Mercur.

THE WORLD'S BIGGEST CYANIDE CAMP.

Mercur.

FOR years past the pessimists have predicted a short life for the Mercur camp. Twice at least was the Mercur turned down after expert examinations, and the knowing ones fancied they saw the end in sight when the splendidly located camp of Mercur would be classed among the "have beens." The field will certainly not last forever, but the close of the year 1900 shows the end to be still many years distant. New ore bodies are being found and old ones are being developed in such a way as to encourage the belief that next year will be one of the brightest in the history of Mercur. That a great many people are impressed with this view is evidenced by the number of buildings erected during the past year. Of course, with the Geyser Marion shut down, the Con. Mercur and the Sacramento mines are the life of the camp, and both of them present most interesting prospects for 1901. It is probable, too, that the Geyser Marion will be reorganized into a new company and there is a prospect that something will be done with the Silver Lode, Gold Dust and Rover properties, either in connection with the Geyser Marion or the Con. Mercur company. There are also more than even chances now that the Ingot will be heard from at no distant day, and, taken as a whole, there is every indication that Mercur will be the scene of much activity for many years.

THE CONSOLIDATED MERCUR.

The event of greatest interest in Mercur during the present year has been the consolidation of the Mercur and Captain J. R. De Lamar's mines, which was consummated in Europe during the past summer. In spite of the doubts of some people, it would appear that the consolidation will serve the best interests of both parties. It is true that the Mercur had big bodies of base ore partially developed, but sooner or later it would have been necessary to install a roasting plant to handle such ores. By the consolidation the Mercur company secured the ideal mill already built by Captain De Lamar for his Golden Gate mine, and the captain secured an interest in the Mercur mine, which, with the riches of the Brickyard and Golden Gate properties, insures a longer usefulness for the expensive mill, and consequently better returns on the large sum invested. That it has been a benefit to the Mercur is shown by the quotation of the stock in the Consolidated company. When the consolidation was effected one-third of the million shares was allowed for the Mercur property, the remaining two-thirds going to Captain De Lamar. As the old Mercur company's capitalization was only 200,000 shares, it meant 1 and 2-3 shares in the new company for every share held by stockholders of the old company. At the time of the consolidation Mercur stock was selling around $5.25 per share, whereas the present quotation of $4.50 for the Consolidated stock is the same as $7.50 per share for stock in the old company, an advance of about $2.25 per share.

THE MINE.

It would be impossible to give an adequate idea in words of the amount of ore opened up in the Mercur mine since the consolidation. Developments have also been very successful in the Golden Gate part of the property, where new bodies of oxidized and mixed ore have been disclosed. It might be said here for the benefit of the uninitiated, that the oxidized ore is that class of ore from which all bases, such as sulphur and arsenic, have been leached through oxidization. This is the ideal ore for treatment by the cyanide process. The base ore in the Mercur is a black ore containing the above elements and sometimes others, which prevent the cyanide solution from extracting the gold. Still another class of ore exists which, when the solution is run into it, becomes more or less clayey or slimy, thus preventing the solution from percolating the ore and reaching the gold. This is called mixed ore. The treatment of these classes of ores will be touched upon in a description of the mill. Suffice it to say here that by far the most important developments this year have been made in the base ore bodies of the old Mercur mine, which are contributing heavily to the $500,000 worth of bullion turned out in the past three months. Under the able direction of Superintendent George Z. Edwards a big vein of base ore has been followed 580 feet on its strike. This is apparently the great mother lode of the camp, having a normal dip of 17 degrees. The vein has been explored about 600 feet below its apex, or to a winze in the old Silver tunnel. Nothing is definitely known as to its thickness. In one place an upraise has been extended from the Silver tunnel a distance of 50 feet without encountering the hanging wall. In several other places sublevels are being worked on which so far indicate a vein of great thickness. During the past month an incline has been started on the footwall of the vein in the Silver tunnel to open it up at greater depths. Preparations are being made to install an engine with the view of pushing the incline down several hundred feet. Mr. Edward expects to be able to go at least 700 feet deeper in this incline before reaching any fault in the vein. This will give a depth of 1,300 feet from the apex. At one place in this magnificent ore body a horizontal drift has been run from the footwall a distance of 170 feet and no hanging wall has been found, which, allowing for the pitch of the vein, would be equal to cutting the vein at right angles for 40 or 50 feet. Of course, while all of the developments recorded above have been accomplished this year, the discovery of the deposits of base ore is not new. They have been known to exist for years, but until this year they have been avoided because the old Mercur mill was not prepared to treat that class of ore.

With the consolidation came the successful treatment of these Mercur ores, and during the past 8 months Superintendent Edwards says a body of ore representing a value of fully $5,000,000 has been developed in the Mercur property alone. The mine is said to be in better physical condition than ever, not only as regards the base ore, which shows uniform values with depth, but also in regard to the deposits of oxidized ore, of which new bodies have been opened in the electric tunnel and also in the Lizzie workings in the southwest part of the Mercur property. There the ore runs about $5 or $6 per ton. The ore in the Electric tunnel is also valued at about $5 per ton. While the ore in the lower depths is more uniform it is of lower grade, running around $4.50 per ton. In the upper levels it runs about $8 per ton or, an average. The ore in the Electric tunnel was opened up recently through the necessity of connecting the Mercur property with the Golden Gate mill by a tramway about 2,500 feet long. This made it necessary for a connection to be made with the Resolute tunnel at a point on a level with the tramway terminus, about 60 feet down the hill. In making the connection three winzes were sunk, and these are now used as ore chutes for the three grades of ore dumped into them from the Resolute tunnel, which connects with all parts of the mine; the ore being trammed thence to 3 ore pockets on the Sawmill tunnel of the Golden Gate and hoisted thence to the mill. The ore body in this Electric tunnel is considered as the silver vein, and while the average is not high it affords a good average when mixed with the richer or base ore.

The tramway is now covered in and an electric motor is expected shortly to haul the ore from the Mercur side to the mill. The tramway was constructed recently at an expense of about $10,000.

THE GOLDEN GATE.

It is estimated that about two-thirds of the ore milled at present is taken from the Mercur side. Consequently, it will be seen that a limited force is employed in the Brickyard and Golden Gate divisions of the great bonanza, which are being drawn on for only about one-third of the necessary ore.

In the Golden Gate Superintendent Edwards reports an important development above the Viking level where a drift has been driven 60 feet through a body of ore 12 feet thick. The ore is said to be of good grade. A new development is also reported on the lowest workings in the mine, where a winze is now being sunk in mixed ore which assays from $5 to $15 per ton. At last report the winze was down some twenty feet. The Brickyard or northern end of the great property is also said to be looking well with the ore bodies rising as they pass under the mountain. It appears probable that the Rover, Silver lode and Gold Dust properties will yet furnish ore for the great Mercur mill. While this appears probable on the north side, there is now little doubt but that the mother lode of the Mercur will be found going down under the Ingot on the south end.

THE GREAT MILL.

The accompanying picture of the great Golden Gate mill probably speaks louder than words. But impressive as is the outside view of the greatest cyanide plant in the world, it does not give one an idea of the intricate workings of the inside machinery by which the ore is prepared for the all powerful cyanide solution. From the ore pockets at the sawmill tunnel which hold about 500 tons, the ore is conveyed up an incline to the two No. 6 gyratory Gates crushers, where, after being crushed it passes into bins. Only two kinds of ore are hoisted at one time and here, as elsewhere, the three kinds of ore are kept separate. After passing through the No. 6 crushers the ores are passed to the rolls by belt conveyors, after which the mixed ore is passed to two dryers where it is calcined to overcome the tendency to become slimy in the tanks. A new device has just been started by which, after being dried, the mixed ores are scraped along iron troughs to the pulp bins, thus being gradually cooled. After passing through the rolls the oxidized ore goes straight to the pulp bins where it is ready for leaching. The base ore passes from the rolls to the roasters designed by Mr. J. C. Jackling. Here the ore is submitted to a heat sufficient to make it livid. By this means the sulphur and arsenic are driven off and much of it passes out of the great eight-foot smoke stack. Some of the arsenic is deposited, however, in pure crystals at the sides of the furnaces. As the crushed ore is passed in at one end of the furnace it is gradually moved to the other end by what are termed ploughs, operated by an endless chain. They consist of steel bars fastened to a chain. Connected with the bars are a number of oblong pieces of steel placed at a certain angle so that as each plough comes along they slowly push the ore to the exit end of the furnace where it is elevated by machinery to the coolers on top of the furnace. The ploughs as they revolve, perform the same service here and move the ore to the other end of the cooler after which it goes to the pulp bins and is then taken to the leaching tanks, which occupy the whole of the lowest part of the building. The three grades of ore are now dumped into the tanks by cars after which the cyanide solution is turned on and allowed to stand in the tanks for several hours. It is then drained off and passed through pipes which connect all the tanks with the big settling tanks at the bottom of the building. Another lot of cyanide solution is then turned into the tank of ore and last of all it is filled with water, which, in turn, passes to the settling tank. By this time the gold in the ore has all been extracted excepting about 80 or 90 cents per ton. The cars which run under the tank are then brought into play and the tailings from the big tanks are shoveled out through a hole in the center of the tank—over which a cap had been placed—and conveyed to the dump.

PRECIPITATION.

There is no loss of the valuable fluid which holds the gold in solution. Every drop is saved. It all passes into the settling tanks where a lot of zinc dust has been placed. As soon as the tank is full the solution is agitated by compressed air. This brings the zinc dust into contact with the gold and the result is a substance resembling mud. When the gold has all been precipitated from the solution, excepting possibly 5 or 10 cents per ton, the mass then passes into the presses, which consists of a number of filters placed side by side. Through these the solution with its black mud is forced by compressed air. The clear sparkling water which runs from these filters into a big tank tells how successfully the gold is held back from its solvent. The solution is now pumped up the hill to the strengthening tanks, where it is tested and if necessary some more of the deadly cyanide of potassium is added and the solution is ready to travel the same round as before with the same wonderful results. At intervals the presses are taken apart and the filters are found coated with rich dirt which speedily turns to yellow bullion in the refinery belonging to the company. The mill is capable to treating 1,100 tons per day, and with the new dryers for mixed ore working smoothly the management expects to treat a greater tonnage of base ore in the future. Heretofore the mixed ore has been rapidly passed through the roasters which necessarily cut down the amount of base ore handled.

POWER PLANT.

A new power plant has been built this year which consists of 2,500 horse power dynamos and two immense Corliss engines, besides six E. P. Allis boilers. Through a mechanical device the boiler fires are fed without firemen. The plant has been tried and the results are said to have been very satisfactory.

THE SACRAMENTO.

Although the Sacramento has not been heard from as a dividend payer for about sixteen months, the company's treasury is far from being depleted and the mine lacks a great deal of being exhausted. It will shortly be demonstrated that the decision of the company to shut off dividends while it had a healthy treasury, was a wise one. By that means it has been able to do a great deal of exploratory work and also erect a roasting plant for the better treatment of its ores. It is well known that the Sacramento has been troubled more or less with slimes, which at times, have prevented a first class extraction of the values from the ore. With this class of ore the company has lost considerable in the past. This might have gone on indefinitely had not the management decided to shut off dividends with $17,000 in the treasury, which was voted for the erection of a roaster to calcine the talcy ores so as to afford better leaching results. In spite of the most provoking delays in the delivery of the roaster material the plant is now being rapidly installed. The material is all on the ground and a force of masons were recently put to work on the brickwork of the furnace. When completed the plant will be 170 feet long. It will be enclosed in a wooden building, which is now almost completed. The plant will cost more than the company calculated at first but this is partly owing to improvements which have since been decided on, and which will give added stability and success to the plant. The roaster is of the Jackling design and is identical with those in use at the Golden Gate mill. The frame is of iron and the pillars and the building rest upon a wall of masonry four feet thick, and in one place eight feet deep. This represents about 120 cords of rock. It was anticipated that the roaster would be put in commission this fall, but owing to unavoidable delays it will likely be February or March before the roaster fires are lighted. The plant extends at right angles from the south end of the mill. Enough space intervenes to allow of two new sets of rolls being installed, through which the talcy and base ores will pass from the crushers. The ore will then be raised to the roaster by machinery. By the same means it will, when roasted, be conveyed to the tank room. As far as possible everything about the handling of the base ore is made automatic. It is estimated that only one man per shift will be needed to superintend the working of the roaster. It is also designed to utilize the heat from the roaster in keeping up the temperature in the tank room during the cold weather. When completed the plant will handle about 150 tons per day of talcy ores, which only need to be calcined or partially roasted. Of the base ores it is said the roaster will handle from 75 to 100 tons per day.

IN THE MINE.

A great amount of work has been done in the mine since the company shut off dividends and the developments on the whole are said to be quite satisfactory. A vast amount of oxidized ore, has been opened up. The grade is certainly not high, but it will afford a nice margin, especially with the effect of the talcy ores overcome by the roaster. The most important developments of the year are revealed in an upper vein which, until this year, has not been touched. Here the writer was shown through a drift on the strike of the vein for a considerable distance. The vein breaks eventually some distance under the hill southwest of the mill, but it would that a vast quantity of $5 ore has been exposed before the break is reached. Inclines have been extended to this vein and drifts have been run in several places with very encouraging results. So much is this so that Superintendent Benner says the mill has oxidized ore enough in sight now to run for an indefinite period without having recourse to the base ore bodies in the mine. Notwithstanding this fact, the building of the roaster is a good move as it insures a start on the richer base ores, while there is yet plenty of oxidized ore in the mine to mix with the base. The latter class of ore has not yet been extensively developed, but enough work has been done to open up some large bodies of this class of ore which is said to assay as high as $60 per ton.

The company has succeeded in acquiring several new claims during the past year in the direction of which its oxidized ore bodies are trending.

THE OVERLAND.

The preparations that are being made at the Overland mine in the Sunshine district near Mercur, are being watched with a great deal of interest. Since the shut down earlier in the year a great many changes have been made in the mill and much development work has been done in the mine, which cause the management to feel very sanguine of success. As is known, the gold ores of Sunshine are of a lower average than the Mercur ores worked in the Golden Gate mill, and it has been proved that to work them in a small way is not profitable. Large bodies of oxidized ore exist in the Overland, and the comparative success with a mill having a capacity of 200 tons per day, has led the management to enlarge its mill since the shut down, to 500 tons per day. The changes are now nearly completed, and it is expected that the wheels of the big mill will turn early next year. The changes have not altered the outside appearance of the mill to any extent. It was found possible to add three Austin gyratory crushers and ten leaching tanks of 115 tons capacity without doing that. Thirty additional liquor tanks, in which the zinc shavings are held, were also put in place, and an electric motor of 150 horse power was installed in the place of the 100-horse power motor formerly used. The ore will now be hoisted from the mine in two self-dumping skips running in balance. Each of them has a capacity of two tons. From them the ore will be dumped into a No. 5 crusher and then elevated to a bin at the top of the mill. It will thence be fed into the four remaining crushers and reduced until it passes through a ¾ mesh screen. Instead of using cars in conveying the ore from the pulp bins to the leaching tanks, the management will use a belt conveyor, which will dump the ore into any of the tanks at the desire of operator. The tailings will be discharged in the usual way, by hand.

THE MINE.

During the present year the management has done about 2,000 feet of development work principally above the 450-foot level in the shaft. A vertical shaft intersects the vein at that level which is about 700 feet from the Apex of the vein, the dip of which is 36 degrees. Its average width is about 13 feet. From the 450-foot level, it is proposed to extend an incline shaft down 350 feet. About 150 feet of this work has been done and the remaining 200 feet is being sunk and timbered at the rate of 7½ feet per day. This is considered very good work when it is considered that the shaft is double compartment, being 5 feet by 12 feet, and having also a manway. As soon as the incline reaches the objective point the treatment of ore will begin. Thus far but little stoping has been done in the mine, the bulk of the ore treated having been extracted in development work. The management is much encouraged over the fact that assays from the incline shaft show the values to be improving as depth is gained.

GEYSER MARION.

The Geyser Marion Gold Mining company began the year with 50 to 60 men in its employ. After continuing work until August 13, it became apparent that, notwithstanding a 3-cent assessment levy, the company would have to shut down. In that time it had marketed about $36,000 worth of cyanide product and was in debt $15,000 in round numbers. When the mines were closed down, McCornick & Company secured a judgment for $13,288.61, and the property was sold on Nov. 8th to satisfy the judgment. The banking house has given the stockholders a contract, permitting them to redeem the property within one month without any extra costs, and 75 per cent of the means necessary were subscribed on the 1st inst. When redemption is made, the company will be reorganized under a new name and a new start will be made on the property, which at one time paid $96,000 in dividends.

DAISY OF WEST DIP.

Although the affairs of the Daisy of West Dip are still a little mixed, there are those who look for a new start to be made in the milling of its ores in the near future. The various tests which have been made on the ores during the past year inspire this belief. The results of the latest tests on 600 pounds of ore at the Butters laboratory in this city are now given out, but it is said that they are quite satisfactory. This last test has been made by Mr. J. G. Jacobs, to whom has been delegated the task of adjudicating and arranging matters so that the Daisy, La Cigale, Helvetia, Omaha and Kismet properties at West Dip may be united in one big company, and thus make them pay by handling the big deposits of low grade ore on a big scale. Thus far nothing has been consummated, but it is possible that a consolidation will be effected sooner or later. As is known, the Daisy shaft is down 500 feet, with drifts on the vein at intervals of 100 feet. The south drifts on the 200 and 300 levels extend 245 and 340 feet respectively. The north drifts on those levels also run over 500 feet each. By these the vein has been proved to be between 10 and 25 feet wide. But little work has been done below the 300 level. The mill is also well equipped and with the best method for the treatment of the ore satisfactorily determined, it would appear that the Daisy may take on new life.

No work is being done at any of the other West Dip properties.

NORTHERN LIGHT.

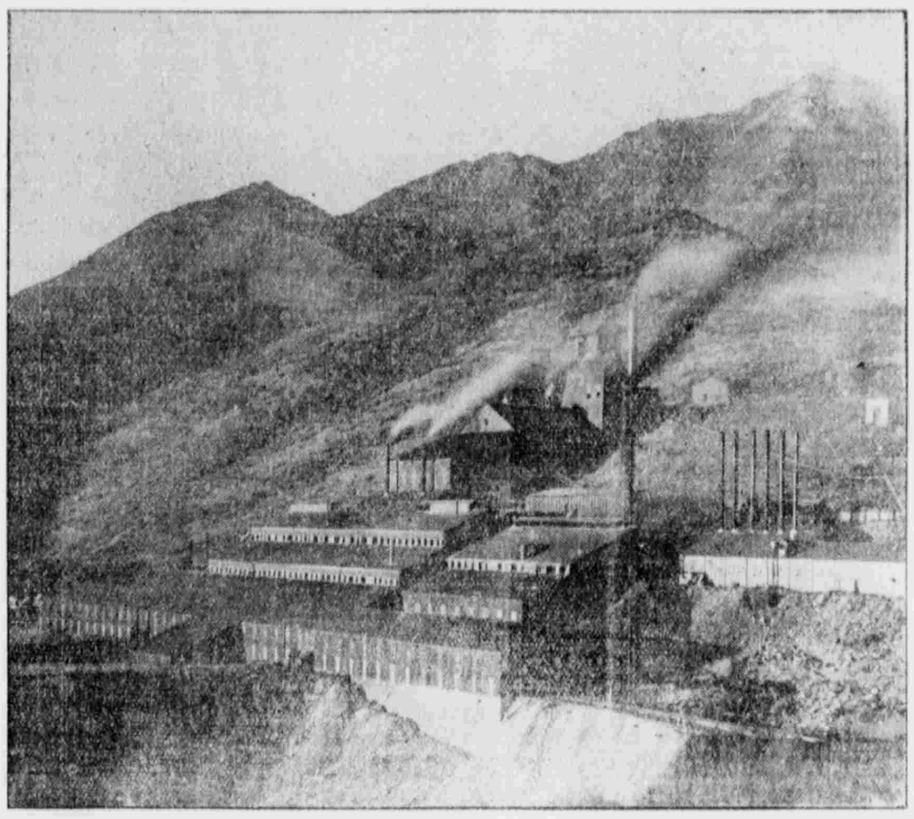
During the past summer connection was made through the hill with the old Lizzie workings of the Northern Light on Lion Hill. With its connection made at a depth of about 150 feet below these workings, the management was able to draw its supply of milling ore largely from that side of the hill. About 30 men have been employed until recently, when the mill was shut down for the season. With the lot of cyanide product now at the mill, the product of the season is estimated at about $5,000. In addition to this there is about half a carload of high grade ore at the mine. No large bodies of high grade ore have been opened up during the season, and the company was in debt at the close of the run. This will be liquidated, or nearly so, by the assessment of two cents a share, recently levied. Superintendent Jones considers that the property looks unusually promising, and a director of the company says development work will continue during the winter with a force of about 15 men. It is probable that considerable attention will be given to the old workings once more.

CHLORIDE POINT.

The Chloride Point of Lion Hill closes the year in much the same condition as it was a year ago. The mill which was run for several months this year, has only recently shut down for the winter. While the work for the year is not made public, it is stated that the company has done a little better this year than last year. The report for 1899 showed that the company received a little over $22,000 from the sale of its cyanide product. While the property has been a great disappointment to a number of investors, it is stated that the management has not given up hopes of opening up a good mine in the property. The general appearance of the mine is said to favor this belief. The mine has not been opened to any great depth, and it is probable that the company will start to acquire greater depth soon after the first of the year. It is also said that the company will shortly be reorganized.

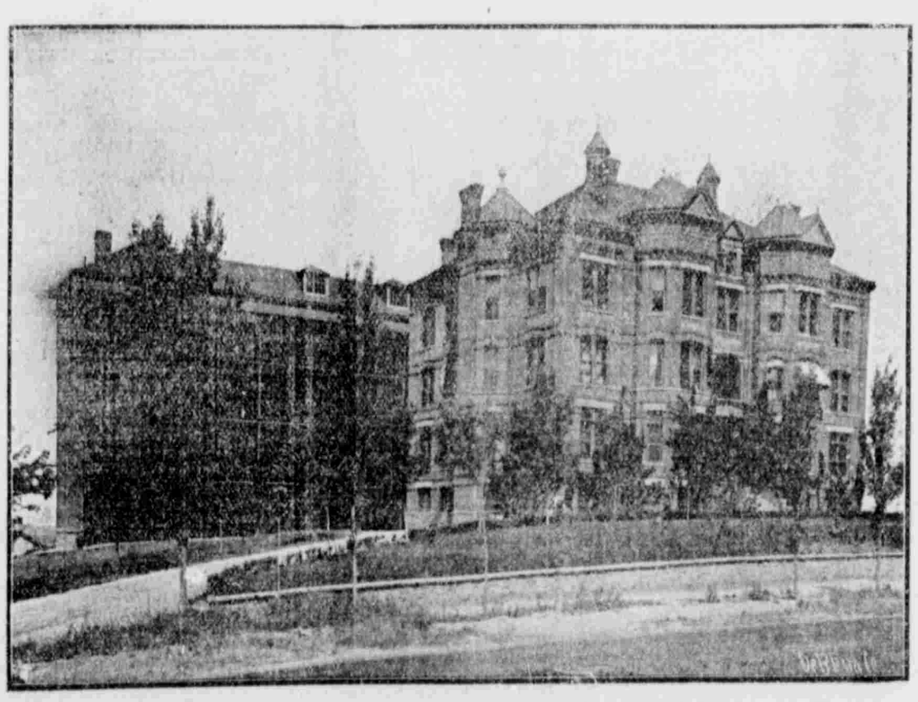
THE COLUMBIA.

The Columbia on Lion Hill has been worked for part of the year by leasers who extracted two small shipments of ore, which run about $40 per ton. The ore was taken a drift from the shaft about 90 feet from the surface.



BIGGEST CYANIDE PLANT IN THE WORLD.

This picture shows the famous Golden Gate Mill erected by Captain De Lamar on his great Mercur properties, which during the last summer were merged into the notable gold bearing group now owned by and known as the Consolidated Mercur. The mill in the last four months has produced $700,000 in gold bullion.



ST. MARK'S HOSPITAL.

St. Mark's hospital is an institution of which every citizen in Utah may be justly proud. It has been in existence for over twenty years, and during that period has done an immense amount of good. The building, which is a very fine one, is beautifully and advantageously displayed, as a glance at the accompanying half-tone will show. During the past year the institution has been crowded with patients and 113 cases have received free treatment. The official head of the institution is the Rt. Rev. Abiel Leonard, while the Rev. D. Douglas Wallace is the superintendent. A corps of gentlemen whose names stand at the head of the medical profession in Salt Lake is retained as the staff and every facility is provided for the care of the sick and injured.