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SPURR & COMPANY
CONSULTING SPECIALISTS IN MINING
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CABLE: SPURRCO CODE: BEDFORD MCNEILL

A U R O R A M I N E S

S U M M A R Y O F S U M M A R I E S

CAIN CONSOLIDATED GOLD MINES COMPANY



SUMMARY

The property of the Cain Consolidated Gold Mines Company is in the old mining camp of Aurora, in Mineral County, Nevada, some 35 miles distant by wagon road from Thorne, on the S.P. Railroad, and 8 miles distant from Bodie, in California. The elevation of Aurora is 7416 feet; the climate is cool.

The holdings of the Company are extensive, consisting of patented and unpatented claims, mill sites, etc.

The camp was discovered Aug. 22, 1861, and at first called Esmeralda. In the fall and winter of 1862-3, the Wide West bonanza (Johnson chamber) was discovered, and led to intense excitement. This ore-body produced several million dollars. By the Spring of 1864, seventeen quartz mills were in operation. At that time no ore running under \$50. was mined and milled. From 1864, the production of the district fell off gradually till 1869, when the camp was practically deserted. One estimate has it that the camp had produced bullion to the amount of \$12,000,000, during the period up to 1869.

In 1877 a new Company was organized to work the camp systematically—the Real del Monte Company, comprising some of the strongest mining men in California. This company sunk the Del Monte shaft 900 feet deep, and cross-cut 1100 feet, under Last Chance hill; but the results were not encouraging, and the work was abandoned.

About 1885, the Consolidated Esmeralda Limited, an English Company, obtained possession of most of the properties.

and was engaged for several years in mining and milling. This company worked the Humboldt mine, milling ores averaging from \$13. to \$24., which, however, apparently did not yield a profit under the existing conditions. This company also worked the Durand mine to a depth of 280 feet, then unwatered the Real del Monte shaft, and drove a cross-cut 1500 feet long to the Durand, obtaining about 35 feet of additional backs. The Company then went out of business; and the district has slumbered until the present day.

The rock in which the ores lie is Tertiary andesite. This is cut by dikes of rhyolite, and covered by overflows of the same rock. The rhyolite is probably later than the main ore-deposition. Later than the rhyolite were extensive eruptions of Pleistocene basalt, entirely post-mineral.

The ore deposits are fissure veins of quartz, usually striking about N 60° E., and dipping variously. The main ore-bearing district is about 1-2/3 miles in length, but the veins extend certainly two or three miles further. under the capping.

The veins are of all sizes, from mere stringers up to veins of extraordinary proportions. These big veins may be in places sixty or seventy feet wide, and a width of 30 or 40 feet is extremely common.

The quartz has been deposited at different periods. The earliest (No. 1) quartz, is honey-combed and contains relatively more silver in proportion to the gold. Later than this is a dense white to translucent quartz, carrying relatively more gold. Still later is blue quartz, containing disseminated

pyrite, and barren; and followed by fluorite.

It is probable that the veins carrying more silver are somewhat older than those carrying more gold. Speaking generally, the more argentiferous veins, which are usually flat-dipping, predominate in the southern portion of the area; the more auriferous veins, which are usually steep-dipping, toward the northern end.

Practically all the quartz in the district contains a weighable amount of gold and silver. Local concentrations form the "pay-shoots" or "bonanzas". In the localization of these pay-shoots, the precipitative effect of the wall-rocks (due to surface tension, physico-chemical screening processes, and chemical reactions) has been important, so that the ores are apt to be higher grade along the walls of big veins. The effect of junctions and intersections is extremely important—probably quantitatively most important.

There has been some surficial atmospheric concentration; but some of the richest ore-streaks are primary. These carry native gold, with silver possibly in the form of argentite; and were deposited by ascending hot solutions.

Faulting is common and important, and belongs to various periods. The largest faults are north-south, vertical faults, having horizontal movements of several hundred feet.

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Altogether samples of 50 pounds each have been taken.

The following mines have been sampled: New Esmeralda, Humboldt, Juniata, Prospectus, Del Monte, Golden Fleece, Wide West, Antelope, Lady Jane, Cortez, Old Esmeralda; and the following dumps:

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Humboldt, Juniata, Prospectus, Del Monte, and Last Chance hill
dumps.

The assays resulted in showing as ore-reserves,
593,269 tons (metric), capable of yielding an estimated net
profit of \$993,358., if a 500 ton mill were in operation. Of
this estimated profit, the Humboldt mine contributes \$932,096.

Therefore I am of the opinion that the property should
be purchased or rejected on the basis of the Humboldt mine.
Should the showing at the Humboldt mine be deemed sufficient to
justify the enterprise, several other mines are worthy of de-
velopment, and might develop valuable ore-bodies.

HUMBOLDT MINE

SUMMARY

The Humboldt property consists of two full patented claims, belonging to the Cain Syndicate, and a small fraction between the two claims, located by Spurr & Company in behalf of the Tonopah Mining Company, as a result of their surveys. The mine was worked in the earlier days of the Camp, especially around 1886, when ore averaging around \$18.00 was mined, and milled at the brick mill still standing below Aurora. The ore was treated by pan-amalgamation, and the tails averaged around \$5.00. Development work was done on the 100, 200, 300, and 400-foot levels. Considerable water was encountered in the bottom, and eventually the mine was shut down, and has been abandoned for 25 years. The evidence is that under the then existing circumstances \$10 - \$12 ore (of which considerable still remains in the mine) could not be made to pay.

The Humboldt claims cover essentially one huge vein—the Humboldt, which is a fissure vein in andesite. About 1300 feet of the outcrop of this vein are comprised within the property. The vein is of dense white quartz, carrying finely disseminated gold. Silver occurs in the proportion Au: Ag = 1 : 3 by weight. The vein runs into the Silver Lining property on the northeast, and is cut off by a heavy fault on the southwest, the faulted continuation being the Prospectus vein. The known extent of the original vein along the strike was about a mile, and it is likely that it proceeds further beneath the capping.

For about 750 feet in the Humboldt property, the vein is from 20 to 70 feet wide and will probably average 40 feet in width.

The water flowing from the Prospectus tunnel would probably be sufficient for the operation of a 100-ton mill.

The first level of the Humboldt shaft develops the vein for a length of about 147 feet, but only explores a portion of its width. The 200-foot level develops a length of 125 feet, and shows up a very wide vein; but it is doubtful if the total width has been developed at all points. The third level develops the vein for a length of 525 feet; and the vein has an average width of 60 feet. Between the main shaft workings and the Silver Lining ground is a shaft. This shaft is about 40 feet deep, with a cross-cut through the vein, which is here about 25 feet wide, with 10 feet of \$3.00 ore. Near the Silver Lining boundary the vein is about 60 feet wide. Workings on the Silver Lining, near the boundary, shows ore running \$7 - \$17, for a width of 3 or 4 feet; and this ore probably runs into the Humboldt property.

In sampling the Humboldt workings, 50-pound samples were taken, the cuts being about 3 - 4 feet long, and assays were made on each sample both in Tonopah and in Aurora.

On the 40-foot level, one cross-section ($\frac{1}{2}$) shows 18 $\frac{1}{2}$ feet of quartz averaging \$9.20 per metric ton of 2204 lbs; another 9.8 feet, averaging \$4.02. In neither case was the full width of the vein exposed.

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On the 100-foot level section 1 shows 12 feet of quartz averaging \$3.21; section 2, 16.4 feet averaging \$5.30; section 3, 9.4 feet averaging \$9.84; section 4, 8.2 feet averaging \$7.18. The width of the vein is only partially developed on this level. The total average value on the 100-foot level is \$6.07.

On the 200-foot level, section 2 shows 8.5 feet of ore averaging \$4.39; section 3, 40 feet of ore averaging \$5.87; section 4, 57 feet (width) of ore averaging \$5.78. The width of vein on this level is not fully developed. The average value of ore on the 200-foot level is \$5.70, the average exposed width 35 feet.

On the 300-foot level there is a total of 1045 feet of workings, including three cross-cuts across the vein. One cross-cut shows no ore averaging over \$2.50; another shows a total of 36 feet (in two belts) of ore averaging \$4.95; and another a width of 20 feet of ore averaging \$4.34.

The fourth level is at the time of writing inaccessible; it is reported that about 500 feet of development work was done high; that the vein was wide, but showed no high-grade ore.

With the above data, the following tonnages and values of ore-reserves above the Prospectus tunnel level, and east of the Humboldt shaft have been calculated:

| <u>Total visible, probable and possible ore.</u> | Tons | Average Value per ton |
|--|---------|--------------------------|
| | 568,078 | \$4.90 |

0.25

The Aurora ores have hitherto been treated by amalgamation (pan-amalgamation or plate-amalgamation). The values left in the tailings was great, the Humboldt tails from the Consolidated Esmeralda mill in 1886 averaging around \$5. The last mill constructed (by Mr. Cain) had about \$10. tails, which have recently been re-treated, by cyanide.

The ore is evidently an ideal cyaniding ore, being free from sulfides and impurities and with values mostly in gold. Various tests made under the direction of Mr. A. P. Parsons indicate a recovery of 95% of the gold and 60% of the silver, or 94.5% total recovery.

Should systematic mining operations be begun at the Humboldt property, the Prospectus drain tunnel would be extended to the Humboldt shaft. This would connect at about the 400-foot level, and would give about 400 feet of backs on the vein. The ore in the block above the tunnel could then be mined very cheaply. Breaking and stoping, timbering, and development charges would all be small. The principal item of cost which requires careful consideration is power, and it is essential that this should be supplied by the Pacific Power Company at a low rate.

In seeking to arrive at an estimate of the cost of mining and milling ore, the method of comparison with known operating mines was used. The closest parallel which I know is the mines at Silver Peak, Nevada—not far from Tonopah. In several respects Aurora has a slight advantage in conditions over Silver Peak, in respect to dip of vein, tramway charges, wage scale, etc. The Silver Peak costs for the first quarter of 1911 were a

total of \$2.719 per short ton. Taking the same basis, but modifying the figures for development, and deducting the Silver Peak aerial tramway charge, we get a total cost for the big Humboldt vein, of \$2.605. This would probably not be attained at first, on account of the time required to organize properly; but is deemed ultimately possible. Per metric ton (as our assay values are given) this figure should be increased 10%, to \$2.86. Where ore is already developed, the minimum assay value, whose recovery value would repay all costs, would be \$2.85.

The figure of \$2.86 has been arbitrarily raised to \$3.00, for calculating net profits.

To the total estimated ore-reserves in the Humboldt mine, estimated above at 568,078 tons, the dump ores are added as follows:

| | Tons | Av. Recov. Value | Est. Value | Est. Cost | Net Profit per T. | Total Net Profit |
|-----------------------------|---------|------------------|------------|-----------|-------------------|------------------|
| Total Ore Estimated in Mine | 568,078 | \$4.90 | 4.63 | 3.00 | 1.63 | \$926,987. |
| Dump Ores | 3,900 | 2.88 | 2.72 | 1.41 | 1.31 | 5,109. |
| Total | 571,978 | | | | | \$932,096. |

In contemplating this possible profit, we have to take into consideration an outlay for purchase, installations, etc. of \$560,000. This would leave a net profit of \$372,000. With a 500-ton mill, the total estimated tonnage would be handled in a little over three years.

PROSPECTUS MINE

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SUMMARY

The Prospectus tunnel consists of several claims, the most important one being the Prospectus, covering the outcrop of a very large vein of the same name. Some pay-ore was found at the surface and stoped down, and this led to the driving in of a tunnel beneath the outcrop, and drifting and cross-cutting therefrom. Subsequently a lower tunnel—the Prospectus drain tunnel—was driven in, and from this there is a large amount of drifting and cross-cutting. The vein, therefore, has been better developed than most other veins in this camp.

A single assay, for a width of 4.6 feet, recut and checked several times, shows an average of \$83.56 per ton. This is probably an example of the rich ore sought after by the leasers who did the stoping; but represents only a bunch.

The Prospectus vein is an enormous quartz fissure vein, striking north-east, and dipping about 60° E. N. W. Its actual thickness, near its north-eastern end, is around 80 feet, mainly solid quartz. At the north-east end, the vein is cut off by the great Prospectus fault, and offset to the right several hundred feet, its continuation being the Humboldt vein. In the opposite direction the vein is traceable into the heart of the village of Aurora, but continually weakening.

The plotting of the assays in the Prospectus mine shows a definite narrow shoot of ore running through the mine,

wherever developed. It is probable that this same shoot may continue into the Humboldt, where it widens on account of further junctions of branches. Contrary to the usual, the Prospectus shoot runs through the centre of the vein, instead of along a wall; and is believed to have been formed by a fissuring of the nearly barren earlier quartz forming the bulk of the vein.

In a cross-section taken through the vein this earlier quartz was found to average \$0.54 in value; while the ore-shoot, divided into two easily recognizable classes, showed for one class an average of \$2.38, for the second, \$9.56. This last assay represents ore which forms a definite vein in the medium-grade ore, as the latter does in the low-grade quartz—so that two stages of fissuring and deposition (of increasing richness) are evidenced.

In calculating the ore-reserves, the medium-grade and the high-grade quartz are taken together.

There is, above the Prospectus drain tunnel level, a total amount of ore as follows:

| Metric tons of 2204 lbs. | Average Width | Total Assay Value | Total Recov. | Est. cost per ton | Net loss Value |
|-----------------------------|--------------------|-------------------------|-----------------|----------------------|-------------------|
| 9997 | 1.56 m (5 feet) | \$4.92 | \$4.74 | \$5.00 | \$0.26 |

The cost of \$5.00 was reckoned, on account of the narrow stoping width, and the difficulty of distinguishing the ore from the practically barren quartz. As this ore is already developed, it is possible that some day it may be mined at a slight profit; but it probably would not pay

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to try to develop any more ore of this kind.

The dumps show a conservatively estimated tonnage of 735 tons, with an estimated total net profit of \$1087.

Milling tests on the ore from the upper dump, show an extraction of 94.9 to 96.6% of the gold, and 80 to 75.7% of the silver, by fine grinding and cyaniding; while tests by amalgamation only yielded 65.5% of the gold.

The Prospectus mine, therefore, so far as developed, is of little value; and can hardly be reckoned, at present, as an asset of any great importance.

JUNIATA GROUP

SUMMARY

The Juniata property consists of two patented claims, the Juniata and the Martinez, covering a prominent quartz outcrop, which can be traced for about 800 feet. Half of this group belongs to the Cain Consolidated Company; the other half to R. C. Sprague of Carson, and interests represented by him. On this other half an option was obtained Nov. 12, 1910, for the sum of \$17,500., the first payment being due July 1, 1911. This option was subsequently extended to Aug. 1, 1911, and again to Sept. 1, 1911. After making the examination and studying the conditions, I came to the conclusion that the property at present was not worth that figure, and after consultation with Mr. Whiteman, notified Mr. Cain to advise Mr. Sprague that the option would not be exercised.

The Juniata veins are fairly wide, and dip south, about 70° . The outcropping vein on which the claims are located has been called by us the No. 2 vein. It is developed in the Upper and the Middle tunnels. In the Middle and Lower tunnels a vein has been developed to the northwest of this called the No. 1 vein, and appears to be the better vein of the two, so far as developed. Our examination makes it appear that this vein apexes on the Gladys claim belonging to T. C. Sharpe of Fletcher (near Aurora). Therefore, this vein is not included in the estimate of Juniata ore-reserves.

Vein No. 2, on the Middle Tunnel (Tunnel No. 2) is not pay ore; therefore no probable ore is figured below.

The exposed stretch of No. 2 vein on the Upper Tunnel Level averages \$6.06; on the Middle Tunnel Level, \$2.98.

The veins are affected by strong transverse faults; and there is some evidence that near the northeast end of the stretch figured, the vein is cut by a strong fault, and perhaps thrown clear out of the claim. On the southwest, the developments underground and on the surface suggest a weakening of the vein at about the end of the workings. For these reasons, it is not allowable to figure any probable ore on either end of the blocks calculated, which extend from the Middle tunnel level up to the surface.

Some ore has been stoped out of these veins which ran around \$20. a ton, and other similar bodies may be developed in the future. At present, however, there is very little of this ore in sight.

The average total cost for the Juniata veins has been assumed to be \$5.00--\$2.00 in excess of the estimate on the Humboldt, on account of the narrow stoping width at the Juniata. Deducting this from the Total Recovery Value, only one of the blocks figured on vein No. 2 can be calculated as pay-ore.

| | Tons | Assay Recov. | Cost | Profit | Total |
|---------|------|--------------|--------|--------|---------------------|
| | | Val. | Val. | per T. | |
| Block 3 | 2254 | \$7.66 | \$7.13 | \$5.00 | \$2.13 \$4801.02 |
| " 4 | 3142 | 3.95 | | | |
| " 5 | 1537 | 5.04 | 4.61 | 5.00 | |

In the stopes of No. 2 vein, is old fill to the extent of 1635 tons, as follows:

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| Tons | Assay Val. | Recov. Val.* | Est. Cost | Est. per Ton | Profit | Total Profit |
|------|------------|--------------|-----------|--------------|--------|--------------|
| 1635 | \$5.97 | \$5.57 | \$2.00 | \$3.57 | | \$5837. |

The dumps contain ore as follows:

| | | | | | |
|------|--------|--------|------|--------|--------|
| 4490 | \$6.70 | \$6.19 | 2.00 | \$4.19 | 18813. |
|------|--------|--------|------|--------|--------|

Total net profits in sight:

| | |
|--------------------|---------|
| Vein No. 2 Block 3 | \$4801. |
|--------------------|---------|

| | |
|--------------------|-------|
| Old fill in stopes | 5837. |
|--------------------|-------|

| | |
|-----------|--------|
| Dump Ores | 18813. |
|-----------|--------|

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|--|----------|
| Total net profits in sight, Juniata mine | \$29451. |
|--|----------|

This profit would be possible only if a large mill at the Humboldt were running. Taken by itself, the Juniata is of little value. Conditions are such it is not safe to assume any probable ore, to increase the above estimate.

Milling tests, by simple fine grinding and cyaniding (conducted under the direction of Mr. A. R. Parsons) show a recovery of 97.7% gold and 65.6% to 74.8% silver. Further tests, consisting simply of amalgamation, yielded 88.5% of the gold.

At present, therefore, the half interest in the Juniata is not worth the \$17,500. called for in the option.

* The recovery values, all through these reports are based on a 95% extraction of the gold and a 60% extraction of the silver, as estimated by Mr. Parsons to form a conservative base; although the actual tests indicate a probable higher extraction, in some cases at least.

DEL MONTE MINE

SUMMARY.

The Del Monte mine is situated in the eastern portion of the Last Chance claim. It covers a segment of vein 600 feet long, limited on both sides by powerful faults.

The vein is developed by a cross-cut tunnel, and drifts, some 50 feet below the outcrop. The mouth of this tunnel is on the property of Sharpe & Bell.

This Del Monte vein is believed to be the same as the Last Chance vein, offset some 625 feet to the right by the Prospectus fault. The vein probably originated at the earlier period of quartz deposition, but was reopened and refilled during the later, gold-bearing period. The tunnel shows a number of small north-east faults, producing an offset of the vein to the left.

Sampling in the tunnel shows an ore-shoot 40 m. (135 feet) long, at the east end, averaging 1.21 m. (about 4 ft.) wide and having an average value of \$6.68; while the rest of the vein averages 0.9 m. wide, and \$2.03 in value. Should the ore-shoot go down to a vertical distance of 100 feet below the tunnel, we should have about 5,142 tons of \$6.68 ore, with a recovery value of about \$6.15. Assuming a total cost of \$5.00, there would be a profit of \$1.15 per ton, or \$5,913. However, it must be remembered that the samples taken were only 50 feet below the outcrop, and that in this district the effects of

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superficial enrichment commonly extend to 60 or 70 feet. It is possible, therefore, that there may be a decrease of values, going downward from the tunnel level.

DUMPS OF LAST CHANCE HILL

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SUMMARY

On the ground belonging to the Cain Consolidated Gold Mines Company, on Last Chance hill, are many small dumps left by early miners. Some of these do not show pay ore-- those which have been averaged as follows:

| Tons | Assay Value | Recov. | Est.Costs | Net Profit | Total Net Value | per ton profit |
|------|-------------|--------|-----------|------------|--------------------|-------------------|
| 6500 | \$5.91 | \$5.06 | \$2.00 | \$3.06 | \$19,890. | |

The above profit is contingent on the existence of a large mill, which in turn depends upon the outcome of further investigations in the Humboldt Mine.

On the same hill there are certain stratified sands and gravels, largely volcanic sand and debris, roughly stratified by water action. There is a strong impression in the district that these sands and gravels are gold-bearing, and they were believed by Mr. Cain to form one of the valuable assets of Last Chance hill. Our assays, however, indicate that the material is without value.

ESMERALDA GROUP



SUMMARY

The Esmeralda claim covers a colossal quartz fissure vein, striking N 20° E., and dipping steeply west. The only cross-cut through this vein shows a width of 75 feet + at this point. The vein is chiefly developed by a single cross-cut tunnel, with drifts, cross-cuts, and a winze.

In this vein practically all the quartz contains small but weighable amounts of gold and silver.

At the surface a shoot of ore was found, on the foot-wall of the vein, and was worked by open cut, and then by an irregular shaft down to the main tunnel level. On the tunnel level this shoot shows 10 feet of quartz, averaging \$3.77; and this ore has been followed down in a winze, now under water.

This shoot does not extend far longitudinally along the vein in either direction, however; although the values continue higher near the wall, drifting has developed nothing else that can be classed as possible ore. The main body of the vein in this cross-cut averages \$0.27.

There is, therefore, no ore of value exposed in these workings, nor any promising bodies of undeveloped ore. A little careful development may be allowable in the future; but as it stands, the property cannot be considered as of value.

NEW ESMERALDA GROUP OF CLAIMS

SUMMARY

The New Esmeralda group of the Cain Consolidated Company lies about three miles northeast of Aurora, being separated from the Humboldt-Juniata area by about two miles of wash and cap-rock. It consists of four claims, covering a zone of strong veins. These veins have the same andesite for country rock as in the main area. Pleistocene basalt, later than the veins, surrounds the area.

So far as developed, the chief values lie along the northwestern wall of the extreme northwestern vein of the zone, and these almost entirely in a limited extent of strike, the shoot having been determined by the junction of a diagonal branch with the vein referred to.

An inclined shaft goes down on the ore-shoot for some 110 feet, with drifts running along the vein for about 75 or 80 feet. There is also, further south a drift-tunnel which runs in along the same vein, exposing it for a length of 130 feet, in a portion entirely south of the shaft workings. A cross-cut tunnel runs in and taps the vein at a point a little distance north of the shaft, under a portion of the vein which shows some good values at the surface.

The vein in the drift-tunnel shows an average value of \$1.91 for an average width of 1.06 meters. In the cross-cut tunnel the vein has an average value of \$2.88 for a width of 1.17 m. (= 5.5 feet). Neither of these is available as ore.

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Assays on the first level of the shaft workings (26 feet below the surface), show an average value of \$10.32, with an average width of 1.01 m., for a length of 32 feet; (3.3 feet) on the 2nd level, an average of \$15.09 for an average width of 0.93 m. (3. feet) and a length of 52. feet. There are here no ore-reserves--these values represent ore already extracted. On the 3rd level, there is an average value of \$5.16, for an average width of 1.07 m. (3.5 feet) and in the shaft below the 3rd level, an average of \$4.44 with a width of 1.33 m. (4.4 feet). These two last averages appear to represent the available ore, unstopped, and this grade of ore would probably not return any profit.

The increased values near the surface are probably due to the enriching effects of atmospheric agencies, which have doubled or trebled the original value of the ore, for a distance of 60 - 70 feet from the surface.

Some fill, in the old stopes, and a few small dumps, figure out a small profit, amounting in all to \$5020.75. This would only be available were there a large mill running on the Humboldt mine. By itself, the New Esmeralda has no profit in sight whatever; and apart ~~as~~ from this trifling amount, there are no ore-reserves in sight, nor any promising places for development known. At present, therefore, the group cannot be considered as an asset.

SHARPE AND BELL, AND THE STEWART ESTATE

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SUMMARY.

The property at Aurora owned by Sharpe, Bell, and the Stewart Estate consists of eight unpatented mining claims,-- not all full ones. These, on account of their position, have an important strategic value to a company operating the Humboldt, Juniata, and Last Chance hill properties. Therefore on June 1, 1911, an option for \$20,000., the first payment due Aug. 15th, 1911, was obtained. This option has been dropped, pending the decision concerning the Humboldt.

The dumps show 2300 tons of ore with a total average assay value of \$6.29, total recovery values of \$5.59, and estimated total net profits (to a company already organized and operating a large mill) of \$8257.

One of the claims is believed to possess the apex rights to vein No. 1 of the Juniata group, which would give it the right over ore in sight, and probably, amounting to a total estimated net profit of \$5940., under the same conditions.

The Golden Fleece vein shows 55 feet of ore, 1 foot wide, and assaying \$8.90, but with the narrow width it is not believed there is any profit in it. Some high grade ore has been taken from this vein, and the vein might be worked by leasers.

Properly, therefore, the property should be purchasable for about \$4000., or \$7000 or \$8000. at the outside. On account of its strategic position, however, it might be wise to do the

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assessment work, amounting to \$800. for the privilege of tying up
the property for a year.

ANTELOPE MINE

SUMMARY

The Antelope Mine is located on a single claim on Silver hill, near the Lady Jane.

The Antelope vein has been mined from the surface, by open cut, for about 100 yards or so along the outcrop.

The stopes go down to a shallow drift tunnel, 20 to 40 feet below the outcrop; and in the center of the ore-shoot they go below it. A tunnel driven ⁱⁿ on a level about 140 or 150 feet below this upper tunnel explores the vein beneath this ore-shoot, and develops what is probably the same shoot.

The vein is also developed, near this same lower level, by another cross-cut tunnel--the Eureka, and, a little higher up, by the Litigation tunnel. The vein dips about 50° to the South.

In the upper drift tunnel the ore-shoot averaged \$13.49, the vein east of the shoot, \$1.56. On the tunnel level 150 feet below, the ore-shoot averaged \$3.52, the vein east of the ore-shoot \$1.06. This difference is believed to be probably due to the effect of surface enrichment. In the Litigation tunnel a small stope has been worked, but no ore remains. In the Eureka tunnel the vein averages \$1.45.

It is probable that the Antelope mine was worked for the richer bunches of ore in the superficial portion of the vein, and that these portions have been worked out. The mine has no ore in sight, and is believed to have little or no value.

CORTEZ AND LADY JANE MINES

SUMMARY

The Cortez and the Lady Jane are two claims on Silver hill, neighboring but not adjacent, and covering two parallel veins of the same name. The veins were worked in the 60's, and the Cortez as late as 1888. From the Cortez, near the surface, considerable high-grade ore was stoped. These claims are under the same ownership, and as all the quartz in the veins was reputed to be good "milling ore" an option was taken for purchase at a price of \$10,000., and a brief examination made. The rumors were found to be incorrect, and the option has been dropped.

The Cortez was worked from the surface, and from an upper tunnel subsequently driven in. Later on, a lower tunnel was driven in, and the vein drifted on for a long distance. Thus the Cortez is one of the best developed veins on Silver hill; but this development only serves to demonstrate that the values encountered on the surface did not extend more than 70 feet or so in depth. The Lady Jane vein was opened up by several incline shafts from the surface, and by a shallow tunnel.

These veins, like most veins of Silver hill, dip south about 40-45°, and are believed to have occupied weak fissures. Stoping on these Silver hill veins is superficial and does not extend much over 70 feet or so below the surface. Superficial enrichment has probably played a part, but it is

believed that the enrichment was in part primary, and may have depended on intersecting later fissures. The country rock is andesite.

In the Cortez mine, the upper tunnel and 1st sub-level, show an average width of vein of 1.24 m., and an average value of \$1.40; the incline shaft an average width of 1.61 m. and an average value of \$0.94; the lower tunnel an average width of 1.96 m., and an average value of \$0.60. There is therefore no ore whatever in the mine. The dumps show possibly 2000 tons averaging \$5.56, denoting a possible profit of about \$2650.

In the Lady Jane mine, the three incline shafts show an average width of vein of 1.44 m., and an average value of \$0.33; while the tunnel and incline shaft show an average width of 1.15 m., and an average value of \$1.63. There is no available ore. Judging from samples, it is doubtful if the stoped area produced any pay-ore.

The conclusion is that these two mines possess no visible value.