MINING INDUSTRY
OF IDAHO
1901
Office of the Inspector of Mines,  
State of Idaho,  

Boise, December 31, 1901.

To His Excellency,  
FRANK W. HUNT,  
Governor of Idaho:

Sir:—I have the honor herewith to transmit my report as Inspector of Mines for the year ending December 31, 1901. In my review of the mining operations of the state, it will be observed that I have omitted mention of those counties which are devoted to agriculture, to fruit culture and stock and the increasing wool-raising industry, confining my observations, as I did my inspections, to those counties essentially mining counties.

Very respectfully,

M. H. Jacobs,  
Inspector of Mines.
Press of
Capital News Printing Co.,
Boise, Idaho.
INTRODUCTION.

Idaho embraces the territory lying between British Columbia on the north, the states of Utah and Nevada on the south, Oregon and Washington on the west and Montana and Wyoming on the east. It is nearly 410 miles long from north to south, and varies in width from forty-five miles to 300, having an area of over 80,000 square miles. Idaho is nearly equal in size to New York and Pennsylvania combined. Its acreage is something over 55,000,000, and the present population of the state is over 200,000. The late census shows a population of 161,772, which was an increase of 91 per cent over 1890, and the large immigration which has come into the State during the past two years will easily raise the figures to over 200,000, a great increase in population since Idaho was admitted to statehood in 1890. The elevation varies from 700 feet above the sea level in the extreme west to 10,000 in the extreme east. So varied is its surface that all kinds of climate are to be found, and very near each other. There are no extremes of heat or cold in many parts of the State, and taken all in all it may with truth be said that Idaho is one of the healthiest states in the United States. While Idaho excels in agriculture, fruit culture, stock raising and wool, its chief industry is mining, and it is to this feature of the industry of the State that I call special attention at this time.
UPPER TUNNEL OF MAMMOTH MINE, SHOSHONE COUNTY.
ADA COUNTY.

Ranks among the most populous counties of the State. Boise City, the capital of the State, is the principal commercial city. While the county's material interests are agricultural, in its various forms, there has been considerable mining going on since 1863.

The Twin Springs Placer Company has expended a large sum of money in opening their ground, in building their flume, and in exploiting other properties adjacent to their principal property.

The Black Hornet has been doing some development work, and has produced some promising ore.

The Delhi mine, situated about eight miles northeast of Boise City, has been developing for the past two years, including the erection of a ten-stamp mill.

The County has over 25,000 acres of land under cultivation, and quite as much more under canals, which is being rapidly taken up by immigration from the great middle west.
TIP-TOP PUMPING PLANT. FORCES WATER TWO MILES AND 900 FEET HIGH, TO TIP-TOP MILL.
BLAINE COUNTY.

This County is among the oldest mining counties of the State. At the time Shoshone County was known only to the placer miner, old Alturas, of which Blaine was originally a part, was known all over the land as a large producer of silver. A few years ago a large number of the mines closed down, or largely reduced their working forces, owing to the low price of silver, but recently, in obedience to the general spirit of material advancement, the mines have reopened with gratifying results to the owners. Among the famous producers may be numbered the Minnie Moore, the Idahoan, the Muldoon, Bullion and Mayflower. Since the discovery of mineral ores in that locality, the Wood River mines have shipped nearly $20,000,000 worth of silver bullion.

TIP TOP' MINE.

J. A. Lusk, General Manager.

This property has a west and east shaft of 500 feet and 800 feet respectively, situated some 500 feet apart, connecting on five levels, making in all 3,180 feet of levels. There are 760 feet of cross cuts and 840 feet of winzes and raises. The west shaft is provided with a forty horse-power marine boiler and a thirty horse-power double hoist. The east shaft has a 100 horse-power boiler, with an auxiliary 40 horse power boiler, and a fifty horse-power double hoist working skips. All the mine pumps and drills are worked by compressed air.
TIP-TOP CAMP AND MINE IN DISTANCE, BLAINE COUNTY.
There is a twenty 850-pound stamp mill run by two eighty horse-power boilers and one sixty horse-power Corliss engine. There is also a seventy-five C. P. U. S. electric plant. The pumping plant consists of a sixty horse-power boiler and a Duplex compound condensing pump, which supplies water through two and one-fourth miles of four-inch pipe, elevating it 925 feet.

GOLDEN STAR.

This property is situated in the Camas gold belt. It has a shaft 500 feet deep, with drifts running off on every 100 feet level. They intend to sink about 200 feet more. It is provided with a ten-stamp mill.

THE HATTIE.

This fine property has a shaft 200 feet deep, with cross-cuts to vein, which shows good size and value. They put up a twenty-stamp mill this summer, and are now putting heavier hoisting machinery, with a view of sinking the shaft to the depth of 500 feet.

CAMAS NO. 2.

Is putting in a new hoist, with intention of sinking a new shaft and then driving over 600 feet to the old shaft, which will be used as an air shaft. H. S. Hollister is the general manager of this property, the Golden Star and the Hattie.
TIP-TOP 20-STAMP GOLD MILL AND HOISTING WORKS IN DISTANCE, BLAINE CO.
BLACK CINDER.

Is owned by Charles McClure, of Montana. It has a 500-foot shaft, with drifts every 200 feet. This company has recently purchased Camas No. 1, which it joins. The two properties will be connected by a level starting from the bottom of the shaft.

THE CHAMPLAIN AND THE JUMBO.

Have been doing a great deal of development during the summer. The latter has been running a ten-stamp mill also, in addition to its development work.

MULDOON.

This old camp, which was once a great lead producer, has done a great amount of development work this year. A company has bought up a large group of claims, which will be developed this year.

IDAHO DEMOCRAT.

Is one of the heavy lead producers of Wood River. Its ore is a high grade, no concentrator needed, being shipped direct to the smelter.

KETCHUM.

The mines tributary to Ketchum have done a very large amount of development work, meeting with gratifying results.
150-FOOT LEVEL. LIBERAL MINE, BLAINE COUNTY.
LIBERAL MINE.

This promising property is under the management of Major F. R. Reed, an experienced miner and judicious business manager. Extensive development work has been done during the summer, resulting in a number of drifts from the main tunnel, which is in about 600 feet. An incline has been sunk from the main tunnel, from which a cross-cut has been run at a depth of 100 feet into the ore body, which has been found to be eight feet thick. The ore is said to assay from $14.00 to $35.00 a ton. A stock company has been incorporated, capitalized at $2,000,000, divided into 400,000 shares at the par value of $5.00 a share. This mine is on the extreme end of the Camas gold belt. It is splendidly located as to wood and water.

The mines on the Camas gold belt have been held back for lack of water and manner of treatment. The H. S. Hollister Company has secured a lease on State lands at Shoshone Falls for the purpose of putting in an electric plant, the intention being to transmit this power to the Camas gold belt, to be used for all mining purposes, and either to pump the water from the Malad to the mines, or to transmit the ore from the mines to the river, whichever is the most feasible.

Captain Lusk has overcome the difficulty of treatment of the ore, reducing the cost to a minimum.

The Croesus mine has been bought by the Hollister Company for $350,000, and will erect a forty-stamp mill.
POWER HOUSE AND OTHER BUILDINGS OF LIBERAL MINE, BLAINE COUNTY.
BOISE COUNTY.

Boise County, Idaho, holds the palm as the greatest gold-producing section of its size in the world. Boise Basin was among the first gold discoveries made in the State, and although there were no records kept in the early '60's of production, the shipping records of Wells, Fargo & Co.'s express and estimates from other sources, place the output since the first discovery in 1862 as high as $1,500,000,000, principally placer gold. Considering that the basin proper is only thirty miles long, with an average width of fifteen miles, an idea may be conceived of its wonderful richness.

Waldemar Lindgren, of the United States Geological Survey, who made an exhaustive examination of this gold field, is authority for the statement that this vast placer bed was dependent upon the quartz ledges of the district. Of later years these quartz deposits are being worked, although there is yet a vast field of discovery open to the prospector. The quartz belt of Boise County extends for a distance of upwards of forty miles, and comprises among others the Quartzburg, Gambrinus and Elkhorn districts, in Boise Basin proper.

The Gold Hill mine, in the Quartzburg district, is one of Idaho's famous mines, having been worked in pioneer days, and to date having produced upwards of $3,000,000.

The Washington mine is also a good producer, and has a ten-stamp mill. The Lucky Boy also has a similar mill.
NEW CONCENTRATOR OF EMPIRE STATE MFG. CO. CAPACITY, 400 TONS PER DAY.
Among the other mines of Boise County may be mentioned the Illinois, Mountain Ram, Gold Bug, Mollie McCarthy, Golconda and Mineral Hill, while there are numerous others of equal prominence.

About four miles from Idaho City has been recently discovered a large district rich in gold, silver, copper and lead, the ore being base in character, going $40 to $50 per ton. With the introduction of modern methods of mining, adapted to securing the best results, this district is one of great promise.

During the past year the Pearl district has been attracting something of the attention due it, and during the month of December a company of capitalists purchased the Checkmate, and another company secured the Lincoln group. The Checkmate's development has reached the stage where it is a regular shipper of good paying ore. A number of other claims in the district have been bonded or sold, and a general era of progress has set in. Of the principal properties in this district may be mentioned the King group, the Comrade, Henderson, Easter, Judas, Henderson No. 2, Red Warrior, Middleman, Friday, Superior, J. I. C., I. X. L., El Paso, Payette, Lincoln and Lucky Ridge.

Miller Mountain lies thirty miles from Idaho City, and is attracting a good deal of attention in a mining way. A company has taken hold of the Jefferson group of quartz claims, and have a crew of men at work. The Marsh group has also been bonded to an eastern company, and they have a force of men at work. Both the Marsh and Jefferson groups are
TWIN SPRINGS EAST HILL PLACER CLAIM, BOISE COUNTY.
looking well. The base ores of Boise County have had but little attention paid to them, as everything has to be hauled by teams. If there was a railroad at Idaho City or Placerville, all of the base ores would be worked, and a great deal of activity would be added to Boise County's mining.

The War Eagle hydraulic placer claims in Boise County have been worked the past season for a long and successful run, and, in fact, the placer mines of the County are a source of great wealth. There were also two dredges on More Creek at work during the season, and arrangements are being made for the construction of two more.

CASSIA COUNTY.

While this County has always ranked high as an agricultural and stock county, she has possessed mines which were regarded as mere prospect holes with small promise for the future. But lately development work has converted some of these prospects into promising properties, both in the quartz veins and placer grounds.

The County is reported to possess, also, deposits of mineral paints, quarries of very fair marble, sandstone, mica and coal, or lignite. This County, like all the counties in the State, lack in fair railroad facilities for the complete development of her large natural resources.
CUSTER COUNTY.

Custer County occupies a central position upon the map of Idaho. It is a vast storehouse of mineral wealth, but the development of its resources have been retarded by the lack of transportation facilities. Not until the year 1901 had a railroad crossed its borders. In that year, a branch of the Oregon Short Line was constructed from Blackfoot a distance of 80 miles to Mackay in Custer County. At Mackay, which is a town of magic growth, having been founded in 1901, and now having a population of upwards of 1200, are located the copper mines of the White Knob Copper Company, of which the San Francisco-New York millionaire, John W. Mackay, is president and Wayne Darlington general manager. This company has done a great deal of development work and is rapidly pushing to completion a smelter of 600 ton daily capacity. The company has in its employ upwards of 500 men, has constructed twelve miles of electric railroad connecting its mines with the smelter.

The operations of this company alone caused the building of the Short Line branch. There are a large number of other claims, and in fact, several that have passed the development stage, worthy to be classed as mines in the great copper belt tributary to Mackay. The White Knob Company is also developing a property at Copper Basin, some fourteen miles distant.
It is anticipated that during the coming year the railroad will be extended from Mackay to the Salmon river, thus bringing into greater prominence the mines of Challis, Bay Horse and Clayton. The mines in the vicinity of Challis are being successfully worked. At Bay Horse are located the famous silver properties known as the Sky Lark and the Ram’s Horn, development work upon the latter having been in progress for years and a vast amount of high grade ore has been accumulated awaiting transportation facilities.

At Clayton, Lawrence Greene is manager of the Clayton Milling and Smelting Company, owners of the Red Bird and 25 or 30 other claims. This company also owns the Sky Lark at Bay Horse. Mr. Greene reports that during the past season the output of his company was 954,775 lbs. of lead-silver bullion containing 67,806.86 ounces of silver and 21,784 ounces of gold. Of this amount the Red Bird produced about 600,000 lbs., and had 30,000 ounces of silver, and the Sky Lark produced about 20,000 ounces of silver. The remainder was purchased ore. The output of the Red Bird and Sky Lark for 9 years previous has been practically double the above figures annually.

Up the Salmon river, in and about the Slate Creek district, are also numerous lead-silver properties, including the famous Livingstone group.

At Custer City is a gold belt where the Lucky Bay Gold Mining Company works a thirty stamp mill night and day on ore of good quality. At Estes Mountain are the famous McFadden group, where another mill is also kept constantly at work on good paying ore.
The district is known as the Yankee Fort Mining District and in addition to the mines named, here are located the General Custer, Charles Dickens, Summit, Unknown, Atlantic, Continental, Washington Group, Anna, Whale, Wonder, Columbia, Jesse James and other properties. The total bullion product of these mines is estimated at $12,000,000, of which the General Custer has produced $7,000,000 and the Charles Dickens, Lucky Boy, Summit, Unknown, Atlantic, Continental and Anna have yielded upwards of $4,000,000.

In fact Custer County is a County of great possibilities in mineral wealth, and with transportation facilities an impetus will be given the mining industry that will make it a most inviting field for both the prospector and the capitalist.

ELMORE COUNTY.

This is one of the old mining counties of the State, mineral being discovered here as early as 1863. A large section of this County, being originally a part of old Alturas County. The northern part of the County is mountainous and in winter almost inaccessible owing to the deep snows. It is in this region that the Atlanta and Rocky Bar mines are located, and it was around these as radicents, that other mines were discovered and operated. Many causes have operated to retard more active work, not the least being the lack of railroad transportation, the nearest point of rail communication being the County Seat, Mountainhome. The mines are as good as they ever were, and through the stimulus imported by the recent active operation in the Neal district, will again no doubt, assert themselves.
MONARCH.

This old property, near Atlanta, has been opened by F. J. Conroy, and is yielding good results. 3500 feet of tunnels have been run, showing an abundance of good ore. The mine is supplied with a fifteen stamp mill.

The Baltimore, near Atlanta, and the Sawtooth, near Rocky Bar, have been doing extensive development work this year, in preparation for the future. The latter is equipped with a 20 stamp mill.

TEHOMA.

This famous mine, situated near Atlanta, has been bonded by an eastern syndicate, who are adding to the extensive development work, which has been progressing throughout the year, with most promising results.

CROWN POINT.

Has been steadily at work driving and sinking on a vein of very high grade ore.

E. P. Cowan has opened up a fine gold property on Lime Creek.

NEAL DISTRICT.

Is situated about 22 miles from Boise City. There are a number of most promising mines being worked, among the more favorably known being the Daisy, Homestake, Hidden Treasure, Deming & Williams’ mine, Elmore, New Century and Mountain Queen, Golden Eagle, Pioneer and others, all of which are being actively and, it is said, profitably worked.
BUFFALO HUMP MOUNTAIN, IDAHO COUNTY.
IDAHO COUNTY.

This County embraces within her geographical limits the rich placers at Warren's Florence. Included in this County also are the great Clearwater and Salmon River Countries, practically an unknown and unexplored field. All the mountain streams, gulches and canyons of the Bitter Root Slope give freely of their golden wealth to the prospector and miner.

The famous Buffalo Hump country has recently been opened through the recent discovery of rich quartz in what is now known as the Big Buffalo Hump and Jumbo leads. In a mining sense, little has been done beyond extensive prospect and development work with well founded expectation that the hopes of the owners, extravagant as they may seem, may be abundantly realized in the future, at the same time milling has been in active progress on both the Buffalo Hump and Jumbo mines.

The width of the mineral zone is about three miles by nine long, while the surface indications are of such a prominent character that one wonders how the camp should have escaped the vigilant scrutiny of the prospector, so many years, in an old operated mining country.

The ledge better known as the California ledge shows good ore croppings on every claim; it is 14,000 feet in length.

The Jumbo ledge is about 18 feet wide and crops out from 3,000 to 4,000 feet. It has been developed to a depth of 160 feet showing good values in all its length and depth.
The Big Buffalo ledge is from 30 to 60 feet wide, and crops out, visible to the eye, for a distance of 4,000 feet. Tests have been made of these ores, both by mill and assay, and found eminently satisfactory.

The Dewey ledge is another one of those phenomenal ledges, cropping out for a distance of 7,000 feet in length, with an average width of 10 feet, showing remarkably rich ores in places.

The Wise Boy has a wonderful showing of high grade, free milling ores. The owners are erecting a 10 stamp mill.

The Cracker Jack has two strong parallel ledges cropping out for a long distance. In addition to those already mentioned there are about 1100 other claims located on these various ledges.

The Warrens quartz continues to show its usual high grade ores. The placers are worked by dredges and hydraulics. It is confidently expected that the Thunder Mountain discoveries will be the means of opening a rapid and continuous transit which cannot fail to enormously benefit this well known and rich camp.

The year just past has seen comparatively little advance work done, owing, as before stated, to the difficulty of transportation, aided, probably, by excitement caused by the discoveries in the Buffalo Hump and Thunder Mountain countries.

At Dixie a great deal of development work has been done, including two new 10 stamp mills which have been erected on the Dixey Queen and Ajax.
The Evergreen and Dewey mines are located on the South Fork of the Clearwater river about eight miles from Grangeville. A great deal of development work has been done on these mines and they have fine showings in both the mines. In the near future they intend to erect a large milling plant using the waters of the South Fork for the power.
CLEARWATER RIVER AT LEWISTON.
THUNDER MOUNTAIN.

In response to a general demand for reliable, accurate and trustworthy information concerning the Thunder Mountain district in Idaho County. I present herewith briefly an account of the discovery of gold and the work done, together with reports of Messrs. W. J. Conroy, L'Hame, Martin Curran and Professor H. T. Mead. Messrs. Conroy, L. Hame and Curran visited the camp as the expert representatives of the Pittsburg capitalists, and Colonel W. H. Dewey before they paid the purchase price to the Caswells, and Professor Mead went in as the representative of the Oregon Short Line railroad company, who were desirous of furnishing accurate information to those intending to visit the camp with a view of locating or investing.

W. J. Conroy represented the Pittsburg capitalists and did not feel at liberty to give the report for publication, but very kindly has written up a description of the Thunder Mountain country.

Present indications are that there will be an immense rush to this district with the opening of the traveling season. It is estimated that fully 20,000 people will go into Thunder Mountain in the spring. So far as known the district promises to become one of the world's most famous treasuries of gold.

In 1894, Ben and Dan Caswell first visited the district and located several claims and while the formation was entirely of quartz, there being no gravel carrying the gold as in placer mining, yet by panning the decomposed porphyry, where upon the surface it had be-
HECLA HOIST BUILDING. SHOSHONE COUNTY.
come air slacked, the venturesome prospectors secured some $260 in gold. For seven years these men who were joined by another brother, W. T. Ritchey and Mr. Huntley, annually visited the district, and, although their efforts were of the crudest and they were only able to work two weeks each season, a total of 14 weeks, utilizing the water from the melting snow, within that period of time they secured $20,358.99 in gold, as shown by the receipts of the United States assay office at Boise.

Among those who had heard of the discoveries of the Caswells was Ed. H. Dewey of Nampa, Idaho, and with characteristic keenness and foresight, Mr. Dewey was the first to realize the wonderful possibilities of the district and interested his father, Colonel W. H. Dewey, the well known millionaire mining and railroad man in a proposition to purchase the original Caswell discoveries. The latter concluded that an assured competence was better than even the ownership of a bonanza that would require large capital to develop. They also had other claims in the district, and the interesting of Colonel Dewey would mean the building of roads to the almost inaccessible region and the enhancing of the values of every prospect. A deal was quickly made and a bond to dispose of the claims comprised in the original discovery was entered into in the sum of $100,000. Colonel Dewey immediately put a force of men to work and sent experts into the camp. So favorable were the reports of the experts, men of the highest standing in their profession, that Colonel Dewey and associates, capitalists of Pittsburg, Pennsylvania, in November, 1901, paid the agreed purchase price to the Caswells, although the bond was not due until January, 1903. The Dewey company has done a great deal of work, having sent in a ten-stamp mill, which was
ARRIVAL OF FIRST MAIL AND DOG SLED IN THUNDER MOUNTAIN.
taken over the Boise-Bear Valley route in wagons and by pack horses. They have run several hundred feet of tunnels and cross cuts all of which have been in ore, of a free milling character, averaging $7 and upwards per ton. The extent of the gold bearing reef is as yet unknown. According to the reports of the experts there are chutes of ore of astonishing values, in the larger body of low grade ore. One of these, being 40 feet in length and from 5 to 7 feet wide, in which assays run as high as $1975 to the ton.

What may be termed the Thunder Mountain free milling district consists of a territory of from five to eight miles in length and approximately the same width, and is of an eruptive formation, the rock being porphyry, phonolite and lava, and while the Dewey company claims are the only ones that have to any extent been developed, it is known that for a mile on each side are claims showing great values, among these being the Sunnyside group, the property of the Caswells, and claims owned by H. E. Taylor and M. F. Eby, and also other claims. It is reasonable, therefore, to expect that other mines of great value will be found.

The region is attracting so much attention that numerous roads have been projected into the camp, and with the opening of the season, the district can be reached from railroad connections from Stikes via Grangeville, from Council, Boise, Emmett, Ketchum and Mackay, all in Idaho, and from Red Rock, Montana, via Salmon City, Idaho.

Thunder Mountain is but a section of the vast mountainous portion of Idaho; Custer, Idaho and Lemhi Counties, which as yet may be termed unexplored and a duplication of its richness may be struck at any time.
RAINBOW PEAK IN DISTANCE.
THE CASEWELL MINE, THUNDER MOUNTAIN, AND CASEWELL BOYS.
Hon. E. H. Dewey,

Nampa, Idaho,

Dear Sir: I have examined the wonderful Thunder Mountain group of mines situated in Thunder Mountain mining district, Idaho County, Idaho.

Nature did wonders for this property, as the great vein or zone stands up from one hundred feet on the westerly end to one hundred and fifty feet on the easterly end, over the level of the surface exposing the great ore body for more than three thousand feet in length, and from one hundred to one hundred and fifty feet in width, leaving exposed one million five hundred thousand tons of pay ore at a conservative estimate of ten million dollars.

The underground workings consist of about five hundred feet of cross cuts and drifts, every foot in pay ore. Main cross cut, sixty feet, samples seven dollars and eighteen cents, pay ore still in face west drift cross cut fifty-five feet, six dollars and twenty-seven cents. Face of west drift, seven dollars and eighty-two cents dark ore. On south side of west drift one hundred and forty-eight dollars and twenty-nine cents. At this point it requires a cross cut south to determine width of this high grade ore, also forty feet cross cut north to go through ore, such as the face of the west drift. At present it is unnecessary to do any more work in the mine until the mill starts, as it is easier to handle the ore from the mine than the dump.

On the surface and about the center of this great ore body and between the two underground cross cuts there is a very rich chute of ore, forty feet long and from five to seven
feet wide, that assays as follows: Seven feet, $1975.84, $1000.93; five feet, $199.78, $266.20. If this rich chute carries the same values to the tunnel level, same width and length (estimate one thousand tons, average value $860 per ton, or $860,000.00), the property can furnish one thousand tons of ore per day, as soon as there are a few chutes put in the mine to load cars from, and can be mined for 60 cents per ton. The property requires 200 stamps, and with that number in operation the property will pay $150,000 per month.

The property is situated near plenty of wood and water and can be worked by tunnels for a great number of years. The saw mill is all on the ground and will be sawing lumber by the 10th of the present month, also ten stamp mill in course of erection and will be in full operation about December 1st, 1901. 

(Signed) MARTIN CURRAN.

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MR. EDW. DEWEY, Boise, Idaho.

Boise, Idaho, September 11, 1901.

DEAR SIR: I consider the formation identical with that of Cripple Creek. It consists of royolite intersected by phonolitic intrusions. The greatest values are met with at the contact of the dyke with the overlying volcanic breccia. The position of the dyke shows that it was one of the last of a series of volcanic actions which took place at a period probably antedating the Cambrian age. At the intersection of the dyke with the other strata the same is crumpled and crushed, giving special opportunities for the mineralization of the same.

It is also proper to assert that the carbonaceous material which is found in the vol-
canic tufa in the form of fossil has the effect of precipitating the metal from the auriferous solutions which accompanied the dyke during the process of eruption.

I believe the ore presents special facilities for free milling on account of its chemical composition and makeups, pyrites and other base metals being almost entirely absent. Samples taken from the deposit showed values of nearly two thousand dollars per ton, ranging downward, too, of course, less in places. It shows on the surface several hundred feet of valuable ore that has been exposed by hydraulic workings a distance of maybe five or six hundred feet in length, and two or three hundred feet wide. The values so exposed will probably range all the way, as far as I am able to say, from two to three hundred dollars to as many thousands. Mr. Richie showed me a place about as large as this little corner by the door in which they took out three thousand dollars. Mr. Richie panned $2 from one pan of dirt he took from the top of the hill. There is an immense amount of slide rocks and the dirt between it all assays very big. There is a great amount of gold in it, and all the tailings that have gone through the sluicings contain a very appreciable amount of gold. There is an immense amount of ore—a whole world of it. I think all the slide rock has gold in it, and if it is all auriferous material there is a million tons of ore in sight there. That is a very fine mineral section in there.

Thunder Mountain is a mountain of ore; there is nothing like it; it is no hill, it is a mountain. There is all the reason in the world to believe the deposit is continuous. I have not seen any mine in the country that makes as fine as Thunder Mountain. I consider it second to none in the United States.

(Signed) WILLIAM E. L’HAME.
Professor E. H. Mead's Report on Thunder Mountain, to
D. E. Burley, General Passenger and Ticket Agent, O. S. L. R. R.

SALT LAKE CITY, December 24, 1901.

Mr. D. E. Burley.

Dear Sir: In reply to your question as to what were my impressions of Thunder Mountain, will say that it is an immense reef of rolite, porphyry and bressia, averaging $6.50 per ton, in such great quantities that in the short time I was there, it was impossible to estimate its extent. This relates to the Dewey property, which at present is the only place where any great development is being done; but enough shows that will keep a 100 stamp mill going indefinitely. When properly equipped ore can be literally quarried out on the same principle as the Homestake of the Black Hills, and Treadwell mines of Alaska. An unlimited electric power can be developed on Monumental Creek, a distance of eight miles from the mine.

A stamp mill that was brought in on packs will be in operation about the middle of January. This is intended simply to demonstrate property, when the wagon road will be built to bring in larger plant, which is already ordered.

Irrespective of the immense reef of low grade ore, there are streaks of high grade ore; one streak in particular that is over four feet wide, that will assay several thousand dollars per ton. This in ordinary mining countries would be called a vein. I dug out large pieces of ore that were literally plastered with gold. To give you the extent of the reef will say, entering the main tunnel at a point 110 feet under the surface outcrop. I sampled
in a westerly direction for a distance of 250 feet with neither top, side or bottom to this deposit that averaged over $6.50 per ton. This will give at present 2,000 feet of back owing to tunnel being carried to that depth with drift. Also a cross cut from the west drift, a distance of 70 feet with the ore still in the face, that gives same average. In no place did I find either foot or hanging wall.

The rich streak spoken of heretofore I did not sample, as it was so rich to the naked eye it was unnecessary.

About twenty-five miles west from Thunder Mountain there are large veins of copper ore—both at Profile Creek and Copper Camp. At the latter place there is a vein uncovered at 60 feet deep over ten feet in width, that carries 12 per cent in copper the entire width.

On Elk Creek, a distance of 50 miles from Thunder Mountain I saw unmistakable signs of mineral, while on Monumental Creek, about 15 miles from Thunder Mountain, claims have been staked that show very good prospects, but owing to its being winter, it will be next spring before they can be developed.

Taking it as a whole, it is the most wonderful mining country I ever expect to see. I should judge the radius of the mineral zone around Thunder Mountain is about 35 miles. Timber and water are in abundance.

The formation of the country is principally granite and gneiss, together with quartz, porphyry, rhyolite and trachyte. The granite is rich in fluorite, and in my opinion the formation is very favorable for the discovery of great deposits of gold bearing ores.

(Signed) E. H. MEAD.
M. H. Jacobs,
State Inspector of Mines.

Dear Sir: Enclosed you will find a brief description of Thunder Mountain and surrounding country:

Thunder Mountain district is a vast area of porphyrethic upheaval. The soft rocks of this formation have been scored to great depths by streams draining this wide area, and the sides of the canyons are very precipitous. It would seem that the whole area was a lake bed and some violent convulsion of nature caused this vast upheaval of porphyry and that the subsidence occurred immediately before the waters had receded and that gold had been disseminated along the strike of the vast dykes of porphyry; enriching areas of the uplifted rocks.

The gold found in the Dewey group of properties, purchased from the Caswell Brothers, is all crystallized, and such would seem possible only in a hot solution that might be produced while the water was subsiding and the porphyry was being raised up when the force, friction and exuding gases caused an intense heat sufficient for the purpose.

The district commonly known as Thunder Mountain embraces an area of not less than fifty square miles, the whole being serrated by great dykes of porphyry, filling what may, at one time, have been a great ampitheater and raised the great mass of porphyry above the surrounding walls. Along the dykes, toward the center of the upheaval, is the mineral zone.
where the values are more generally and more equally disseminated through the rocks, is found the great ore bodies of this district.

That there are large bodies of very rich gold ore, in close proximity to the mineralized masses of porphyry, there can scarcely be a doubt, and it has already been demonstrated in the property purchased by Colonel Dewey and Mr. Barnsdall, from the Caswell Brothers, the group that first brought Thunder Mountain prominently before the public. The strike of the mineralized zone appears to be in a line with Rainbow Peak and Thunder Mountain Peak, and the ore bodies seem to lie in and along the porphyry dykes that cross the plane of mineralization at various angles, all seaming toward the center or crater.

To me, the most striking, and at the same time most interesting feature of the whole district is the violent movement that is so perceptible. Without any outlet, large areas of surface are removed, displaced, and the movement is so violent as to throw the tops of the trees back so as to interlock the tops in the mass that follows, and in one instance the depression is fully forty feet, and the movement was of sufficient violence as to turn a tree upside down, with the top sticking in the surface below, and the stump straight in the air, fully forty feet above. It would seem to indicate that the process of upheaval had not altogether ceased, and that the back of the hills toward Marble Creek were still rising.

The district is well worthy of most careful geological investigation.

(Signed) F. J. CONROY.
OFFICE OF CY DONNELLY, GENERAL MANAGER WEBER MINE, KOOTENAI CO.
KOOTENAI COUNTY.

Kootenai County is the most northern County of the State. It is heavily timbered and but little prospecting has been done. Along Lake Pen d'Oreille are a number of mines. At Lake View, S. P. Donley, general manager of the Weber mine, has been shipping quite heavily this year to the Tacoma smelter. They have a mountain of ore, and with proper facilities to treat the ores they would be able to work a large force of men.

The Keep Cool mine has been developin its ore bodies for several years, and has a large amount of ore in sight.

The Conjector has a force of men at work and is looking well, with proper facilities to treat their ore, a great mining camp will be built up.

Black Tail is another camp across Lake Pen d'Oreille from Lake View. There are a number of mines there that bid fair to make great producers. Among the most prominent are the Blue Bird, Little Joe, Black Jack, B. F. & H. Keystone and many others. They have been doing a great deal of development work this year and have been well paid for the labor as they have taken out more money than they put in and have large ore bodies in sight.

There has been a placer discovery on the waters of the Saint Mary's river near Santa that bids fair to produce considerable gold. A large number of placer and quartz claims have been located and a lively season is looked for next year.
A. D. & M. 30-STAMP MILL, WITH ROASTER AND CYANIDE PROCESS.
LEMHI COUNTY.
LEMHI COUNTY.

The rich placers of old Leesburg gave the first impulse to mining in this county, in 1866. It is estimated that the total yield of gold since 1886 will amount to over $42,000,000, to which may be added some $16,000,000 more from the gold quartz mines of the County, giving an aggregate yield of nearly sixty millions of dollars. The mineral resources of the County consists of gold, silver, lead, copper and coal. There are also extensive deposits of brick clay, fire clay, and fine building stone. The waters of the Salmon and Lemhi rivers and Big Creek afford enormous water power for the generation of electricity and for the driving of any kind of machinery.

Salmon City, the County Seat and the principal business town of the County, is situated in a beautiful basin at the confluence of the Salmon and Lemhi rivers. It has a population of about two thousand inhabitants, is plentifully supplied with fine business and residence dwellings, the former being mostly of stone or brick. Building is going on extensively in demand to an increasing business immigration. The city has an unlimited water, clean streets, fine sidewalks, splendid school facilities, one bank, express office, newspapers, fine hotel, restaurant and lodging houses, and a fine public park. The income of the city consists of a fine agricultural and grazing country, and the unlimited mineral resources of her mountains. At present the nearest railroad point is Red Rock, seventy miles distant, but there is a prospect,
STANDARD MINE AND BUILDINGS, SHOSHONE COUNTY.
now that the O. R. S. will come down from Mackay to Salmon. All this County lacks to be among the foremost and richest in the State is railroad communication with the outside world.

THE BLACKBIRD DISTRICT.

Is essentially a copper zone with great bodies of ore running through it; there is, also, gold, in connection with copper, and sulphides of iron, nickel, cobalt, etc., as accessories. It is claimed this district has the richest and most extensive surface showing of any other district in the County. The Blackbird Copper Gold Mining Company, the Brown Bear lode, the Rose group, the Homestake and numerous others, have been doing extensive prospect and development work this year with most gratifying results.

LEESBURG DISTRICT.

This famous district is always a source of interest to placer miners, as it was here gold was first discovered in 1866. It has produced about thirty-five millions in gold, and considerable placer work is still in progress in the basin.

INDIAN CREEK DISTRICT.

The Ulysses group have four tunnels aggregating about 1,000 feet operating on a vein averaging some 10 feet of sugary quartz, which yields about $7 on the plates.
HERCULES DUMP AND NEW BUILDINGS, SHOSHONE COUNTY.
THE KITTIE BURTON.

Has a fourteen-foot body of high grade ore. A three-ton mill is in constant use, producing about $1,000 a month.

The Lilly group, the Plata Bonita and the Silver Property are fine prospects giving promise of future values.

GIBBONSVILLE DISTRICT.

Is the best gold-producing camp in the County. The wonderful resources of this district is just beginning to be appreciated.

THE A. D. & M. MINING COMPANY.

Has large properties upon which extensive tunnels have been run. They have a thirty-stamp mill which has been in constant operation for the past six years. The company has all the latest improved machinery both for milling and mining. There are about 50 men employed. The ore averages from $75 to $275 a ton.

THE B. O. K. GROUP.

Has 3,000 feet of tunnels on a 151 foot vein. The ore is said to average about $10 a ton.
SWAN FALLS DAM AND POWER HOUSE, LOOKING DOWN RIVER.
THE YELLOW JACKET MINES.

Have two tramways and a 60-stamp mill, saw-mill, and electric light plant all run by water power. The ore is largely free milling, cleaning up from $2.25 to $2.50 on the plates. The mill has a capacity of 200 tons in 24 hours.

The Columbia and Dan Steen group have done extensive work with promising results.

COAL.

No little interest has been aroused in Salmon City in the recent discovery of coal, on the Pollard ranch, about two miles from the city. The development shows a 12-foot vein of first class, clean lignite which will soon be introduced into the business and residence houses of the city. It is said that the Pollard mine will be able to supply 50 tons daily indefinitely. There are other equally valuable locations which have been made in this vicinity and upon which active work is being done.
SWAN SWAN'S DAM. SHOWING HEIGHT. LOOKING UP STREAM.
OWYHEE COUNTY.

Owyhee County is a veritable store house of mineral wealth. The De Lamar and Trade Dollar mines are among the world’s most famous producers. A work of gigantic proportions nearing completion in this County is the tunnel run under War Eagle mountain for the purpose of opening at depth and draining the long line of early day bonanza mines on what is known as the “Chariot” vein. Frederic Irwin has been the superintendent of this undertaking as the representative of an Eastern syndicate. The claims to be tapped and drained are the Tunnel Site, Quartz No. 1, Quartz No. 2, South Oro Fino, Summit, South Chariot, Grover Cleveland, Mahogany, Tipton and Philadelphia. Work on this tunnel was commenced in November, 1899, and when completed will have a length of 6300 feet, being directly under the old Golden Chariot shaft. The face will be 2,400 feet below the collar of the shaft or about 1,200 feet lower than its sump. The mines which will thus be drained have been among the greatest producers in Idaho.

DE LAMAR MINING COMPANY.

The De Lamar, a world famous producer, continues in the list of great mines. For a time it was thought that its storehouse of treasures was exhausted, but the ledge was rediscovered and a large force is employed under the management of E. V. Orford, who succeeded recently D. B. Huntley as general manager. Thomas Davey is the general superintendent.

Other famous mines of Owyhee County are the Poor Man, the Pauper and the Cumberland group, while many more are worthy of mention.
DYNAMOS AT SWAN FALLS ELECTRIC PLANT, ON SNAKE RIVER, Owyhee Co.
PROPERTY OF TRADE DOLLAR MINING COMPANY.
TRADE DOLLAR MINING COMPANY.

Another great enterprise successfully put into operation during the year 1901, was the installing of electric power by the Trade Dollar Mining Company. More than a quarter of a million of dollars was expended by this company in damming the Snake river at Swan's Fall and transmitting the power to the mines at Dewey, a distance of 27 miles. The whole is a magnificent triumph of engineering and mechanical skill. The necessity of the plant arose from the decreasing fuel supply, the expense of power before the installation of the plant costing the company annually in the neighborhood of $50,000. Now electrical power runs the hoists, pumps, mills and furnishes the lights for the mines, as well as for the towns of Dewey and Silver City. It is estimated that the saving in expense alone will in eight or ten years fully repay all the outlay—and in addition the company will be able to furnish power in an almost unlimited quantity to other enterprises. This great enterprise is the realization of the dream of former Lieutenant Governor Joseph L. Hutchinson, the general superintendent of the Trade Dollar mine, who never swerved from the purpose of its successful inauguration from the moment of its conception. So perfectly was the plant installed that when the power was first turned on the result was as smooth as clockwork. The Trade Dollar Company is working a large number of claims under the able direction of James Hutchinson, general manager, and the output during the year 1901 reached approximately the sum of $800,000. During the past year the company has been driving a tunnel to tap the ledge some 600 or 700 feet below the lowest working level. They have three quartz mills: the Trade Dollar, Black Jack and Florida Mountain.
FLORIDA MOUNTAIN MILL AND LONG TUNNEL, OWYHEE COUNTY.
PROPERTY OF TRADE DOLLAR MINING CO.
MOUTH OF SINKER CREEK TUNNEL, OYWHEE COUNTY. WAR EAGLE MOUNTAIN IN DISTANCE.
LOWER TUNNEL OF THE MAMMOTH MINE, SHOSHONE COUNTY.
SHOSHONE COUNTY.

The close of the year has witnessed an increased activity in the development of the mineral resources of the state, that is phenomenal in comparison with the years gone by. This has been attributable partly to the reopening of old mines closed on account of the lowering price of silver, added to the uncertainty of the future, concerning this important financial medium; partly to the discovery of new leads, but mainly to the increased development of the large dividend paying mines of the various highly mineralized belts of the State.

In no part of the state has this increased development been more marked than in the Coeur d’Alenes. This great, diversified and inexhaustible body of gold, silver, lead and copper ores are producing riches beyond the dreams of the most imaginative, and yet the enormous mineralized belt may be said to be figuratively speaking, in its infancy. Constantly new finds of fabulous wealth are being opened as in the recent instances of the Snowstorm, near Mullen, and the Hercules, near Burke.

To the north of the Coeur d’Alenes, in the same County, we come to the Gold Belt of Shoshone. There gold has been found in the placers to an almost unlimited amount, more recently supplemented by quartz, which in the earlier days, was neglected for the more easily procured and apparently more abundant and richer placer gold. Within the past three years a Boston syndicate has commenced extensive operations looking to a bed-rock flume extending from the east of Murray to the north fork of the Coeur d’Alene river, a distance of about nin
TIGER-POORMAN CONCENTRATOR AND SHAFT HOUSE, SHOSHONE COUNTY.
miles. When completed it is expected to wash the gravel of the gulch and the adjacent hills, extracting the gold of those rich placers.

To the east and south of the Murray district, as you approach the Sunset groups, the quartz gradually merges into the ores at the Coeur d'Alene district. Still, in that district and before the changes above noted became very pronounced, there are bodies of low grade gold ores which only await the stimulating impulse of capital to bring forth riches equal to the famed Cripple Creek district.

Besides the fabulous amount of gold and silver which Shoshone County has produced, its output of lead is about one-half that produced in the United States.

This output, this coming year, may be reduced about 33 percent, owing to dictum of the lead trust, which has limited the supply of the great Coeur d'Alene mines in order to keep up the price to the trust. This arbitrary action of the trust, while immensely beneficial to its stockholders, works a manifest hardship upon the mine owners and miners, obliging the mines to reduce their force, thus throwing out of employment about one-third of the force usually employed. While this might look, to the superficial reader, as a reduction in the miner's expenses, equivalent to the loss sustained by the decision of the trust, in reality its benefits are discounted by the other and inevitable running expenses of the big mines, while the effect upon the small mines is disastrous. It is asserted by the great lead producing mines that they would greatly prefer going into the open market with their product and combat competition, than to bask in the uncertain privilege and profits of the lead trust.
WATER WHEEL AND MACHINERY OF MORNING MILL. LARGEST IN NORTHWEST.
MULLEN DISTRICT, The Morning Mine.

T. L. Greenough, Manager.

This is a silver-lead mine and one of the greatest dividend-paying properties in the Coeur d'Alene. It is operated by water power; has three large turbine wheels running under a pressure of 900 feet. Its daily capacity is about 900 tons. The production for 1900 was 176,000 tons; this year's production will be about 76,000 tons less, owing to the restrictions of the lead trust. It has a standard grade road two and one-half miles long from the mine to the mill, with a 7 per cent grade with power enough to make six trips a day, of ten hours, at about 200 tons of ore per trip.

The company has also erected a fine hotel which accommodates 300 men. It is lighted by electricity, has a large and handsomely-furnished reading and writing room. Each room is furnished with two single beds, the rooms are heated by steam, and it has sixty porcelain bath tubs for the free use of its employees. Modern progress, augmented by an intelligent purpose to improve the moral condition of the men in its employ, finds abundant reasons for congratulation in the well meaning efforts of this company.

BURKE DISTRICT; Sunset Peak Group.

Clark Bros., of Montana.

These properties are located on the top of Sunset Peak, about ten miles north and east of Wallace. Development work has been going on for three years at a yearly expense
MORNING CONCENTRATOR AND SWITCHBACK. CAPACITY, 900 TONS PER DAY.
SHOSHONE COUNTY.
of about $25,000. There have been about 4,000 feet of tunnelings run in, in the different mines, developing three chutes of valuable silver-lead ores. The company has recently purchased the Anchor group, situated between the Tiger, Poorman and the Mammoth. It is thought the intention of the owners is to extend the Sunset Peak tunnel through to the Anchor, bringing the ores of the latter groups through to Burke, although the Sunset properties have been lying idle until about three years ago, it is thought, now, that the owners responding to the spirit of progress so prevalent throughout the country, will bring all these properties to the highest stage of production.

HUNTER.

J. S. Olin, Supt. and General Manager. Two miles from Mullan. This is a lead and silver property and is opened up by a deep tunnel and a shaft 300 feet deep below the tunnel. The hoisting works are all underground, and the ore is transmitted to the mill from mouth of tunnel 1 3/4 miles by a bucket tramway. This company has a very complete concentrating plant of 350 tons daily capacity, and has been a steady producer for a great many years. Great credit is due the superintendent, J. S. Olin, for the successful handling of this property.

BUNKER HILL AND SULLIVAN.

—. —. Burch, General Manager. A lead and silver property. This is the largest mining enterprise in the Coeur d’Alenes and embraces about 80 claims. Nearly 500 men are
EMPIRE STATE CONCENTRATOR, SHOSHONE COUNTY.
employed at all times, and miles of tunnels have been run. From the upper workings of the mine the ore is transmitted by a bucket tramway 2½ miles across the hill. The capacity of the tramway is 1200 tons daily. The mill capacity is 1000 tons daily. A large working tunnel 2½ miles long has just been constructed, running from the mill and tapping the ledge 1200 feet below the lowest workings of the old works from which ore is now being taken, and a 1200 foot up-raise has been started. About 30,000 tons of concentrates are produced each year, averaging 50 per cent of lead and 50 ounces of silver. This is the only company in the district having its own smelter, which is located at Tacoma, Wash., and this places the company in a position independent of all smelter combines, which enables it to continue operations on full time and with a full force. If other large companies would do likewise the smelter combine would soon exert very little influence in this section.

LAST CHANCE.

Clayton Miller, General Manager. Lead and silver. This company also has 40 or 50 claims, and is one of the old producers of the camp. It has miles of tunnels and drifts, and has two concentrating plants, one in Wardner and one below Kellogg, on the railroad, built in 1901. Two and one half miles of standard gauge railroad have just been completed from the new tunnel to the new mill. The new mill has a capacity of 800 tons per day and the old mill 300 tons per day. About 25,000 tons concentrates are produced each year.
MAMMOTH CONCENTRATOR, 400 TONS PER DAY, SHOSHONE COUNTY.
MAMMOTH.

Richard C. Wilson, Manager.

This is one of the best dividend paying properties in the Coeur d'Alenes. It owes its splendid prosperity to the energy, endurance and intelligent management of Richard Wilson, who has been in constant management of the mine since its location. The property is worked by a series of tunnels, the lowest being on a level with the railroad track, some 1,600 feet in depth. From this level the ores are run by steam cars to their mill at Wallace. The mill has a system by which their lead ores are concentrated to a finer point than any other mill in the district. This was made necessary by the exceptional character of their ores. It is a close corporation and has enriched all its owners.

STANDARD.

E. H. Moffitt, Manager.

This is also one of the heavy dividend payers of this great mining district. Their main tunnel is in about 3,000 feet. At a point where it intersects the ledge a hoisting engine, similar to that in the Tiger and Poorman, is erected which hoists ore out a shaft below this tunnel some 700 feet. In their main tunnel they carry their ores on an electric railway to the steam cars from whence it is taken to their mill at Wallace. The mill has a capacity of 400 tons daily.
TIGER-POORMAN PUMPING PLANT ON 1600-FOOT LEVEL.
CAPACITY, 1560 GALLONS PER MINUTE. RAISE, 1500 FEET VERTICALLY.
EMPIRE STATE MINING CO., SHOSHONE COUNTY.
TIGER AND POORMAN.

Clayton Miller, Manager. This is one of the oldest, as well as one of the most productive and richest properties in the Coeur d'Alenes. It has a three-compartment shaft 1,750 feet in depth. The machinery is of the very latest patterns, among which are an 800-horse power Corliss hoisting engine, and a pump run partly by electricity and partly by steam, capable of raising 1,500 gallons of water a minute 1,600 feet high. Skipps are used in their shaft, holding about four and a half tons of ore each. They have a milling plant at the mines capable of handling 800 tons of ore daily. This is one of the difficult mines to handle owing to the large quantity of water which has to be raised to the surface, but owing to the engineering ability and good business management of Mr. Miller, the mine has been able to maintain its former reputation as a great dividend paying property.

HECLA.

E. W. Moffitt, Manager.

Owing to the adverse action of the lead trust, this property, in common with some of the other mining properties in the district, has temporarily closed down, and is now dedicating its efforts entirely to development work. In that line a three-compartment shaft is now being sunk, in preparation to resume active operations in the near future. The property is also preparing to put in a large hoisting plant.
STANDARD CONCENTRATOR. CAPACITY, 400 TONS PER DAY. SIHOSJONE CO.
HELENA-FRISCO.

This is one of the heavy producers of the district. It has a three-compartment shaft 1,600 feet in depth. The engine is an 800-horse power engine, and it has a concentrator at the mine. The mine has been a large shipper until this year, but has shut down on account of the action of the lead trust. It has had a large force of men engaged in development work. It is expected that active operations will be resumed in the near future. The superintendent, Ehrenberg, is in full charge, and it is due to his wise management that the property owes its present fine showing.

SNOWSTORM.

The formation of the ore body in this mine is unlike that of any other vein in the district, being composed, in paying quantities, of gold, copper and silver. Like the Hercules, a little over a year ago it was scarcely more than a prospect hole, owned by men in moderate circumstances, and it owes its present commanding position in the mining world to their energy, perseverance and intelligence. They have driven in a long tunnel, tapping the vein at a depth of 300 feet, disclosing a fine ore body 24 feet in width. The mine is incorporated. Since its recent fine showing the stock has jumped from 5c a share to 50c, and none for sale even at that price. The future gives abundant promise of a great and valuable property.
FLASHLIGHT PICTURE OF HERCULES MINE, SHOWING OVER 14 FEET OF 200-OZ. ORE.
HERCULES.
H. L. Day, Manager.

This fine property is situated about two miles from Burke. It is one of the new developments of the camp, being little more than an encouraging prospect until a year ago, when the confidence, endurance and persistance of its owners were rewarded by the uncovering of a heavy body of silver carbonates, with a slight sprinkling of galena, netting its owners about one hundred dollars a ton. A tunnel was run in some 1,600 feet where it tapped the vein at a depth of about 600 feet, disclosing a large ore body referred to above. Drifts have already been made on this ore body some 150 feet. The ore runs from ten to twenty-five feet in width. The owners are netting from thirty-five thousand to forty thousand dollars a month.

An offer of one and a half millions of dollars has already been tendered for the property, and refused. The owners, who have stayed with the property so long, against adverse fortunes, intend to remain with it and receive whatever benefits may come from long and arduous services.

HUMMING BIRD.

This is a lead-silver proposition. About a 700-foot tunnel has been run, cutting the vein 300 feet in depth. The stock is held in the Coeur d'Alenes, principally by people of moderate means. They are now driving in a long tunnel from the bottom of the canon, to tap the vein at a great depth, giving promise of great expectations.
BUNKER HILL AND SULLIVAN CONCENTRATOR, SHOSHONE COUNTY.
CAPACITY, 1,000 TONS PER DAY.
HELENA AND FRISCO CONCENTRATOR AT GEM, SHOSHONE COUNTY.

**SNAKE RIVER.**

This great river takes its rise in the Tetons, watering the counties of Fremont, Bingham, Bannock, Cassia, Lincoln, Owyhee, Canyon and Washington, for a distance of over 400 miles. From its auriferous sands it yields a flower gold in unlimited quantities, which has baffled the inventive genius of the miners to find a means of complete or reasonably complete saving. There are various modes of mining this gold, the most effective being by the burlap system. The fine gold is found all along the river in inexhaustible quantities, being constantly fed by the wash of the banks of the stream. If the water could be elevated so as to sluice these banks, using the burlap system, there is every reason to believe that immense results would accrue and the problem of catching the Snake river gold would be solved.
WASHINGTON COUNTY.

Washington County is one of the southwestern counties of Idaho, separated from Oregon by the Snake river. In this County is located the Seven Devils mining district, in which there is a great surface showing of rich copper ore. During the year 1901 a smelter was erected near Weiser for the purpose of reducing the ore of this district and it was anticipated that the P. & I. N. railroad would be built to the mines from Council, but a law suit has tied up the principal mines and work has been practically suspended. Among the claims of this district are the Peacock, South Peacock, Helena, Decorah and Blue Jacket, but there are numerous others in a more or less advanced stage of development. The Blue Jacket has been developed under the able superintendency of F. J. French, general manager, and a large amount of systematic work has been done on the property with splendid results, heavy shipments having been made of high grade ore to reduction works at Denver and other points. A shaft has been sunk on this property to the depth of 300 feet and a first class hoisting plant put in.

There is also a copper belt in the Heath district, some 18 or 20 miles from the P. & I. N. railroad. The Heald claims, the property of Fred Heald and associates, is being systematically developed, with every prospect of becoming a great producer.

There are also gold mines in Washington County, ledges having been located at various points. Among the gold districts is the Black Lake district on Rapid river, where the Sulzer-Ford Gold Mining Company has put in a milling plant at a cost of $100,000, which will be put in operation with the opening of spring.

Alex. Houlaian, owner of the Hercules lead-silver property, near the Heath district, during the past year has done much important development work and has a large quantity of rich ore in sight.
CAMP AT THE BLUE JACKET MINE, SEVEN DEVILS, WASHINGTON COUNTY.
### ADA COUNTY.

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### BLAINE COUNTY.

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<td>-----------</td>
</tr>
<tr>
<td>Cassia County</td>
<td>1508</td>
<td>$31,170.36</td>
</tr>
<tr>
<td>Idaho County</td>
<td>10,684</td>
<td>$220,838.28</td>
</tr>
<tr>
<td>Custer County</td>
<td>6,340</td>
<td>$131,047.80</td>
</tr>
<tr>
<td>Lemhi County</td>
<td>15,300</td>
<td>$316,251.00</td>
</tr>
<tr>
<td>Elmore County</td>
<td>3,860</td>
<td>$79,786.20</td>
</tr>
<tr>
<td>Lincoln County</td>
<td>1,941</td>
<td>$40,120.47</td>
</tr>
</tbody>
</table>
### ONEIDA COUNTY.

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold, fine</td>
<td>740</td>
<td>$15,295.80</td>
</tr>
<tr>
<td>Silver</td>
<td>95</td>
<td>$122.55</td>
</tr>
<tr>
<td><strong>Total value</strong></td>
<td></td>
<td><strong>$15,418.35</strong></td>
</tr>
</tbody>
</table>

### SHOSHONE COUNTY.

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold, fine</td>
<td>9,846</td>
<td>$203,516.82</td>
</tr>
<tr>
<td>Silver</td>
<td>1,973,575</td>
<td>2,545,911.75</td>
</tr>
<tr>
<td>Lead</td>
<td>60,917,000</td>
<td>2,436,680.00</td>
</tr>
<tr>
<td><strong>Total value</strong></td>
<td></td>
<td><strong>$5,186,108.57</strong></td>
</tr>
</tbody>
</table>

### Owyhee County.

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold, fine</td>
<td>36,052</td>
<td>$745,194.84</td>
</tr>
<tr>
<td>Silver</td>
<td>975,826</td>
<td>1,258,815.54</td>
</tr>
<tr>
<td><strong>Total value</strong></td>
<td></td>
<td><strong>$2,004,010.38</strong></td>
</tr>
</tbody>
</table>

### Washington County.

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold, fine</td>
<td>684</td>
<td>$14,138.28</td>
</tr>
<tr>
<td>Silver</td>
<td>205</td>
<td>264.45</td>
</tr>
<tr>
<td>Copper</td>
<td></td>
<td>32,000.00</td>
</tr>
<tr>
<td><strong>Total value</strong></td>
<td></td>
<td><strong>$46,402.73</strong></td>
</tr>
</tbody>
</table>
TOTALS FOR STATE OF IDAHO.

Gold, fine, .......................... ounces, 110,228 value, $2,280,422.76
Silver, " ................................ " 3,305,154 " 4,264,161.70
Lead, ........................................ pounds, 65,967,000 " 2,638,680.00

Total .................................................. $9,213,199.41

In addition to the above, there has been produced in Kootenai County about $35,000 in gold, and 65,000 ounces in silver.

The output of lead and silver in Shoshone County is only about sixty per cent of the capacity of the mines, owing to the smelter trust, as they will only take this amount of ore.

The coinage value was used in figuring the value of the fine ounces of silver.