the 500 ft. level, it is estimated that the costs will be, per ton:

MINING AND DEVELOPMENT	$2.25
Drilling	
Mucking	
Timbering	
Hoisting	
Pumping	
MILLING	1.25
Crushing	
Amalgamating	
Floating	
Jigging	
Cyaniding of concentrates	
Marketing	
Balance forward	$3.50

Balance Brought Forward	$3.50
OVERHEAD	.75
Management and engineering	
Taxes	
Amortizing Investment	
TOTAL	$4.25

If a partial surface operation can be developed and 500 tons per day treated, it is estimated that the costs per ton will be:

Mining	$1.50
Milling	.80
Overhead	.50
Total	$2.80

MILLING

The Milling operations that have been carried on to date at the Jumper Mine have consisted of crushing by stamps to approximately 30-mesh, plate amalgamation and concentration either by vanners or by tables. It is estimated that an extraction of 80 to 85% has been made. The greater part of the values have been recovered by amalgamamtion. The concentrates have been consistently low. It has been stated that the milling costs have been between 40 cents and 50 cents per ton. So far as is known, no metallurgical tests have recently been made, but undoubtedly while the costs of milling might be raised by finer grinding and flotation, the extraction would be materially increased and the net recovery and profit raised. It is estimated that all milling costs, on a basis of 250 tons per day, would be $1.25, including the treatment of the concentrates, and on an operation of 500 tons per day, the milling costs could be cut to 80 cents per ton.

During the past year, the Mazeppa Mill was operated on ores mined and hauled from the Golden Rule section of the Jumper Mine. This ore was mined and treated more as a sampling operation than a milling operation. The results are shown on the following tabulation:

MILL RECORD OF ORE MINED AND MILLED from the GOLDEN RULE SECTION OF THE JUMPER MINE Jul 19'40-Feb 14'41

Date	From Level	Tons Milled	Act'l Val Re-covered	Act'l Val pr tn Re-covered	Assay Tlg's Loss	Est.Con. per ton Recov'd	Est. Total Value per Ton
Jul 19 1940	300	425	$1424.82	$ 3.36	$ .92	$ .20	$ 4.48
Aug 14 "	300	387	708.08	1.83	1.15	.20	3.18
Aug 21 "	300	355	1751.31	4.93	1.75	.20	6.88
Sep 3 "	300	267	2875.04	10.77	2.80	.20	13.77
Sep 18 "	300	300	2649.58	8.83	1.01	.20	10.04
Oct 24 "	300	114	621.47	5.45	1.01	.20	6.66
Nov 26 "	300	676	1679.79	2.48	.70	.20	3.38
Dec 26 "	300-400	1050	1900.80	1.81	.61	.20	2.62
Jan 24 1941	300-400	30	153.82	5.13	.70	.20	6.03
Feb 14 "	400	52	395.68	7.61	2.10	.20	9.91
Totals and Averages		3654	2$14160.39	$3.87	$1.06	$.20	$ 5.13

2 By Amalgamation

This ore was mined and hoisted through the Golden Rule Shaft from the Golden Rule section of the Jumper property, trucked to and milled at Mazeppa 10 stamp mill. This mill was in poor condition, and undoubtedly there has been some unaccountable loss due to the fact that approximately 50 pounds of quicksilver was lost during the milling of this ore.

ORE RESERVES

It is believed that ore will be developed in the various veins both underground and on the surface but at the present - time it cannot be said that there are definite ore reserves.

DEVELOPMENT

The Jumper-New Era area was developed by a 1400 foot 3-compartment incline shaft and a 400-foot winze following the vein on its dip to total depth of 1800 feet. This shaft is now unwatered to the 500 foot level and is in fair condition. At approximately each 100 feet of depth, levels have been driven north and south, the greater part of this development being above the 1000 foot level. Authentic maps show that the ore shoot was about 800 feet long, and that the greater amount of stoping was done between the surface and the 700 foot level.

The 500 foot level was extended north and connects with the 500 foot south level from the Golden Rule shaft. Undoubtedly, most of the stoping and production came from the Jumper or Slate Vein. The Golden Rule area has been developed by crosscuts from the surface and by a 500 foot vertical shaft and a 700 foot winze to a total depth of 1200 feet. Levels were run on the 80 foot, the 300, 400, 500 and 600 horizons. The 300 foot level evidently extends to the north end line and raises have been put through to the surface between the shaft and the said north end line. The south 500 foot level connects, as stated, with the north 500 foot level from the Jumper shaft. Most of the stoping and extraction within this area has apparently been done between the 300 foot level and the surface. Some diamond drilling was done on the Golden Rule near the north end line, but the results are not available.

The plan maps and loggitudional sections of the Jumper - New Era area indicate that 10,800 ft. of drifting, 1,000 ft. of crosscutting, 2,600 ft. of shaft sinking and winzes, and 3,400 ft. of raising has been done, and within the Golden Rule area, 5,200 ft. of drifting, 1,600 ft. of crosscutting, 2,000 ft. of shaft sinking winze, and 500 ft. of raising has been done. A total development of 27,100 feet.

The Golden Rule development work reopened is in fair state of repair with the exception of where steping has been done.

The development work in the Jumper-New Era area seems to be badly caved, probably due to the extensive stoping.

It is stated that the Mazeppa property, of which no investigation has been made, was developed by a shaft 700 ft. in depth, and that levels were run at intervals of 100 feet. There is ne connection underground between the Mazeppa workings and that of the Jumper.

SAMPLING

Forty samples were cut from the Slate Vein in the Golden Rule area, seven samples were cut from the Middle Vein, and one sample was cut from the West vein just north of the Jumper shaft on the 100 foot level. These moiled samples are platted on the assay

map and do not show commercial values. Within the immediate vicinity of where these samples were taken, 3654 tons of ore were mined and milled that showed a valuation of $5.13 per ton. This would indicate that moiled sampling, particularly in the Slate Vein, cannot be depended on to give a true value of the ore.

In the vicinity of the Jumper shaft, thirteen surface samples were taken. With the exception of one sample, No. 61, the valueswere below a commercial grade and are platted on the plan map. Samples No. 100 and 100-A, taken from the Middle Vein on the 100 ft. level north of the Jumper Shaft, for a width of 7½ feet, averaged less than $1.00.

It is recorded that considerable surface sampling has been done prior to this examination. The results of this sampling, as near as could be ascertained, showed an average value of only $1.25; however, the surface indicates that little trenching was done at the time of this prior sampling, and better results might be obtained if the outcrops of the veins were better exposed.

The California Standard Mine, which adjoins the Jumper property on the north, milled a considerable tonnage of ore from the Middle Vein some three or four years ago. This ore is said to have averaged between $8.00 and $10.00 per ton, and the surface excavations indicate that the vein was stoped for a width of at least fifteen feet. It would appear from the work at the California Standard, that this ore was continuing south and into the Jumper property.

The samples taken during the milling test are tabulated but are rather erratic both as to head and tailing samples.

A sample taken from 40 tons of concentrates now at the property gave an assay value of $10.60. The average concentrate sample taken during milling operations averaged $14.00. It is estimated that about 50 tons of concentrates were made from 3654 tons of ore milled, and that 40 tons of these concentrates are still at the property. Due to the low gold value of these concentrates, they cannot be shipped to a smelter and treated at a profit; however, tests may prove that a concentrate might be made that could be treated locally. A list of samples taken is tabulated as follows:

Sam. No.	Lev. No.		Assay Value.
1	3	Roof of stope 62 ft. above drift at south face; 18 ft. south of crosscut Width 5 feet	$ .70
2	3	Roof of same stope 9 ft. south of crosscut. Width 5 feet	.53
3	3	Roof of same stope 9 ft. North of crosscut. Width 5 feet	1.23
4	3	Roof of same stope 9 ft. north of crosscut. Width 5 feet	.35
5	3	Roof same stope at north face Width 5 feet	2.28
6	4	Roof of stope 32 ft. above drift at south face, 10 ft. north of crosscut. Width 4 feet	1.05
7	4	Same stope 10 ft. north of crosscut. Width 4 feet	.88
8	4	Same stope 10 ft. north of crosscut. Width 4 feet	1.93
9	4	Same stope at north face Width 4 feet	2.45
10	4	Roof of drift 61 feet north of crosscut. Width 5 feet	1.23
11	4	Roof of drift 81 feet north of crosscut. Width 5 feet	.70
12	4	Roof of drift 101 feet north of crosscut. Width 5 feet	.53
13	4	Roof of drift 121 feet north of crosscut. Width 6 feet	.35
14	4	Roof of drift 141 ft. north of crosscut. Width 6 feet	1.58
15	4	Roof of drift 161 ft. north of crosscut. Width 6 feet	1.23
16	4	Roof of drift 181 ft. north of crosscut. Width 6 ft. 6 inches.	1.05
17	4	Roof of drift at face 201 feet north of crosscut. Width 6 ft. 6 inches	.18
18	4	Roof of stope 36 feet above drift 7 feet from north face. Width 5 feet	4.20
19	4	Roof of same stope 12 feet south of crosscut. Width 5 feet	.70

Sam. No.	Lev. No.		Assay Value
20	4	Roof of same stope 20 ft. south of crosscut. Width 5 feet	$ 2.45
21	4	Roof of same stope 30 feet south of crosscut. Width 5 feet	2.45
22	4	Roof of drift 50 ft. south of crosscut. Width 4 feet	.53
23	4	Roof of drift 60 feet south of crosscut. Width 4 feet	.53
24	4	Roof of drift 70 feet south of crosscut. Width 5 feet	.35
25	4	Roof of drift 90 feet south of crosscut. Width 5 feet	Lost
26	4	Roof of drift 110 ft. south of crosscut. Width 4 feet	.35
27	4	Roof of drift 120 feet south of crosscut. Width 5 ft. 6 inches	.35
28	4	Roof of drift 130 feet south of crosscut. Width 5 feet	.35
29	4	Roof of drift 140 south of crosscut. Width 5 feet	.18
30	4	Roof of drift 150 feet south of crosscut. Width 6 feet	.18
31	4	Roof of drift 165 feet south of crosscut. Width 6 feet	.53
32	4	Roof of drift 172 feet south of crosscut. Width 7 feet	None
33	4	Roof at face of drift 182 feet south of crosscut. Width 7 feet	1.05
34	4	Roof of drift 120 feet north of crosscut. Width 5 feet	.18
35		West vein bottom of 50 foot open cut south of Golden Rule Shaft south face. Width 4 feet	1.05
36		West vein bottom of 50 foot open cut south of Golden Rule Shaft south face. 50 feet north of Sample 35. Width 4 feet	.70
37	85	Middle vein 210 feet south of shaft at 100 foot corsscut.	1.40
		Width 3 feet	.35
38	5	Middle Vein Grab Muck sample from 25 ton pile south end of pile 21 feet north of crosscut.	1.05

Sam. No.	Lev. No.		Assay Value
39	5	Same north end of pile	$1.05
40	5	Middle vein Roof of drift at crosscut north. Width 6 feet.	1.93
41	5	Middle Vein Roof of drift 21 feet north of crosscut. Width 6 feet	.70
42	5	Middle Vein 15 feet above drift Width 6 feet	.18
43	5	Middle Vein Roof of drift 40 feet south of crosscut. Width 4 feet	.18
44	5	Middle Vein Roof of drift 140 feet south of crosscut. Width 6 feet	.53
45	5	Roof of drift 12 feet north of crosscut. Width 5 feet	.35
46	5	Roof of drift 12 feet south of crosscut. Width 5 feet	.70
47	5	Roof of drift 18 feet south of crosscut. Width 5 feet	2.63
48	5	Roof of drift 30 feet south of crosscut. Width 5 feet	.88
49	5	Roof of drift 90 feet south of crosscut. Width 5 feet	1.05
50	5	Roof of drift 147 feet south of crosscut. Width 6 feet	1.93

SAMPLES TAKEN AT OR NEAR THE SURFACE AROUND THE JUMPER SHAFT

51	320 feet north of Jumper shaft 3 feet from surface on both sides of a 50 foot shaft across 15 feet.	1.58
52	Same as above Across 15 feet	.88
53	Same as above Across 10 feet	1.58
54	16 feet north of Hoist House 3 feet from surface. Across 16 feet.	1.05
55 (a)	Talc Vein on surface 82 feet north of shaft	1.05
55 (b)	Same as above	1.93
56	Slate Vein 43 feet north of shaft 4 feet from surface looking west first 20 feet.	1.05

Sam. No.		Assay Value
57	Same; second 20 feet	$1.05
58	Same; third 10 feet	.35
59	Middle Vein same cut fourth 10 feet	.35
60	Middle Vein same cut 10 feet	.35
61	272 feet south of Jumper Shaft near old retort house, across 11 feet, 8 feet below surface	9.97
62	640 feet south of Jumper Shaft across 14 feet 3 feet below surface.	1.75
100	100 foot level, New Era Shaft, Middle Vein foot wall 5 feet.	.35
100(a)	Same as 100, hanging wall	.53
Also two	sacks of Sulpherets representing 40 tons	10.60

CONCLUSIONS AND RECOMMENDATIONS

This property undoubtedly has ore bodies that can only be determined by extensive cut sampling followed by mill runs, paying particular attention to the geological structure within the veins.

Probably the best indicators of values are north dipping quartz and calcite stringers, the faulting or crossings, and the diabase intrusions. The MOYLE WINZE AREA above the 300 level in the Golden Rule is a typical illustration of these conditions.

Furthermore, it must be understood that at times, the dip of the north quartz stringers is more or less flat and that in stoping, low grade floors may be encountered, or the values may be carried to foot and hanging by a change in the dip of the slates.

It is believed that by following the so-called markers or indications and continuing with the stopes that have now been started, ore bodies can be identified and several shoots of commercial ore will be found between the 500 level and the surface.

C O P Y

To: P. GEORGE GOW, ESQU.,
General Manager of the
JUMPER GOLD MINING SYNDICATE

Dear Sir:-

In compliance with your instructions, I visited the JUMPER AND NEW ERA MINES of your Syndicate during the month of October and made a careful examination of same, with the view of obtaining reliable information as to the condition of the mines with special reference to the extent of development, exploration to date and future prospects, and herewith submit my report.

Yours respectfully,

(SIGNED)

Wm. P. Miller

San Francisco,
Nov. 21, 1898.

COPY

REPORT

on the

JUMPER GOLD MINING
SYNDICATE

San Francisco
No. 21, 1989 , By: WmP.Miller, M.E.

C O P Y

R E P O R T

On the

JUMPER AND NEW ERA MINES

November 1898

-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-x-

At the time of my first examination of the Jumper and New Era Claims, May 1896, I gave the geographical location and a general geological description of the "Mother Lode" of California, and furnished drawings showing the line of the lode and the several mining claims in that section of Tuolumne County, lying north of Sullivan Creek. I also connected with the report sketches illustrating the extent of underground explorations and development, with the geological characteristics of the vein rocks, as they appeared in the faces of the drifts of the several levels in the Jumper Mine at that time.

I therefore for the purposes of this Report, for such information bearing upon the geography and geology of the property, refer to my former Report, also to my late Report of the Golden Rule Mine of Date Oct. 12, 1898.

(SIGNED)

Wm. P. Miller

C O P Y

XXXXXX

DEVELOPMENT

Upon Plate I, I have illustrated by sketches a vertical section of the mine, showing the extent of openings and development at time of my first examination of the property in May 1896, also at time of my late examination in October 1898, as follows:

1896

JUMPER MINE				NEW ERA MINE
Jumper Shaft		278	ft.	New Era Shaft 90 ft.
First Level,	South	95	"	
First Level,	North	65	"	
Second "	South	156	"	
Second "	North	114	"	
Third "	North	15	"	
Third "	South	15	"	
Uprise		68	"	
Winzes		105	"	

Total Jumper and New Era 1001 ft.

1898

Shortly after my first examination in 1896, the New Era shaft was made the main working shaft. The drifts of the second and third levels of the Jumper shaft were extended north and connected therewith. The shaft has been sunk to the total depth of 700 feet and level stations made at each 100 feet of depth with lateral drifts driven north and south, with raises, winzes, cross-cuts, intermediate levels and lateral drifts, as follows:

DEPTH OF SHAFT: (incline) 700 feet

Length of Drifts

Second Level	South	457 feet
Second Level	North	477 "
Third Level	South	357 "
Third Level	North	255 "
Fourth Level	South	345 "
Fourth Level	North	297 "

Length of Drifts (continued)

Fifth Level	South	261 feet
Fifth Level	North	325 "
Sixth Level	South	115 "
Sixth Level	North	118 "
Seventh Level	South	10 "
Seventh Level	North	13 "
Total Length of Drifts		3030 feet

CROSSCUTS

Second Level, South		
East	4 aggregate	113 feet
West	2 aggregate	32 feet
Second Level, North		
East	1	8 feet
West	3 aggregate	68 feet
Third Level, South		
East	4 aggregate	114 feet
West	2 aggregate	108 feet
Third Level, North		
East	3 aggregate	31 feet
Fourth Level, South		
East	2 aggregate	30 feet
West	1	12 feet
Fourth Level, North		
East	2 aggregate	19 feet
Fifth Level, South		
East	1	18 feet
West	1	12 feet
Fifth Level, North		
West	2 aggregate	11 feet
Sixth Level, South		
East	1	74 feet
Total Length of Crosscuts		650 feet

STATION CROSSCUTS connecting shaft with vein on levels:

Second Level	East	15 feet
Third "	East	19 "

STATION CROSSCUTS connecting shaft with vein on levels: (continued)

Fourth	Level	East	43 ft. 6 in.
Fifth	"	"	53 " " in.
Sixth	"	"	44 " 3 in.
Seventh	"	"	45 "
Total Length Station Crosscuts			220 feet 3 in.

WINZES AND RAISES connecting the Several Levels

Total North of Shaft	470 ft.
Total South of Shaft	435 "
Total	.905 feet

LATERAL DRIFTS
North of Shaft 140 feet

INTERMEDIATE LEVELS

North of Shaft	120 feet
South of Shaft	125 feet
Total	245 feet

Depth of #3 Shaft . . . . . .200 feet.

SUMMARY

SHAFTS		
Depth	Jumper	278 feet
"	New Era	700 "
"	Number 3	200 "
TOTAL .shafts		1178 feet
DRIFTS		
Length		3030 feet
CROSSCUTS	Length	650 feet
Stations	"	220 feet
Winzes & raises	"	905
Lateral drifts		140
Intermediate levels		245
	Total--	2160

TOTAL LINEAR FEET 6368

of this amount 1001 feet were opened at time of my examination in 1896. The difference, amounting to 5367 feet, has been opened since that date.

AMOUNT OF ORE DEVELOPED

1. **South of New Era Shaft:**

Block a,	- 270'	x	56'	x	8'	- 120960	cu.ft.
" b,	- 280'	x	100'	x	11'	- 308000	" "
" c,	- 295'	x	100'	x	11½'	-- 331875	" "
" d,	- 280'	x	100'	x	10'	- 280000	" "
" E,	- 265'	x	100'	x	9'	- 238500	" "
" F,	- 160'	x	100'	x	11'	- 176000	" "
" g,	- 46'	x	100'	x	12'	- 48000	" - "
						1503335	

2. **North of New Era Shaft:**

Block h,	- 160'	x	160'	x	10'	256000	cubic feet
" o,	- 225'	x	100'	x	12'	270000	" "
" j,	- 260'	x	100'	x	10'	260000	" - "
" k,	-- 295'	x	100'	x	10'	295000	" "
" l,	- 210'	x	100'	x	11'	231000	" "
" m,	- 80'	x	100'	x	12'	96000	" "
						1408000	cubic ft.

Total amount ore developed:

South of New Era Shaft	1503335	cu.ft.
North of New Era Shaft	1408000	" "
	2911335	" "

Allowing 14 cubic ft. pr. ton. gives: 207952 tons.

AMOUNT OF ORE MINED

South of Shaft:

Jumper Shaft	278'	x	8'	x	7'	15568
Drifts	1610'	x	7'	x	6'	67620
Winzes	435	x	6'	x	6'	15660
½ crosscuts	258	x	6'	x	5'	7500

STOPES:

Block a - two stopes	92400
Block b - two stopes	193380.65
Block c - two stopes	137853.28
	529951.93

NORTH OF SHAFT

Drifts	1120'	x	7'	x	6'	47040
Winzes	420'	x	6	x	6	15240
Crosscuts	67	x	6	x	5	12060

STOPES:

Block i - 31288.18		
Block j - 17760.00	49048.18	123340.11

Total cubic ft. ore mined	653340.11
Amounting to	46667.15 tns.

AMOUNT OF ORE REMAINING IN MINE BLOCKED OUT

Total amount developed	207952 tons
Total amount mined	46667 tons
BALANCE	161285 tons

(NOTE: In estimating the ore mined in crosscutting, I have allowed one-half of the crosscuts as being in the vein proper.)

GRADE OF ORE

First Class:

Block	b	102575	cu. ft.
"	c	104152	" "
"	D	118950	" "
"	3	97515	" "
"	f	71610	" "
"	h	139200	" "
"	i	75200	" "
"	j	87360	" "
"	k	32760	" "
"	l	36350	" "

Total	865662 cu.ft.
Second Class:	810068 cu. ft.
Low Grade and waste	582260 " "

Considering 14 cu. ft. to a ton gives:

ton	first class	61833
"	second "	57862
"	Lo Gr.& Wste	41590

ORE MILLED

It will be noted that my figures show the amount of ore and waste extracted from the mine amounts to 46667 tons. According to data furnished me from the San Francisco office, the following amounts of ore have been milled:

1896	Tons	7729.5
1897	"	14820.0
1898	Tons	12020.0
	Total	34569.5
Amount stoped prior to above dates		2121.5
Amount second class ore in dump		5500.0
		42190.0

Showing a balance of 4477 tons of waste, either goisted to surface or filled in stopes.

ORE MILLED - COST OF MINING and MILLING

At the time of my former examination of the Jumper and New Era property, May 1896, I estimated the cost of mining and milling as follows, i.e.:

Mining	$4.72 per ton
Milling	1.19
Total	$5.91

This estimate was based upon the production of 18 tons of ore daily.

In my report upon the Golden Rule property, Oct. 12 of the present year, my estimates of mining and milling upon the basis of 100 tons daily does not exceed a cost of $4.25 per ton.

I am informed that the cost of mining and milling the ores from the Jumper and New Era mines has greatly exceeded my estimates.

Since my early report the milling capacity has

been increased from 10 stamps to 20 stamps, or from a reduction of 18 tons to about 40 tons daily.

Increasing the reduction capacity generally reduces the cost of milling per ton. The enlarging of your mill from 10 to 20 stamps has reduced the expense from my figures made on

basis of 18 tons of	$1.19	per ton
to a cost on " "	.64	" "
to a saving of	$0.55	per ton

As the cost of milling has been decreased, the additional expense necessarily is found at the mine.

For the purposes of establishing a basis to estimate the cost of mining the ore, there must certainly be a limit placed upon the extent of development, considered from the size of the milling plant or the amount of tons required to furnish the plant daily from the mine, with a certain amount of reserves, always bearing in mind that your "mill does not crowd the mine."

At the time of my examination in 1896, I estimated there were 32163 tons of ore developed "in sight." (See Report 1896.)

Your present development shows in the mine	119695	tns.ore
and on the dumps	5500	" "
Total "in sight"	125195	tons ore

Considering the capacity of your present mill; i.e., 20 stamps, the developments show as follows:

In 1896 - Mill supply for 26 Months
In 1898 - Mill supply for101 Months.

The development and explorations in the mine have been far in excess of the requirements of your plant, greatly increasing the cost per ton of production of the mine.

COST OF MINING AND MILLING FROM PRESENT DATA

In the following calculation, I base my figures upon the requirements of the 40 stamp mill, to be shortly completed, - capacity 2½ tons of ore to the stamp or 100 tons per diem. I have also considered the present development and condition of the mine, and in determining the cost of mining have allowed for further prospecting and development in the present ore body as well as the exploration of the veins for other pay chutes.

I would therefore recommend the following work: That the drifts of the 3d, 5th, and 7th levels of the Golden Rule Mine, and that the south drift of the 7th level be advanced south, that the vein beyond present face may be explored. The requisite number of raises, winzes, crosscuts and shoots be opened, to thoroughly prospect the veins and facilitate the handling of the ores: also, continue the New Era shaft in depth that the lower levels may be explored by drifts and crosscuts as the upper levels are exhausted. Upon this basis I present the following:

DAILY EXPENSE

Calculations based on sinking the Shaft 1 foot per diem Drifts 2 feet each per diem also allowing for at least 3 crosscuts being advanced from the several levels and openings at the rate of 1 foot each daily, and at least two raises or winzes, at the rate of 1 foot each daily. This is upon the principle that as one is completed another is to be opened. The basis of my calculation is that at least 4 drifts, 3 crosscuts and 2 winzes or raises are being operated in the mine at different points, continuously, as the shaft is opened. All development work in excess of the above mentioned and that given herewith, must be considered extra expense and additional cost per ton on the daily workings.

Upon the above lines I herewith present the following figures, of which the main items of cost are from data furnished me from your accounts.

DAILY EXPENSE:

SINKING NEW ERA SHAFT

Cost per foot, 1 ft. daily; Labor, Powder, Fuse, Caps, Electricity and air	$28.12	
Timbers	1.90	
T.Rails, etc.	.27	$30.29

DRIFTING

Cost per ft. 2 ft. each daily 3d, 5th, and 7th levels North 7th level south.

2 Burleighmen,) 2 Chuckmen) pr. foot	$ 5.56	
Powder	2.22	
Fuse	.26	
2 Electricians	1.00	
1 Compressorman	.55	
	$ 9.59	
Cost each drift pr. fto. 4 drifts 2 ft. each, 8 feet, cost		$76.62

CROSSCUTS,3

2 Burleighmen) 2 Chuckmen)) per ft.	$ 6.18	
Powder	2.15	
Fuse	.41	
2 Electricians	1.11	
1 Compressorman	.61	
Cost each per foot	$10.46	
3 crosscuts at 1 ft. ea., 3 ft. cost		$31.38

WINZES OR RAISES

4 Miners per foot	$12.27	
Powder	.44	
Fuse	.35	
Cost per foot ea.	$13.06	$21.12

STOPING

44 miners at 3 tons each producing 132 tons daily ore and waste, allowing 32 tons as waste and 100 tons as ore.

Amount forwarded: $164.51

Amount forward,		$164.51
44 Men at $2.75	$121.00	
2 Foremen	6.00	
Powder	15.00	
Candles	3.50	
Timbers & Lagging	31.50	
Carmen & Labor	20.00	
Power	16.00	
2 Engineers	6.00	
2 " " Assistants	5.00	
Shoots, Incidentals	5.00	
½ Supt. & Clerk	5.00	$234.00
Total Daily Cost mining		$398.51

MILLING:

Labor	$ 13.50	
Mill Supplies	15.00	
Power	12.00	
Incidantals	4.00	
½Supt. Clerk	5.00	
Insurance $12000.00	1.00	
Total Milling		$ 50.50
Daily Expense		$449.01

COST PER TON

Mining	$ 3.985	
Milling	.505	
		$ 4.49

ORES IN SIGHT

In the foregoing measurements and calculations of ore blocked out the amount of ore in sight appears to be as follows:

IN THE MINE:		
FIRST CLASS		61833 Tons
SECOND CLASS	57862	
ON THE DUMP:		
SECOND CLASS	5500	63362 Tons
Total		125195 Tons

VALUES OF THE ORE

FIRST CLASS	61833 at $18.00-	$1,112,994.00
SECOND CLASS	63362 at 7.00-	443,534.00
	TOTAL	$1,556,528.00

In my report of 1896, I returned the average width of the ore "in sight" at 8 3/4 feet, and the value per ton as $15.30. In this examination the average width I estimate at 10 37/100 feet and the average value as $12.44 per ton.

ESTIMATING THE VALUE

In 1896 in making up the report my average valuation of the ore was determined from actual working results, i.e. $15.30, at same time I gave the following: "The thickness of the vein varies from 6 feet to 24 feet in places," and, in speaking of the value of the ore, reported "Certain portions of the ore body is of a grade averaging $6.00 per ton, and other portions of first and second levels averaging in the mill $10.92 per ton, the balance of the second level and below averaging $22.80 per ton." At that time the amount of ore estimated "in sight" I gave at 32163 tons, of this amount 12157 tons were below the second level and above the third.

Since that date 1896 the mine has been opened within the lines of the "pay-chute" to the 700 foot level, or about 400 feet deeper, and ore stoped between the first and fourth levels.

The amount of ore mined by stoping below the first level is given at 27160.87 tons, of which 25892.29 tons were taken from between the first and third levels, the balance from small stope immediately above the fourth level, north of New EraShaft, to:wit:

SOUTH OF NEW ERA SHAFT

Between 1st & 2d Levels 8 stopes	13810.76 tons
B etween 2d & 3d Levels: 2 stopes	9846.66 tons

	brought forward 23657.42 tons
NORTH OF NEW ERA SHAFT	
BETWEEN 2d & 3d Levels	
1 Stope	2234.87 tons
BETWEEN 3d & 4th Levels:	
1 Stope	1268.57
TOTAL TONS	27160.86

The width of the ore from the above stopes ranged from 6 feet to 21.25 feet. I am informed the average value of this ore from the mill work, proved in excess of my valuation of $15.30.

In estimating the value of ore in sight at the present time, my figures are based upon the results from sampling the ore in the mine along the line of openings.

The method adopted is that of sampling the ore and "panning."

The samples are taken several times during the working hours as the development progresses. From the showing in pan the grade of the ore and vein filling is determined.

Your Superintendent, Mr. M.D. KELLY, has given this matter his personal attention, systematically prospecting the ore and conscientiously determining the grade. When in doubt, the benefit of the doubt is given to the lower grade ores, - any ores not strictly first grade are classified as second grade, and questionable second grade are considered waste.

Milling results have demonstrated the grading of the ore in the mine has been very conservative.

Other than mill tuns, this system of sampling and "panning" is the only reliable principle of sampling veins that present the characteristics ores found in your mines.

THE PAY-CHUTE - according to Von Cotta-

"Ore chutes', "shoots', or 'chimneys', 'chutes of ore', called "by the French 'colonne' or 'columns', They

are always upon "the plane of the lode or vein, or approximately parallel to 'it, and certainly between the walls."

The explorations in the vein of the Jumper and New Era Mines have developed but the one "Pay-chute."

The southern limit or boundary of the "chute of ore" seems to stand almost vertical. The northern boundary as defined from level to level, apparently dips to the north at an angle of about 20 degrees from the vertical. This indicates a greater length of the ore body in depth. Upon the second level, the length of shute developed is about 475 feet. Upon the fifth level at 585 feet, - an apparent gain of 110 feet in length. The ore found in this extension of the pay-chute, by samples taken along the line of the north drifts of the 4th and 5th levels, show alternate sections of second class ore and waste (See Exhibit I).

The valuable portion of the "ore chute," showing the crossings and leaders of gold bearing quartz, associated with the narrow dikes of diabase, gray and metamorphic slates, appears to be confined within the boundary of lines drawn vertically from the defined limits of the pay ore in the north and south drifts of level No. 2, i.e.-about 175 feet north of the center of New Era Shaft and 300 feet south of the center of New Era Shaft or a total length of about 475 feet. (See Exhibit I)

PROSPECTIVE ORE CHUTES

With Exhibit No. 2, I have illustrated a vertical section, lengthwise with the vein, of the Mazeppa, Jumper, New Eraand Golden Rule claims, giving the lines of development in each to date, the location of the pay chutes defined and others that probably exist - as stated in my report on the Golden Rule Mine, October of this year, "The North End of the New Era and the South End of the Golden rule, I consider in line of a pay-choot of ore that has not been exploited."

The indications surrounding Shaft No. 3 - point to the existence of pay ore lying between the present developed chute, and the prospective chute above mentioned.

The Mazeppa Company is prospecting the vein upon its claim by sinking an incline shaft, situate at a point about 180 feet south of the Jumper claim south end line, and 17 feet east of the Mazeppa west side line. The incline follows the dip of the vein 70° east. At the time of my late visit the depth of the incline was 100 feet. The formation is that of the slate vein, and identical with the Jumper work vein, in Black slates, narrow dikes of eruptiverocks and occasional crossings and leaders of quartz.

The development indicates this shaft to be within the lines of a pay-chute of ore. The work will prospect that portion of the vein bordering the southern end of your Jumper claim, and should an ore body develop, the probabilities are that the northern part thereof will be found in the Jumper.

Be it remembered, that the vein as worked in the Jumper New Era claim I designated as the Work vein, in the Golden Rule as the east vein, and in the Mazeppa as the west vein. The explorations in the several properties demonstrate they are one and the same vein, i.e. the "slate vein." This, in my opinion, is the principal vein of the lode in the section lying between the north end of the Golden Rule on the north and Sullivan Creek on the south. It shows less disturbance, and is comparatively regular in its trend. The apix of the vein does not cross the west side line of the Mazeppa into the land of your Company, adjoining the Mazeppa on the west.

At the northern end of the Mazeppa the vein is found situated about 17 feet east of the Mazeppa and Jumper west side lines, and at the southern end of the Mazeppa bordering on Sullivan Creek, the vein crops about 90 feet east of the Mazeppa west side line. The great dike of Serpentine that I take to be the west wall of the Mother Lode proper, is situated about 200 feet west of the north west corner of the Mazeppa and the south west corner of the Jumper claims. On the south end of the Mazeppa claim the southwest corner of the claim is situated upon the dike, or, to be explicit, the west side line from the southwest corner of the Mazeppa bears N. 13½W, and the Serpentine dike bears

N. 21° W. This dike has apparently diverted the vein to the east, south of the Jumper, and crosses the Lode between the Sullivan Creek and the Shawmut Mine. Going north the dike continues in its N.W. trend to the great upheaval of quartz, known as quartz mountain, thence gradually bears north closing in on the west of the veins of the lode, finally crossing it beyond Table Mountain.

THE NEW ERA INCLINE

This incline shaft is opened in the foot wall of the slate or work vein, following the dip of the vein, average about 68° east, or 22° from the vertical and is 700 feet deep. The shaft has been operated as one compartment. During the past summer and fall, the miners were engaged in widening the shaft, timbering and preparing for an additional compartment. At each station level, shoots or ore bins were placed on the floor of the station crosscuts in the hanging wall of the incline.

This work I consider of vast importance, as it will greatly expedite the handling of ores, double the capacity of the shaft, and materially reduce the cost of operation.

THE NEW VERTICAL SHAFT

This shaft is situated about N. 68° 30' E. of the New Era incline on land lying east of the New Era claim, lately purchased by your company. The shaft is a double compartment, and at the time of my visit was about 110 feet deep.

IMPROVEMENTS AND ADDITIONS

For the purpose of this report I do not deem it essential to enter into a detailed account or description of the buildings, machinery and other additions and improvements. Suffice it to say, that since my report of 1896, the New Era shaft has been made the main working shaft, extended in depth from about 90 feet to 700 feet, completed as a double compartment, thoroughly equipped, systematically timbered and in perfect condition.

The mill has been enlarged from 10 stamps to 20 stamps and thus operated to date. At present time

20 additional stamps are about completed. This will bring the mill to 40 stamps.

A vertical shaft has been opened to depth of 100 feet double compartment. Hoists, electric plant, steam plants, compressors, tools and all connections and apparatus requisite to operate the property as expeditiously and economically as possible have been secured.

THE WATER SUPPLY

The present year has been one of unusual drought. All industries of the State have suffered. During the summer and fall months but few mills were in operation, and in many instances the supply of water has been insufficient for battery and boiler purposes.

At the time of my visit the Jumper mill was operating 5 stamps, 10 hours daily.

The hoist of New Era shaft, running by steam, generated from water pumped from the New Vertical Shaft. Work upon the latter having been suspended.

The water supply companies, from the experience of this past season, are preparing for the future, in caring for the water courses and ways, guarding against waste, - also providing for increased supply at the head of the streams in the high mountain ranges.

THE MILL TAILINGS

During the run of the mill, I secured samples of the tailings, and by assay they showed a value of $3.51 in gold. I cannot consider this a fair test of the general average of the mill work. The insufficient supply of water tended to increase the viscosity of the waters flowing from the battery, resulting in the flotation of fine mineral.

Experiments applied to these tailings gave the following results:

1st	Fine slimes passing 200 mesh 15.197 percent, assay per ton		$2.98
2nd	Coarse slimes passing 100 mesh and resting on 200 mesh	62.396	$3.96
3rd	Sands resting on 100 mesh 22.391 percent, assay per ton.		$1.65

This experiment shows that at least 77.59 percent of the pulp flowing from the battery screens will pass through a No. 100 mesh, and contains 91 1/10 percent of the value of the tails. As I suggested at the mill, I recommended the treatment of the tailings by sizing through pointed boxes (somewhat similar to the Spitzkasten of the Germans) with the improved method of introducing the diluting water, thence flowing the several sizes over the automatic canvass tables.

The whole principle of concentration depends upon specific gravity - and this upon property sizing of the material treated. Under this method of treatment a large percent of the gold contents can be concentrated. The process depends upon sufficient and ample water for purposes of diluting the material from the battery.

THE MINE

In the mine I would suggest the sinking of the incline as herein provided and advance the several levels referred to on page 10 of this report. Having carefully examined the geology of the Jumper and Mazeppa locations, as well as the rocks lying immediately to the east, I am led to believe there is a crossing of veins within the boundary of the Jumper claim south of your present workings.

In my former report I mentioned two separate and distinct veins, i.e. The Boulder and the Quarts vein, situated west of the work vein. In tracing the course of the Serpentine dike, I find the work or slate vein at the southern end of the Mazeppa in contact with the Serpentine. From this I infer the work vein to be the main vein of the lode south of quartz mountain to the crossings of the Serpentine dike beyond Sullivan Creek. The veins lying west of the work or slate vein as seen on the Gol-

den Rule, New Era and northern portion of the Jumper have been diverted from their course by the Serpentine dike. They appear to parallel the dike and not the work or slate vein. I am therefore of the opinion that the so-termed Boulder and Quartz Veins intersect the work or slate vein at some point in the southern half of the Jumper claim and perchance cross to the east, and are the veins found cropping within the Mazeppa claim on the east of the slate vein. All these veins are more or less mineralized. Experience has taught us that the intersection or crossing of such veins generally enrich the main vein. I would therefore advise the continuous advancement of the south drift of the 7th level, defining the extent of your present pay-chute. This will determine this question and at the same time prospect the work or slate vein at that depth.

In my report of 1896 I mentioned, "It should be remembered that several mines of the Mother Lode are working the Boulder and Quartz Veins, producing large bodies of average ore;" and again, "The indications are that the Jumper and New-Era contain very high grade oresin the work vein, and large bodies of fair grade ore in the parallel veins."

Explorations since then have demonstrated the grade of the ores of the work vein.

I again advise the thorough prospecting of the Boulder and Quartz veins, by carefully examining the surface indications along the line of the veins, determine the locality of the ore bodies and exlore them by incline shaft in the vein, also by crosscuts from the lower levels of the work vein.

IN CONCLUSION a few words bearing upon the future of the mine in connection with the NewEra Incline and the New Vertical Shaft may be of interest.

The relative position of the incline and the shaft I show in drawing marked Exhibit No.4.

The incline is 700 feet deep, and within the lines of the pay-chute.

The vertical shaft, situated east of the vein is

in the country rock - present depth 100 feet. An additional depth of say 920 feet on the vertical, and of say 420 feet on the incline, with crosscut of about 50 feet, will intersect the vein.

The total lift on the incline will be about 1120 feet and that of the vertical 1020.

The incline will continue within the lines of the pay-chute and follow the dip of the vein.

As I suggested at the mine, I advise discontinuing operations on the vertical for the present, and stay with your vein by continuing the incline. As you exhaust the ores developed by the several levels, and the character of the vein at greater depth is determined, the vertical should be considered.

In closing this report, I desire to say: I believe the Jumper - New Era property the equal of any of the gold mines of the Pacific Coast, and if developed as carefully and judiciously as within the past, gives assurance of as bright a future as the most valued properties of the Mother Lode.

Congratulating you and your Syndicate in having secured so valuable property, I respectfully submit this my report.

(SIGNED) WM. P. MILLER

C O P Y

REPORT ON THE GOLDEN RULE MINE

Nov. 21, 1898

By: Wm.P.Miller
San Francisco,Calif.

C O P Y

To :-

P.GEORGE GOW, ESQ.
General Manager of the
JUMPER GOLD MINING SYNDICATE

Dear Sir:-

In compliance with your instructions, I visited the Jumper and New Era Mines of your Syndicate during the month of October and made a careful examination of the same, with the view of obtaining reliable information as to the condition of the mines with special reference to the extent of development, exploration to date and future prospects, and herewith submit my report.

Yours respectfully,

SIGNED

WM. P. MILLER

San Francisco,
No. 21, 1898.-

C O P Y

REPORT
on
the

GOLDEN RULE MINE, TUOLUMNE,
California

LOCATION

THE GOLDEN RULE MINE is situated in sections 26 and 27 of Township 1 North, Range 14 East Mount Diablo base and Meridian, Tuolumne County, State of California, United States of America.

The Sierra railroad is now operated as far as Jamestown, distant about two miles north from the Golden Rule Mine.

The property of the Golden Rule comprises a mining claim 1,650 feet in length on the Mother Lode by a width of 501.6 feet, also a mill site 1,089 feet by 776.16 feet, adjoining the mineral claim on the southwest. Both properties have been secured by Letters Patent from the United States Government.

The property is situated north of the "NEW ERA" mining claim of the Jumper Gold Syndicate. The Golden Rule south end boundary intersects the New Era north boundary line at a point situated about 45 feet S 74° W of the northeast corner of the NEW ERA claim. The north end line boundary of the NEW ERA bears, from the northeast corner of the NEW ERA, S 77° 30' W. The Golden Rule south end line boundary bears, from the southeast corner of the Golden Rule, S 74° W.

From the northeast corner of the NEW ERA claim the GOLDEN RULE southeast corner bears N 72° 30' E 200 feet. (Plate I).

The lap forms a triangular piece of ground as herewith represented:

It will be noted that the crossing of the end lines

gives two pieces of ground triangular in form, resulting from the lap: one southwest, the other northeast of the crossing. The piece lying to the southwest of crossing is covered by the NEW ERA and GOLDEN RULE claims and mill site. The piece lying northeast is between the south end boundary of the Golden Rule claim, for a length of about 77 feet, and the north end line of the New Era and north end line of the piece or parcel of land adjoining the NEW ERA on the east, as purchased from M. Bogan.

This triangular piece has the following dimensions and bounds: Beginning at the point of line crossing, marked "A" on sketch; thence, north boundary, N. 74° E 247 feet to southeast corner of Golden Rule; thence, S. 16° E 12¼ feet to the north line of property purchased from M. Bogan; thence, S. 77° 30 W. 172 feet, following north line of Bogan purchase and north end line of New Era claim, to point of beginning.

This is but a small piece of land, apparently of little value; at the same time I consider it my duty to call your attention to the fact that it lies between the end lines of the Golden Rule an d your New Era - Bogan property.

GENERAL DESCRIPTION OF SURFACE

The veins of the Mother Lode are traceable the full length of the Golden Rule mining claim; the general course, or trend, of the lode at surface is about N 6° 30' W.

The veins have been worked in early days by open cuts, trenches, pits and short inclines and underhand stoping from the surface. This is especially noticeable in the slate vein, designated in this property the east vein.

The miners apparently followed the rich seams and crossings of gold bearing quartz wherever found in line of slates.

The southern portion of the claim has been extensively worked in the manner above described and

undoubtedly yielded handsome reward. Subsequent development by deep workings has demonstrated the existence of a valuable shoot of ore; the miners of early days had but scratched the surface, unwittingly uncovering a vein of great value.

DESCRIPTION OF THE MINE

The mine has been opened by a crosscut tunnel from the west into the hillside, commencing at a point in the mill site situated 391 feet N 18° W of the northwest corner of the NEW ERA claim.

An incline shaft in the east vein, situated about 695 feet north of the Golden Rule south end line, at point of intersection of the section line between sections 26 and 27.

A vertical shaft, situated about 75 feet N 13° 30' W of the incline shaft.

There are also three small incline shafts, situated, from the vertical shaft, as follows:

1st	Small	shaft	on	east	vein;	bears	N 1°	30'	W	301 ft.
2nd	"	"	"	"	"	"	S 3°	15'	W	265 "
3rd	"	"	"	"	"	"	N34°	30'	W	267 "

(plates II and IV)
From the shafts and tunnel the veins have been explored by crosscuts and drifts on several levels, and ore extracted by stoping.

In making my examination the first work consisted of a survey of the underground workings, making the mouth of the tunnel the initial point. The results of this survey I have illustrated in the accompanying drawing (Plate II)

From the initial point the line of tunnel bears N 72° 7' 30" E 464.83 feet, crossing the strata of the rocks to the east vein; thence, drift in east vein S 7° 30' E 104.72 feet to south face.

North from tunnel in east vein (Station I) from Station I 1st course N 9° 15' W 82.00 feet

from station		II	2nd	course	N	46°	W	12.33	Feet
"	"	III	3rd	"	N	29°	W	44.66	"
"	"	IV	4th	"	N	15°30'	W	108.15	"
"	"	V	5th	"	N	5°	E	39.66	"
"	"	VI	6th	"	N	30°	E	33.90	"
"	"	VII	7th	"	N	7°15'	W	28.66	"
"	"	VIII			N	7°15'	W	132.24	" to dike
"	"	IX			N	7°15'	W	47.10	" across dike
"	"	X			N	7°15'	W	36.33	" to turn table
"	"	XI	8th	"	N	3°	W	89.50	"
"	"	XII	9th	"	N	10°	W	137.10	"
"	"	XIII	10"	"	N	6°30'	W	49.66	"
"	"	XIV	11"	"	N	13°	W	35.80	" to face N. drift

From station VI a drift is opened to the south, connecting with the old incline shaft.

From station VII a crosscut bears west 35.66 feet to new vertical shaft.

From station X a crosscut bears N 88° W 179.50 feet to middle vein; thence, drift bearsS 2° E 109.33 feet in middle vein and from the 179.50 - foot station the north drift bears:

1st.	N	6°30'	E	34.70	feet
2nd.	N	15° 7'30"	W	45.00	feet
3rd.	N	4° 30'	W	24.72	feet
4th.	N	47°	E	32.23	feet to north face.

At north end of drift in east vein there are two short crosscuts west in the vein.

The vertical shaft is about 80 feet south and 35 feet west of the center of the claim. The shaft was located upon the apex, or outcrop, of the east vein, thence sunk vertically to a depth of 500 feet. The first, or tunnel, station, at depth of 80 feet, intersects the crosscut from east vein; length of crosscut, 35.66 feet east.

The second station, at depth of 300 feet from surface, designated as the third level, intersects the middle vein at shaft. From the shaft a crosscut extends east 144 feet to the east vein; thence drift in the back slates of vein in a general course of about N 7° 30' W 393 feet to north face of drift.

The third shaft station, at depth of 400 feet, is

from station	II	2nd	course	N 46°	W 12.33	Feet	
" "	III	3rd	"	N 29°	W 44.66	"	
" "	IV	4th	"	N 15°30'	W108.15	"	
" "	V	5th	"	N 5°	E 39.66	"	
" "	VI	6th	"	N 30°	E 33.90	"	
" "	VII	7th	"	N 7°15'	W 22.66	"	
" "	VIII			N 7°15'	W132.24	"	to dike
" "	IX			N 7°15'	W 47.10	"	across dike
" "	X			N 7°15'	W 36.33	"	to turn table
" "	IX	8th	"	N 3°	W 89.50	"	
" "	XII	9th	"	N 10°	W137.10	"	
" "	XIII	10th	"	N 6°30'	W 49.66	"	
" "	XIV	11th	"	N 13°	W 35.80	"	to face N. drift

From station VI a drift is opened to the south, connecting with the old incline shaft.

From station VII a crosscut bears west 35.66 feet to new vertical shaft.

From station X a crosscut bears N 88°W 179.50 feet to middle vein; thence, drift bears S 2° E 109.35 feet in middle vein and from the 179.50 foot station the north drift bears:

1st.	N	6° 30'	E	34.70 feet
2nd.	N	15° 7' 30"	W	45.00 feet
3rd.	N	4° 30'	W	24.72 feet
4th.	N	47°	E	32.23 feet to northface.

Atnorth end of drift in east vein there are two short crosscuts west in the vein.

The vertical shaft is about 80 feet south and 35 feet west of the center of the claim. The shaft was located upon the apex, or outcrop, of the east vein, thence sunk vertically to a depth of 500 feet. The first, or tunnel, station, at depth of 80 feet, intersects the crosscut from eastvein; length of crosscut, 35.66 feet east.

The second station, at depth of 300 feet from surface, deisgnated as the third level, intersects the middle vein at shaft. From the shaft a crosscut extends east 144 feet to the east vein; thence drift in the black slates of vein in a general course of about N 7° 30' W 393 feet to north face of drift.

The third shaft station, at depth of 400 feet, is designated as the fourth level. From shaft the crosscut extends east 191 feet to east vein, cutting

designated as the fourth level. From shaft the crosscut extends east 191 feet to east vein, cutting the middle vein about 65 feet from shaft. There are no drifts made in middle vein on this level. On the east vein the south drift has been advanced 60 feet and the north drift 80 feet.

Fourth station, or 500 - foot level; crosscut from shaft 98½ feet to middle vein; thence, 141½ feet to east vein; length of crosscut, 240 feet.

Drifts:	On middle vein,	south	15	feet
	" " "	north	105	"
	" East "	south	211	"
	" " "	north	216	"

From the shaft on this level a crosscut has been made to the west 172 feet, with the expectation of cutting the west ledge. At the time of my visit the face showed a brownish talk schistose rock, standing vertically (plates II & IV).

The old incline shaft, situated 75 feet south of the vertical, I am informed has a depth of about 268 feet on the dip of the east vein.

Drifts in vein from bottom of shaft; south 320 feet; north 45 feet.

I am under the impression that the north drift extended at least 125 feet, as shown by dotted lines on Plate IV.

The vein has been stoped north from above the 260 foot level of the old shaft, as shown also by dotted lines. It must be remembered that all stopes from the old shaft are to the east of the vertical shaft, hence, all workings from the old shaft are not visible below the first level.

From the new, or vertical, shaft between the first and third levels no explorations by crosscut or drift have been made in the veins.

On the 300 foot level there has been no drift south. The drift north is in solid ground, with but little water seepage, evidence of considerable unbroken vein between the drift and stopes.

On the 400 foot level a south drift has been extended

about 60 feet, in solid vein matter.

On the 500 foot level the south drift to face is 211 feet in solid ground, with some water seepage from above. All work south of the vertical shaft was discontinued for some time past, the Manager stating that "the old stoped ground has not been approached by our new workings as we wished to avoid the water contained in them."

To condense: the length of tunnels, crosscuts and drifts and depth of shafts are as follows:

1st. Level:

Length of crosscut tunnel to east vein		464.83ft.
" " " east vein - vertical shaft		35.66 "
" " " east vein - middle vein		179.50 "
total length main crosscuts		679.99 ft.
Length of drifts: East vein S	104.72 ft.	
" " " " " N	869.09 "	
" " " Middle " S	109.33 "	
" " " " " N	136.65 "	
Total drifts		1,219.79 ft.

2nd. Level:

From vertical shaft:		
Crosscut to east vein	144.00 ft.	
Drift on east vein N	393.00 "	
Total length levels		537.00 ft.

4th Level

From vertical shaft:		
Crosscut to east vein	191.00 ft.	
Drift on east vein S	60.00 "	
Drift on east vein N	80.00 "	
Total length levels		331.00 ft.

5th Level:-

From Vertical shaft.		
Crosscut to east vein	240.00 ft.	
Drift on middle vein S	15.00 "	
" " " " N	105.00 "	
Bal fwd.		360.00 ft.

Bal fwd.		360.00 ft.
Drift on east vein S	211.00 ft.	
Drift on east vein N	216.00 "	
Total length of levels		787.00 ft.
crosscut from shaft west		175.00 "
depth of vertical shaft		500.00 "
Total length.		4,229.78 ft.

The above openings are all open in fair condition.

The openings in the old inclind shaft I give from information gathered from parties represented to be cognizant of the workings. The levels and drifts have caved in and the incline is filled from fallen stopes below the first, or tunnel level.

Depth of incline	268 ft.	
Length-north drift	320 ft	to bottom of incline
Length-south drift	125 ft.	to bottom of incline
Total	713 ft.	

I have taken no account of any intermediate levels from this incline shaft as the ground was all stoped.

To recapitulate:

The mine hasbeen exploited by crosscuts to the extent of:

		1,429.99 ft.
by drifts, east vein		2,378.81 "
by working shafts, vertical	500 ft.	
by working shafts old incline	268 ft.	768.00 ft.
Total		4,942.78 ft.

The greatest length worked on the east vein is upon the first level, measuring from the south end of the drift to the north end at least 973 linear feet.

GENERAL DESCRIPTION OF THE "LODE" IN THE GOLDEN RULE.

The course of the Lode is about N 7° 30' W, as defined by the several levels in the veins. Upon referring to Plate III it will be noted that I have endeavored to illustrate the general geological character of the lode, showing the several veins as developed in the property. The drawings refer to the

faces of the vein on different levels, the showing of the roof in south drift on 500 foot level and the formation uncovered by the crosscut from the vertical shaft to the east vein in the 500 foot level.

The cross section on the 500 foot level presents the following rocks:

South of the shaft the formation comprises a belt of talc schists, limestone, irregular bands of coarse grained diorite and masses of white quartz containing no mineral. The talc schists have no regular stratification. The crosscut south has penetrated this formation 175 feet. North of the shaft the talcose schists, mixed with white quartz, extend for 43 feet in the crosscut; thence, follow bands of dark green schists (undoubtedly an altered diorite), limestone and quartz, slates, diorite and diabase.

The mineral bearing zone of the middle vein, in my opinion, includes the diabase immediately west of the mixed slates at drifts, the diabase, overlapping the slates on the east giving a width on the 5th level of about 15 feet. (plate III).

The east vein includes the gray slates on the west and extends to the diabase (more likely a diorite) on the east of the black slates of the drift.

The middle vein consists of bands of gray slates, diabase, metamorphic slate, and black slate with quartz seams as leaders and crossings.

The east vein of the section of the Lode within the boundary of the Jumper, New Era and Golden Rule properties is typically a slate vein, the black slates comprising the larger portion of the vein, with a perfect lamination in regular planes, having a trend northwesterly and southeasterly.

In Plate III, I illustrate the faces of several drifts on the east vein, showing the dip and lamination. On the 500 foot level the face of south drift shows a dike of diabase on each side; on the north face two small dikes of the same rock on the foot side. In the roof of the 500 foot level south a small dike of diabase crosses the strata of the slates from one side to the other, preserving its regular size and general character.

The illustration upon the right upper corner represents the face of the crosscut in the vein, showing the plane of the slates and a narrow crossing of quartz, with gold.

This rich crossing has been followed in the crosscut in west portion of the vein for several feet, cutting across the slate laminae from the diabase dikes.

The illustration of the face of north drift in middle vein will give a fair impression of its character, closely connected bands of diabase on the west, or foot, followed by schistose talc rocks and diorite. The bunches and crossings of quartz also appear to cross from the diabase on the west, or foot, side easterly across the mixed slates and schists. The crossing in face of drift, at the time of my examination, showed free gold in several places, also in small crosscut to the east toward the diorite.

In all the levels and openings I noted no fault or disturbance from intrusive rocks that in any way diverted the veins from their general trend. In the first level, at a point situated about 155 feet N. 7°15' W of crosscut connection with the vertical shaft, a dike of diorite and calcium carbonate crosses the east vein. The drift was opened through the dike 47 feet to the vein on the north side. The vein on each side of this dike presents no evidence of disturbance or divergencefrom its regular trend.

In the line of drift through the dike there are seams and cavities extending in line of vein. These seams and cavities are filled with calcite. In the roof of the drift in line of dike stalactictes are forming from the waters charged with solutions of carbonate of lime percolating through the dike.

The general impression has been that this dike cut the vein at right angles from east to west.

I am of the opinion that it cuts the vein obliquely from the southwest to the northeast.

I noted in line of tunnel, about midway between the

mouth and the east vein, the same formation, i.e., a dike of diorite and limestone crossing the tunnel (see green dotted lines on Plate II). As the drifts of the lower levels are extended north they should encounter the dike crossing.

The vein formation is identical with the Jumper, the bands, or small dikes, of diabase, metamorphic and gray slates, associated with quartz, with the black slates, the vein; the dikes following generally the strata and lamination of the slates.

These dikes of Plutonic rocks are of varied width, generally from one-quarter of an inch to several inches, and have much to do with the mineralization of the veins with gold.

The veins of this section are the most productive when these narrow dikesare found associated with quartz. The quartz passes from the dike into the slates, either following in the planes of the laminae or crossing the strata. The latter "crossings" are generally very rich in gold.

In portions of the veins these dike-quartz crossings are closely associated along the line of the vein, their number defining the pay-shoots and gradeof the ore in different sections of this mine. The Jumper hasdemonstrated this fact.

DEVELOPMENT

In the general description of the mine, I have given the true course of the tunnel and drift openings in the first level by survey with transit and tape measurement, showing the meanderings of the drift in the vein. Especially is this noticeable south of the vertical shaft, where the drift follows the foot of the vein around the stopes worked from the old incline shaft.

The pay-shoot in this section was evidently at least 20 feet in width between the walls. The levels and drifts below the first I have illustrated along the lines of their general course.

The levels and drifts have been opened mainly by

following the black slates, as the slates present less resistance in mining, resulting in greater "headway" than could b e made in the harder dike rocks of the vein. As there are but few crosscuts from the drifts, either east or west, it is impossible to arrive at the actual width of the veins and their mineralization in the different sections along the lines of the drifts.

The first level has been explored and the ores stoped a distance of over 750 feet from south face to within about 150 feet of north face.

Below the first level the center pay-shoot has been stoped from the old working incline to depth of 268 feet and average length of 400 feet.

On the fifth level, north of vertcial shaft, the east vein has been stoped a length of about 150 feet north by 15 t o 20 feet high. This drift is timered and six ore chutes of 2 inch plank set in place, connected with the stope.

The workings of the mine and amount of ore extracted tend to confirm the existence of an ore body, or shoot, of great length. The ores have been stoped from above the first level to surface, a length of about 750 feet. This great length of pay ore was undoubtedly made up of different grades of value; certain sections of high grade, others of medium grade and others of lower grade, all being sufficiently mineralized with gold to warrant extraction and reduction.

A portion of the vein was followed down 260 feet by the old incline shaft and the ore stoped above the 260 foot level, for about 400 f eet in length, to the surface. This section of the vein carried very high grade ore. Unfortunately the explorations and mining were abruptly interruptedby the loss of the incline, from caving.

Some years after the cave, the vertical shaft was commended and sinking continued to its present depth of 500 feet. The explorations in the vein, from this shaft, have been mainly to thenorth on the 300 and 500 foot levels, and to some extent south on the 500.

ESTIMATE OF ORE IN SIGHT

In estimating the amount of ore exposed by the present development the main difficulty is in the determination of the average width of the veins. The size of the drifts and levels furnishes no reliable data, as they are of a prescribed width and generally follow the slates, regardless of the walls. I do not think the walls deviate from a straight plane, parallel to each other. The vein being formed of the stratified slate, mineralized by intrusive dikes, the width of the pay portion greatly depends upon the number, width and character of the dikes.

The old workings in stoped ground indicate that the vein has been stoped in some sections at least 20 feet wide; in othersfrom 5 to 8 feet wide.

From the above facts and figures, I consider it perfectly safe to estimate a width of ten feet a fair average of the ore taken from the mine, and in my calculations of the ore "in sight," i.e., ore blocked out and still in place, I give a more conservative estimate of the width, prefering to be rather under what may be considered the width of the ore. I therefore place the width, to determine amount of ore in sight, at 7 feet. My calculations are based upon the blocks of ore developed in east vein above the 500 foot level, as represented by Blocks "a", "b", "c" and "d" (plate IV).

In the middle vein I allow one-half of the block of ground explored on the fifth level above the 105 foot drift, estimated to the surface, thus:

EAST VEIN:

Block	a	-150'	x	50'	x	7':	52,500	cu.ft.
"	b	-230'	x	210'	x	7':	338,100	" "
"	b	-140'	x	50'	x	7':	49,000	" "
"	c	-285'	x	200'	x	7':	399,000	" "
"	d	-240'	x	230'	x	7':	386,400	" "
				TOTAL			1,225,000	

deduct ore taken from drifts, raises and large dike crossing:- 142,000

Balance 1,083,000 cubic ft.

Middle Vein:

105' x 480' x 6' : 302,400

- : - ½ : 151,200 cubic ft.

GRAND TOTAL 1,234,200 cu.ft.

VALUE OF THE ORE

To determine the value of the ores I found it impossible to arrive at any satisfactory conclusion by sample and assay. In the Jumper Mine I encountered the same difficulty as I stated in my report at time of examination, from which I quote as follows:

> "In endeavoring to determine the actual value of the ore per ton I found the results of sampling the ore body in place impracticable and altogether unreliable, owing to the general character of the vein, in the stringers of rich quartz and varied slates, at one time sampling a few cents, and within a few inches on the same face, sampling several thousands of dollars."

The only reliable test is that of actual results derived from milling.

We have the history of the GOLDEN RULE MINE in the past, from which to gather an idea of the value of the ores taken from the mine to date. Upon the sketch (plate IV) I have shown the amount of ground stoped, represented by shaded Blocks, 1,2,3 and 4. I may have extended the stopes too far north in Block 4 as I am informed it was worked but 45 feet north of the old incline shaft. As before mentioned I have placed the width at 10 feet.

The mine is said to have produced over $1,000,000 in gold, aside from the product resulting from the surface "seam mining" of early times.

OLD WORKINGS: EXPLORED AND STOPED, East Vein

Ore from the tunnel level	30,000 tn.
Ore from the incline shaft	71,250 "
Ore from the vertical shaft, 5th level	1,930 "
GROSS	103,180 "

With this liberal allowance of cubic feet, based upon the calculation that all the vein filling was stoped to width of 10 feet, we have a value per ton amounting to about $10,00 or to be exact $9.69.

I question the total stoping of the full length to the width of ten feet as calculated, as in early days the miners extracted but little of the lower grade ores, therefore the ores mined averaged higher than my estimate, tending to confirm the reports of the richness of the ores that weretaken from the GOLDEN RULE MINE.

The mines in the slate veins of the Mother Lode are characteristic in having sections of extremely rich ores and othersof medium and low grade ores, which, mined as a whole, produce a good grade of milling ore.

Considerable ore was mined and milled from the middle vein, taken out abovethe sixty foot level. This is reported to have averaged from $6 to $10 per tonnet.

TONNAGE AND VALUATION

From the above estimates of cubic feet of ore in sight, and the value thereof, I deduce the following:

East Vein:			
1,083,000 cu. ft.	77,357 tons	@ $9.69	$749,589.33
Middle Vein:			
151,200 cu. ft.	10,800 tons	@ $8.00	86,400.00
		GROSS VALUATION	$835,989.33

IMPROVEMENTS

The improvements upon the property comprise a 10 stamp mill, stamps of 750 lbs. each, run by water; a hoisting plant and boiler.

The new orehoist shaft is of the crib pattern, that is to say, the sides and ends are formed of 4 inch planks, set horizontally on edge and dovetailed securely. This forms a solid plank frame the entire depth of shaft, vertically 500 feet. The shaft is divided into two compartments. At time of my visit but one was being operated. The cage is on the safety principal, so arranged as to be under perfect control of any one riding therein. The ore cars are of the usual pattern, built of iron.

The levels, drifts and crosscuts connecting with the vertical shaft are all in good condition and tracked with T rail.

MINING AND MILLING

In estimating the cost of mining and milling my calculations are based upon the reduction of at least 2½ tons to the stamp, or 100 tons per diem; the mill to be operated by steam or compressed air. My figures in arriving at the cost of mining are based upon the expense of stoping the daily supply of ore, the daily cost of operating the vertical shaft, opening and operating the old incline shaft and advancing the following drifts at least one foot each every 24 hours:

IN EAST VEIN: 5TH LEVEL: drift north and drift south
3RD LEVEL: " " " " "
1ST.LEVEL:

IN MIDDLE VEIN: 5TH LEVEL:
I also allow for crosscutting from drifts.

The above work embraces the cost of labor, power, powder, tools, light, oil, timber, lagging, tracks and all material connected or appertaining to legitimate mining and milling.

Upon the above basis the cost of mining and milling should not exceed $4.25 per ton.

The incline shaft I calculate will be opened and securely timbered through the caved ground and stopes and then continued in depth if deemed necessary.

The cost of opening through the old ground I estimate about to that of sinking.

GENERAL REMARKS:

In the crosscut west of face of first level, there is a rich crossing of quartz and gold. This is new and unexplored ground, the vein showing at least 18 feet in width. Samples from this section gave the following assays:

~~Inx5x.x.x.x.x.x.x~~

Face of drift, black slates	1.24
South side, west crosscut	1,063.57

Face of crosscut, including crossing	1,649.61
Sample from crosscut: S 40 ft. of first crosscut, on north side of cut	10.54

In 3rd level, north drift, samples taken along line of drift gave $2.80 and $16.94. The indications here are very favorable.

In 5th level:

face of north drift	$ 3.72
sample from stopes	8.67
face of south drift, including small seam of quartz	4.13
sample taken from roof along line of drift, including the diabase dike, black slates and small quartz seams	12.37

The north drift, 5th level, on middle vein, gave the following assay ofsamples taken from several points along roof of drift and in face: $0.82, $9.30, $3.82, $1.24, $12.37, $28.84 and $602.58.

The two last mentioned were from above and below a rich crossing of quartz and gold in roof and from short crosscut east, near face of drift, not including the main rich seam or crossing.

The above quoted assays give a fair representation of the character of the mineralization of the vein and the unreality of depending upon sample assays, as hereinbefore mentioned.

RECOMMENDATIONS:

In working the mine I make the following suggestions: the old incline shaft should be reopened to its former depth, relieving the mine of storage water in old workings.

The No. 2 level of the Jumper should be advanced north and the same level of the Golden Rule advanced south to connect at some point in the north end of the NewEra, or south end of Golden Rule.

Levels, No. 5 should also be extended and connected.

A careful survey should be made prior to starting the levels from the Golden Rule, my aneroid showing

the collar of the Golden Rule shaft to beat about 65 feet greater elevation than the collar of the New Era shaft.

The vein in north face of drift, in first level of east vein, should be thoroughly explored, as the indications are that it is in line of a pay shoot.

The drift in middle vein, 5th level north, should be extended and explored by crosscuts. This drift contains some very high grade ores.

The driftson 5th level are driven almost entirely in the black slates. The vein should be thoroughly prospected from time to time byecrosscuts. The drifts are in the line of thepay shoot.

Ores from the Golden Rule mine should be conveyed to the Jumper Mill, either by either trolley (electrical) transmission or tramway, conditional upon your working the Jumper, New Era and Golden Rule as one property, under one management.

I also recommend that the capacity of the Jumper Mill be increased by the addition of 20 stamps immediately and the duty of the stamps brought to 2½ tons each daily.

CONCLUSION

In concluding this detailed report I desire to call your attention to the following:

The north end of the New Era claim and the south end of the Golden Rule claim I consider in the line of a pay shoot of ore that has not been exploited.

The middle pay shoot, as worked from the old incline shaft, and the old workings along the line of the first level, in connection with the prospect of opening a pay shoot in north end of the claim, as indicated in end of north drift, fully demonstrate the mineralization of the vein and value of the ores.

The continuation of the vein and mineralization in depth is beyond question. The Lode has been explored in may claims to great depth. The work-

ings and developments in the Jumper, New Era and Golden Rule demonstrated the value and continuation of the veins.

The values come from below, i n connection with the small dikes of igneous rocks. The occurence of gold in the crystalline dikes and their influence upon the mineralization of veins is well-known among mining men.

I also call your attention to the fact that the estimate I place upon the value of the ore reserve may appear rather conservative, and that I do so upon the evidence gathered from former workings of the whole vein filling. While I do not desire to exaggerate the value of this property I believe my estimates in this report are rather below than above what may be expected from the property under a careful and judicious management.

Respectfully submitted,

SIGNED

WM. P. MILLER, M.E.

San Francisco, California
October 12, 1898.

C O P Y

Summary of
the

Jumper Mine

April 19, 1939
Los Angeles, Calif.

By: Albert J. Jones,
M.E.

copy
SUMMARY

JUMPER - MINE
Tuolumne County, California

Location on the Mother-Lode, three miles south of Jamestown, Tuolumne County, California.

The property consists of the Jumper-New Era and Golden Rule, approximately 3800 feet along the lode, about 170 acres in all. The Mazeppa Mine adjoins this group on the south and may be included in a sale but is a separate ownership from the Jumper. Adding the Mazeppa to the Jumper properties will give a total length along the lode of approximately 5400'.

Past production reported by the State is $5,000,000. for the Jumper-New Era and $1,000,000. for the Golden Rule. Other reports carry the extraction at over $10,000,000. The Mazeppa we have no records of.

The Jumper was considered one of the richest mines in the whole one hundred and twenty miles of the Mother Lode, while other mines have produced more gold, very few were as spectacular and profitable in the length of time that this mine was on production. Belonging first to a Scotch Company of Glasgow, Scotland, then later it passed to French interest of Paris, France. Therefore, the Jumper Mine is better known today in Paris and London than in the United States.

All the above gold came from two ore shoots, one on the Jumper 750' in length, 750' in depth by 20' in width, where approximately between 700,000 and 800,000 tons were extracted. The other ore body on the same fissure came from the Golden Rule, where 103,180 tons of ore that averaged $9.69 on the old price of gold was extracted. This all came from the two-fifty level to the surface. Below this level to the 1300 is all virgin ground.

On the Jumper, owing to the rich shoots encountered, then men had to be searched, but at that, gold was carried off in trunks and heavy chests. Some wq-timates have been reported as high as high as $50,000 per month was taken away by the miners. One shoot reported at $300,000 was extracted on the two-hundred level for a length of two hundred feet. In this shoot they claim one continuous

sheet of gold twenty seven feet long by five feet high and from 1" to 3" in thickness. It was estimated at $4,000.00 per lineal foot equal to approximately $108,000.00 in value. Owing to the free gold an 80 stamp mill produced $65,000.00 to $70,000.00 per month for many years on just straight amalgamation. The sulphides were thrown away.

The property has one 1800 foot double compartment shaft on the Jumper-New Era and a vertical 500' shaft with an offset and an incline winze to the 1300 level on the Golden Rule.

There are (4) known veins over a width of about 200 feet with an additional series of veins in the hanging wall that may extend the width for large scale mining another 500 to 1000 feet. It must be understood that only one vein, known as the Jumper or East vein was ever worked to any extent. The Middle or Footwall veins had some development over on the Golden Rule and on the Mazeppa of which we have very little records of. Most of the Mines along the Mother-lode have gotten their bulk of production from the Bull Vein, also known as the Middle Vein, therefore this virgin region of a mile in length including the Footwall vein must be given consideration for potential future production. It must be remembered that the Jumper ore shoot was so rich in gold that whenever low grade ore was encountered in the Middle and Footwall Veins, they were not interested and even if such ore was too low grade to mine at a profit in those days, it may be very profitable today with a 70% increase.

The writer spent (5) yearson the Jumper property, and feels that his study and knowledge, gained by mill tests and the taking of many samples, gives him the right to feel that he has a better knowledge than anyone of the possibilities to be found here. Especially, as he had acquired a pretty thorough knowledge of other mines along the lode, particularily Mdones, besides an extensive experience gained in other parts of this country including Mexico and Canada.

The Jumper property cannot be appraised by ordinary orthodox cut sampling. Very few mines along the

Mother Lode can, but this fact has not been recognized as yet, unless it is just now since the Alaska Juneau have taken over the Harvard mine located two miles to the north from the Jumper. Various large interest this past two years have sampled the Harvard mine and cut thousands of samples with the results that the property was turned down. The Bradley's of the well-known Alaska Juneau Company devised a (3) way check and by these results they are reported at concluding the purchase of the property. Mill tests have always been considered about the only reliable method of arriving at a fair valuation of the average Mother-Lode mine, however the Bradley's devised a method by following behind the diamond drill hole with a drift or crosscut. This in turn was checked by cut samples against car samples and these in turn were checkedwith the cores. The average of the (3) determined the value. The Harvard Mine has already produced approximately $5,000,000.00, and it is reported that between (5) and 7,000,000 tons of ore of a value ranging etween $2.00 and $3.00 has been found above the 500 foot level. This body has a length of 700 to 800' and a width of over 100 feet.

On the Jumper group I would expect a similar condition as that encountered on the Harvard but much greater in extent with probably better values wih longer and wider shoots. To begin with in this mile of area, on the assumption that only the known ore shoots were to be considered, the Jumper would have an approximate length of 1000 feet, the Golden Rule a 1000 feet and the Mazeppa a possible 1000 feet. As to the width we do not know at this time, however mill runs checked by sampling near the main Jumper shaft showed a width of approximately 200' with a value of $3.65 per ton. There is still a hundred feet in the hanging wall yet that with large operations might be workable. We drove a crosscut on both the 100 level and the 200 level of the Jumper taking in only the footwall of the rich Jumper vein and extending thru to the Middle Vein a distance of approximately 100 feet. Milling this material from the 100 level showed approximately $2.75. On the 200 the tests showed an average of $3.67 with a 2.8% by weight of sulphides. Behind this again there is the West vein also called the

footwall vein and while we do not know what it contains, it should be as good if not better than the Middle, because the history on many of the mines, especially Melones, the better values lie against both the hanging and footwalls. This would add another 50 or 60 feet. On the Golden Rule I believe development will show a wide area but probably not as wide as at the Jumper. On the Mazeppa down near mill a small test showed a width of 216' and an average value of $2.34. As this was on the surface I believe on entering the hill and proceeding north along the strike of this mineralized zone, better values may be looked for. In the center of the Mazeppa where we did most of our work, the Footwall and Middle veins carried a width of approximately 100', then its nearly 100' from these two veins over to the East vein. Between this former and latter zone, it is not quite so highly mineralized as the Footwall section but as these veins all proceed north towards the Jumper they become nearer one another. We mined and milled from all (3) veins by selective methods taking widths of six to eight feet. The results varied from $3.75 to $10.00 and higher and the ore was getting better as the work progressed. In fact, indications are at this time in both faces of the Footwall and Middle veins t hat a possible new rich shoot is in the making. This change in my opinion is assisting in verifying the report of a fifty foot ore body on the 300 foot crosscut from the main Mazeppa shaft assaying $6.00 to $8.00 that was passed up in the early days because they were searching for another Jumper Bonanza. The distance between this point and the operations mentioned above is about 800 feet.

JUMPER - NEW ERA

For selective mining it is difficult to make an estimate until the mine id dewatered, however the following tentative figures will be given. There should be new bodies of ore both on the Foot and Middle veins. Diamond drilling should disclose these from the present 1800 level to the surface. The Hanging Wall section may be tested in the same manner. There is also the possibility of picking up the continuation of the rich Jumper shoot on both the 1000 and 1400' levels North. The French Company had plans already for this development when the

world war was declared and all operations were closed down. There should be between 500,000 and 600,000 tons of fills in the old stopes. What fills were tested from the 200 level to the surface milled about $5.00. It's a well known fact that the miners after guards were put on to stop the high grading, that many thousands of dollars in large and small slabs of gold were hidden away in the fills, they thinking of course that at some future time, they might return and redeem their cache. The last work on the 1800 the ore was plating $3.00 per ton on the old price. This information was given to us by Will Fitzgerald who was in the mill at the time. This would indicate a new shoot coming in.

GOLDEN RULE

The Jumper vein on the Golden Rule was blocked out but never mined from about the two-fifty to the six hundred. This body of ore estimated from eighty-thousand to One-hundred thousand tons of $5.00 ore on the old price of gold. This would be $8.50 cents at todays quotations. We were told that the Jumper Company after the $5.00 value had been determined, they decided to lease the ground at a 25% royalty. The miners were charged in addition $3.00 per day for air and $1.00 per ton for milling. The ore had to be handled (5) times before arriving at the mill. There was no profit on that arrangement and work was suspended. This same body of ore could also be prospected from the 1300 winze, making in all over 800 feet of backs. Also the present winze is reported containing high grade when operations were suspended. On the 500 level on the Middle vein, a drift 105 feet averages $16.00 on the present price of gold. This would be virgin ground to the 100 level. Approximately a like tonnage with similar values or better is possible here as the other vein. On the west vein in the early eighties, they mined a length of 400' to a depth of 200'. Government reports make mention of this particular region as having possibilities of developing a large commercial ore body. This region should be tapped from the 1300 on up. In conclusion regarding the Golden Rule for selective mining alone, but not includi ng the great potential large scale low grade ore bodies, has well over a $1,000,000.00 worth of ore, that when dewatered with a minimum amount of repair of chutes and track, is ready to be extracted.

MAZEPPA MINE

The Mazeppa has a 10 stamp mill, by adding a ball mill, amalgamation plates and whatever else one would want to use, a 100 to 150 ton mill can be assembled at a minimum cost. Opening up the main 750 foot shaft would enable a Company to immediately start checking the large ore body on the 300 level. A 50 foot ore body after it is developed on the lower levels would eventually take care of a 500 ton plant. What I believe is the same ore body 800 feet to the south but more broken up at this time can be mined in narrower strips at this time and should show a profit. The geology is favorable on the Mazeppa for another Jumper Shoot. The property to date has not been prospected very thoroughly.

CONCLUSION

The Alaska-Juneau in Alaska re mining some 14000 tons per day of $1.48, this ore is sorted to about 7000 tons of $2.41. I believe this section of the Mother-Lode when duplicated on the same basis, is going to be as good or better, instead of sorting, the ore will probably be crushed and the slimes after taking out in a rapid way what gold they can, these slimes will be discarded. The coarser material in this part of the lode carries most of the values.

I also believe that it will be possible and only sampling by Pilot mill will determine it, that the Golden Rule-New Era-Jumper and the Mazeppa will be mined the full length of the property with a width ranging from 200 feet to 1000 or more. I believe the values can be kept at $2.00 or more. The cost of mining and milling will be a $1.00 or less. The profits will be accordingly. Its not too much to expect a similar tonnage of an equal value if not better than whats already been uncovered at the Harvard. The Harvard estimate is based on only one ore body 600 feet long more or less. On this Jumper Group we expect to have (3) such zones and possibly others.

Respectfully submitted,

SIGNED - Albert J. Jones

Mining Engineer

April 18, 1939
Los Angeles, California.

REPORT

on the

"GOLDEN RULE"

MINE

.....:.....

LOCATION:

The GOLDEN RULE mine is situated in sections 26 and 27 of Township 1 North, Range 14 East, Mount Diablo Base and Meridian, Tuolumne County, State of California, United States of America.

The Sierra Valley railroad is now operated as far as Jamestown, distant about two miles north from the Golden Rule Mine.

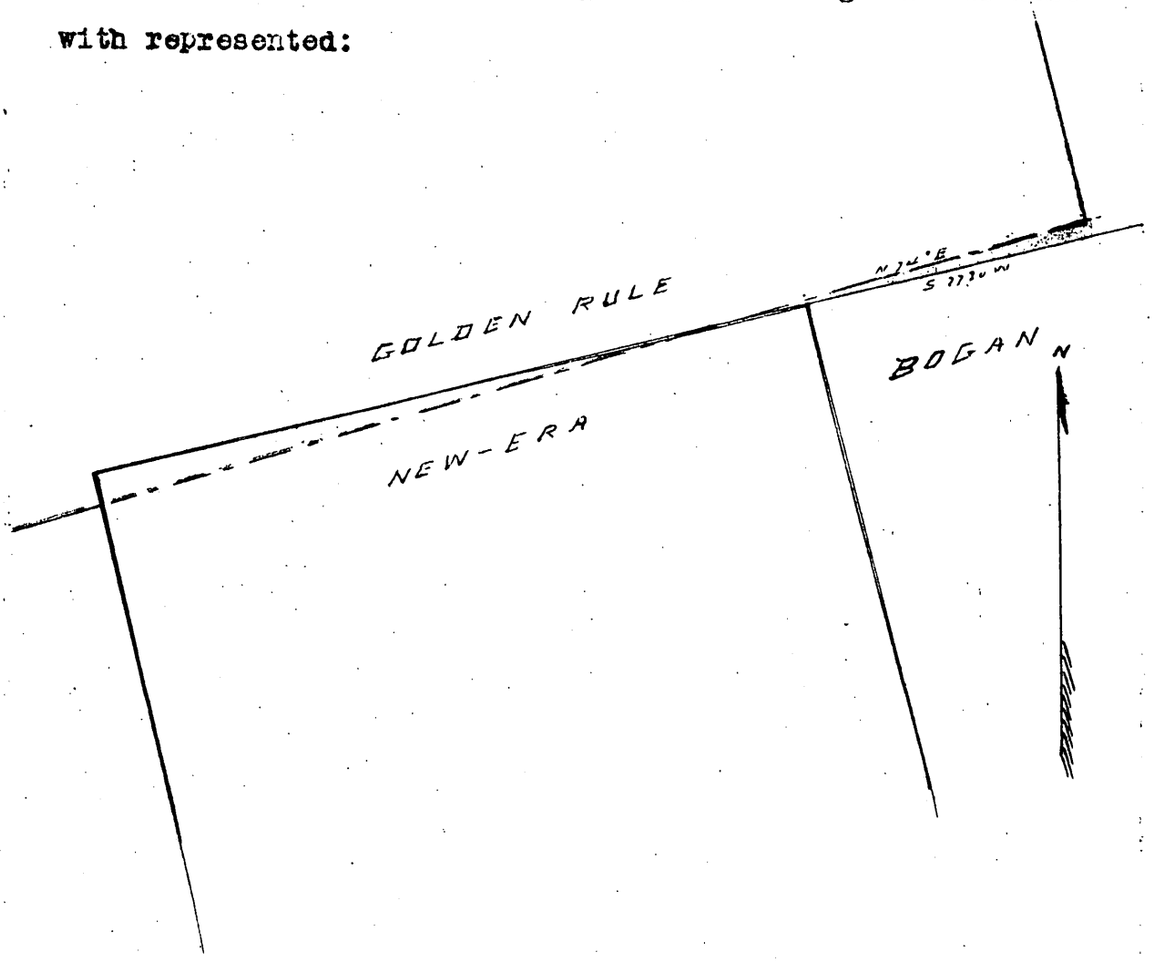
The property of the Golden Rule comprises a mining claim 1,650 feet in length on the Mother Lode by a width of 501.6 feet, also a mill site 1,089 feet by 776.16 feet, adjoining the mineral claim on the southwest. Both properties have been secured by Letters Patent from the United States Government.

The property is situated north of the "NEW ERA" mining claim of the Jumper Gold Syndicate. The Golden Rule south end boundary intersects the New Era north boundary line at a point situated about 45 feet S 74° W of the northeast

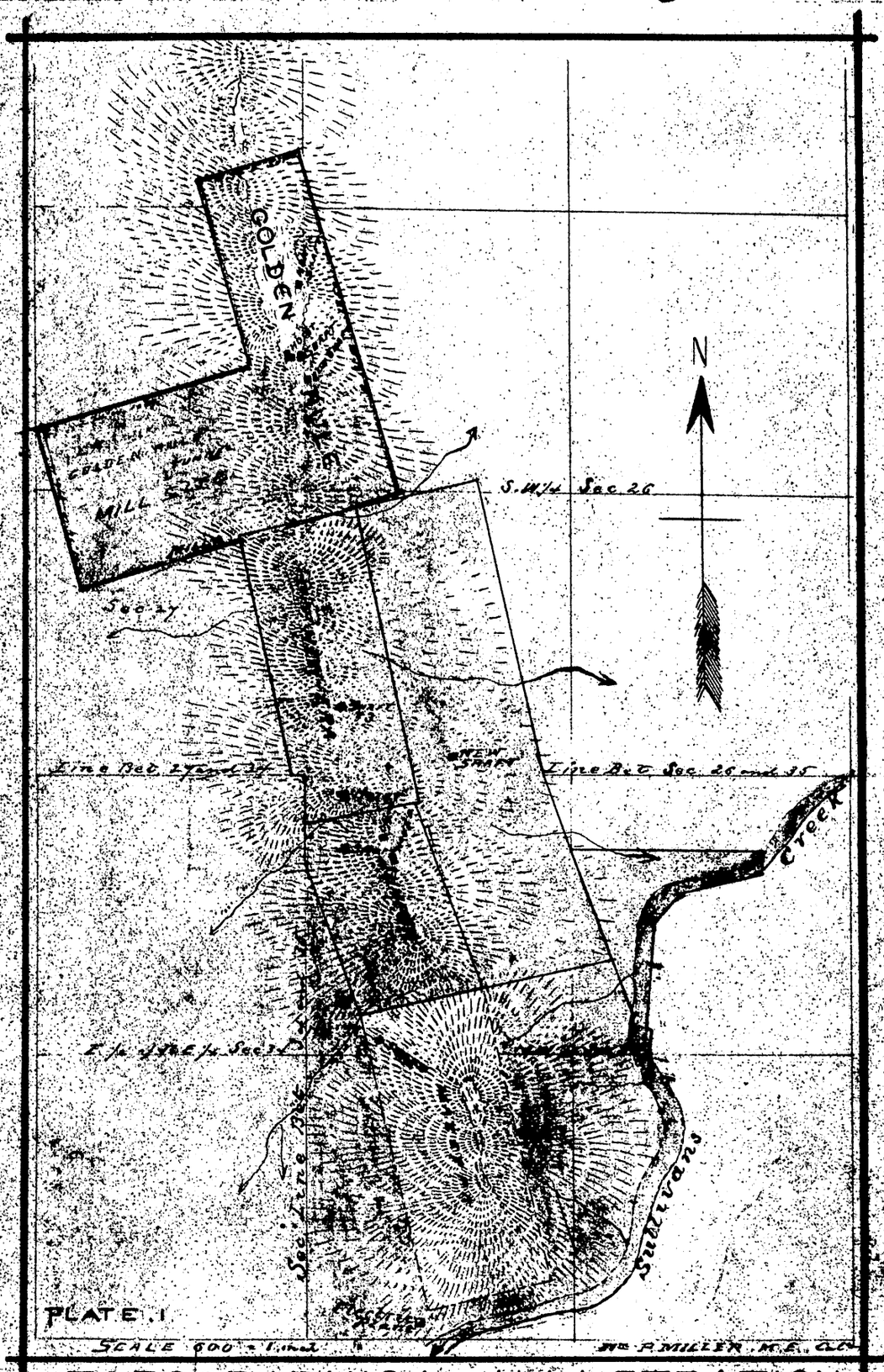
corner of the New Era claim. The north end line boundary of the New Era bears, from the northeast corner of the New Era, S 77° 30' W. The Golden Rule south end line boundary bears, from the southeast corner of the Golden Rule, S 74° W.

From the northeast corner of the New Era claim the Golden Rule southeast corner bears N 72° 30' E 200 feet. (Plate I)

The lap forms a triangular piece of ground as herewith represented:



It will be noted that the crossing of the end lines gives two pieces of ground triangular in form, resulting from the lap: one southwest, the other northeast of the crossing.



TOPOGRAPHICAL ILLUSTRATION
OF THE
GOLDEN-RULE AND JUMPER Co. MINES

The piece lying to the southwest of crossing is covered by the New Era and Golden Rule claims and mill site. The piece lying northeast is between the south end boundary of the Golden Rule claim, for a length of about 77 feet, and the north end line of the New Era and north end line of the piece or parcel of land adjoining the New Era on the east, as purchased from M. Bogan.

This triangular piece has the following dimensions and bounds: Beginning at the point of line crossing, marked "A" on sketch; thence, north boundary, N 74° E ~~170~~ 177 feet to southeast corner of Golden Rule; thence S 16° E 12 1/2 feet to the north line of property purchased from M. Bogan; thence S 77° 30' W ~~172~~ feet, following north line of Bogan purchase and north end line of New Era claim, to point of beginning.

This is but a small piece of land, apparently of little value; at the same time I consider it my duty to call your attention to the fact that it lies between the end lines of the Golden Rule and your New Era-Bogan property.

GENERAL DESCRIPTION OF SURFACE:

The veins of the Mother Lode are traceable the full length of the Golden Rule mining claim; the general course, or trend, of the lode at surface is about N 6° 30' W.

The veins have been worked in early days by open cuts, trenches, pits and short inclines and underhand stoping from the surface. This is especially noticeable in the slate vein, designated in this property the east vein.

The miners apparently followed the rich seams and

crossings of gold bearing quartz wherever found in line of the slates.

The southern portion of the claim has been extensively worked in the manner above described and undoubtedly yielded handsome reward. Subsequent development by deep workings has demonstrated the existence of a valuable shoot of ore; the miners of early days had but scratched the surface, unwittingly uncovering a vein of great value.

DESCRIPTION OF THE MINE:

The mine has been opened by a crosscut tunnel from the west into the hillside, commencing at a point in the mill site situated 891 feet N 18° W of the northwest corner of the New Era claim.

An incline shaft in the east vein, situated about 695 feet north of the Golden Rule south end line, at point of intersection of the section line between sections 26 and 27.

A vertical shaft, situated about 75 feet N 13° 30' W of the incline shaft.

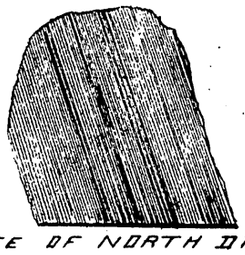
There are also three small incline shafts, situated, from the vertical shaft, as follows:

1st.	Small	shaft	on	east	vein;	bears	N 1° 30' W	301	feet;
2nd.	"	"	"	"	"	"	S 3° 15' E	265	"
3rd.	"	"	"	middle	"	"	N 34° 30' W	267	"

(Plates II & IV)

From the shafts and tunnel the veins have been explored by crosscuts and drifts on several levels, and ore

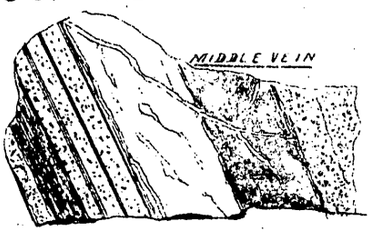
FIRST LEVEL



EAST VEIN

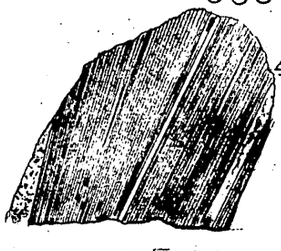
FACE OF NORTH DRIFT — FACE OF WEST CROSS CUT

300. FT. LEVEL

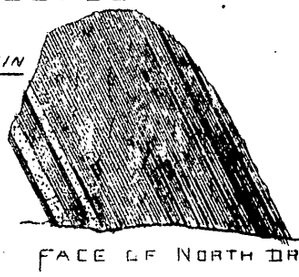


FACE OF NORTH DRIFT

500. FT. LEVEL



FACE OF SOUTH DRIFT



FACE OF NORTH DRIFT

500 FT. LEVEL SOUTH DRIFT

DIABASE DIKE CROSSING THE SLATE

CROSS CUT FROM SHAFT TO EAST VEIN
ON FIVE HUNDRED FT LEVEL

PLATE. III

San Francisco. Calª

W. P. MILLER

GEOLOGICAL ILLUSTRATION

extracted by stoping.

In making my examination the first work consisted of a survey of the underground workings, taking the mouth of the tunnel the initial point. The results of this survey I have illustrated in the accompanying drawing. (Plate II)

From the initial point the line of tunnel bears N 72° 7' 30" E 464.83 feet, crossing the strata of the rocks to the east vein; thence drift in east vein S 7° 30' E 104.72 feet to south face.

North from tunnel in east vein (Station I)

from station	I	1st course	N	8° 15'	W	82.00	feet;	
" "	II	2nd "	N	46°	W	12.33	"	
" "	III	3rd "	N	28°	W	44.66	"	
" "	IV	4th "	N	15° 30'	W	106.15	"	
" "	V	5th "	N	0°	E	39.66	"	
" "	VI	6th "	N	30°	E	33.90	"	
" "	VII	7th "	N	7° 15'	W	22.66	"	
" "	VIII		N	7° 15'	W	182.24	"	to dike;
" "	IX		N	7° 15'	W	47.10	"	across dike;
" "	X		N	7° 15'	W	36.33	"	to turn table;
" "	XI	8th "	N	3°	W	88.50	"	
" "	XII	9th "	N	10°	W	137.10	"	
" "	XIII	10th "	N	6° 30'	W	40.66	"	
" "	XIV	11th "	N	13°	W	35.80	"	to face N. drift.

From station VI a drift is opened to the south, connecting with the old incline shaft.

From station VII a crosscut bears west 35.66 feet to new vertical shaft.

From station X a crosscut bears N 88° W 179.5o feet to middle vein; thence drift bears S 2° E 1o2.33 feet in middle vein and from the 179.5o-foot station the north drift bears

1st.	N 6° 3o'	E 34.7o feet;	
2nd.	N 15° 7' 3o"	W 45.oo "	
3rd.	N 4° 3o'	W 24.72 "	
4th.	N 47°	E 32.23 "	to north face.

At north end of drift in east vein there are two short crosscuts west in the vein.

The vertical shaft is about 8o feet south and 35 feet west of the center of the claim. The shaft was located upon the apex, or outcrop, of the east vein, thence sunk vertically to a depth of 5oo feet. The first, or tunnel, station, at depth of 8o feet, intersects the crosscut from east vein; length of crosscut, 35.66 feet east.

The second station, at depth of 3oo feet from surface, designated as the third level, intersects the middle vein at shaft. From the shaft a crosscut extends east 144 feet to the east vein; thence drift in the black slates of vein in a general course of about N 7° 3o' W 393 feet to north face of drift.

The third shaft station, at depth of 4oo feet, is designated as the fourth level. From shaft the crosscut extends east 191 feet to east vein, cutting the middle vein about 65 feet from shaft. There are no drifts made in middle vein on this level. On the east vein the south drift has been advanced 8o feet and the north drift 8o feet.

Fourth station, or 500-foot level: Crosscut from shaft 98 1/2 feet to middle vein; thence 141 1/2 feet to east vein; length of crosscut, 240 feet.

Drifts: On middle vein, south 15 feet;
" " " north 105 "
" east " south 211 "
" " " north 218 feet.

From the shaft on this level a crosscut has been made to the west 172 feet, with the expectation of cutting the west ledge. At the time of my visit the face showed a brownish talc schistose rock, standing vertically. (Plates II & IV)

The old incline shaft, situated 75 feet south of the vertical, I am informed has a depth of about 268 feet on the dip of the east vein.

Drifts in vein from bottom of shaft: South 320 feet; north 45 feet.

I am under the impression that the north drift extended at least 125 feet, as shown by dotted lines on Plate IV.

The vein has been stoped north from above the 260-foot level of the old shaft, as shown also by dotted lines. It must be remembered that all stopes from the old shaft are to the east of the vertical shaft, hence all workings from the old shaft are not visible below the first level.

From the new, or vertical, shaft between the first and third levels no explorations by crosscut or drift have been made in the veins.

On the 300-foot level there has been no drift south. The drift north is in solid ground, with but little water seepage, evidence of considerable unbroken vein between the drift and stopes.

On the 400-foot level a south drift has been extended about 60 feet, in solid vein matter.

On the 500-foot level the south drift to face is 211 feet in solid ground, with some water seepage from above. All work south of the vertical shaft was discontinued some time past, the Manager stating that "the old stoped ground has not been approached by our new workings as we wished to avoid the water contained in them".

To condense: The length of tunnels, crosscuts and drifts and depth of shafts are as follows:

1st Level:

Length of crosscut tunnel to east vein	464.83 ft.	
" " " east vein to vertical shaft	35.66 "	
" " " east vein to middle vein	179.50 "	
Total length, main crosscuts,		679.99 ft.
Length of drifts: East vein south	104.72 ft.	
" " north	869.09 "	
Middle " south	109.33 "	
" " north	136.65 "	
Total drifts,		1,219.79 ft.

3rd Level: From vertical shaft:

Crosscut to east vein	144.00 ft.	
Drift on east vein north	393.00 "	
Total length, levels,		537.00 ft.

4th Level: From vertical shaft:

Crosscut to east vein	191.00 ft.	
Drift on east vein south	60.00 "	
" " " " north	80.00 "	
Total length, levels,		331.00 ft.

5th Level: From vertical shaft:

Crosscut to east vein	240.00 ft.	
Drift on middle vein south	15.00 "	
" " " " north	105.00 "	
" " east " south	211.00 "	
" " " " north	216.00 "	
Total length, levels,		787.00 ft.

Crosscut from shaft west	175.00 ft.
Depth of vertical shaft	500.00 ft.
Total,	4,229.78 ft.

The above openings are all open and in fair condition.

The openings in the old incline shaft I give from information gathered from parties represented to be cognizant of the workings. The levels and drifts have caved in and the incline is filled from fallen stopes below the first, or tunnel level.

Depth of incline	268 ft.	
Length, north drift	320 ft.	to bottom of incline,
" south "	125 ft.	" " " "
Total	713 ft.	

I have taken no account of any intermediate levels from this incline shaft as the ground was all stoped.

To recapitulate: The mine has been exploited:

By crosscuts to extent of		1,429.99 ft.
" drifts, east vein		2,378.81 "
" " middle "		365.98 "
" working shafts, vertical	500 ft.	
" " " old incline	268 ft.	768.00 "
Total,		4,942.78 "

The greatest length worked on the east vein is upon the 1st level, measuring from the south end of the drift to the north end at least 973 linear feet.

GENERAL DESCRIPTION OF THE "LODE" IN THE GOLDEN RULE:

The course of the lode is about N 7° 30' W, as defined by the several levels in the veins. Upon referring to Plate III it will be noted that I have endeavored to illustrate the general geological character of the lode, showing the several veins as ddveloped in the property. The drawings refer to the faces of the vein on different levels, the showing of the roof in south drift on 500-foot level and the formation uncovered by the crosscut from the vertical shaft to the east vein in the 500-foot level.

The cross-section on the 500-foot level presents the following rocks:

South of the shaft the formation comprises a belt of talc schists, limestone, irregular bands of coarse-grained diorite and masses of white quartz containing no mineral. The talc schists have no regular stratification. The crosscut south has penetrated this formation 175 feet. North of the shaft the talcose schists, mixed with white quartz, extend for 43 feet in the crosscut; thence follow bands of dark green schists (undoubtedly an altered diorite), limestone and quartz, slates, diorite and diabase.

The mineral bearing zone of the middle vein, in my opinion, includes the diabase immediately west of the mixed slates at drift, the diabase, overlapping the slates on the east, giving a width on the 5th level of about 15 feet. (Plate III)

The east vein includes the gray slates on the west and extends east to the diabase (more likely a diorite) on the east of the black slates of the drift.

The middle vein consists of diabase, mixed slates with some talc, bunches of quartz and occasional crossings and leaders of quartz.

The east vein consists of bands of gray slates, diabase, metamorphic slate, and black slate with quartz seams as leaders and crossings.

The east vein of the section of the Lode within the boundary of the Jumper, New Era and Golden Rule properties is typically a slate vein, the black slates comprising the larger portion of the vein, with a perfect lamination in

regular planes, having a trend northwesterly and southeasterly.

In Plate III I illustrate the faces of several drifts on the east vein, showing the dip and lamination. On the 500-foot level the face of south drift shows a dike of diabase on each side; on the north face two small dikes of the same rock on the foot side. In the roof of the 500-foot level south a small dike of diabase crosses the strata of the slates from one side to the other, preserving its regular size and general character.

The illustration upon the right upper corner represents the face of the crosscut in the vein, showing the plane of the slates and a narrow crossing of quartz, with gold. This rich crossing has been followed in the crosscut in west portion of the vein for several feet, cutting across the slate laminaefrom the diabase dikes.

The illustration of the face of north drift in middle vein will give a fair impression of its character, closely connected bands of diabase on the west, or foot, followed by schistose talc rocks and diorite. The bunches and crossings of quartz also appear to cross from the diabase on the west, or foot, side easterly across the mixed slates and schists. The crossing in face of drift, at the time of my examination, showed free gold in several places, also in small crosscut to the east toward the diorite.

In all the levels and openings I noted no fault or disturbance from intrusive rocks that in any way diverted the veins from their general trend. In the first level, at a point situated about 155 feet N 7° 15' W of crosscut con-

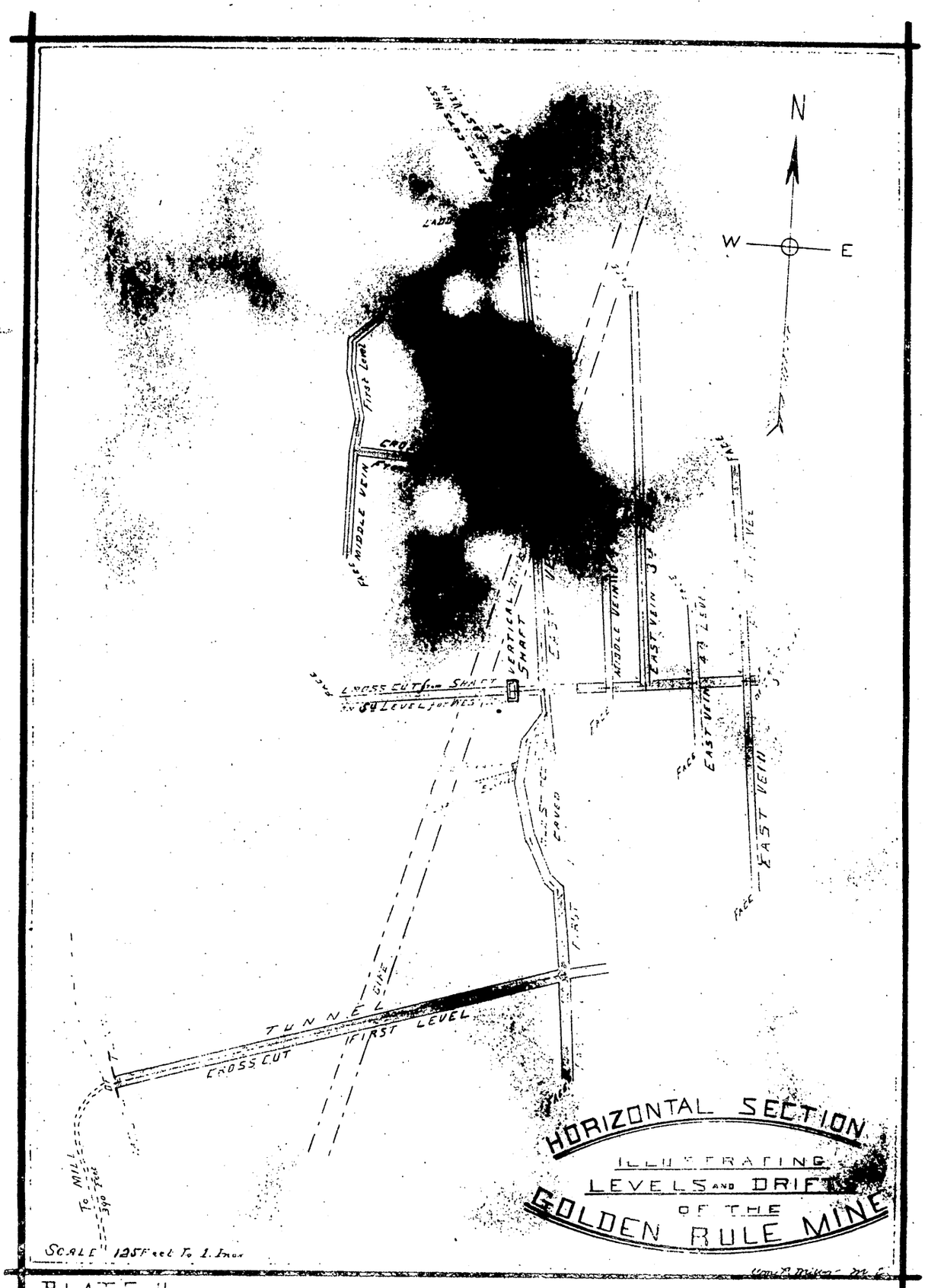

N
W
E
LADDERS
WEST VEIN
FIRST LEVEL
WEST MIDDLE VEIN
CROSS CUT
VERTICAL SHAFT
CROSS CUT from SHAFT
50 LEVEL for WEST
EAST MIDDLE VEIN
EAST VEIN
FACE
CAVED
TUNNEL
CROSS CUT
FIRST LEVEL
DIKE
TO MILL
HORIZONTAL SECTION
ILLUSTRATING
LEVELS AND DRIFTS
OF THE
GOLDEN RULE MINE
SCALE 125 Feet To 1 Inch

PLATE. II

nection with the vertical shaft, a dike of diorite and calcium carbonate crosses the east vein. The drift was opened through the dike 47 feet to the vein on the north side. The vein on each side of this dike presents no evidence of disturbance or divergence from its regular trend.

In the line of drift through the dike there are seams and cavities extending in line of vein. These seams and cavities are filled with calcite. In the roof of the drift in line of dike stalactites are forming from the waters charged with solutions of carbonate of lime percolating through the dike.

The general impression has been that this dike cut the vein at right angles from east to west.

I am of the opinion that it cuts the vein obliquely from the southwest to the northeast.

I noted in line of tunnel, about midway between the mouth and the east vein, the same formation, i.e., a dike of diorite and limestone crossing the tunnel (See green dotted lines on Plate II). As the drifts of the lower levels are extended north they should encounter the dike crossing.

The vein formation is identical with the Jumper, the bands, or small dikes, of diabase, metamorphic and gray slates, associated with quartz, forming, with the black slates, the vein; the dikes following generally the strata and lamination of the slates.

These dikes of Plutonic rocks are of varied width, generally from one-quarter of an inch to several inches, and

have much to do with the mineralization of the veins with gold.

The veins of this section are the most productive when these narrow dikes are found associated with quartz. The quartz passes from the dike into the slates, either following in the planes of the laminae or crossing the strata. The latter "crossings" are generally very rich in gold.

In portions of the veins these dike-quartz crossings are closely associated along the line of the vein, their number defining the pay-shoots and grade of the ore in different sections of this mine. The Jumper has demonstrated this fact.

THE DEVELOPMENT:

In the general description of the mine I have given the true course of the tunnel and drift openings in the first level by survey with transit and tape measurement, showing the meanderings of the drift in the vein. Especially is this noticeable south of the vertical shaft, where the drift follows the foot of the vein around the stopes worked from the old incline shaft.

The pay-shoot in this section was evidently at least 20 feet in width between the walls. The levels and drifts below the first I have illustrated along the lines of their general course.

The levels and drifts have been opened mainly by following the black slates, as the slates present less resistance in mining, resulting in greater "headway" than could be made in the harder dike rocks of the vein. As there are but few crosscuts from the drifts, either east or west, it

is impossible to arrive at the actual width of the veins and their mineralization in the different sections along the lines of the drifts.

The first level has been explored and the ores stoped a distance of over 750 feet from south face to within about 150 feet of north face.

Below the first level the center pay-shoot has been stoped from the old working incline to depth of 268 feet and average length of 400 feet.

On the fifth level, north of vertical shaft, the east vein has been stoped a length of about 150 feet north by 15 to 20 feet high. This drift is timbered and six ore chutes of 2-inch plank set in place, connected with the stope.

The workings of the mine and amount of ore extracted tend to confirm the existence of an ore body, or shoot, of great length. The ores have been stoped from above the first level to surface, a length of about 750 feet. This great length of pay ore was undoubtedly made up of different grades of value; certain sections of high grade, others of medium grade and others of lower grade, all being sufficiently mineralized with gold to warrant extraction and reduction.

A portion of the vein was followed down 260 feet by the old incline shaft and the ore stoped above the 260-foot level, for about 400 feet in length, to the surface. This section of the vein carried very high grade ore. Unfortunately the explorations and mining were abruptly interrupted by the loss of the incline, from caving.

Some years after the cave the vertical shaft was

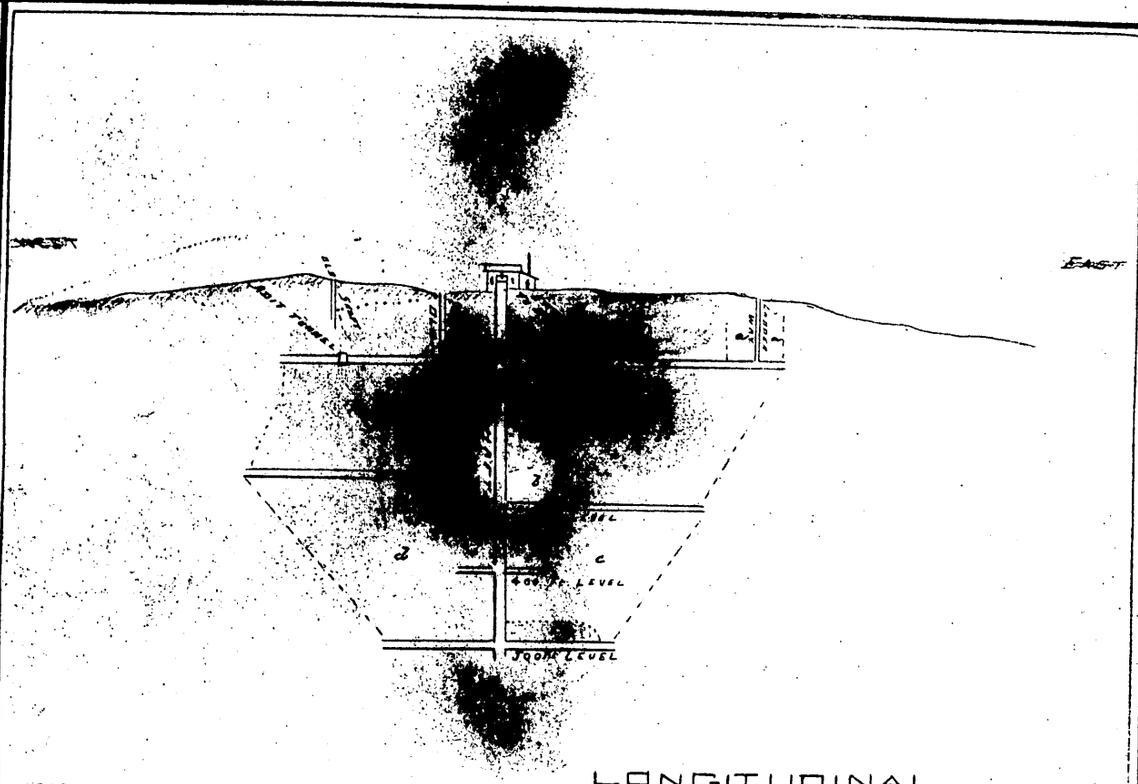
commenced and sinking continued to its present depth of 500 feet. The explorations in the vein, from this shaft, have been mainly to the north on the 300- and 500-foot levels, and to some extent south on the 500.

ESTIMATE OF ORE IN SIGHT:

In estimating the amount of ore exposed by the present development the main difficulty is in the determination of the average width of the veins. The size of the drifts and levels furnishes no reliable data, as they are of a prescribed width and generally follow the slates, regardless of the walls. I do not think the walls deviate from a straight plane, parallel to each other. The vein being formed of the stratified slate, mineralized by intrusive dikes, the width of the pay portion greatly depends upon the number, width and character of the dikes.

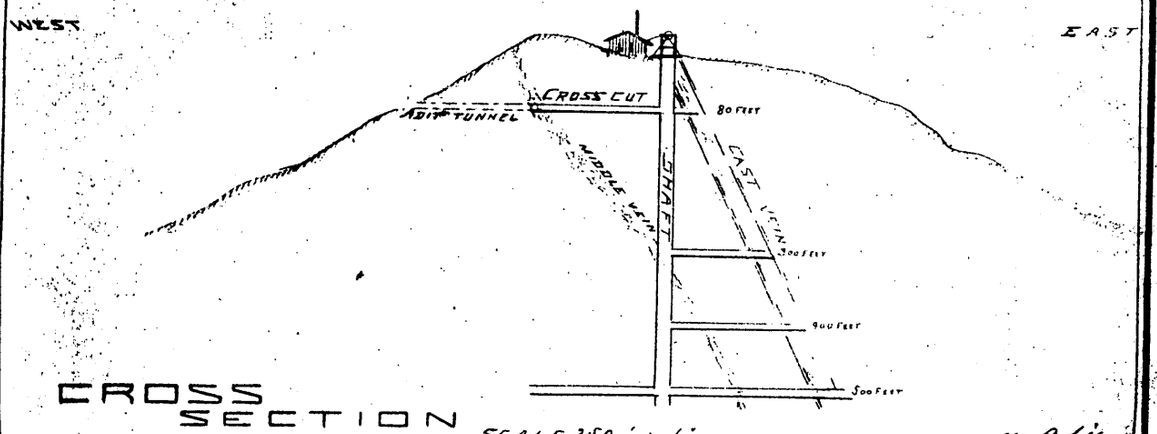
The old workings in stoped ground indicate that the vein has been stoped in some sections at least 20 feet wide; in others from 5 to 8 feet wide.

From the above facts and figures I consider it perfectly safe to estimate a width of ten feet a fair average of the ore taken from the mine, and in my calculations of the ore "in sight", i.e., ore blocked out and still in place, I give a more conservative estimate of the width, prefering to be rather under what may be considered the width of the ore. I therefore place the width, to determine amount of ore in sight, at 7 feet. My calculations are based upon the blocks of ore developed in east vein above the 500-foot level, as r



VERTICAL SCALE 250' = 1" HORIZONTAL 350' = 1 INCH

LONGITUDINAL SECTION



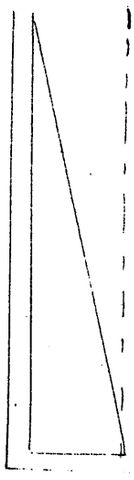
CROSS SECTION

SCALE 250' = 1"

PLATE. IV.

represented by Blocks "a", "b", "b' ", "c" and "d" (Plate IV).

In the middle vein I allow one-half of the block of ground explored on the 5th level above the 105-foot drift, estimated to the surface, thus:



East Vein:

Block "a"	- 150' x 50' x 7' :	52,500	cubic feet;	
" "b"	- 230' x 210' x 7' :	338,100	"	"
" "b'"	- 140' x 50' x 7' :	49,000	"	"
" "c"	- 285' x 200' x 7' :	399,000	"	"
" "d"	- 240' x 230' x 7' :	386,400	"	"
	Total	1,225,000	"	"
	Deduct ore taken from drifts, raises and large dike crossing	142,000	"	"
	Balance	1,083,000	"	"

Middle Vein:

105' x 480' x 6' : 302,400				
	-:- 1/2 :	151,200	"	"
	Grand Total	1,234,200	"	"

VALUE OF THE ORE:

To determine the value of the ores I found it impossible to arrive at any satisfactory conclusion by sample and assay. In the Jumper mine I encountered the same difficulty, as I stated in my report at time of examination, from which I quote as follows:

"In endeavoring to determine the actual value "of the ore per ton I found the results of sampling the "ore body in place impracticable and altogether unrelia- "ble, owing to the general character of the vein, in the "stringers of rich quartz and varied slates, at one time "sampling a few cents, and within a few inches on the "same face, sampling several thousands of dollars."

The only reliable test is that of actual results derived from milling.

We have the history of the Golden Rule mine in the past, from which to gather an idea of the value of the ores taken from the mine to date. Upon the sketch (Plate IV) I have shown the amount of ground stoped, represented by shaded Blocks, 1, 2, 3 and 4. I may have extended the stopes too far north in Block 4 as I am informed it was worked but 45 feet north of the old incline shaft. As before mentioned I have placed the width at 10 feet.

The mine is said to have produced over $1,000,000 in gold, aside from the product resulting from the surface "seam mining" of early times.

Old Workings; Explored and Stoped; East Vein:

Ore from the tunnel level	30,000	tons
" " " incline shaft	71,250	"
" " " vertical shaft, 5th level	1,930	"
Gross	103,180	"

With this liberal allowance of cubic feet, based upon the calculation that all the vein filling was stoped to width of 10 feet, we have a value per ton amounting to about $10, or to be exact $9.69.

I question the total stoping of the full length to the width of 10 feet as calculated, as in early days the miners extracted but little of the lower grade ores, therefore the ores mined averaged higher than my estimate, tending to confirm the reports of the richness of the ores that were taken from the Golden Rule mine.

The mines in the slate veins of the Mother Lode are characteristic in having sections of extremely rich ores and others of medium and low grade ores, which, mined as a whole, produce a good grade of milling ore.

Considerable ore was mined and milled from the middle vein, taken out above the 60-foot level. This is reported to have averaged from $6 to $10 per ton net.

TONNAGE AND VALUATION:

From the above estimates of cubic feet of ore in sight, and the value thereof, I deduce the following:

East Vein:

1,083,000 cubic feet	: 77,357 tons at $9.69		$749,589.33

Middle Vein:

151,200 " "	: 10,800 " " $8.00		86,400.00
		Gross Valuation	$835,989.33

IMPROVEMENTS:

The improvements upon the property comprise a 10 stamp mill, stamps of 750 lbs. each, run by water; a hoisting plant and boiler.

The new or hoist shaft is of the crib pattern, that is to say, the sides and ends are formed of 4-inch planks, set horizontally on edge and dovetailed securely. This forms a solid plank frame the entire depth of shaft, vertically 500 feet. The shaft is divided into two compartments. At time of my visit but one was being operated. The cage is on the safety principal, so arranged as to be under perfect control of any one riding therein. The ore cars are of the usual pattern, built of iron. The levels, drifts and crosscuts connecting with the vertical shaft are all in good condition and tracked with T rail.

MINING AND MILLING:

In estimating the cost of mining and milling my calculations are based upon the reduction of at least 2 1/2 tons to the stamp, or 100 tons per diem; the mill to be run by either water or electric power; the hoists to be operated

by steam or compressed air. My figures in arriving at the cost of mining are based upon the expense of stoping the daily supply of ore, the daily cost of operating the vertical shaft, opening and operating the old incline shaft and advancing the following drifts at least one foot each every 24 hours:

In East Vein:

5th level: Drift north and drift south;
3rd " " "
1st " " "

In Middle Vein:

5th level: Drift north and south.

I also allow for cross cutting from drifts.

The above work embraces the cost of labor, power, powder, light, oil, timber, lagging, tracks, tools and all material connected or appertaining to legitimate mining and milling.

Upon the above basis the cost of mining and milling should not exceed $4.25 per ton.

The incline shaft I calculate will be opened and securely timbered through the caved ground and stopes and then continued in depth if deemed necessary.

The cost of opening through the old ground I estimate about equal to that of sinking.

GENERAL REMARKS:

In the crosscut west of face of first level there is a rich crossing of quartz and gold. This is new and unex-

plored ground, the vein showing at least 18 feet in width. Samples from this section gave the following assays:

Face of drift, black slates,	$ 1.24
South side, west crosscut,	1,068.57
Face of crosscut, including crossing,	1,649.61
Sample from crosscut: South 40 feet of first crosscut, on north side of cut,	10.54

In 3rd level, north drift, samples taken along line of drift gave $2.89 and $16.94. The indications here are very favorable.

In 5th level:

Face of north drift,	$ 3.72
Sample from stopes,	8.67
Face of south drift, including small seam of quartz	4.13
Sample taken from roof along line of drift, including the diabase dike, black slates and small quartz seams,	12.37

The north drift, 5th level, on middle vein, gave the following assay of samples taken from several points along roof of drift and in face: $0.82, $9.30, $3.72, $1.24, $12.37, $28.84 and $602.58.

The two last mentioned were from above and below a rich crossing of quartz and gold in roof and from short crosscut east, near face of drift, not including the main rich seam or crossing.

The above quoted assays give a fair representation of the character of the mineralization of the vein and the unreliability of depending upon sample assays, as hereinbefore mentioned.

RECOMMENDATIONS:

In working the mine I make the following suggestions:

The old incline shaft should be reopened to its former depth, relieving the mine of storage water in old workings.

The No. 2 level of the Jumper should be advanced north and the same level of the Golden Rule advanced south to connect at some point in the north end of the New Era, or south end of Golden Rule.

Levels No. 5 should also be extended and connected.

A careful survey should be made prior to starting the levels from the Golden Rule, my aneroid showing the collar of the Golden Rule shaft to be at about 65 feet greater elevation than the collar of the New Era shaft.

The vein in north face of drift, in first level of east vein, should be thoroughly explored, as the indications are that it is in line of a pay shoot.

The drift in middle vein, 5th level north, should be extended and explored by crosscuts. This drift contains some very high grade ores.

The drifts on 5th level are driven almost entirely in the black slates. The vein should be thoroughly prospected from time to time by crosscuts. The drifts are in the line of the pay shoot.

Ores from the Golden Rule mine should be conveyed to the Jumper mill, either by electrical trolley transmission or tramway, conditional upon your working the Jumper, New Era and Golden Rule as one property, under one management.

I also recommend that the capacity of the Jumper mill be increased by the addition of 20 stamps immediately and the duty of the stamps brought to 2 1/2 tons each daily.

CONCLUSION:

In concluding this detailed report I desire to call your attention to the following:

The north end of the New Era claim and the south end of the Golden Rule claim I consider in the line of a pay shoot of ore that has not been exploited.

The middle pay shoot, as worked from the old incline shaft, and the old workings along the line of the first level, in connection with the prospect of opening a pay shoot in north end of the claim, as indicated in end of north drift, fully demonstrate the mineralization of the vein and value of the ores.

The continuation of the vein and mineralization in depth is beyond question. The Lode has been explored in many claims to great depth. The workings and developments in the Jumper, New Era and Golden Rule demonstrate the value and continuation of the veins.

The values come from below, in connection with the small dikes of igneous rocks. The occurence of gold in the crystalline dikes and their influence upon the mineralization of veins is well known among mining men.

I also call your attention to the fact that the estimate I place upon the value of the ore reserve may appear

rather conservative, and that I do so upon the evidence gathered from former workings of the whole vein filling. While I do not desire to exaggerate the value of this property I believe my estimates in this report are rather below than above what may be expected from the property under a careful and judicious management.

Respectfully submitted,

Wm. P. Miller -

Mining Engineer.

San Francisco, Cal.,

October 12th, 1898.