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The Woodville and Justice Mines. 1932 or 1933

Report by Chas. E. Esgant (spelling?) pg. 16

As it is obvious that mining properties with assumed merit, but in a state of non-production require financial assistance if anything worth while is to be accomplished, investors, whether they be organized mining companies or private individuals, insist upon knowing at once into what particular classification from the point of view of the investment, the property in question falls.

For example: A vein of good assay value with limited development and where no precedent for reasonable depth is at hand, is clearly a prospect and as such, a hazzard or gamble.

There is also the illustration of the well developed mine,-one let us say of substantial depth, well equipped and ready to produce and mill ore on a relatively large tonnage basis. It is closed because of the exhaustion of its payable ore bodies and the investor is asked to supply money to either develop new ore, or to improve on some unsatisfactory metallurgical practice with the end in view that the mine will again enjoy a period of productive prosperity.

Into such a class of investment, mining organizations, after the reports of their engineers have indicated a probable success, sometimes venture. It is customary in this case however, to carry the owners of the property for a small percentage of the new organization which they take in lieu of cash, because of the risk involved. Because of this inflexible rule of paying no cash, which governs the entrance of experienced mining organizations into this last class of investment, endless disputes have arisen between purchaser and owner,-the latter demanding some cash on the grounds that he has a heavy or even small cash investment, while the former, demonstrating the risk, demands that each equally share it.

There is a third class of mining investment which may be described as follows:

The mine is well developed. It has large and profitable ore bodies. These have been assayed and blocked into definite ore reserves. Their gross and net value are known and their margin of profit a known fact. The faces and bottoms of drifts are in good ore and a long and profitable life is indicated for the mine because of this fact.

This mine needs machinery for operation and probably some money for underground work so that its known ore bodies can be brought to the surface at the lowest possible cost.

Such properties are seldom on the market, but occasionally are acquired by mining organizations because of the owners inability to procure the necessary money to purchase machinery for production.

In these cases, it is generally the practice of the purchasing organization to pay in cash, from 60 to 75% of the gross value of the developed ore and also furnish the reduction plant for future operations.

The idea of course, is to eliminate all risk possible, as these investments sometimes go into the millions. The circumstances governing the individual mine do of course, alter terms and proportions of payments. But, the main desire of the mining organization is to feel that its investment is secure, that it may work it out completely in a comparatively short time and rely on the ore yet to be developed in depth and strike, for its final profits.

This is the ideal investment for the established mining concern and it is mentioned here in detail because it is into this last class that the Justice and Woodville mines belong.

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This being the case, a brief history of the property, a detailed description of the ore bodies, the assays of the reserve blocks, the cost of extracting them and the profits to be won by their milling by flotation practice, is in order and with this end in view the usual maps accompany this paper.

Before proceeding with the lengthy but necessary data however, a few observations should be made at once.

1st: The magnitude of the ore bodies of the Justice and Woodville, are classed amongst the largest on earth, as these two associated and adjoining properties are located on the Comstock Lode of Nevada and are amongst the longest individual holdings on it. The Comstock, as everyone knows, is the most extensive gold and silver bearing vein ever found in this country and by many, considered the largest found in any part of the world.

2nd: The ore bodies which will be referred to are not of a low or medium grade, but are distinctly high grade in character throughout and will possibly show a greater margin of profit when milled than any other profitable producing gold mine at present in operation in either this country or Canada.

3rd: Ore breaking widths of from 30 to 50 feet have frequently taken place in the past and can well take place in the future.

4th: These may be clearly classified as gold mines, carrying as they do 80% of their values in gold against 20% in silver.

5th: Repeated and recent metallurgical tests on this class of ore, show clearly that they are not only adaptable for bulk flotation practice, but are ideal, having few competitors in this respect anywhere. They carry less than 1% of concentrates and practically all values are contained therein. No differential flotation work is necessary because of the absence of base metals. Recent tests show ratios of concentration by flotation of from 110 to 125 into 1. Because of such high ratios, which would reduce 100 tons of ore of a value of $20 a ton, to less than a ton of concentrates worth $2000, the making and marketing of concentrates would be cheaper than the making and the marketing of bullion and milling costs would compare favorably with any place on earth. All this of course, means a very low cost of milling a ton of ore.

6th: In depth, few places show ore bodies of deeper seated possibilities. Precedent nearby establishes profitable ore at depths of 4500 lode depth feet, whereas but a third of that has been reached by either of the two mines under discussion.

7th: The mines are dry because they are drained to great depth by the Sutro Tunnel, -one of the deepest drain tunnels known to mining. This of course, completely eliminates pumps and their expensive handling, -a cost charged up to the ton of ore that few mines ever escape. For this reason, if for no other, mining costs are necessarily cheaper than elsewhere.

8th: Hydro-electric power is furnished at $54 per year per horse power. This figure compares favorably with any mining community.

9th: Both railroad and automobile road pass within a few hundred yards of the Justice-Woodville properties.

10th: The supply of water, released by opening the taps at the mines, is enough for a dozen mills of the size contemplated for the Justice-Woodville properties.

11th: Adjoining the Justice mine to the south, the Silver Hill mine, (a gold mine and not silver as the early day name implies) has been in constant operation for years past and is still operating.

The Comstock lode is too well known to make more than a brief mention of it here.

Located in Nevada, on the eastern flanks of the Sierra Nevadas, a comparatively short distance from the California line, its main town, Virginia City is but 20 miles from Reno and 14 from Carson City, Nevada's Capital.

Virginia City is connected with both Reno and Carson by rail road and also by good automobile roads. In fact it would be hard to find a more conveniently located mining camp than Virginia City anywhere. Daily trains and daily busses run between Reno on the Southern Pacific and Virginia City. The trip to the Comstock from San Francisco is made by automobile in eight or ten hours.

22,000 feet long, this great gold and silver fissure, containing widths of good commercial ore, frequently exceeding 100 feet, was worked to great depth in the 60's, 70's and 80's and during a period of exceedingly high mining costs, brought about by prodigious amounts of water, excessive heat and very high costs for power, generated by steam.

Milling by the pan-amalgamation process, the costs of power thereof and the great metallurgical loss attending this early-day method of ore reduction, necessitated a very high grade of ore if profits were to be made under such circumstances.

But, Comstock mines had such ores, -ores that have probably never been equalled in grade with consideration given to the tonnage milled.

Volumes have been written on this subject, many of which can be procured in large public libraries in the larger cities.

Some of the mines were house-hold words in San Francisco and elsewhere and some of our great fortunes of today, were derived from them.

The Yellow Jacket, Belcher, Ophir and Crown Point produced their millions and left their monuments in the form of Nob Hill mansions in San Francisco. One mining company, the Consolidated California and Virginia, owning footage on a comparatively small section of the Comstock lode, paid dividends at the rate of almost two millions of dollars a month for more than two years, finally passing on to stock-holders $77,932,800.00 all told. Nothing in mining history has equalled such production in such a short space of time.

Of the twenty eight main operating mines on the Comstock, few had more than 650 feet of footage along the lode. Some had much less as in the case of the Hale and Norcross, an excellent mine, which had throughout its life but 400. Kentuck, another good dividend paying mine, owned less than 100 running feet on the lode and there were others, -such as Challenge and Confidence with hardly much more. Two or three had long holdings and consequenly more area and among these was Justice, one of the largest mines on the Comstock, owning something over 2000 running feet on the lode. Woodville's area was really embraced in that of Justice and for many years these two organizations, disputing their respective territories, quarreled and wrangled to the great detriment of each.

This long drawn out quarrel culminated in the shooting and killing of five Justice miners by those of Woodville, which act brought on litigation lasting more than a year and winding up by the purchase by Justice of all the stock of the Woodville Gold and Silver Mining Company. This was in the year 1876 and it may be said that Woodville at the time, was at the height of its production.

The very nature of the quarrel between these two organizations, (apex rights) forced Woodville to mine the white ore on the western part of the lode, while the work of Justice was confined for a long time to the dark ore following the east foot wall.

While there has been no Woodville since 1876, from which time the Justice Mining Company has operated Woodville's former territory and has

also acquired other substantial holdings,-the West Justice and the Blaine mines,it is nevertheless impossible in making up assay sheets and carrying out map level work,to do other than refers to these organizations as separate holdings. Woodville mine levels must be referred to as such as they were run off Woodville shafts and did not always correspond with levels of the Justice shafts,except on the deeper levels. Thus we have on our large working maps,such notations as -822 foot level,called the 1000- and which is explained by the fact that this deeper level is 822 feet from the main Woodville three compartment vertical shaft collar and 1000 feet in depth from the main Justice shaft collar which lies about 1200 feet to the north.

The history of these mines will be gone into only very briefly here, but attached to this paper are the brief extracts from the Superintendent's weekly reports over the early years,which may be read if desired and which give a good idea of the workings,ore bodies mined and the bullion production.

In the perusal of these early day reports,it will be observed that both Woodville and Justice started as small mines,milling 10 to 15 tons of ore per day. It will also be observed that they grew into important producing properties almost wholly on their own merits. Woodville always carried the higher grade of ore in early years from the white lode region and at times mined and milled ore running $125 a ton in value. On the other hand,Justice grew from almost nothing to become the second producing property on the Comstock lode,being exceeded only by the Con. California and Virginia.

We find it about 1877 employing 600 men,operating nine small mills and producing about $3,000,000.00 worth of bullion a year. In these years it was controlled by the late E.J.Baldwin (Lucky Baldwin) and from it was derived much of his early day wealth.

But,we also find a very heavy cost for the mining and milling of its ores. Such costs were increased by the fact that in these years the Sutro tunnel had not yet reached the south end Comstock mines and pumping water from the levels with old style and expensively operated Cornish pumps added greatly to the total cost of operations.

There was not,in fact,much profit in these years from ores that did not exceed $40 a ton in assay value. And in this connection records have been left us in the form of a large bound volume called Vol. 3,U.S.Geological Survey of the Fortieth Parallel,found in large libraries,which gives us the actual costs over many years for the mining and milling of all the principal Comstock mining companies.

From the 60's to the 70's,such costs are almost impossible for us to understand in view of our own mining and milling costs of today.

The following,taken from page 172 of the volume above referred to and with reference to the Gould and Curry mine,a large and profitable Comstock property gives some idea of the costs of the day.

TABULAR STATEMENT SHOWING THE OPERATIONS OF THE GOULD AND CURRY MINING COMPANY FROM THE DATE OF THEIR ORGANIZATION TO NOVEMBER 30,1869.

Year ending-	Tons of ore produced	Cost per ton for mining.	Cost per ton for milling. Company mill.	Custom mill.
Nov.30,1860	-------	---------	---------	---------
Nov.30,1861	-------	---------	---------	---------
Nov.30,1862	8,442	$12.54	$-------	$38.55
Nov. 30,1863	48,743	12.64	38.00	22.30
Nov.30,1864	64,433	12.00	40.00	26.00
Nov.30,1865	47,217	10.84	12.93	20.36
Nov.30,1866	62,425	8.78	12.27	15.63
Nov.30,1867	24,940	11.35	13.00	14.34
Nov.30,1868	12,153	10.34	------	12.62
Nov.30,1869	15,879	7.29	------	13.08

Heavy as these costs were, an additional cost, -the poor extraction of values from the ores, or better termed the metallurgical loss, was even greater and herewith is quoted from the same volume, an "extraction" report from 21 different mills working upon Savage mine ores, -another large Comstock mine.

COMPARATIVE STATEMENT OF OPERATIONS OF TWENTY ONE DIFFERENT MILLS TREATING ORE FROM THE SAVAGE MINE BETWEEN JULY 1st, 1867 AND FEBRUARY 1, 1868.

Mill No.	Tons.	Mill sample.	Yield per ton.	Yield % per ton.
1	5,830	$54.65	$37.86	69.2
2	6,720	55.66	38.67	69.4
3	5,109	124.25	78.16	62.9
4	3,090	50.22	32.47	64.6
5	7,334	48.34	32.95	68.1

Space not permitting the remainder of these mills, the total of all 21 is here given as a whole:

Tons	Mill sample	Yield per ton.	Yield % per ton.
56,656	$56.62	$38.27	67.5

Therefore it can be seen that up to 1870, an ore worth $40 a ton could show no profit as we must make up our costs at the average of the time about as follows:

Loss in extraction on $40 ore (average extraction 68%)	$12.80
Cost of mining (average)	12.00
Cost of milling (average)	14.00
Cost of wagon hauling to mills, per ton	3.50
Total	$42.30

Eight years later, or during the Justice bonanza period, costs had been reduced somewhat, but we find that even then, ore worth $35 a ton, could only be mined at a loss.

It is not therefore surprising when we read the brief weekly announcement under date of December 1st, 1877 :"Work of extracting ore has been suspended for the present, that yielded by the stopes being too poor a quality to pay."

Incidently, just prior to this, Justice had been milling 450 tons of ore per day. We note at this time the discharge of 300 miners, followed a few days later by the discharge of 200 more.

Two years later, 1879 Justice again started operations as during the interval it had again developed some high grade ore. But, this operation was of short duration. Later this mining company tried two or three times to make what we might call a come-back. It had developed large quanties of ore and neither the middle nor the north end of the claims had been developed on the upper levels at all. But, it failed to make a profit on such ores as had been developed and we find it mining and developing in the year 1890, with poor success. In fact, all Comstock mines, or what were left of them, were failing in that year. Failing because they could not make a grade of ore pay that was worth more than $20 a ton, -a grade incidently that today is almost unheard of, as our most successful mining operations all over the world are mining ore of a value of $10 a ton and lower. Much lower in the case of large tonnage mines, but in the cases of small ones, $7 to $9 a ton is being handled profitably and by far the great bulk gold production of the world, comes from ores that do not average $7 a ton.

The Rand, of Africa, -the greatest gold producer of all, showed an average grade for all its mines of $6.25 per ton, last year. And these are ampngst the greatest of dividend payers.

We have as an example of this the efforts of Justice and other Comstock mines to make a profit on an ore assaying more than $25 a ton and failing miserably in the year 1890. In fact the losses of all the mines were so great in that year and in the following, that angry stock-holders of San Francisco, charging fraud, sued several Comstock mines and outside of minor development work, leasing ect., these years showed the end of company mining operations, which with a very few exceptions, were never resumed again.

Below are the last three months of the year 1890, ending Dec. 31 of that year, as filed in the Assessors Office of Story County and sworn to by the different company managers and copied from the Mining and Scientific Press under date of Feb. 28th, 1891.

THREE MONTHS OPERATIONS OF COMSTOCK MINES ENDING DECEMBER 31, 1890.

Name.	Tons.	Bullion	Cost.	Loss.	Net Yield per ton.
Con. Cal. & Va.	21,340	$275,496	$292,261	$14,941	$13.70
Belcher	3,250	45,741	62,684	16,765	13.28
Imperial	1,135	15,041	42,160	27,617	13.25
Chollar	6,765	84,520	110,470	25,960	16.33
Challenge	125	1,643	15,718	14,075	13.15
Crown Point	3,787	31,571	55,650	21,079	14.70
Justice	2,399	41,478	48,606	7,128	20.00
Overman	5,159	68,110	74,458	6,348	14.46
Savage	9,622	130,058	142,278	12,220	14.79
Yellow Jacket	4,849	64,218	90,102	35,885	18.60

The "net yield per ton" is of course the value of the bullion, or the amount per ton recovered. But the assay value must be placed at at least 25% higher, as in these years extraction had improved and was averaging about 75% of the assay value of the ore. Therefore, the average assay value of the above was about, $20 a ton and in the case of the Justice, Belcher and Yellow Jacket, all big mines in years before, it was more or less $26 per ton. And there was a loss in each case on this. In fact there was a total loss of slightly over a million dollars by all the above mines during the entire year 1890.

As stated above, this was the end of company mining on the Comstock on what might be termed anything but a very small scale. But it was the absolute end of profitable operations. Outside of some deep ore in the Con. Virginia, nothing of moment paid after this time, unless it was in the form of royalties derived from the work of leasers, and in this respect, Justice received considerable money as the years wore on.

From 1891 until 1898, we find the Justice mine carrying out a development campaign, based on the idea of driving north on all its lower levels from the early-day stoped area on the south. In all the years that Justice and Woodville had operated, their combined work was confined to about one quarter of the area of their holdings, and this quarter jammed into the extreme south end of their property. Naturally this was because their higher grade of ore happened to be in this end of the mine. And now we find them determined at this late time to open up lower levels from the south to the middle and to the north of their holdings to see if it was possible to find more ore of the kind that had been so successful in years gone by. Ore was wanted that would run $30 a ton and better. Early day efforts to find this ore by extending drifts to the middle of the claim and still further north had failed to develop a sufficiently high enough grade of ore to pay at the time, hence were stopped. Now, they were about to be continued, hoping that deeper penetrations toward the north would find the desired result.

Some of these drifts were carried nearly 1000 feet toward the north,-one of them,the 600 level,was carried further. Raises,winzes,cross-cuts etc. were made,and the various levels connected in this manner,forming large and individual blocks of ore. The values were determined in these blocks by both assaying as work progressed in these developments,and later milling the ores coming from the drifts,raises and winzes in the general course of mining to develop the ore blocks. But,there was no stoping,-no taking out ore for mill purposes beyod that naturally extracted as openings were made. The several Superintendents of the property during these years have also left us complete records of all this work above referred to and have given us the directions,the footage,the widths and in fact every detail of information,so that combined with their assays,and the bullion check on these assays, we are today,able to extend these levels,raises,winzes on the large working maps of the mine,and make up a more or less comprehensive and compact assay plan of these different ore blocks, Reliability can be attached to these blocks of ore as far as dimensions and assay values are concerned,as they were assays and measurements made by the mining company itself,for the mining company. Nothing was for sale and these records were not for public exhibition. Also,from the fact that once this ore was out of the drifts, and although it did not pay to mine,it did pay to pass it through the mills because it was already out and we find that this fact enables us to check the mill bullion product with the mine assays,something seldom afforded in the usual course of mine examination.

A book of assay records of these years has been left and in some cases can be followed so that a winze or raise can be sampled at short intervals and its value determined. As an example of this,one raise which took 48 days to complete,gives us 28 assays cut at approximately 2 foot intervals, all in a height of 50 feet and gives us an average assay value for that raise of $24.51 per ton.

All told between 1100 and 1200 assays were made in this new area which efforts were made to open up new and high grade ore and which failed to materialize. But,it developed ore in these various blocks mentioned,notwithstanding the fact that it was not satisfactory to the Justice people of that time,that ranks amongst ores that are now called high grade.

Very large blocks of ore can now be followed on our maps by the aid of the development descriptions and the assays attached that give us both tonnage and grade seldom found anywhere these days. As an example of this, a single large block ,lying above the 1000 foot level,developed by three drifts,three winzes,two raises and a sub-level,so that we can reach it on all sides,gives us approximately 67,000 tons of ore with an assay value to us to day of $20.18 per ton. Its actual assay value is nearly two dollars higher, but we deduct the difference because of the lower price of silver today, although this body of ore carries very little silver,its contents being at least 80% gold.

But the area yet to be mined comes to several hundred thousand tons and will far exceed a million or more in territory were partial, but not complete development has taken place. What such future tonnage may run in assay value,only complete development can determine.

With reference to the area now well blocked and assayed, in no case have we found average assay values below $20 a ton,and frequently averaging in large tonnage areas $25.

For the present this subject will be dropped to be taken up again later with the aid of the large working map,as in this way only can it be properly understood. where I

Two questions present themselves at this time and should be here made plain.

1st. Why were mining and milling costs so high at the period of the last work done on the Justice mine? And what are the mining and

milling costs of today.

Hydro-electric power, a boon to mining and milling operations over expensive steam power, arrived on the Comstock long after the Justice mine closed.

Now we have power at $54 per horse power per year, as against $200, a fair and not exaggerated cost for steam power at Virginia City at that time.

Power makes up a large percentage of all costs applied to the mining of ore and likewise has a similar effect in milling.

As in other lines, mining methods have improved over the years and the business of mining has become a systematic routine, where the management strives to save here, cut there and apply every effort to reduce the costs.

The cheap moving and handling of ore, belt conveyors, underground tugger hoists and the like, assembling levels, to say nothing of cheaper methods of actual mining, such as top slicing, rill stoping and a variety of other systems, all have played a part in reducing the costs of bringing a ton of ore to the surface.

When conditions are normal or average, the cost of mining a ton of ore, -that is mining it and bringing it to the surface, -would never exceed $3.50 a ton if a reasonably fair amount of tonnage is handled. It could exceed this figure of course, but then conditions would not be normal and higher costs can be applied where mines are located many miles from transportation, -sometimes mule-back transportation, -and everything as a consequence is necessarily high and as stated, not normal.

But, in the case of a mine like the Justice, located where every facility is at hand, -railroad, automobile road, water in abundance, cheap electric power and easy access to all supplies by being so near San Francisco, to charge $3.50 a ton for mining and where widths of ore bodies reach fifty feet, puts upon such a mine a charge above any we may find as we read the yearly mining costs of productive properties in various mining publications.

If $3 per ton were applied to the costs of mining Justice ores and where no charges for pumping or handling water can be included because there is none, we are, by precedent and fact, placing a reasonable and dependable figure on this feature of the work. It will probably be done without effort for $2.50. We will however, retain the $3 figure.

But it is in the milling of ores that we score greatly over the costs and recoveries of years gone by. This branch of the mining industry has practically been revolutionized by the advent of flotation practice of late years.

Since the Justice mine milled its last ores by pan-amalgamation, we have gone step by step up the metallurgical ladder, graduating by turn from the use of mercury either on plates or in pans, through the hypo-sulphite (lixiviation) process, through various cyanide processes, until we have reached flotation, a process that serves the double purpose of giving us high extraction of the values in the ore and at a cost never dreamed of at the period when last the Justice operated.

No space here permits of explanations of flotation practice, but as it is almost universally employed these days, its costs per ton are matters that are published continually in mining magazines and are a matter of common knowledge to all mill men.

When tonnage is very large, these costs frequently get below $1 a ton. In fact certain large mines are doing this work for half that figure. Where tonnage is medium, -say 250 tons a day, -from $1 to $1.50 a ton would be about the average costs if we are to take a great number of flotation mills and average them up.

But, when power is cheap, as at Virginia City, and the ores are such as have been previously described, a plant of 75 to 100 tons a day, could easily mill its ores by flotation at a cost under $1.50 a ton. Mill men of today, reading this and knowing these ores, would call this figure high.

The percentage of extraction by flotation has already been determined on Comstock ores and has averaged in metallurgical test work about 94%

of the gold and silver values.

This is about as it should be on ores of such high concentration ratios, so free of base metals and where bulk flotation is to be employed and no iron dropped.

It is in fact, reasonable to look for higher extraction when a mill has been properly tuned up and the use of satisfactory reagents determined upon.

Therefore, if we take mining at $3 and milling at $1.50 and allow another 50¢ for loss in extraction, we would have a total cost of $5 a ton, which would give us a profit of $5, if ore passed through the mill with a head assay value of $10.00 a ton.

If the ore assayed $20 a ton, a profit of $14.00 would result, or allowing for a full 30 day mill run, a 100 ton a day mill, would show a monthly profit of $42,000.00. Any good mine manager could accomplish this.

There can be no question as to the reliability of these figures. They are elementary in that they represent a fair average of this type of work everywhere. No mine development has been considered and no costs have been applied for the reason that the blocks of ore, previously referred to, would carry a small mill of 75 to 100 tons a day, for years to come.

Figures for mining and milling of gold mines on the Mother lode of California are easily available. Such mines as the Kennedy, Argonaut, North Star, Empire, Idaho-Maryland etc., publish their costs at frequent intervals and will be found to check with the above statements. Unfortunately, none of these costs are at hand, but the following are comparatively late costs of some well known Canadian mines, -mainly gold, but carrying some silver. These are well managed mines and modern throughout.

NAME.	VALUE OF ORE PER TON.	MINING COSTS PER TON.	MILLING COSTS PER TON.	PERCENT EXTRACTED.
Hollinger	$6.33	$2.85	$ .66	96.21%
McIntyre	8.24	2.22	.83	95.15
Vipond	8.63	3.96	1.24	91.89
Teck-Hughes	8.89	2.52	1.24	94.81
Lake Shore	----	2.71	.99	-----
Howey	3.08	1.59	.91	94.05

It will be noted the value of the ore averages in the above list, $7.03 per ton. Costs for mining average, $2.30. Costs for milling average, 97 cents. Average extraction is 94.42%.

The above mines are working at depths of 2000 to 3000 feet. They are handling much mine water and they are located in a very severe climate. But, on their average grade of ore, somewhat over $7 a ton, have paid and are paying now, many millions in yearly dividends. The Hollinger and Lake Shore are known to everyone and it is generally conceded that the latter mine is the largest and most prosperous on this Continent. They are fine illustrations of modern gold mining.

It will be observed that mining and milling costs of the above mines are relatively lower than our estimates. This is because the Canadian mines are running on a large tonnage basis, which of course, brings costs down as it does in practically all lines of endeavor.

It is interesting to compare the above costs and extraction of values, with those of the Gould and Curry and the Savage mines as given earlier in this paper. It illustrates what time has accomplished in the mining industry.

It will be noted from the Superintendent's reports attached to this paper, that toward the end of the Justice Mining Company's administration, the upper levels were given over to leasors or contractors, paying a

high royalty on ore extracted. Some of these did very well as may be observed from the following:

Year-1897. Name.	Tons Extracted	Cash Value of Bullion.	Royaly to Justice Co.
A.De Martini	275	$5,701.39	$ 688.34
A.De Martini	80	912.94	88.18
C.H.Steele et al.	207	11,076.20	1,940.77
C.H.Steele ,, ,,	486½	18,846.51	3,090.03

In the above we have a total of 1048 tons extracted with a bullion value of $36,537.04. Allowing 20% between the value of bullion and ore, we therefore have a little over 1000 tons of ore of an assay value of $44 a ton and a bullion value of $35 a ton. From this, the leasors paid the Justice Company, $5,777.32, or about a 20% royalty on the value of the ore they mined.

All this ore was from upper levels,-some of it coming from depths of not much over 150 feet.

We have another leasor, Douglas, who in 1898 took out 75 tons of ore with a value of $168.38 per ton, $128.50 of which was in gold and $39.78 in silver,-giving a proportion of about 80% gold to 20% silver.

Just prior to 1905, two brothers had acquired much of the stock of the Justice Mining Company and together with that previously bought by their father, found themselves in possession of over 90,000 shares of the 98,350 issued, there being 105,000 shares all told in the Justice Company, 6,650 of which still remain in the treasury.

They intended to work the mine themselves, but found entrance to the lower levels blocked by the fact that the main Woodville shaft had closed on the surface to about 200 feet, requiring complete re-timbering to that depth. The main Justice shaft was in more or less the same condition. The old steam hoisting engines had been scrapped at both shafts and a complete new equipment, together with the retimbering job of about 200 feet in depth, stared them in the face before they could enter the mine where ore blocks were ready for extraction. Smaller shafts were open to the 370 level however, and much ore remained at that point. Therefore, they continued the leasing system to groups of individuals, charging 19% royalty on ore extracted and although no one can get below the 370 level to work until the equipment and repairs mentiond are completed, work at the 370 level horizon by leasors, has gone on for years and is still going on today.

A very few years ago, in fact of very recent years, F.Windisch and son, as leasors, took $150,000 in money value from high grade ore mainly, on this level, working from a shaft they had sunk themselves.

A summary of this work was about as follows:

They shoveled from the old stopes on the 180 foot level, 4000 tons of stope fills which gave them an assay value of $17 a ton. These they milled locally in custom mills. In the old Woodville area on the 370 level, they mined ore of a total value of $150,000. Its average grade was between $40 and $60 per ton as a whole, although some ran from $25 to $35 per ton and was sent to local custom mills and some ran $150 a ton, which went to smelters.

These records are available and are in the hands of Widisch at present.

Within the past week, leasors, now working on the 370 foot level and almost in the exact locality previously worked by the Widischs', have asked that such ore as they have out at present be asxayed to determine its value.

Several tons were assayed about six days ago with the following results:

	Assay Value, per ton.
Lot No. 1	$102.65
Lot No. 2	85.30
Lot No. 3	24.60

Of course these men, having no mill and as all customs mills near Virginia City are now running full, are compelled to ship their ores to smelters, therefore sacrifice tonnage for grade. This accounts for the high assay value of the ore being extracted at present.

These leasors have no contract either for area or time and can be put off the property at a moments notice. It is not desired to give them time or area leases although they constantly ask for it. They pay good royalty however, and are allowed to remain as long as the mine is inactive.

The Woodville main shaft has recently been examined at the 370 level. It is in excellent condition to its bottom, -above the Sutro tunnel level and lights which were dropped down to the 1000 foot level, show the timbers to be strong, intact and in place. It is also in good condition above this level for over 100 feet, but above that is in bad shape and closed. For permanent mill work, the shaft needs an electric double drum hoisting engine of about 100 h.p. A compressor of say, four to five hundred cubic feet of free air per minute will answer for some time to come. Machine work is necessary in Justice ground as it is hard, stands well and breaks well and it is because of this fact, all lower levels will be found in comparatively good condition.

The hoist, transformers and other incidentals of surface equipment, together with the shaft retimbering cost, would require a total expenditure of about $25,000.00. But, with sum of money, the shaft could be put in working order so that the blocks of ore, already referred to, could be reached and made ready to bring to the surface.

While on the subject of money needed to put the property in profitable operation, the mill may be mentioned.

As will be seen later when tonnage blocks and stope fills are discussed with the aid of the working maps, there is ample ore to run a fairly good sized mill at once. On the other hand, it would be well to proceed in this direction slowly, with say, a 75 ton a day unit, which can later easily be doubled.

Such a mill for the Justice mine has recently been bid upon by a reliable Los Angeles machinery house, now about to build a larger unit, (150 tons a day) on the Hale and Norcross and the Chollar mines at Virginia City which have, during recent months, developed some large and profitable tonnage.

The 75 ton flotation mill bid upon is of standard design, being made up of Marcey grinding mill, Fahrenwald or Kraut flotation machines, Dorr classifiers etc. It is motor equipped throughout and would be modern in every respect. It has been offered to the Justice mine, completely installed and ready to run for the sum of $40,000.00, payable at the rate of $2,500 per month until half this amount is paid. The remaining payments to be made from ore at the rate of $3 per ton until the entire ~~$xxxx~~ $40,000.00 payment has been completed. This is a fair and reasonable proposition.

If such a mill could be erected and put in operation within 90 days, and this should be accomplished easily, it could pay the remaining amount owed, beyond the $7,500 that would already have been paid, during the first mill runs without trouble, for such a mill, running on $20 ore, would clear net, more than $30,000.00 a month.

//

ORE BODIES TO BE FOLLOWED WITH THE AID OF THE WORKING MAP ATTACHED.

Attached to this paper are the Superintendent's reports for the years 1890-1897, and during the early part of this period, the yellow and red line drifts, raises, winzes etc., were run.

If these reports are read, it will be noted the 490 foot level from the Woodville shaft(main shaft), located on map just south of large green letter A, was driven to a point 292 feet north, (marked with an X) and from there, 275 feet further north, (marked with a second X). Ore of good quality is mined in the course of this straight development. A winze connects these 490 and 622 levels with average values of from $25 to $30 a ton, for three and a half to five feet wide. (about the size of the winze)

Good ore was mined on the 622 level far beyond this winze and the net result of this block, with its raise of 50 feet above the 490 level and entirely in $30 ore, milled an average of $24.11 and to the extent of 2209 tons, extracted in this development.

The block below and including the sub-level, where 378 tons were mined in development, at $20.10 per ton and the ore taken from development on the 822 level, gave 7590 tons from which $160,761.62 in bullion was recovered. This tonnage would more than check the 822 and 762 sub-level and the three connecting raises. This is explained by the Superintendent's statement of small ore stopes from which were extracted eight tons a day in additional development and lying within the sub-level area and would account for the additional tonnage.

Therefore, if a square be drawn, formed by the four X's as shown on the 490 and 822 levels, such a square would be well within the developed and known assay zone, although ore of known assay value on both levels and also on the 622 and 767 (sub-level), would extend beyond such a square both north and south.

Within the square however ore assayed, extracted and milled to develop this three level block, averaged about $21 a ton. (2209 tons at $24.11 and 7590 tons at $20.01)

Although its width is given as only 6 feet, because that was the width of the drifts, such width must be maintained in measuring this ore, even though the vein on the 490, 622 and 822 levels, has generally mined ore at widths exceeding 30 feet and sometimes 50. (see early-day reports)

Therefore, the length of this block being 275 feet, its lode depth 510 and its width 6, we have roughly 841,500 cubic feet, and using 13 cubic feet to the ton, (the general Comstock factor) we have approximately 65,000 tons of ore, from which must be deducted about 9000 tons, (extracted in the development), leaving us roughly, 57,000 tons in the block with an assay value exceeding $20 a ton, or $1,140,000.00 worth of ore.

Obviously all ore taken in this development was mined at a loss. We have repeated references to this fact from the yearly reports and also from the comments of the various Superintendents. As an example, and with reference to this exact block within the area shown on sub-level 762, Mr. Keating, then Superintendent, states with reference to the 378 tons mined and milled at the Washoe mill and which gave a bullion return of $6069.40, or, (allowing 20% loss in extraction) $20 a ton: "The results did not warrant a further extraction of that character of ore, etc."

The object in running these drifts colored in red, yellow and purple, was of course an effort to develop ore of about $30 a ton or higher and pro-

bably hopes were entertained that it might reach $50 and $60 a ton with widths of forty and fifty feet, as was the case near the south end of the mine some years before. (see dark blue stopes and early day reports attached)

In those days Justice was producing $250,000 to $300,000 a month, as will be noted with particular reference to the years 1876 and 1877.

Failing to develop any ore of a grade sufficiently high enough to pay, no stoping was attempted, because it would have been at a loss, had it been so attempted, and we find this north level work on the 490, the 622 and the 822 levels, the last work ever attempted in this locality by the Justice Mining Company. Although they worked of later years, such work was confined to the west veins and on upper levels and also was carried on by leasors at various points, but always on levels above these mentioned.

Everything shown on the large working map belongs to Justice, except the square marked "ALTA". Memphis, Lady Washington, Woodville, etc. are all included within Justice lines. The boundaries, -"Justice old north line" and "Justice south line", will be noted on either side of the map.

As the map scale is 50 feet to the inch, it will be seen that the Justice mine owns along the strike of the Comstock lode, 2050 feet and also owns the West Justice and Blaine claims, neither of which are shown on the map.

For explanation purposes, five large green letters, -A, B, C, D and E, have been placed at various points and all should now be observed before going further.

As the average dip of the Comstock lode on Justice ground, is about 40 degrees toward the east, (toward the bottom of the map) 1000 vertical feet would mean approximately 1600 feet in lode depth, or in vein. While all level depths on this map are given in vertical feet because they were run off vertical shafts, approximately 50% more must be added for the depth (incline) of the ore bodies. As an example: We have the 490 foot level and below it the 622, -a vertical depth of 132 feet. But, the ore between these two levels, because of its 40 degree dip, is actually 218 feet in depth. That is to say, there is 218 feet of ore instead of 132 feet, between the 490 and 622 foot levels.

From the large green letter C at the top of the map, to D, the Sutro Tunnel level to which point the Justice mine is dry, there is a vertical depth of approximately 1000 feet, or 1600 feet in depth of ore. As this section of the mine is above water level and also because the blocked out ore is included in this area, it will be discussed first.

It will be noted that the map is a print of the original Justice Mining Company's working map and that the new levels driven toward the north have been added on in red, yellow and purple coloring. All blue coloring represents the workings of the Justice mine during its profitable period.

The Justice Company in early days had two main shafts, -the Justice Incline which can be seen between letters C and B (large green letters) and the south shaft or "Waller" shaft, near the south end of the claim.

Woddville's two shafts, Woodville old and Woodville new, can be seen near the Waller shaft.

It is from the Woodville new shaft, just to the left of green letter A, that all the new levels (red, yellow and purple) and which make up the ore blocks, were run. In fact, at the time, 1892 to 1898, only this new Woodville three compartment vertical shaft was in operation for the deeper levels.

A glance at this map, shows all stopes from which millions of dollars in ore were extracted and in fact all developed area, lies on the southern boundary of the Justice holdings, occupying but 500 feet of the 2000 foot holding on the lode.

In the samples of the preceeding page, silver was taken at 30 cents per ounce and gold at $20.00.

The results were as follows:

Average of samples. With high grade sample($182.00) $33.26
Without high grade sample. 14.67
Percentage of Gold, 88%
Percentage of Silver, 12%.

These are essentially fill and stope scab samples.

On the horizon where the above samples were taken, neither Justice nor Woodville had the high grade ore later found on the 490, 622, 722 and 822 foot levels of this mine. These latter were the so-called bonanza levels and their extent can be seen on the working maps. But, in the year 1877, Justice milled over 100,000 tons of ore and in prior years both Woodville and Justice milled of course very much more than that amount. To say there would be in excess of 150,000 to 200,000 tons of these stope fills, would seem reasonably conservative in view of the stoped area which can be measured on the working maps.

That they were considered of value in earlier days, can be seen from their persistent sampling, the records of which have been left us in the assay books of the Justice Company. So high in assay value are these fills from the 490 level, it is puzzling to know why they could not mill them, even though the battery screens clogged with pulverized wood and the coating on the plates interferred with amalgamation. They did however, mill some with the results that have been explained above.

Below is a list of the entire 42 samples (mainly box), taken from the stope fills on the 490 foot level in the year 1899, -about the last year that level was open for examination work.

Date. 1899.	Description.	Gold.	Silver.	Total per ton.
January 28.	Old fills, fine.	$41.32	$7.80	$ 49.14
,, 30	,, ,,	6.20	2.46	8.66
February 1	,, ,,	2.07	2.46	4.53
,, 7	,, ,, fine	8.27	3.24	11.51
,, 27	Fine fills	4.13	5.88	10.01
March 1	,, ,,	4.13	2.52	6.65
,, 4	,, ,,	8.27	6.96	15.23
,, 8	Coarse fills	57.88	12.96	70.84
,, 10	Fills	8.27	6.60	14.87
,, ,,	Fine fills (box)	8.27	18.00	26.27
,, ,,	,, ,, (box)	12.40	13.44	25.84
,, ,,	Coarse fills	20.67	12.72	33.39
,, 17	Fine fills (box)	5.17	5.40	10.57
,, ,,	Coarse fills (box)	18.60	26.82	45.42
,, 21	Fine fills (box)	6.20	3.90	10.10
,, 23	Coarse fills (box)	57.88	30.66	88.50
,, ,,	Fine fills (box)	8.27	5.76	14.03
,, 24	Fine fills (box)	6.20	3.30	9.50
,, 25	Fine fills (box)	4.13	2.88	7.01
,, 27	Fine fills (box)	4.13	3.00	7.13
,, 28	Fine fills (box)	12.40	7.44	19.84
,, 28	Coarse fills	41.34	40.92	82.26
,, 29	Fine fills (box)	8.27	2.88	11.16
,, 31	Fine fills (box)	4.13	1.80	5.93
April 1	Coarse fills (box)	49.61	20.76	70.37
,, 1	Fine fills (box)	6.20	3.30	9.50
,, 3	Fine fills	8.27	2.88	11.15
,, 5	Fine fills (box)	12.40	9.72	22.12
,, 5	Fine fills (box)	8.27	8.76	17.03

Date. 1899.	Description.	Gold.	Silver.	Total per ton.
April 6.	Fine fills (box)	$ 4.13	$ 3.96	$ 8.09
,, 7	Fine fills(box)	4.13	4.08	8.21
,, 8	Fine fills (box)	20.67	15.60	36.27
,, 8	Coarse fills (box)	53.75	38.28	92.03
,, 10	Fine fills (box)	4.13	4.32	8.45
,, 10	Coarse fills (box)	4.13	3.72	7.85
,, 14	Fine fills (box)	4.13	5.04	9.17
,, 15	Fine fills (box)	6.20	3.78	9.98
,, 17	Fine fills(box)	4.13	5.16	9.29
,, 18	Fine fills (box)	4.13	2.28	6.41
,, 14	Fine fills (box)	21.14	7.52	24.86
,, 15	Fills (box)	19.92	12.56	32.48

Analysis of the above:

42 fill samples were taken.
The average gold content of these samples was $14.10
It is stated that silver was taken at 60 cents
per oz. Therefore the average silver content was... $ 9.29

In the year 1932, silver would be taken at 30 cents an ounce.
Therefore, the above would be:

Gold	$14.10
Silver	4.65
Total	$18.75 per ton.

Containing 75.2% gold and 24.8% silver.

The above samples seem unreasonably high although we have no other figures and these are the actual Company records.

However, if this figure were more or less cut in half, or say made $10 a ton, the net returns from mining them, as they would now be top-sliced, would be very satisfactory. It can be stated positively that $10 fills can be drawn from this mine and milled at a profit of $5 a ton. Any well designed flotation mill could accomplish this and all mill men know it.

On such an estimate, it would be possible to have a net profit of from $750,000 to $1,000,000 in stope fills without considering ore at all. Some mine managers would mill these fills at once and meantime open up ore stopes for cheaper handling.

There remains but one more observation to make: The future of the mine at great depth.

We know little of Justice below the 1300 vertical level. It is probable the large area between the 822 and the 1350, failed to develop ore of a grade as good or better than that area called 57,000 tons of blocked out ore. As deeper levels were opened in the late 70's and early 80's, little is left us in the way of records except the brief weekly Superintendent's reports:

From Territorial Enterprise, Virginia City, Nevada, March 9, 1878.

JUSTICE-

"The rich vein of ore struck last week 60 feet below the 800 continues to the southward without change. There is much improvement in the south drifts on both the 1000 and 1150 levels, the face of the latter drift being in fine ore."

From Territorial Enterprise, Virginia City, Nevada, March 23rd, 1878.

JUSTICE-

"On the 1000 level, the face of the south drift is still in fine ore. On the 1150 level, ore stopes are being opened further south than ever before in the mine."

Below the 822 level, or the bottom of the 57,000 ton ore block, there is still 130 vertical feet, or more than 200 lode depth feet of dry mine before the Sutro tunnel lateral is reached. This is an area in itself of great potential tonnage and with good ore below it if we are to take the above notices seriously, has possibilities which cannot be estimated upon for deeper mining still above the water level. With an ore body ten feet wide and one thousand long, a million and a half tons of ore could exist in this last named area.

These final three vertical levels of the Justice mine, -the 1000, the 1150 and the 1350 are now below water. The 1350 level has a lode depth from the surface of approximately 2000 feet. To pump them out where the lift is only to the Sutro tunnel level, would be no more than the average gold mine is doing and should not cost more per ton to keep dry with modern pumps of our day. To keep middle lode mines dry below the Sutro tunnel, would be a problem, as their labyrinth of connections would necessitate unwatering a half dozen or more to keep one mine dry. The Justice however, is so far south and connections are so indistinct that it is doubtful if the small seepage through would increase the volume beyond that made by nearly all mines of the depth of the Justice.

As previously stated, ore of commercial quality could well be found as deep as a thousand feet below the Justice's deepest workings. There is ample precedent for this statement, some of the best and richest ore on the Comstock lode has been found at such depths.

However, this is for the future. Ore and fills for the milling of years to come in the dry mine are available above the Sutro tunnel.

It would appear that the points to be taken under consideration are:

1st: The blocked out ore in the White, or Woodville vein.
2rd: The undeveloped ore in the same vein.
3rd: The undeveloped ore in the Justice vein.
4th: The undeveloped ore between the blocked out ore and the Sutro tunnel in both veins.
5th: The stope fills and their possible profit.
6th: The levels below the Sutro tunnel.
7th: The undeveloped area below that.

WOODVILLE-JUSTICE.

SUPERINTENDENT'S REPORTS FROM THE YEARS 1889 TO 1898.

JUSCTICE MINING COMPANY ANNUAL REPORTS.

ANNUAL REPORT. April,1889.

Since my last annual report,we have extended our north drift on the 490 level a distance of 723 feet,making its length from our shaft 1015 feet,and connected with the upraise from the 725 foot level of the Alta Mining Company,thus affording us a good circulation of air for future operations on the level. In this drift,a distance of 292 feet north of the shaft,we encountered ore of good grade,which we followed for 275 feet,its average width being about 6 feet and apparently stronger in the bottom than the top of the drift. The ore is of fair milling character and can be worked to good percentage.

At a point 400 feet north of the shaft,we made an upraise on the ledge and extended it 50 feet on the slope. The ore extracted from it averaging by car and box sample,$30.00 per ton.

At the head of the raise however,the ore reduced in grade below milling quality. At about the same time,a station was cut out and a drift north started from the 370 foot level and extended 135 feet. It is the intention to continue this drift and connect it with the raise during the coming year.

The southwest drift,490 foot level,280 feet south of shaft,is out 250 feet. We intend shortly to resume work in it (having temporarily stopped on account of lack of hoisting facilities),and run it at least 750 further ~~north~~ west,in order to explore the ground in this direction.

We have a considerable amount of "red ore" in sight in the south east portion of the mine,but as it contains manganese to a large extent,it is impossible to mill it to over 50% of its assay value.

A resume of the work performed in the mine during the year, shows 2000 feet of drifts run;one hundred feet of winzes sunk;200 feet of upraises made;10,950 tons of waste and 2209 tons of ore hoisted. We have recently retimbered both compartments of our shaft from top to bottom and it is now in fine working order. We have purchased from the Sierra Nevada Company a complete and well made hoisting engine,capable of easily sinking 1500 feet. The month of April has been devoted to the erection of this engine on a first class stone foundation and it is now ready to start. We have also put up a new water tank and some hydrants and purchased a full supply of hose,thus forming an almost perfect safe-guard against fire,and have made numerous other minor improvements which it is not necessary to enumerate.

It will be seen that we start the new year under most favorable circumstances and I hope to be able to report the result of our explorations as equally satisfactory.

Yours respectfully,

(signed) Charles Lyons.
Superintendent.

A SUMMARY OF WORK DONE IN THE JUSTICE MINE AS PER WEEKLY REPORTS FOR THE YEAR ENDING APRIL 1ST, 1890.

A winze station was opened on the 490 foot level at a point 508 feet north of the shaft, preparatory to sinking to the 622 foot level. The ore vein in the south stope above the 490 level, varied from three and a half feet wide to fifteen feet wide. An east cross-cut in the north drift was started from a point 200 feet north of the shaft. In this cross-cut at the 22 foot point, the ledge was encountered. It showed 7 feet of quartz, assaying from $18 to $25 per ton. The winze, started at the 508 point north of the shaft, was sunk to the 102 point and later on and upraise from the 622 level was connected with this level. It was in ore all the way down averaging 3½ to 5 feet wide and assaying $25.00 to $30.00 per ton.

A station in the main shaft was cut out on the 622 foot level. This station was all in solid rock, as was the shaft from the 490 level to the 622 foot point. An east drift from the 622 station was driven 177 feet. At that point a north drift was started and advanced to the 685 foot point, with good ore found from the 459 to the 685 foot point. This drift was again advanced and at the 732 foot point, the face was in low grade ore. At the 758 foot point, the drift was stopped and the face showed low grade ore.

The main shaft was sunk to the 822 foot level, all in hard rock. A drift from the 822 foot station was driven north. At the 108 foot point, north of the shaft, quartz of a fair grade was encountered. The drift was driven 127 feet and stopped for the present.

During the year 9706 tons of ore were extracted of an average value of $24.11 per ton, as per battery assays at the Washoe mill. A south west drift on the 490 level was driven 311 feet. At that point a ledge 3 feet wide was struck. Drifts were run north west and south east on this ledge and low grade ore was found. Everything in and about the mine was in good running order at the close of the year.

NO ANNUAL REPORT FOR THE YEAR 1890.

ANNUAL REPORT, MAY 1ST, 1891.

Thos. Anderson, President,
Justice Gold and Silver Mining Company,
San Francisco, California.

Dear Sir:

The following is my report of the work performed in the Justice mine for the fiscal year ending this date:

370 foot level.

No prospecting was done on this level since my last annual report, but it is the intention to commence some exploration work from the north lateral drift, after completeing the connection on the 822 level referred to in other portions of this report.

490 foot level.

In the north lateral drift at a point 170 feet from the shaft, an upraise was started on a slope, following the ledge and continued for a distance of over 200 feet, or to about the level of the 370 level north drift. It however, came up 50 feet north of the face of the drift and it will be necessary to continue the drift for that distance in order to connect with it. This upraise was made through good looking quartz containing bunches of ore, but too low on the average to pay to extract.

At a point 200 feet north of the shaft on this level, we are engaged in sinking a winze on the slope following the level, and which is down this day 60 feet. The bottom is in low grade ore assaying from $5.00 to $25.00 per ton.

622 foot level.

At a point 600 feet north of the shaft, a winze was started and continued to the 822 foot level, following the ledge, equal to a distance of 200 vertical feet. 85 feet of the winze crossed through ore of good grade but the remainder disclosed nothing of practical value.

822 foot level.

The main double compartment shaft has been sunk during the year from the 622 foot level to the 822 foot level, or two hundred vertical feet. The greater portion of the distance was sunk through hard rock, which made the work expensive and progress comparatively slow and tedious. When the 822 level was reached, a station was cut out and the north drift started from it to connect with the bottom of the 622 foot level winze mentioned above. When in 488 feet from the station, the drift cut the ledge, at which point it was turned enough to the west to continue in it, It is out now a total distance of 630 feet and has still from 45 to 50 feet to go in order to connect with the bottom of the winze. Fair assays have been obtained from various points in this drift and the ground is to be thoroughly prospected after the connection with the winze has been completed.

From the point where the north drift cut the ledge, the southeast drift was opened for a distance of 300 feet. From the end of it an upraise was started in quartz containing spots of ore in which it is hoped will improve as the raise is advanced.

No ore has been extracted from the mine for the past two months. What there is in sight, pending the completion of the 822 connections, could be taken out only by means of windlassing only through the 822 winze, a consequent expense too great to be justified.

There have been extracted from the 490 and 622 shafts during the year, 7590 tons of ore, which yielded in bullion, $160,761.62 and on which was paid in discount on silver, $17,606.19. In ~~xxxxxxxxx~~ conducting the explorations underground, 18,750 tons of waste were extracted. In

addition to the large amount of dead work performed, numbers of material improvements have been made on the surface, including the erection of a new rope house and changing room and everything in and about the mine is in first class running order.

Yours respectfully,

(signed) Charles Lyons.
Superintendent.

ANNUAL REPORT, MAY 1, 1892.

Thomas Anderson, President,
Justice Gold and Silver Mining Company,
San Francisco, California.

Dear Sir:

Since my last annual report, no prospecting work has been performed on the 370 foot level, but there yet remains a considerable area of virgin ground on that level, which should, in my opinion, be explored when the opportunity offers.

On the 490 level, the west drift from the south lateral drift, which was out 596 feet at the date of my last annual report, has been extended 224 feet during the year and is now out a total distance of 822 feet. The character of ground penetrated by this drift is hard porphry, which is still in the face. It is intended to extend it 200 feet further where it should cut the vein that crops on the surface above that point.

On the 622 foot level, a large amount of prospecting has been done during the year, particularly in the southern portion of the mine, A streak of ore, varying in width from one foot to 18 inches, was encountered in the south lateral drift at a point 85 feet south of the main east cross-cut. A winze has been started on this streak which is now down 19 feet on the slope of the vein. The pay has not increased in width, but is I think, of somewhat better quality in the bottom than on the track floor. Assays of from $6 to $25 per ton are obtained from it.

On the 822 foot level, since my last report, we have extended our north drift on this level a distance of 340 feet following the foot wall. Two cross-cuts were run from this drift across the ledge, but without finding anything of value. From the end of the north drift, an upraise was started and continued for 80 feet and in the top encountered a streak of fair grade ore 18 inches in width. It is the intention to continue this upraise during the coming year.

We have taken out the old pump columns and pump rods from the north compartment of our shaft during the year, as on account of their great weight, they have commenced to force the shaft timbers out of line and thereby interfering with the cages.

Necessary surface repairs on the ropes, cages, engine and boilers have been made wherever required and everything about the mine is in first class running order.

Yours truly,

(signed) Charles Lyons.
Superintendent.

JUSTICE REPORT, APRIL 27,1893.

Thomas Anderson, President,
Justice Gold and Silver Mining Company,
San Francisco, California.

My dear Sir:

Since my last annual report,we have extended our south drift from the north raise near our north line (60 feet above track floor) on the 822 foot level,a distance of 160 feet,where we made connection with the top of an upraise from this level,thereby securing a good circulation of air,and opening up a considerable amount of ore that assays about $20 a ton. We are now stoping 8 tons of ore per day from this part of the mine,which with the amount we had on hand,we are shipping to the Washoe mill for reduction.

On the 622 foot level,no work has been done during the past year,owing to the small force of men that we have had to employ,but it is the intention to start work in a short time in the south east winze again,as the prospects were encouraging when we last worked there.

We stopped running our west drift on the 490 foot level in August 1892. It was then out 980 feet,having been extended 160 feet during the year. The face,when work was suspended,was in hard blasting ground,costing about $25 a foot. This west country is an interesting one and will more than likely contain ore of a greater depth than where any has heretofore been found,as the surface indications all point that way.

No work has been done on the 370 foot level since my last report,owing to our limited force and work under way in other portions of the mine.

During the fiscal year,we have extracted and shipped to the Washoe Mill for reduction,767 tons,680 pounds of ore yielding in bullion, $12,053.49,or 80% of the vaulation by battery sample. From this bullion we obtained a net coin return of $9437.56. This does not include our present run,which will amount to 400 tons. We have hoisted during the past year, 7400 tons of waste from the different levels of the Justice mine and from the Silver Hill,the latter company paying us a fair compensation for it.

In conclusion,I will say that the Company's property,both underground and on top,is in first class running order.

Yours very truly,

(signed) Charles Lyons,
Superintendent.

JUSTICE REPORT, MAY 1ST, 1894.

Thomas Anderson, President,
Justice Gold and Silver Mining Company,
San Francisco, California.

My dear Sir:

At the date of the last annual report of the superintendent, the work of exploration then under way, was confined to the north end of the mine on the 822 foot level. A south drift from the north stope had been started, following a streak of ore from 2 to 4 feet in width, which yielded assays from $15 to $25 a ton, containing the usual ~~mar~~ proportions of gold and silver. This drift was continued for a distance of 214 feet, of which the first 200 feet was in ore of fair grade and the last in practically barren quartz.

From the openings on this level and at and near the point indicated above, there were 378 tons, 205 pounds of ore saved, which was worked in the Washoe mill, yielding a return of $6069.40 in bullion and $4480.96 in coin. These results did not warrant a further extraction of this character of ore and work was temporarily suspended in the mine, pending a decision in the courts effecting the title to mining ground lying west of Justice locations, but which had been taken up by officers of the company for the benefit of the Company.

This ground was composed of two claims, named respectivly the West Justice and the James G. Blaine and the litigation having terminated in favor of this Company, exploration work was inaugurated with a view of developing the claims by means of a tunnel, designated to enter the ledge, previously uncovered at the surface, at a depth of about 200 feet.

The tunnel was begun in October 1893, from a point just above the main road and north of the old Justice hoisting works. It commenced almost immediately to show a mineralized formation, although somewhat broken and indistinct. Its course was about southwest, and it was driven a total length of about 355 feet.

When in 145 feet, a well defined vein pf quartz was encountered, showing spots and bunches of pay in which gold predominated. A stope was opened on it and extended upward for over 40 feet, but as the grade of the ore was low, and as it exhibited no improvement in that direction, it was determined to explore it in depth and a winze was therefore started on the pay and continued for 94 feet. As a convenient means of designating this work, the main tunnel was called the "Blaine" tunnel and the winze the "Blaine" winze. It uncovered a more or less well defined vein of mineral bearing quartz for its entire depth, but showing gradual improvement as depth was attained.

At the bottom of the winze, north and south drifts were started following the vein. The one north was extended 24 feet on a quartz formation about three feet in width of fair valuation though somewhat mixed and spotted. The south drift has been advanced to a total length at this date, of 102 feet, the vein at the mouth, being three feet wide, gradually widening to the face where it is well defined and is now about 6 feet wide. In my judgement, the character and value of the material have improved on the average and the formation has become more distinct and acquired more the appearance of permanency.

The proportion of gold to silver in the rock, continue at about three fourths and one fourth, respectively. It is difficult to arrive at correct conclusions in regard to quality from assays taken from the face, especially in ores where gold predominates and where no previous practical tests have been made to serve as a guide or indication. But, I think it can be taken to be of fair milling grade, made more valuable by the fact of the comparatively small amount of silver contained in it and the consequently reduced expenditue for discount. Positive results will soon be obtained, as we will commence at once, the shipment of an accumulation of about 250 tons of this ore saved from the openings already made.

The development in the winze below the Blaine tunnel and in the north and south drifts therefrom, insure a considerable quantity of ore.

The old drain tunnel from Gold Canyon, which connects with the main Justice shaft, has been cleaned out and repaired for a distance of 600 feet. By extending this tunnel a short distance further, it will intersect the downward continuation of the ore 130 feet below the Blaine tunnel. This will greatly facilitate the working of this ore and cheapen the cost of extraction, as all our work will be transferred to the Drain tunnel from the Blaine tunnel.

Yours very truly,

(signed) R.P.Keating,
Superintendent.

NO JUSTICE REPORT FOR THE YEAR 1895.

JUSTICE REPORT, May 1st, 1896.

Mr. R. E. Kelly, Secretary,
San Francisco, California.

Dear Sir:

I have to submit the following report of work done in the mine during the past year.

From the bottom of winze No.1, sunk 32 feet below the Drain tunnel, 55 tons of ore were extracted which was milled at the Douglass Mill and yielded this Company, after all expenses $278.26 net.

Subsequently, prospecting drifts were run from the bottom of this winze, but nothing of any practical value was found. Afterwards winze No. 2 was started in the Drain tunnel at a point 100 feet south of No.1 Chute. This winze was sunk a distance of 75 feet when work was discontinued. At a point about 100 feet north of the mouth of the Drain tunnel in Gold Canyon, a shaft was started and sunk a distance of 90 feet. From the bottom of this shaft a south west drift was started and advanced about 100 feet when it connected with winze No. 2, sunk from the Drain tunnel.

Prospecting was then resumed and about 180 tons of ore was extracted near the point of this connection. All of the above described work was done by A. De Martini, free of expense to this Company, under a contract to pay the Company a royalty.

In April, 1895, a shaft was started by C.H. Steele and others on the east side of Gold Canyon between the Trestle and our south boundary. This shaft was sunk a distance of 70 feet. From the bottom of this shaft a west drift was run a distance of 45 feet at which point it reached the Justice ledge. From this drift and from the openings therefrom, 207 tons of ore was extracted and milled, yielding $11,076.20 in bullion, from which the Company derived a royaly of $1940.77 net cash. This work was done by CH. Steele and others under a contract similar to that of De Martini, above mentioned.

The following is a statement of the ore extracted by Steele et al and De Martini, under said contracts, and the value of the bullion thereof:

	Tons extracted	Cash Value of Bullion	Royalty by Justice Co.
A. De Martini	275	$5701.39	$ 688.34
C.H.Steele et al	207	$11,076.20	1940.77
Total	482	$16,777.59	$2629.11

The contract under which this work was done by C.H. Steele et al, expired April 27th and the contract of De Martini will soon expire. These parties are desirous of renewing their contracts and resuming work. The annual work required by law on all unpatented claims held by the Company, was done during the past year.

The buildings, machinery, shafts etc., belonging to the Company, have been properly cared for and are in good condition.

Very respectfully,
(signed) R.P.Keating,
Superintendent.

JUSTICE ANNUAL REPORT, APRIL 30, 1897.

R.E. Kelly Esq.,
San Francisco, California.

Dear Sir:

Please to submit the following report of work done in the mine during the past year.

At the date of the last annual report, the shaft sunk by C.H. Steele and others (contractors), had attained a depth of 73 feet and from the bottom of this shaft a drift had been run west 45 feet to the main ledge. Subsequently a drift was started from the face of this west drift by De Martini, Steele and Hobart and run north easterly following the quartz a distance of 50 feet. At a point 25 feet back from the face of this last mentioned drift, an incline winze was started and sunk, following the ledge, a distance of 70 feet at a depth of about 120 feet from the surface. This incline winze passed through an old drift run north in early days from the Waller Defeat shaft. In prospecting from the bottom of this incline winze, a streak of good ore was found. The contractors upraised on this ore, following the same up above the level of the west drift started from the bottom of the shaft 73 feet below the surface. About 400 tons of ore of the cash value of $16,866.88 have been extracted from this upraise during the past year. This stope is now about worked out, only a few tons of ore remaining in sight.

The ground adjoining the old Drain Tunnel which is leased to Andrew Canavan, is being vigorously prospected. At a point 245 feet from the mouth of the tunnel, a winze was started by the contractor on a small seam of ore. This winze was sunk 40 feet following the ore which has now attained a width of 12 to 14 inches. North and south drifts were then started from the bottom of the winzes following the ore. In the south drift, at a distance of [illegible] 10 feet, the ore streak pinched out. But, in the north drift the streak maintains its width and shows improvement. This ore is of good grade, the last average samples giving an assay of $50 per ton. About ten tons of ore have been saved from these workings.

At a point in the Drain Tunnel, 902 feet from the mouth, a prospecting drift was started by the contractor and run east a distance of 35 feet through a clay formation with occasional streaks of quartz. It is hoped that this drift will soon reach the ledge which it is intended to cross-cut. An upraise was also started in the ledge on the west side of the tunnel, 320 feet from the mouth. This upraise was carried up 56 feet. North and south drifts were then started from the top. These drifts were each advanced 50 feet. From the south drift, two upraises were started and carried up 28 and 32 feet respectively. To prospect the ledge, a cross-cut was also run from the top of the main upraise to the hanging wall. About 20 tons of ore have been extracted from these raises. No ore has yet been milled by the ~~Company~~ Canavan.

The following is a statement of the ore extracted by A. De Martini and by Steele, De Martini and Hobart, under their contracts. This ore was milled in the Douglass Mill.

	TONS OF ORE EXTRACTED	CASH VALUE OF BULLION	ROYALTY PAID TO JUSTICE CO.
A. De Martini	80	$ 912.94	$ 88.18
Steele, De Martini and Hobart	486½	18,846.51	3,090.03
	566½	$19,759.45	$3,148.21

The annual work required by law on all unpatented claims held by the Company was done during the year.

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JUSTICE REPORT 1897 (con)

The Company has two hoisting works;one at the old Justice shaft and another at the Woodville shaft. The former is a large building and is in a somewhat delapidated condition,no repairs having been made on it in years. It contains a large hoisting engine from which the boilers and some of the machinery have been removed under previous managements to equip the Woodville hoisting works. This old Justice hoisting works is of no practical use to the Company and is assessed by the County Assessor at $4875.00 upon which taxes at the rate of 5% are levied. I would suggest that this old hoisting works and the machinery therein be sold and thus materially reduce the amount of taxes paid by the Company.

Should the Company desire to resume operations underground, the Woodville Hoisting Works and machinery are in good condition,or a small plant could be put up at very little cost to sink the Steele and De Martini shaft below the level of the present workings of the contractors and prospect the ledge down to its connection which might be useful,for such work could be reserved from sale and stored in the Woodville hoisting works.

All of the Company's property has been properly cared for during the past year.

Yours respectfully,
(signed) Clayton Belknap.
Superintendent.

NO REPORT FOR THE YEAR 1898.

NO REPORT FOR THE YEAR 1899.

NO REPORT FOR THE YEAR 1900.

NO REPORT FOR THE YEAR 1901.

NO REPORT FOR THE YEAR 1902.

EXTRACTS FROM SUPERINTENDENT'S REPORTS FROM THE YEARS

1872 to 1888.

AS TAKEN FROM THE MINING AND SCIENTIFIC PRESS, THE ENGINEERING AND MINING JOURNAL AND THE TERRITORIAL ENTERPRISE OF VIRGINIA CITY, NEVADA.

NOTE:

The Woodville Gold and Silver Mining Company and the Justice Gold and Silver Mining Company, both quoted on the San Francisco Stock Exchange, worked side by side during the 60's and until 1876. In that year the Justice Company absorbed the Woodville and all Superintendent's reports thereafter, refer to the Justice alone.

WOODVILLE: August 24, 1872.
"All the ore producing sections are looking well and yielding enough to keep the mill running steadily."

JUSTICE: August 24, 1872.
"The old Waller Defeat section is yielding considerable good paying ore."

WOODVILLE: September 7, 1872.
"Milling 10 tons of high grade ore daily."

WOODVILLE: October 19, 1872.
"Daily yield of ten tons of high grade ore. Cleaned up $3,600 last Saturday from run of 100 tons."

WOODVILLE: November 2, 1872.
"Daily yield of 14 tons of high grade ore. Ledge 18 feet wide."

WOODVILLE: November 23, 1872.
"The ore-body looks and yields well. In the south ledge, it is 25 feet wide."

WOODVILLE: December 7, 1872.
"The new hoisting works are to be started at once. The main incline is down 156 feet. The first level is 75 feet from the surface. The regular yield of 14 tons a day of high grade ore is from the tunnel."

WOODVILLE: January 11, 1873.
"Shaft down 330 feet and still sinking in good pay ore."

WOODVILLE: February 1, 1873.
"Incline down to the second level, the drift being in 11 feet and just about cutting the ledge."

WOODVILLE: February 15, 1873.
"The ledge opens out finely at the lowest, 320 feet from the surface. It is being drifted on from that point."

WOODVILLE: March 29, 1873.
"Average car samples $109 per ton. Gold predominates."

JUSTICE: April 19, 1873.
"Some fine ore has been developed in the east drift on the 400 foot level."

WOODVILLE: April 19, 1873.
"One mill, the Russel and Thompson startes crushing ore from this mine this evening and the Lone Mill, day after tomorrow. The mine is in fine working condition with $150,000 of ore in sight."

WOODVILLE: May 3, 1873.
"Daily yield 20 tons of high grade ore."

WOODVILLE: May 10,1873.
"Daily yield of 35 tons of high grade ore. Two mills going full capacity. Assay from dump ore runs $90 to $120 a ton."

JUSTICE: May 24,1873.
"The south mine continues yielding good ore."

WOODVILLE: May 24,1873.
"Bullion shipments averaging $1000 a day."

WOODVILLE: May 31,1873.
"Daily yield 40 tons."

JUSTICE: Aug.9,1873.
"Working on the 260 level,Waller shaft."

WOODVILLE: April 25,1874.
"Sinking the new shaft is making slow headway,the rock in the bottom blasting hard and tough. It is today,23 feet below the 300 level."

JUSTICE: September -, 1873.
"Working on the 350 and 400 levels."

WOODVILLE: Oct.4,1873.
"Sinking the new shaft east of the canyon is making good progress."

WOODVILLE: August 15,1874.
"Cross-cuts north on 300 level developed fine continuous ore body of pay ore 300 feet long. Also opening up well to the south."

WOODVILLE: September 2,1874.
"200 foot level fine and in improving ore."

WOODVILLE: October 3,1874.
"Clean-up coming to $2000 a day showing that the ore produced, paid us ~~many~~$40 a ton."

WOODVILLE: October 3,1874.
"North winze from 300 to 400 going rapidly following foot-wall of ledge. Ore still strong and of fine quality."

WOODVILLE: November 14,1874.
"Looks well. 300 level ore to south more than anything on that level. Large percentage of gold,143 feet long.Battery samples $40. Improvement all around. Yield of mill from 120 tons of ore,$3935.Six days run. "

JUSTICE: January 24,1874.
"Raising the main incline from the 400 level to connect with the main perpendicular shaft at the 300 station is making progress."

JUSTICE: March 14,1874.
"Justice has never worked below the 400 foot level although it has yielded a large amount of pay ore."

JUSTICE: August 15,1874.
"Waller shaft bottom is solid quartz of low grade ore."

JUSTICE: October 10th,1874.
"Five men were killed at Waller shaft."(Shot and killed in the (Woodville-Justice fight.)

JUSTICE AND WOODVILLE: August 15,1874.
Both mines taken over temporarily by the Comstock Miners Union to stop fight.

JUSTICE: November 7,1874.
"Work resumed at Waller shaft. Increasing prospects on lower levels."

JUSTICE: November 28,1874.
"Working Waller shaft. Good prospects."

JUSTICE: October 16,1875.
"Face of drift at 800 level is in low grade ore which improves with values and bids fair to furnish ore for milling shortly.The assays average $25 to $30 a ton. At the 600 level,old mine,the ore-body is estimated at 50 feet wide. At the 400 level,40 feet wide. At the 200 level,10 feet wide. At the 400 level it is 130 feet long."

JUSTICE: November 13,1875.
"Streaks of low grade continue to be met in the south drift at the 800,showing near proximity to main ore vein. The 500 level is showing still better than 1st week,the face of drift continuing in fine ore."

JUSTICE: November 11,1875.
"The ore at the 600 level shows still further improvement in both quantity and quality. At the 800 foot level,the main ore-body is reached by the south drift. Assays from $150 to $200 a ton are being obtained. Prospects flattering."

JUSTICE: January 1,1876.
"Main shaft has reached the 1000 foot level. Drift to north 800 level,is running in fine looking vein matter giving good assays. Soon should reach main ore-body developed in the level above."

JUSTICE: January 15,1876.
"Stopes of 400 and 600 levels give 35 tons per day of good paying ore. 800 level south,shows low grade ore in face."

JUSTICE: February 19,1876.
"Face of 800 south in low grade ore. Winze being sunk from 600 to connect for air an exploration. 400 and 600 still producing."

JUSTICE: June 3,1876.
"Daily yield of ore 30 tons. The 600 stope and the opening up to the 400 level are all showing up splendidly and promise a large yield of good ore. North drift on 800 shows body of white lively quartz. North drift,1000 level has struck a lot of water."

JUSTICE: July 1st,1876.
"Daily yield 60 tons. Face south 800 showing finely. Also north 1000. Fine quality and same ore."

JUSTICE: July 8th,1876.
"Bullion for month $55,000. If we can rent the Pioneer Mill,will have enough crushing capacity to much more than pay for running expenses of same."

JUSTICE: July 22,1876.
Daily yield 70 tons. Woodville mill started upon ore from

the mine during the first part of week. 25 tons per day. Developments on 800 north and south, favorable."

JUSTICE: July 22,1876.
"Ore breasts on 400 and 600 showing splendidly."

JUSTICE: Aug.5,1876.
"The east cross-cuts on the 800, more favorable every day. The north and south drifts on the 1000 showing some fine ore prospects."

JUSTICE: Aug.12,1876.
"East 800 showing better."

JUSTICE: August 26,1876.
"Daily yield 110 tons of ore. Nos.1 and 2 cross-cuts, 800 level, are showing near approach to the ore vein and there is little doubt that both drifts will strike the same rich ore body found on the levels above."

JUSTICE: September 9,1876.
"No.2 cross-cut, 800 level cut ore vein. Some splendid ore with good prospects of fine ore body. This is the [illegible] continuation of the ore recently struck in cross-cut No. 3, 100 feet further [illegible] south. No. 3 is rapidly entering the ore vein, which at this point is wide, well defined and ore of good milling character."

JUSTICE: September 16,1876.
"Milling 120 tons a day. No,1 cross-cut, face in good quality milling ore. Nos. 2 and 3, same vein or body."

JUSTICE: September 23,1876.
"125 tons per day. Upper or producing levels showing more and better ore. Cross-cuts on 800 developing and opening up on body in good style. 1000 drift south advancing in good vein formation showing more stringers of quartz."

JUSTICE: September 30,1876.
"Yield 150 tons a day. 5 mills,-Sherman, Excelsior, Woodville, Dayton and Pioneer. Ore coming from 400, 500 and 600 levels, also from main drift on 800 level taken in running drift."

JUSTICE: October 7,1876.
"Yield 160 tons a day. The north portion of the mine shows best. At the 800 foot level, a fine body of good milling ore is being developed at north end. Cross-cuts 1, 2 and 3, same as last reports. Work resumed on 1000 foot level."

JUSTICE: October 21,1876.
"160 tons per day. July production, $55,000. August. $75,000. September, $175,000. Expect $175,000 for October."

JUSTICE: October 28,1876.
"400, 500, 600 giving usual amount of good milling ore. Ore stopes on 700 improving both north and south. The east cross-cuts, 1 and 2 on 800 level are [illegible] slowing advancing, each face in soft ledge matter with heavy stringers and bunches of rich ore."

JUSTICE: November 4,1876.
"Upraise from stopes, 400 level show $60 to $80 ore. Down below 600, development is proving to be rich in stephanite and ruby. On 800, a winze has been started between cross-cuts No2

and 3,yielding assays rich in gold. Ore in face of cross-cut No.4,steadily improving.

JUSTICE: November 11,1876.
" 225 tons per day. 800 level ore body improving going north and upraise from 700 level improving.

JUSTICE: November 18,1876.
"230 tons of ore per day are being milled. Ore stopes on 400, 500,600 and 700 levels,best yet. A north drift is being run on the 600 which is opening up splendid ore. Both north and south drifts on the 700 are also developing fine ore bodies, Winze sinking below 700;bottom still in rich ore. 1000 N.E. very promising.Stringers 8 to 10 inches wide,very rich."

JUSTICE: Nov.25th,1876.
"Stopes on 600,700 and 800 show improvement at almost every point. Rich black sulphrets second to nothing of the kind on the Comstock. Assays of average of this ore gave $12,000 and up a ton."

JUSETCE Dec.2,1876.
"Daily yield 260 tons a day. The ore stopes from the 400 to 800 were never better or wider. Ore extending both north and south on the 700 and 800 and is richer in bottom of winze below the 900 level than at any point in the levels above. The south 1000 appears to be approaching the ledge. No changes in face of 1000."

JUSTICE: December 9th1876.
"300 tons a day. Ore stopes going north and south on the 400 and 600 levels,still producing fine ore,average width 30 feet. The appearances are that on the 500,600 and 700 levels,the ore body developed,extends much further north than was expected. Cross-cuts Nos. 1 and 2 advancing on the 800 and improving. The winze sinking below the 800,developing rich ore. S.E.1000 encouraging. (Justice now paying dividends.)

JUSTICE: December 23,1876.
"330 tons per day. The stopes on the 500 continue to yield well. The winze below this level is also developing a fine ore body. There is little doubt but that this body of ore in the same as that already being worked further to the south on the 500 level."

JUSTICE: December 30,1876.
"330 tons per day. Laying up reserve of 30 to 40 tons per day."

JUSTICE: January 13,1877.
"340 tons per day. Ore stopes from 400 to 800 foot levels, working good ore and bottom of winze from 800 is as good as any. December yield $280,000.00."

JUSTICE: February 17th,1877.
"S.E.drift on 1000 level struck ore worth $50 to $100 a ton with flood water. Work stopped. A considerable quantity of low grade ore has been developed by south cross-cut on 800 level. This is much further eastward than anything before found in that portion of the mine."

JUSTICE: March 3,1877.
"Slow progress on 1000 level. S.E.drift in heavy flow of water."

JUSTICE: March 12,1877.
"400 tons per day being milled. 600,700,800 all good. Winze below 800 good. South 1000 continues in good ore. This level is developing splendidly."

JUSTICE: March 26,1877.
"400 tons a day. The entire size of the south drift on the 1000 level continues in a solid body of fine ore requiring continuous blasting. This ore is of splendid character. This drift shows that the ore extends much further north on the 1000 level than it has on any of the levels above and indicates that the extent of pay ore in that portion of the mine will far exceed both in quantity and quality, the production of any level yet opened."

JUSTICE: June 2,1877.
"The stopes from the 400 to 800 are presenting their usual fine appearance."

JUSTICE: June 9th1877.
"The usual quantity of ore is being shipped to the mills, most of which is being handled by teams to the Overman side track and thence shipped by rail to the river mills."

JUSTICE: June 9th,1877.
"The Justice mine has transferred all its ores to the Sharon mills." (Note: On the Carson River)

JUSTICE: June 16th,1877.
"Milling 450 tons a day. The south 1000 level is still in ore of fine character."

JUSTICE: June 23,1877.
"Seven bars of bullion, valued at $20,000 were sent to Carson yesterday."

JUSTICE: June 23,1877.
"Milling 450 tons a day. Stopes on the 400 to 800 yielding well."

JUSTICE: July 14th,1877.
"Daily yield 450 tons a day."

JUSTICE: August 4,1877.
"In consequence of the low water in the Carson which necessitates hanging up a portion of the stamps in the mills, the yield of ore has been reduced to 350 tons per day."

JUSTICE: Aug. 18th,1877.
" 350 tons per day. Low water on the Carson River. Mills not running full."

JUSTICE: September 15,1877.
"Daily yield has been increased to 400 tons a day. The upraise between the 800 and 1000 levels is improving as it advances. It is up 138 feet in fine ore."

JUSTICE: December 1st,1877.
"Work of extracting ore has been suspended for the present, that yielded by the stops being too poor a quality to pay."

JUSTICE: March 9,1878.
"The daily yield of ore has been increased to 150 tons and the shipment of ore to the Santiago mill, Carson River, was commenced a week ago.

At the dump and at the Pacific Mill, they now have on hand about 1200 tons of ore. The rich vein of ore struck last week, 60 feet below the 800, continues to the southward without change.

There is much improvement in the south drifts on both the 1000 and 1150 levels, the face of the latter drift being in fine ore."

JUSTICE: March 23,1878.
"On the 1000 level, the face of the south drift is still in fine ore. On the 1150 level, ore stopes are still being opened further south than ever before in the mine. The bullion yield for the month will be about $100,000.00"

JUSTICE: September 16,1886.

"The Justice will resume operations next week. The mine has been idle for 5 years."

JUSTICE: August,18,1888.

"Are running north and east on 600 foot level, taking out ore as it comes from drifting without stoping. 15 tons per day. About 2500 tons on dump."

JUSTICE: May 9th,1891.
"No work was done in the south winze on the 400 level during the week, as it xxx is the intention to raise from the 622 level to connect with it. The north drift on the 822 level is out 666 feet. The face is in ore of fair quality."

ATTACHED TO THIS PAPER IS THE ORIGINAL JUSTICE ASSAY BOOK OF ASSAYS MADE MAINLY DURING 1898 AND 1899.

This book shows the following:

1021 assays, from which 21 specimen and high-grade assays have been excluded, gave an average of ..... $35.06 a ton.

From the Blaine and Drain Tunnels and Steele shaft etc. 896 assays gave an average of 35.83 ,, ,,

From the 370 foot level south development work, 162 assays gave an average of..... 19.60 ,, ,,

42 stope fill assays from the 450 foot level gave an average assay value of..... 18.75 ,, ,,

(Gold has been taken at $20 an ounce and Silver 30¢ per oz.)

The last work on the Justice Mine was done by F. Windisch and Son, as leasers and ended in 1929, although leasors in a smaller way are still working.

The results of this work were approximately the following:

Stope fills from 180 ft. level (milled) 4000 tons, with an average assay value of $17 a ton..... $68,000.00

Ore on 370 level, (shipped to smelter) 2500 tons, with an average assay value of $60 a ton.....$150,000.00
