

REPORT OF THE MINE MANAGER FOR THE YEARS 1900 and 1901

FROM THE FILES OF THEODORE E. SCHWARZ

LAKE COUNTY

IRON SILVER MINING COMPANY

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GOLDEN, COLORADO

January 25, 1901.

To the Board of Directors,
Iron Silver Mining Co.,

Gentlemen:-

At the close of my second year in the management of your mining property I have the honor to submit my report for the year 1900 as follows:

MOYER WORKINGS.

In reviewing the operations of the past year, the improvements tending to greater economy of production may be briefly noted.

1st. Early in the year we ordered an air compressor and air drills. By the last of February this plant was in operation, and using four machine drills, resulting in material reduction in cost of breaking ore, and driving drifts. We have operated as high as five 2-1/4" drills and a diamond drill with it. The cost of plant and installing same was \$5,000.

2nd. A portion of the main second level having become by reason of the settling of old stopes above it, difficult to tram through and too expensive to retimber, we have driven about 300 feet of new main level in limestone with machine drills, cutting out that much of the old drift. This work, completed in November, has facilitated our tramming very much.

3rd. During the spring your manager entered into negotiations to have both the Denver and Rio Grande, and Colorado

Midland R. R.'s build to the mine and unite in joint terminal facilities there. After several months of conferences and much surveying, a satisfactory grade and track arrangements to all concerned were agreed upon. The Colorado Midland pushed construction, and by last of November we were able to load the bulk of our iron by tramming across from the shaft collar, directly into R. R. cars. The D. & R. G. R. R. has not yet built to us.

To handle the ore requiring sorting, and thereafter deliver it through bins and chutes into the cars, required a new ore house, and 250 ft. of 30 ft. high trestle, across from the upper shaft collar. This ore house is 52' x 22', and contains six storage bins of 60 tons each capacity, besides sorting table, and other arrangements for expeditious work.

Our dump space being full, it became necessary to provide for disposal of waste material. A 50 ft. branch from the new trestle is now in use to deposit waste rock on top of former dump. We have just completed the ore house, and except mill concentrates, none of the output is hauled by wagon. The cost of ore house and trestles has been about \$4,000.

Our coal supply is brought to the Moyer by R. R. and then hauled by our teams to the coal bins, effecting a saving of about 70 cents per ton over former cost.

4th. In order to increase our boiler capacity and do away with an old boiler, we placed in December a new 100

H. P. Boiler, making the second of this size placed at the Moyer shaft in past two years.

In addition to economy resulting from improvements above noted, we have been able to market a limited amount of our lowest grade ore to the pyritic smelter in Leadville at favorable rates.

The shipments of crude ore for the year have been as follows:

Iron	52277	Tons	
Lead	1227	"	
Zinc	1852	"	
Total	<u>55356</u>	"	gross weight.

The lead ores have been mainly sorted out from the ore faces broken for milling, and come largely from the Western side of the mine. The zinc ores come from selected stopes of the cleanest zinc, and are all picked over in the ore house, the cullings carrying 35 to 40% zinc going on the dump. Our large bodies of clean iron sulphide from which the heavy production of last two years has come, are very nearly exhausted. We have reached our Easterly line with the South #9 stope, which has been our main producer for past six months. The iron body left in northeastern portion of mine, and on which we are now stoping, brings us not to exceed \$3.00 per ton on our most favorable con-

-tract tract.

Development work has been carried ahead, particularly into Sierra Nevada ground, to the North and West, resulting

in finding zinc lead mixtures 4 ft. to 5 ft. thick on the regular contact, but no considerable bodies. Most of our development work in westerly portion has shown very zincy mixtures with lead or iron, or both.

Diamond drill holes, five in number, were sunk on southern side of ore chutes to test its limits. They were valuable in throwing light on the geology, and showing where not to develop. I contemplate a continuation of such work in the near future.

So far as developments have progressed, our area not now worked out is mainly zinc ores or zinc mixtures, much of it averaging 35% zinc. I cannot too strongly emphasize the importance of adopting plans to make the same marketable at once.

MOYER MILL.

The concentration mill has handled about 20,000 tons of crude ore, producing 5202 tons of concentrates. The cost of milling per ton has been lowered from about \$2.00 to \$1.00 during the year.

The capacity is 85 tons per 24 running hours. The per cent of saving is low owing

1. To the finely disseminated condition of the lead, involving finer crushing and more complicated system of treatment than is warranted, to recover closely.
2. To the considerable percentage of silver contained in the zinc sulphide itself.

3. To the slight difference in specific gravity between the iron and zinc sulphides.

The fall in price of lead in May last made a difference of \$2.50 to \$2.75 per ton in price of our concentrates.

I regard the mill as it operates today as a commercial success, when considered in connection with the mining conditions accompanying it. Further, the tailings dump must be regarded as a mill product of future value.

The treatment in the mill has been steadily improved, and could be further improved at some expenditure. Further milling operations will, however, in near future be limited by lack of space for storage of tailings.

STEVENS SHAFT

In January and February last we repaired the Stevens shaft and surface plant, which had become reduced to two old boilers and a hoister, minus steam connections, pumps and fittings. On March 3rd we began bailing water. When we had water out, our boilers gave out and had to be replaced by new ones before we could start pumping or run air compressor. As soon as wagon roads permitted, we replaced the old plant, one at a time, with new 100 H. P. boilers. The last of June the new station pump was running at the fifth level, lifting water to the surface, and in July the new boiler plant and new 20 x 20 Norwalk Air Compressor were in operation.

The shaft contract was let early in August and relet early in September, both parties throwing up their contracts;

since which time it has been sunk by day's wages. The shaft is now, Feb. 5th, 190 ft. below the fifth level, or 739 ft. below the surface.

Three diamond drill holes have been driven from the fifth level, the deepest being 579 ft. vertically. These show the blue limestone formation to lie 200 ft. to 300 ft. below that level.

HOISTING PLANT.

Since the close of the year, in January, the old hoisting engine at the Moyer shaft, which had caused delays by repeated breakages, gave out entirely. A new plant, a compact double 14 x 16 hoister, was promptly installed, and is giving excellent satisfaction.

CONCLUSION.

In conclusion I would urge upon you the necessity of promptly taking steps to determine the best method of realizing upon our zinc ores.

The development of the wells and Moyer placer will be continued through the Stevens shaft, and also as regards the northeasterly portion through the 3rd level of the Moyer. This level I have recently laid track in, and am clearing up, preparatory to diamond drill and other exploration to the South.

Respectfully,

Manager.

Denver, Colo. Dec. 1st, 1901.

To the Board of Directors of
The Iron Silver Mining Company,
Detroit, Michigan.

Gentlemen:-

In resigning the management of your property I desire to present a statement covering briefly the operations and results of the past year's work.

In the Moyer mine workings the principal change of note during the year has been in the opening of the so-called "North ore body" by our North drift. This ore body (see accompanying plat) north of the intrusive dike shows a width of about 110 ft. and a thickness, at probably the thickest point, of 50 feet. By our crosscuts Nos. 41, 42 and 45, the ore shoot has been opened in an easterly and westerly direction along its course for a distance of about 220 feet. The easterly portion near the bottom of the contact is quite zincy and low grade. The most profitable portion of the ore is that showing a percentage of copper varying from 1% to 8%, and extending across the North drift in a northwesterly direction. From this portion of the shoot several carload shipments of a copper-bearing sulphide have been made, carrying from 30 oz. to 50 oz. silver, and from 4% to 8% copper. It seems, however, to be characteristic of the shoot that these better grade ores are only occurring at the lower portion of the contact, and within

10 to 15 ft. of the bottom thereof. The breast of the North drift is in a solid mass of sulphide ore, but not of shipping grade.

In connection with this northerly development, the compromise of the so-called Gardner-Goodale suit made last summer, and acceding to us some 280 feet in width along our northerly territory, formerly covered by the so-called Gardner claim, was very opportune. It gives us that much additional ground for exploration along the course of this ore shoot to the East.

The Moyer workings have produced steadily a large output during the year without restriction, excepting during the month of January when the old hoisting plant was replaced by the new, and since September 1st when the restrictions of the A. S. & R. Smelting Company upon our sulphide output went into effect. We have, however, shipped a total of 55,669 tons, including concentrates from our mill, for the eleven months ending December 1st, 1901. These shipments have been divided as follows:

Zinc ores,	3,181	tons,
Lead ores,	3,094	"
Lead iron mill concentrates,	2,382	"
Iron Sulphides,	47,012	"
Total -	<u>55,669</u>	"

In comparing these shipments with those of the previous year it will be observed that the lead and zinc ores have both been increased largely in tonnage, whilst the

iron sulphide shipments have remained about the same.

The average net receipts per ton of crude ore shipped during the ten months ending November 1st has been \$4.79 per ton. The mining cost per ton of crude ore produced, including milling ore, has varied from \$2.40 per ton to \$3.50 per ton, per month. This mining cost includes all the ordinary operating expenses of the Moyer mine, and is obtained by taking from our monthly expense account such items as belong strictly to the Stevens shaft account, and the concentrating mill account, and any unusual or special expenses for plant replacements or new improvements. Whilst the mining cost per ton produced has varied, as above stated, in different months, the cost per car hoisted in the Moyer shaft on monthly averages has varied only as between \$1.75 and \$2.16 per car. I cite these figures to call your attention to the uniformity of the operations, and the close margin on which we have been operating.

The ore bodies now showing in your property may be divided under four heads:

1st. The North ore body referred to above:

2nd. The profitable iron sulphide bodies of very limited extent now remaining in the older workings of the property, in South 9 stope along the eastern boundary of the Moyer placer, and in the so-called "Buell" stopes in the southern portion of the Sierra Nevada territory:

3rd. The detached bodies of iron sulphide remaining in the old stopes, and too low grade to stand shipment:

4th. The zinc ore bodies occurring mainly in the western portion of the mine along the North drift. The mass of this zincy material will carry from 30% to 40% zinc.

The principal surface improvements made during the year at the Moyer have consisted of the replacing of the old hoist last January by a new double 14 x 16 hoist, referred to in my last annual report, and which has given us perfect satisfaction. We also placed a new 125 H. P. boiler in the Moyer boiler house in place of an old 80 H. P. which I discarded. The boiler plant therefore now stands at the Moyer shaft, 325 H. P. in three new boilers placed during the past three years, and in addition one 80 H. P. boiler of the old battery still remaining, but seldom used.

Our concentrating mill, or rather, separation plant, has been operated only on the day shift the past six months, owing to a shortage of milling ore. It has produced about 2400 tons on lead iron concentrates, the monthly average value of which has varied from \$12.40 per ton to \$27.30 per ton. We have also produced a small amount of zinc concentrates carrying, on the average, about 41% to 42% in zinc.

The tailings from our mill work have been accumulated in cribs until they now have reached a tonnage of about 30,000 tons. I place the average zinc contents of the same at 30% to 31%.

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During the past year, in view of the complex character of our ores, I have found the ore house which I erected about a year ago a most important adjunct to our operations. During recent months fully one-fourth of our shipping product has passed over the sorting tables for separation, as the best selling conditions required. As an illustration of what has been accomplished in this direction, during October and November we handled in each month some 1900 mine cars of ore, sorting the same and shipping each month therefrom 1300 tons of salable product at a cost of 44 cents per ton shipped.

At the Stevens shaft the main shaft has been sunk a depth of 118 feet since the first of last January, or a total of 303 feet since we began sinking. The 6th level, at a depth of 840 feet from the surface, has been driven east 341 feet, whilst the 3rd level has been extended 311 feet on its old breast. Both these drifts are very close to points where intelligent exploration of the contact will soon be necessary. In addition to these drifts there have been cut two stations at the 6th level, one, the Pump Station, being 36 feet long by 16 feet wide and 12 feet high outside of the timbers; the other, the Mine Station, being 20 x 9 x 11 ft. in the clear of timbers. Both Stations are substantially timbered; the Pump Station being ready to receive the pump.

Last June I contracted for a Janesville Compound Condensing Station Pump with steam cylinders of 15" and 32"

respectfully, and calculated for a lift of 900 feet. This pump has only recently been shipped from the Factory owing to the delay caused by the steel strike.

The water in the Stevens workings is still very light, but being the deepest shaft in that section, and with considerable water in the adjoining shafts, I feel a pump of ample capacity to be necessary in the development of this large area. The Stevens plant is in good condition, the only immediate requirement being an additional 100 H.P. boiler, the order for which I have recently placed.

There are now no lessees upon the Company's territory excepting those to whom I have recently let leases on the Stinson and Fanchon placers west of the Arkansas river. The territory on Iron Hill and in California Gulch, recently under lease, is therefore free and subject to development.

In conclusion, I would note that during the almost three years of my management there has been but one month that the Moyer mine has failed to show a margin of profit over and above its operating expenses; and there have been but two months during which our receipts have failed to meet our expenditures, including the development through the Stevens shaft. In these cases in which we feel short, *fell* the restrictions of the smelters accounted for it. At the same time, the development work upon your property has been well kept up, fully to the extent which the conditions warranted. In addition, a large amount of systematic

diamond drill work has been done. I have the satisfaction of turning the property over to my successor well equipped, well systematized, and in good working condition.

As stated in my last annual report, the utilization of your zinc ore bodies by some method of treatment which shall produce a marketable zinc product, still remains largely the key to future successful operations upon the Moyer.

Respectfully,

Manager.