

BIG SMELTERS OF THE SALT LAKE VALLEY.

SMELTERS of Utah during the year 1901 have had a very prosperous run and have handled a tonnage vastly superior to that which has characterized the operations of any previous similar period. Since the consolidation of some of the old plants they have been under the control of the great American Smelting and Refining company, which owns and operates many such reducing plants all over the country. Mr. T. R. Jones is the Utah representative of what is called the smelter trust, and associates having been for many years in the business before the combination was made and having operated the big concerns at Murray, Utah, for a long and successful period prior to their absorption by the big company. Mr. Jones says that in the old plants no new additions have been made, but that they have been kept in good running order, and that always necessitates the outlay of considerable means.

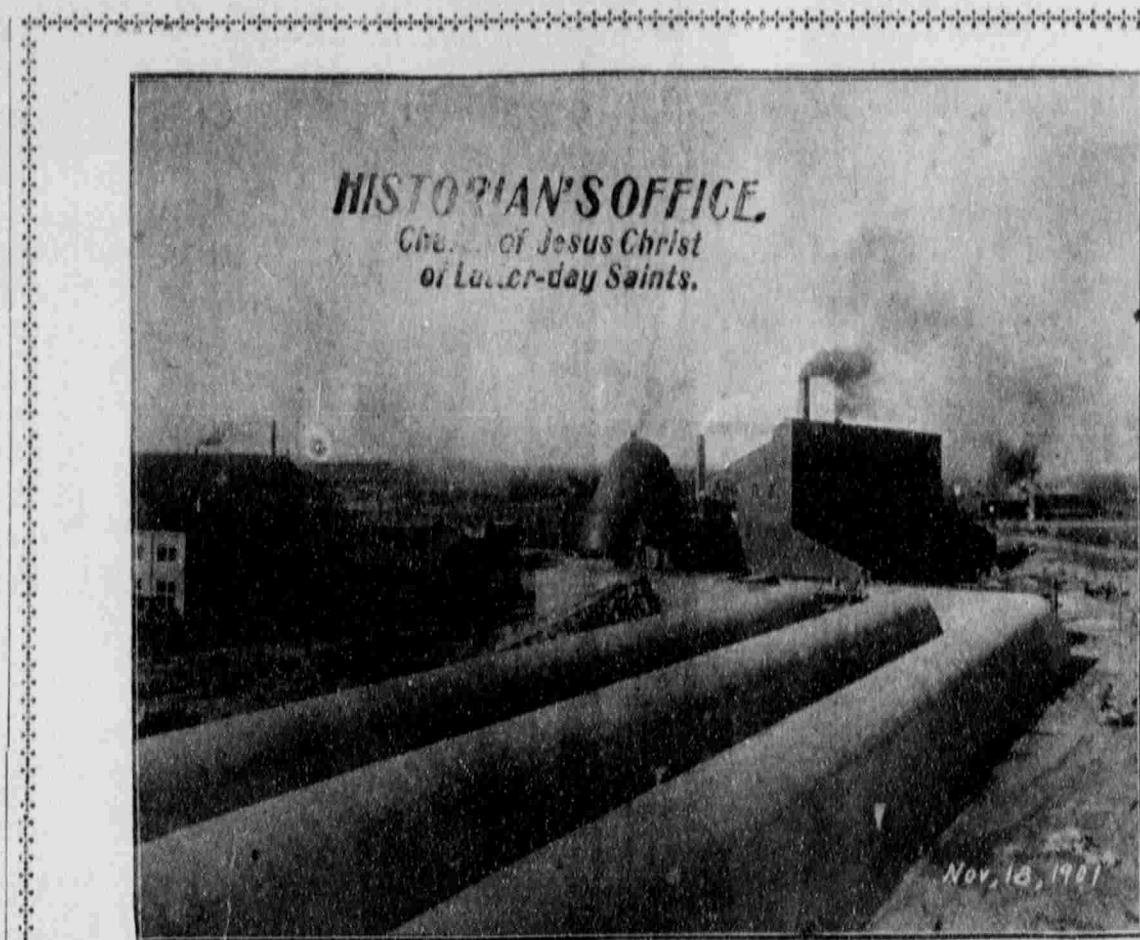
An extensive plant is now in course of construction at Murray by the American Smelting and Refining company which, Mr. Jones says, will be in operation next April and which will handle an immense tonnage of ore. The increase in the output of Utah mines, the opening up of new mining properties and the influx from neighboring states have made absolutely necessary the erection of this new plant and there is now sufficient business in sight to continue the smelter in operation day and night from its first entrance into the business of reduction.

In the operation of its plants here the American Smelting and Refining company employs hundreds of men and pays out annually immense amounts of money in wages to employees and salaries to heads of departments and of-

ficials. The town of Murray, which lies seven miles away from the Temple Block in Salt Lake City, is in reality a child of the smelters and receives all its support from them. The thriving little place is filled with employees of the big concerns and they have there almost all the conveniences of a good sized city. Its connection to Salt Lake by a line of the Consolidated Railway and Power company system of electric surface cars makes it a close neighbor to the capital city and the social and business intercourse between the two is so continuous that one going to Murray imagines himself to be in one of Salt Lake's close-in suburbs. The existence and operation of the big smelting concerns have made possible the establishment at Murray of a splendid public school house, a very respectable opera house and numerous stores in substantial buildings. The smelter employees are thus enabled to educate their children as in a larger town and to enjoy some of the minor theatrical performances and their own social parties and balls.

NEWHOUSE SMELTER.

In addition to this new plant of the American Smelting and Refining company there is one in contemplation by Mr. Samuel Newhouse, the big mine promoter. This new smelter is intended to handle the ores from the Beaver copper properties of Mr. Newhouse and others, as well as ores from the Boston Consolidated mines in Bingham. It is to be erected in the Salt Lake valley and is to be modern and first class in every particular. As to when the work of construction may begin somewhat depends upon the development of the Beaver mines into sufficient production proportions to justify it. In the meantime, work on the mines that are expected to supply the furnaces of the great plant with ore is being pushed



Engine House. Blacksmith Shop. North End of Dust Chamber. Blast Furnace Building.
NEW PLANT, AMERICAN SMELTING AND REFINING CO., MURRAY, UTAH.

as rapidly as men, money, steam and horseflesh are capable of doing it. A mill is to be erected at once at the Caspary mine, together with a water supply plant that involves the artificial conduct of water over a distance of two

miles to the mill. As soon as this mill is put into operation it is anticipated that attention will be turned to the new smelter and work upon its construction will have been got well under way ere another Christmas edition of the

"News" shall appear.
BINGHAM CON.
In this valley of smelters and mining centers was started in operation on February 1, 1901, the big Bingham plant, which handles ores from the

Bingham mines. This plant simply produces copper matte by the process of fire concentration. This matte carries from 20 to 33 per cent copper, besides silver and gold, and is shipped in part to Butte and partially refined at the Highland Boy, a neighbor smelter. An average of 450 tons of crude ore has been handled daily since the starting of the plant, nearly eleven months ago, and there is sufficient added incentive to justify some additions which are to be made to the four stacks now in operation. This smelter is characterized as anti-trust and has entered the ore-buying market in competition with the works of the American Smelting and Refining company. Lead ores can not be handled by the company, however, with its present plant and confinement to gold-silver-copper ores is necessitated on this account. A reproduced photograph of the smelter appears on page 37 of this issue.

HIGHLAND BOY.

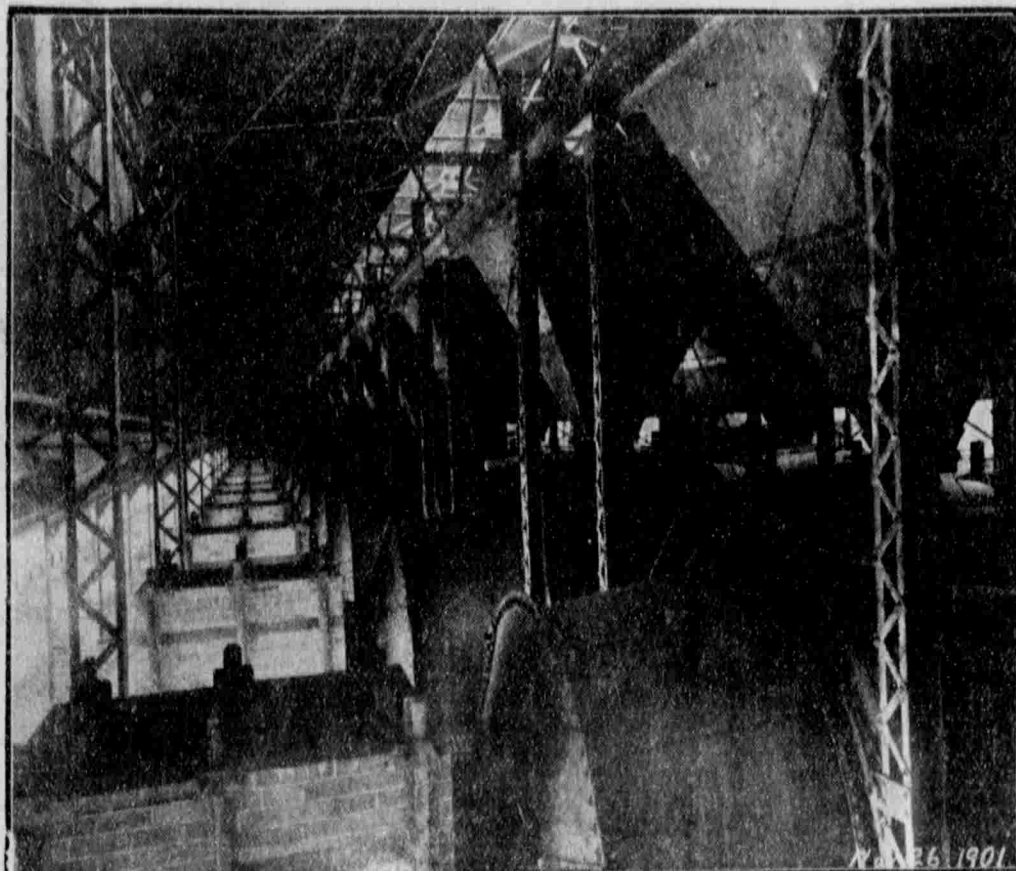
During the present year, estimating December's output, the Highland Boy smelter has produced 10,276,676 pounds of copper bullion. While no new work in the way of additions to the plant has been begun this year, it was not until the end of January that the additions were completed which enabled the smelter to double its output. There are now included in the plant three Welch roasting furnaces, eight McDougal roasting furnaces, seven reverberating furnaces, and three converter stands. It also possesses a power house, generator, 500 horse power engine and a blower engine for the converters, which are furnished with steam by 3 large locomotive type boilers of 250 horsepower each. For repairs, etc., there are a machine, blacksmith and

carpenter shop. The number of men necessary to do the work daily has averaged 215 and in order to produce the 10,276,676 pounds of copper bullion turned out 70,000 tons of ore have been put through. This ore has been principally supplied from the mine at Bingham, which is being worked in all even of its levels to feed the smelter's hungry capacity. All the ore coming from the entire seven levels is carried to the surface through the several tunnel on a horse tramway to the aerial tramway station, where it is transferred to the rope method of transportation, by means of which it is sent to the railway cars by the agency of natural gravity, a small engine being used principally to balance the running of the cable and secondarily to furnish the very little power needed in an occasional light pull. All the coal used at the mine is carried up in the empty aerial ore cars and deposited at the upper station. As at the smelter the mine is well equipped with boilers, air compressor, engine, blacksmith and carpenter shop and sawmill. Thus the ore finds its way from the mine at Bingham to the big smelter in the Salt Lake valley, where the bars of red bullion are turned out to be marketed in all parts of the world.

An illustration of the Highland Boy smelter appears in page 37.

Salt Lake's smelters constitute a great industry in the state, and the manner in which they are being added to at present, together with the prospective plants now in view augurs well for the building up of a monster feeder to the arteries of trade in Utah.

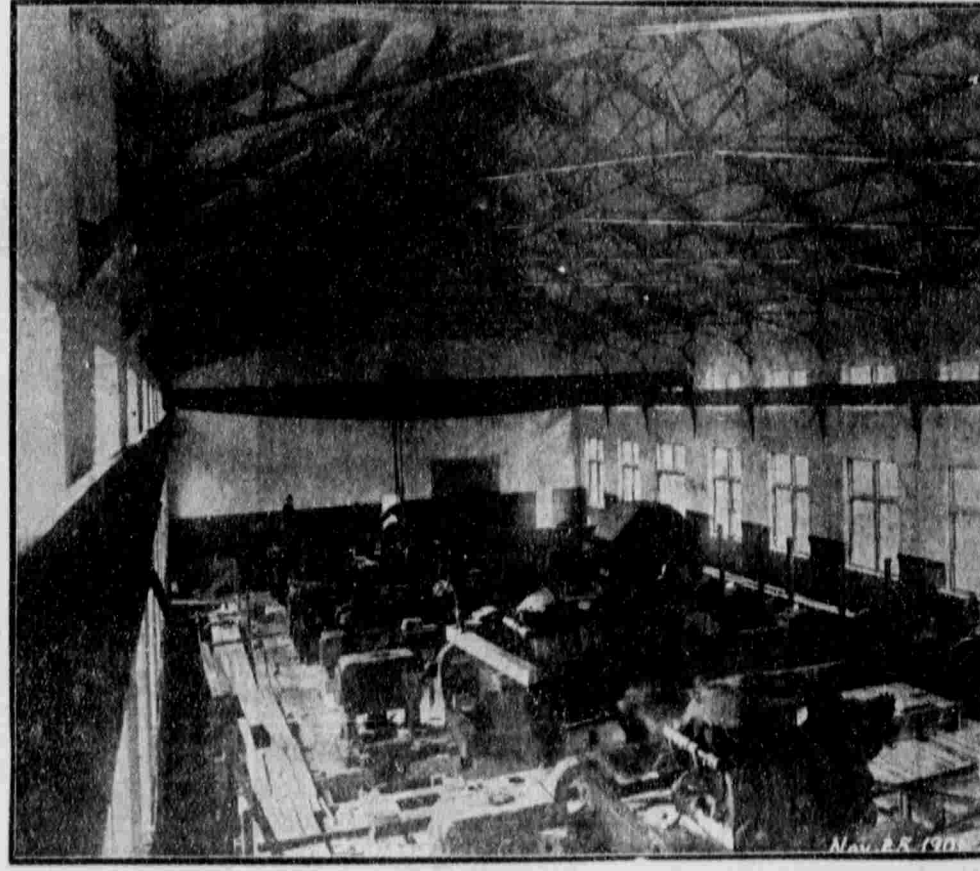
There is no doubt but other smelting works and refineries, not at present in sight, will spring up in a very few years, especially if no setback shall come to the enormous strides being made in mine development here.



INTERIOR OF BRUCKNER BUILDING.



BOILER HOUSE.



INTERIOR OF ENGINE ROOM.

NEW PLANT OF THE AMERICAN SMELTING AND REFINING COMPANY, MURRAY, UTAH.

Development in Miscellaneous Utah Mining Camps.

GOLD MINES OF MERCUR CAMP.

A review of the Mercur camp for the year presents the Consolidated Mercur's property in a very favorable light, notwithstanding a general lack of interest in the district during the past year or two. Con. Mercur is the mainstay of the camp though the Sacramento adjoining has, until lately, treated an average of 150 tons per day. The records show the ore to have averaged up very well as compared with other years. The average is slightly lower and the tonnage shows a falling off during the past few months. The production for the year amounts to almost \$1,475,000 or nearly 74,000 ounces of fine gold. The tonnage for the year, with the month of December estimated, is placed at 230,000 tons. An extraction of about \$5.27 per ton is thus shown to have been made, which is about 60 cents per ton less than that recorded last year. During the year the tailings have averaged \$1.03 per ton. This added to the amount extracted from each ton of ore, shows the value of the ore to be \$6.30 per ton.

Notwithstanding the fact that a cut was made in the tonnage during the year the mine is in good condition and it looks as if it will continue to pay dividends for a considerable length of time. The cut in the tonnage was made necessary by the shrinkage in the

quantity of oxidized ore in sight. The company has any amount of base ore in the mine, but as the roaster capacity is limited, it is impossible to keep up the daily average by using more base ore when the supply of oxidized ore is from any cause unavailable. The supply of oxidized ore continues to be quite low, but it will probably be offset by the important development of mixed ore on the Viking level of the Golden Gate. The company is also making some changes in the roasting furnaces by which it expects shortly to handle 600 tons of base ore per day instead of a little over 400 tons as at present.

TAILINGS TREATED.

During the year the company started up the old Mercur company's mill at Manning on the old tailings dump of the Mercur mine. In June, when the start was made, and for some time thereafter the results were not entirely satisfactory, but a much better saving has been made of late. About 60,000 tons of tailings were passed through the old mill up to December 1st, from which an extraction of 96 cents a ton has been made. The cost of operating is placed at 55 cents a ton, which leaves a profit of 40 cents per ton or \$24,000. Of late the results have been much better, an extraction of \$1.30 per ton not being uncommon. The work is going along steadily and it looks as if the

step will add more than \$100,000 to the company's treasury.

POWER PLANT.

On February 1st of the present year the company started up its power plant which is modern and up-to-date in every particular. It is equipped with a battery of 6 large boilers and 2 powerful engines which operate two electric generators. The current thus generated is conveyed to the various motors of the mill and mine and is made to drive all the machinery in the company's property. It is said to be more reliable than the power before received from outside sources.

NEW DEVELOPMENTS.

The company spends from \$1,000 to \$3,500 per month in dead work. By this is meant the running of drifts, crosscuts, raises, etc., to discover new ore bodies and explore virgin ground. The results of this dead work have been very gratifying during the year 1901. Attention has already been made of the discovery of mixed ore on the Viking level of the Golden Gate. More important perhaps than this discovery is the development of a fine chute of ore in the Lulu workings of the old Mercur property. Before this year the 400 feet of virgin ground between the Lulu workings and the workings in the main part of the Mercur was comparatively unknown. Doubts were felt as to its ore bearing qualities. During the present year it has been demonstrated that this stretch of ground is all ore bearing. Levels No. 27 has been sunk on the dip of the vein nearly 200 feet and a fine chute of oxidized ore, carrying from \$4.00 to \$10.00 per ton has been exposed for the entire distance. Levels are being opened from the vein which has been proved to be large and continuous. The incline heads northwesterly. Work is also being pushed in the Lulu incline, which was started 240 feet from incline No. 27. This incline heads due north, that being the

dip of the vein. It is now down 350 feet in good ore all the way. Six levels have been run from different places in the incline and a great deal of ore has been developed, much of which is oxidized, the rest being base. Assays show values ranging from \$5 to \$40 per ton.

GOLDEN GATE ORE.

The Golden Gate has disclosed a fine body of mixed ore in incline No. 8 from the Viking level. Several levels have been driven from the incline and it has been raised on to a point above the main level of the mine. A confusing system of faults has perplexed the management for some time, but recent developments have caused much elation on the part of the management. The Golden Gate is now supplying half of the ore treated at the mine.

WAGES PAID.

The company has paid out the sum of \$475,000 for labor during the year. An average of 520 men are employed in the mines and mills of the company and the rate of wages is \$3.50 per day.

NORTHERN LIGHT.

A new departure was made at the Northern Light on Lion Hill during the past summer. After prospecting on and above the tunnel level for some time past the company decided to sink and, if possible, intercept the continuation of rich ore chutes found years ago. Thus far no new developments are reported and none are expected for a few months. The shaft is now down about 150 feet below the tunnel level and a force of 3 men is engaged in drifting to a point where a continuation of one of the richest ore chutes in the mine is expected to be intercepted. During the summer about \$2,000 worth of cyanide product was marketed, the result of a short mill run on ores taken out last winter in development. The property is being worked under the direction of R. G. Legg.

FISH SPRINGS.

The Utah mine is located at Fish Springs, Juab county, Oasis being the nearest railroad point, seventy-five miles distant. Of the company Mrs. E. T. Crismon is president and E. M. Weller, vice president and secretary. A depth of 820 feet has been reached in the shaft, from the bottom of which a drift has been run on either side, the east drift being 50 feet in and the west about 20 feet. The latter follows a vein of carbonate ore, carrying from 30 to 100 ounces silver and 50 per cent lead. The east drift is being run to catch the ore which was encountered on the 550 level and in order to do this the drift must be run 250 feet. Probably three months will be required to complete this work, when it is expected that the ore in that vein will have improved with depth and that an increased output will result. On the 750 level the company is both sinking and raising on ore having 100 ounces of silver and 60 per cent lead as its valuable contents. An average of 50 tons a month has been shipped during the year and in December this output is expected to exceed sixty tons. At the 650 level ore is also being extracted, which runs from 80 to 100 ounces in silver and 45 per cent in lead. In this part of the workings two upraises on ore are being made and three winzes are sinking. Dividends amounting to

GALENA.

At Fish Springs, near the Utah mine, is the Galena, whose ore characteristics and operation are practically identical with its neighbor. Notwithstanding the lack of proper and convenient transportation facilities the mine is able to ship upon a paying basis, and with the advent of closer railway connection the property will prove to be a bonanza. H. S. Joseph will furnish information about the mine to anyone desiring it.

PROPERTIES IN PARK VALLEY.

Park Valley in Boxelder county, has received much consideration at the hands of mining men during the past year, caused principally by the developments in the Century gold mine in that camp. Numbers of mining men have visited the camp, the opinion is almost universal among them that the camp is all right. The Century is, of course the most interesting property in the camp though there are several other groups of claims which promise big things when more development work shall be done. The Century has been equipped with sixteen stamps quite recently and the company expects to begin the payment of dividends before summer comes again.

The group was located about four years ago by John Angove of Park City, who was prospecting in that vicinity for lead. The property was incorporated and a small mill was built, capable of handling a few tons per day. It proved a failure and a 3-stamp Merrill's mill was then installed, which now moves for the company. In the meantime the ore bodies were being developed and eleven months after the installation of the Merrill mill, it was decided to put in a mill capable of handling fifty tons per day. The start in this direction was made in June of this year, and the work was completed last month. A number of interruptions have occurred from various causes since the mill was started, but the company will soon have all the annoyances incident to starting a new mill, behind them. The mill is capable of handling between fifty and sixty tons of ore daily. It is a combination of amalgamation and concentration, the ore treated running between \$8 and \$15 per ton. The mill is equipped

with a splendid engine and no expense has been spared to make it thoroughly efficient and up to date. It is under the direction of Percy Williams, who has great hopes of making the Century one of the best dividend payers in the state.

THE MINE.

The physical condition of the mine is excellent. On the 300 level the vein has been opened a distance of 340 feet on its strike. The pay streak at that point is said to average four feet in width, though it sometimes runs eight feet in width. The most important work done this year has been the driving of a lower tunnel to intercept the vein 150 feet below the upper workings. The tunnel was also designed to enable the company to handle its ores more economically. Quite recently the management agreed upon the tunnel and made connections with the 300 level. By means of this connection all the ore now being stoped above, is dropped to the tunnel level and conveyed to the new mill at a minimum expense, as the top of the mill is on a level with the tunnel. A body of ore was entered by the upraise from the lower tunnel, but thus far the ore chute has not been found in the tunnel. The face is being continued towards the vein and present indications point to the main vein being caught within a short time. Strains of iron ore are making their appearance in the tunnel, which is considered a very good sign. The company owns eleven claims and Dr. J. T. White of Salt Lake is president of the company.

THE PLANT.

The incorporation of the Planet Mining company was effected this year, owing the outgrowth of the old Planetary company. The company owns fourteen