

at the two mines and Spy Hollow is beginning to assume some of its former activity. When these two properties were consolidated about a year ago it was understood that they would both be worked through the Spy. With this in view the management proceeded to take out what ore was at that time time opened up in the Carina, it being his intention to close the property after this should be done and carry on prospecting through the Spy. However, in removing this ore much more was uncovered and the idea of working the properties together was abandoned and a suitable hoist was put up at the Carina in order to work the old bodies. Some of the timbers at the old Northern Spy shaft, which had been doing service for over twenty years, were in pretty bad shape and this year they have been replaced by new ones and the shaft's condition improved upon to a very great extent. These two mines were among the early shippers of the district and a great many years ago were productive of a large amount of rich ore, almost from the surface down. The new ore bodies which of recent years have been discovered in the Spy and Carina properties will give them a new lease on life and net the company considerable money.

THE VICTOR.

A great many changes have taken place at the works of the Victor Mining Co. (formerly the Red Rose) this year, and other changes of a more radical nature will doubtless be made during 1902. Since the start of the year, in July this year Joseph Treloar has been in charge of the work, while Vivian McCune, son of A. W. McCune, has attended to the management. The shaft has not been deepened during that period and still remains at the depth of 500 feet. The first two hundred and fifty feet of the shaft was sunk on an incline, and a skip is used, but Mr. Treloar states that before many months the drift which is now being run to the north from the shaft at a distance of 250 feet will have reached the surface farther than the incline shaft is now. The Star Con. Victor mine has been completed down to this point at the incline shaft and the skip abandoned, the new shaft to the surface being used as the main working shaft. Work at the mine is now being carried on principally in the north drifts from 300 and 400 foot levels and it is in this section that the main ore bodies are located. Supt. Treloar is authority for the statement that shipments will continue at the rate of three carloads a week for some time to come. This ore will go 20 percent copper, 10 ounces silver and \$7 gold, the ore body being from 10 to 20 feet in width.

BOSS TWEED.

The shaft at the Boss Tweed, which lies to the southeast of the Victor, has reached a depth of 100 feet, and work is now being done in the face of the 700 foot drift run to the north of the shaft. James Duggan recently took charge of the property for the company and it is understood that the drift is being run to the northward for the purpose of cutting the ore body, which the Victor people encountered at a depth of 400 feet. Until the 11th of September this year, Wm. Gundry & Son had a lease upon the workings of the Boss Tweed and succeeded in taking out about 500 tons of ore, the best of which netted them \$20 per ton. This ground is well located and with systematic development should make a mine.

STAR CONS.

Surveyors are now at work making a survey for a switch of the new East Tintic Railway to this mine, and when this road extends its tracks this distance the public can expect to learn of increased shipments. It is thought that this line will be built by March 1st, and in the meantime the output from the mine will average about four carloads each month. C. P. Packard says that he will begin loading a consignment of ore in a few days which will be turned over to the smelter this month. The force has been greatly reduced and at present but twenty men are on the payroll, however, this number will be increased upon early in the new year. Drifting is now going on on the 300 level and the ore body which is being worked above will be tapped on its dip. The mine is fitted out with a first class hoist and compressor for the operation of drills, and when the railroad is extended to the property, thereby cutting down, to a great extent, the cost of transporting the ore to the market, increased shipments will be regularly sent out.

OLD COLONY.

At this new company's property a large hoisting works has just been completed and preparations are being made for a systematic campaign of development work under the direction of Charlie Brown, formerly with the May Day company. The company's property is to the south of the Lower Mammoth and with depth should tap one of the many large ore bodies which traverse this section, appearing in the Star, Victor and other mines.

THE AJAX.

The mine, which is separated from the Mammoth mine by the Old Slax-Ajax tunnel, has marketed fifty-four carloads of ore during the year. This property was the original location of the Mammoth, and was the first patented ground in the district, being lot No. 37. This patent was issued to Noat Armstrong, who disposed of the ground to an eastern syndicate and by them it was called the Copperopolis. The Copperopolis company operated the mine for several years, and during this time erected the Roseville mill at a distance of about six miles below the mine. The mill was only run a few days and then a smelter was put up with much better success. The mine continued to yield large quantities of the very richest ore, but for some reason but little revenue was realized. The syndicate, however, thinking that they had got about all the ore the mine contained they allowed it to be seized by the employees for wages in 1873. Wells, Fargo & Co. eventually got the mine on a claim for \$15,000 against the old company, but it soon passed into the hands of L. E. Riter, Arthur Brown and Mr. Mitchell. The mine finally passed into the hands of the present owners, the Ajax, receiving the name, Ajax. It is quite hard to learn anything regarding the development work which has been done, as it is learned that the ore shipped have sufficed to pay the expenses of the mine still leave a reserve fund in the treasury. The work now being done on the 700 and 1000 levels, and consisting of the able drifting has been done during the last year and two levels, and also on the 900. Two shifts are being worked and about forty men are on the payroll at this time.

LOWER MAMMOTH.

This mine is worked through a 600-foot tunnel, from which a shaft runs down 1000 feet. Superintendent Ball now has a force of thirty-eight men on the two shifts, and has accomplished a large amount of work this year. The large ore house recently built is now used, but instead the ore is run out and dumped upon the cars. The shaft is now 1,020 feet deep, as compared with 700 last year. Drifts were also run in for the purpose of tapping the ore on the 800, 900 and 1,000 levels, and great success has accompanied the management's efforts to open up the ore bodies. The year 1900 closed with but five carloads of ore from this property, but the close of the present year the tonnage will have reached at least 170 cars, already 154 cars having been marketed. Supt. Ball says that 1,200 feet of drifting and 300 feet of sinking has been done up to date since January 1st, 1901. The capacity of the compressor has been changed and instead of only running five drills it is now capable of operating double that number. The east ore body on the 1000 level and the tonnage on the 800 level and the ore encountered above will be cut at this depth. North of the Showers is the

will be increased considerably during the coming year, and the Lower Mammoth soon added to the list of breadwinners of the Tintic district. Work at the

MAMMOTH MINE.

From the top of the shaft at this old bonanza down to the 1000 foot level has been one continuous ore body, its wonderful record is known to the people of two continents and scores of people holding its stock have been made wealthy. Notwithstanding the fact that shipments have been somewhat curtailed this year on account of legal difficulties existing between this company and its neighbor, the Grand Central, ore to the amount of 1,400 tons has been sent out to say nothing of the thousands of tons which have been treated in the company's mill at Robinson. The main working shaft has penetrated mother earth 2,000 feet and the ore discovered above extends to this depth. New strikes are continually being made and in many of the old workings leasers are engaged in "goohing" out what remains. This class of ore is going to be in the abandoned portion of the mine and the leasing in the Mammoth is very hazardous in various ways. However, the Mammoth mining company is in no way responsible for accidents to leasers and no matter how dangerous the work may be, the chances can be found in mining camps. As soon as the suit now pending between this company and the Grand Central is settled the mine will be able to extract ore in much larger quantities.

BLACK JACK.

is going steadily on and the shaft is being put down in the hopes of tapping the ore bodies which have made the mines of Mammoth famous. The machinery is the best and taken as a whole the mine is splendidly equipped for work.

GRAND CENTRAL.

Work in this mine during the past year, and in fact since the trouble with the Mammoth company began, has been confined mainly to the northern workings. Drifts have been extended in this direction on the 800, 900 and 1,000 levels. These drifts are running into the King William ground, which was purchased recently from C. H. Blanchard. The shipments of ore from this mine have not been as heavy this year as last, owing to the difficulty existing between this company and the Mammoth. No dividends have been declared since November, 1900, and what money has been netted out of the ore shipped has been turned over to the company's exchequer, and it is not likely that a distribution will be made to the shareholders until after the present entanglements have been cleared up in the courts. As soon as this case, which is costing both companies a fortune, is adjusted the Grand Central will take its old position among the foremost dividend payers. The long haul, by team, from the mine to the railroad tracks, at Robinson proves a very expensive item in the cost of transporting ore, but as the ore taken from the Grand Central are of a high grade they could be mined in the face of almost any difficulty. There is a possibility of the tracks of the new East Tintic railway being extended to this mine, and this would be a great help in marketing the immense output. Two new boilers of 125 horsepower each have just been put in at the hoisting works, and these with the two new in use brings the total capacity of the boilers up to 500 horsepower. The Grand Central Mining company has the largest and most substantial hoisting plant in the entire district, and there are but few more costly pieces of machinery in the Tintic district entirely of steel and is absolutely fire proof.

SWANSEA.

Only the shaft men and pump men are now at work in the Swansea mine. It has been five or six months since any ore was marketed from this mine, and Supt. Sam Ware is devoting all his time to sinking the shaft, which is now down 965 feet. As soon as the level is reached sinking will stop and the work of prospecting the lower levels will be commenced. Most of the ore taken from the mine during the past two years has come from the levels above the 800, and these bodies are said to be holding out well. When greater depth is reached the prospecting will be carried on in order to determine whether the ore extends down, and it is quite certain that this is the case, and that the ore at this depth will be in large deposits and considerably richer in value. From 60 to 70 gallons of water per minute are now being taken care of by the large pumps and should the flow increase, which is not probable, the pumps are amply able to handle it. The ore shipments for the past year it will be observed by consulting the table on this page, fell considerably below those of the previous year, or 1900, but as soon as the main shaft has been put down to the 1,300 level the output will be materially increased.

SOUTH SWANSEA.

In all 129 carloads of ore have been shipped from this old time producer of Tintic and the usual force of men is now at work prospecting and working in the ore. The mine is in better physical condition at present than it has been for a number of years, and with the new machinery and shaft house the company is prepared to handle the ore upon a more economical basis than was possible under the old system.

TESORA MINE AND MILL.

The Tesora mill, which has been erected during the past eleven months, was closed the latter part of November in order that some improvements may be made to the tables. James Craigton, who is in charge of the mine and mill, states that these changes will be made by the first of the year. The new mill, which has a capacity of 100 tons daily, has had a very successful run and about fifty-nine cars of concentrates have been sent out. There is an immense flow of water on several of the levels in the Tesora mine, and this is utilized in the operation of the mill by being brought to the surface by means of several large pumps. There are about forty men employed at the mine, the work being done on the 250, 300 and 400 levels. Since last August the mine and mill have been shipping about thirty cars (ore and concentrates) per month. In the

EXTREME SOUTH END.

of the district the work is confined principally to the Morning Glory, Victor and Showers Con. and Joe Bowers, although numerous smaller properties in this locality are demanding no little amount of attention, and the investment of a great deal of capital. The White Cloud mine, south of Diamond, has come forward with its initial shipments, consisting of one car of silver-lead ore, and as soon as arrangements can be made for the resumption of a hoist more of this grade of ore will be marketed.

Three shifts are employed at the Showers Con. and the shaft has penetrated the hillside to a depth of 900 feet. At this depth a station was cut and a pump put in for the handling of the water encountered. The new hoist and building which was finished last month is working without a hitch, and the middle of December the new pump will be in place and the cage in working order. Cross-cutting is going on at present to the east and west from the shaft on 600 level and the ore encountered above will be cut at this depth. North of the Showers is the

JOE BOWERS.

at which the shaft is being sunk under contract held by Mr. Weisbach of Silver City. The sinking will be continued until the 200 foot level is reached, where the company's ground will be thoroughly explored by the means of cross-cuts. The tunnel at the Old Susan is now in 600 feet and an upraise extends a distance of 160 feet. This upraise is on the

vein and considerable ore has been taken out and it now upon the dump awaiting shipments. Leasers are at work taking out ore from the West Morning Glory mine, a little to the east of the Diamond. This ore is coming from the 300 level, and is of a very good grade. Two shifts are kept continuously at work at the Old Morning Glory, and this idea of hoist is being done. About 50 tons of nice looking copper ore is on

MINING IN BOXELDER CO.

Hitherto northwestern Utah has not been looked upon as a favorable field for the miners. For many years it was looked upon as after only to attempt mining either gold, silver or copper north of Salt Lake City, but generally this idea of hoist is being done. In the closing days of the year 1901 many very experienced miners believe that within ten years Box Elder county will have become one of the chief producing counties in the mining of gold, silver, lead, copper and antimony, as also of iron. The work of prospecting was carried on in this county for many years in a very indifferent way. Few experienced men went there and those who did on every side were met with the exclamation: "What are you doing in that neck of the woods. Nothing ever came or can come from that country north of Salt Lake. There is not one ounce of silver, gold, or copper or lead in any hill or range north of Bingham, Park City and the Cottonwoods until you reach Butte, Montana." As a consequence of this attitude of mind, prejudice against northern Utah as a mining field the region was neglected for more than 30 years. In the early '70s Colonel David Buell and associates done a large volume of work at Silver Lake and Buell, small camps south of Tacoma, where copper and silver veins exist. The veins there are quite wide and rich. They lie in quartzite, porphyry and limestone, but the region is a desert one. There is water and wood are scarce and the travel to the Southern Pacific railway's siding at Tacoma difficult and expensive, though the distance is short. Moreover, the value of the ore is of medium value over the Southern Pacific railway in its early years was practically prohibitive. In this way the mines around Tacoma, Silver Lake, and the Buell camps have been almost forgotten until the managers of the Chicago Copper company began work on a group of copper mines near Buell about 4 years ago, spent a large sum of money in developing the country, and took out an immense tonnage of high grade ore, shipped considerable to the reduction works and have now in their ore piles at the mine more than half a million dollars worth of copper ore with splendid tonnage blocked out in the interior workings, but from some unaccountable reason these mines are all now shut down and two men watch over the interests of the camp as caretakers.

AT BLACK PINE.

At Black Pine Mountain, north of Nelson, about 15 miles west of Silver Lake, has been taken in limited quantity about 20 years ago, but as no vigorous work was carried on the returns were small and now all is quiet in that locality. In the northwestern part of the Box Elder county there is a range of mountains in which gold was discovered about 35 years ago. The values were found in quartz veins that appeared on the surface in a disturbed and broken condition. Work was carried on in an irregular and indifferent way and for many years no returns came from the work done there. It has been five or six months since any ore was marketed from this mine, and Supt. Sam Ware is devoting all his time to sinking the shaft, which is now down 965 feet. As soon as the level is reached sinking will stop and the work of prospecting the lower levels will be commenced. Most of the ore taken from the mine during the past two years has come from the levels above the 800, and these bodies are said to be holding out well. When greater depth is reached the prospecting will be carried on in order to determine whether the ore extends down, and it is quite certain that this is the case, and that the ore at this depth will be in large deposits and considerably richer in value. From 60 to 70 gallons of water per minute are now being taken care of by the large pumps and should the flow increase, which is not probable, the pumps are amply able to handle it. The ore shipments for the past year it will be observed by consulting the table on this page, fell considerably below those of the previous year, or 1900, but as soon as the main shaft has been put down to the 1,300 level the output will be materially increased.

PARK VALLEY.

At Park Valley the formation is an ideal one for gold, the veins occur in quartzite and also in the older rocks to have great depth. The locality is a gold region that today is merely budding into life. It has made its initial victory as a producer from the output of the Century mine, that despite the continued to hold its own around three dollars per share, and there is little doubt but that Park Valley will within the next few years turn out from \$100,000 to \$300,000 of gold bullion into the lap of Utah. The above volume may seem large to any one who has not seen the promising properties that exist there. Few places in the mountain country show up better than it has.

Although gold is thus far the chief metal of value taken from its veins there is, however, very good values in lead and silver found in many veins, but these metals are found in a form that requires concentrating. At Grouse Creek, a short distance from Park Valley, there are a number of very well looking prospects, running very well in lead and silver. Although no shipments of ore have as yet been made from Grouse Creek, the work done proves the existence of silver-lead ore in paying quantities and within the next three years this camp will most certainly become a producer of gold, silver and lead ore in paying quality.

SIERRA MADRE MOUNTAINS.

The most promising spot, however, in the entire area of Box Elder county, is Sierra Madre mountain, so called on account of its rough saw-like ridges and rugged cliffs. This mountain forms part of the main Wasatch range, lying immediately east of Utah Hot Springs, it extends from North Ogden canyon on the south to Willard canyon on the north, and its summit rises to 10,000 feet above sea level. A great part of its area is inaccessible on account of the rugged nature of its surface. The formations are of the older rocks, including carboniferous, Permian, shale, slate and the latter quartzites.

Midway in this mountain there exists a series of fissure veins having parallel dykes of diorite and horn blende and fill other cross dykes cutting the fissure veins into the diorite and horn blende. The veins at right angles on the right side of Sierra Madre mountain. There are five very distinct fissures that rise at the contact of the quartzite with the sedimentary or fissure as the Solomon and Eldorado fissure breaks into quartzite and continues upward into the diorite and horn blende in which exists the main Eldorado workings. The width of these fissures vary from 5 to 15 feet. They run very regular and are each cut by a cross vein of dyke of dyke or dyke. It is known as the Euclalia and has been but slightly worked up. The Solomon vein shows fairly good values in gold but has as yet only been partly opened up in the Eldorado, no work has been done upon it.

THE ELDORADO.

In the Eldorado on the surface this vein presents an ore body about 8 feet in width, in which lead ore carrying about eight ounces of silver runs very regularly beyond the first level of 100

feet in the main incline shaft. Silica increases and also pyrite and with these changes there is an increase of gold values and as the vein carries downward it increases in width until at a depth of 200 feet it reaches a thickness of 300 feet. It measures 24 feet in its cross out and at 400 feet it measures 24 feet, with a constantly increasing value in gold, and an exceedingly good value in lead and silica. This working and opening of this great vein has been difficult and expensive but at present it is in a very advanced stage of development. On the 400 foot level the vein is intersected by a tunnel over 600 feet in length, serving the triple purpose of drainage, ventilation and an exit for ore and waste, and vertically this tunnel cuts the vein about 700 feet below the surface. The cross of this property require considerable expenditure for the purpose of handling the immense tonnage in sight, inasmuch as the ore carries a large percentage of silica and pyrite. It is, however, an ideal concentrating ore and in its open workings there is now enough ore to run a 200 ton plant for a long period of time.

Along with the value of gold, silver and lead continues in the ore of the Eldorado vein these values almost certainly to increase when water is reached in the downward workings. The copper so far found consists of chalcocite, with the galena and pyrite and amounts in some cases of the workings to about three per cent of the cross tonnage. The presence of copper in this property is of transporting ore to the reduction works. There was discovered in the past autumn a very large vein in the San Juanuel which is about 7 feet in width on the surface. This vein runs east and west, its values are yet quite shallow, but the values in copper discovered prove the excellent nature of these other veins similar to this one. Sierra Madre mountain in which copper is the chief metal in value, the one most conspicuous next to the San Juanuel is that of the workings parallel to the gold bearing fissure vein on the Prince of Wales.

This copper vein very much resembles a dyke only that throughout its course values are very conspicuous, being in some places as high as thirty per cent of the red metal.

OTHER PROPERTIES.

On Sierra Madre mountain there are about ten groups of claims. These are the Eldorado, Century, Santa Maria, Mexican, Copper Queen, Kilauea, Eved Nelly and Prince of India. Considerable work has been done on each of the above groups, but the chief work has been done on the Eldorado, on which up to date almost \$100,000 has been expended next comes the Montana followed by the Prince of India, on which a long tunnel has been driven, which is now within 200 feet of the Prince of India gold vein. The veins of this mountain comprise fissures carrying gold in some cases, copper in others, next a series of flat veins that are entirely barren, bearing and yield from \$1.50 to \$2.50 in value per ton. Next come a series of contact veins, gold and silver bearing, and next the slate and limestone measures that lie above the older quartzites. Still

above these silver-lead veins there exist in the upper quartzite capping of Eldorado peak a number of gold and copper bearing tectonic veins and as a capping over the whole there is a flat sheet or vein of specular iron, about 20 feet in thickness. This is very pure, and associated with this there lies a measure of chloride slate. It will thus be seen that the entire mountain presents a mineral showing that is uncommon, and that assures a future for this district. There is more ore of good value now exposed in this mountain than can be shown elsewhere in the state for the amount of work done. The rough nature of the country has rendered development slow, but the work has now reached a stage where returns will begin to come in and within three years Sierra Madre mountain will stand forth amongst the chief producers of Utah.

WILLARD HILL.

At Willard hill, about six miles northwest of the Eldorado, a good deal of work has been done during the past twenty years, but it would seem that the very best ground there has been overlooked, inasmuch as where iron veins showing copper have been ignored and work done in black soft slate measures up in quartzite outcrops there is a fine showing of iron. There are mines of value on Willard Hill there can be no doubt; but doubtless deeper work must be carried on than has yet been done to find them. A development tunnel run northward from Willard canyon for about 5,000 feet would settle this question for all time, as it would cap each measure existing there and pass through the extensive copper bearing iron veins that exist from the Willard ridge, cutting them at a depth of 1,500 feet and drawing the entire hill.

OIL LANDS.

Oil, like most other parts of the interior and coast country, Box Elder county, Utah, has had a vast area staked out as oil land during the summer of 1901. Most of this land lies along the shore of Great Salt Lake and to the west of the Promontory. About 10,000 acres have been taken up and it is claimed by some that they had better be left open for the future, but as yet very little work has been done upon it.

CONSOLIDATED GROUP.

About six miles north of Brigham City there is a property known as the Consolidated. It is owned largely by J. C. Baker of Ogden. There have been about 6,000 feet of work done on this property. A tramway was built and the Consolidated group of claims will be erected there during the year 1902. The ore there is said to carry lead, silver, gold and some copper. The owners are seemingly very well to do people, who work as a close corporation who seem to believe that they have a good thing and work it very industriously without giving results to the public. Taken collectively the mining outlook for Box Elder county, Utah, is excellent. There are few better fields for the investment of money on mining risks. Labor and supplies are easily obtained, and every part of the county is easily accessible to a railroad. Taxes are low and the climate is excellent. The list of minerals to be mined in the county are gold, silver, lead, copper, iron, zinc, sulphur, pyrite, antimony, onyx, slate, Jasper, marble, limestone, salt, soda, sandstone, natural gas, mineral waters and possibly asphaltum and petroleum.

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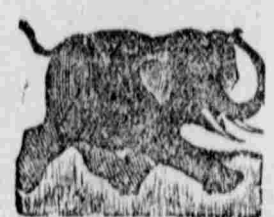
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