Salt Lake Valley Soon To Be The Greatest Smelting Center Of The World

ADVANTAGES OF SULPHIDE PROCESS.

THE introduction of the modern sulphide smelter in the Salt Lake valley has contributed largely to the benefit of the producers of Utah and the surrounding states, for the reason that their advent has made it possible for mine owners to derive a profit from silicious ores, which, up to a short time ago it was out of the question to move at all, owing to the heavy penalty charged by the smelting corporations for ores of this particular class. Now, with the increased tonnage and perfected facilities for handling ores the smelters are able to receive them upon a more favorable basis than heretofore. While it is impossible to arrive at figures which would give an accurate idea of the reduction that has been made in the cost of smelting ores of the character mentioned, principally during the past year, it is safe to say that it will range anywhere from 25 to 50 per cent. For example, ores from the camp of Alta, running from $18 to $20 in value to the ton, can now be sold at a fair profit, where a short time ago they would no more than pay for the expense of mining, transportation and smelting. Other ores which cost $12 to smelt, undergo treatment now as low as $6 a ton. In the early days of smelting in Utah as much as $20 per ton was charged for smelting ores, while the average charge today is from $5 to $7 to the ton.

THE prediction has often been made that Salt Lake—more properly speaking, the Salt Lake valley—is destined to become the greatest smelting center in the world. There are excellent reasons to believe that these hopes will soon be realized, especially when such assurances come from officials of the American Smelting & Refining company; the greatest organization of the kind in existence. Of course the geographical position of this city and valley makes this the local center for the whole intermountain region not only commercially but for mining and smelting. The ores of nearly every Utah camp are brought here for treatment while a steady stream is coming constantly from the mining camps of the surrounding states.

PLANS OF THE A. S. & R.

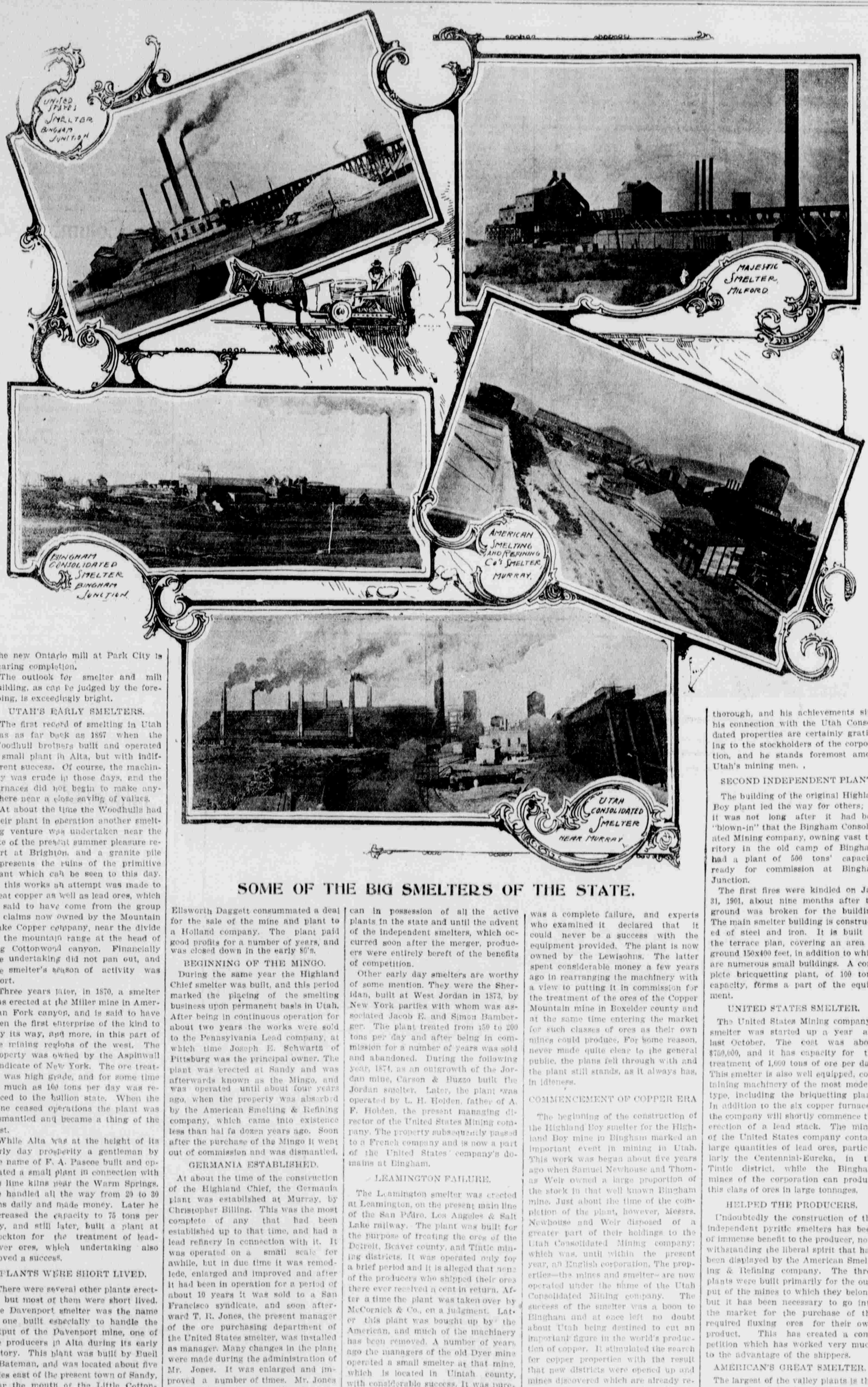
It has been said by persons in position to know that it is the intention of the American company to make its Utah plants excel all others belonging to its chain of properties in point of tonnage; already the directors have authorized the expenditure of $750,000 to be made in improvements during the coming year. This is but a beginning, the probabilities are that a sum much greater than that will be placed to the credit of the construction account during the next 12 months.

MORE MONEY WILL BE SPENT.

But the year 1904 will witness the completion of other enterprises of importance to the mining regions. The Utah Consolidated will raise the capacity of its plant to 800 tons or more per day and the management has $250,000 at its disposal for that purpose. The United States company will add equipment to its Bingham Junction plant, while the Bingham Consolidated will no doubt provide for the handling of heavier tonnage on account of the increase being made in its custom clientage. The Boston Consolidated of Bingham, may also conclude arrangements for a plant of its own and for which it is abundantly ready. There is some talk of the establishment of an iron smelting industry in this valley by the owners of vast areas of iron lands in Iron county. While no definite conclusions have been reached, there are some strong elements at work with that end in view and with a likelihood of success. At any rate, considerably more than a million dollars will be expended in smelter construction and improvements in the Salt Lake valley during the coming year, to say nothing of the program to be carried out in the way of smelter and mill buildings in Bingham, Beaver county, Alta, Marysvale and other camps.

IN BINGHAM AND OTHER CAMPS.

In Bingham the Yampa Smelting company is putting in the finishing touches to a 350-ton smelter to be used in the reduction of the ores of the Yampa mine. The Utah Copper company, which took over the Delamar-Wall group of mines during the past summer, is erecting a 500-ton concentrator, and it will be in operation early in January. It is the intention of this corporation to enlarge the capacity to 1,500 tons, possibly next year. The Ohio Copper company, which has absorbed the Columbia copper mine in Bingham, has also in contemplation the erection of a 500-ton concentrating mill in the near future. The Columbus Consolidated Mining company will build a mill of at least 100 tons capacity at Alta, and it is probable that the Continental Alta company will do likewise. The Butler-Liberal company, operating at Bingham, is also considering the advisability of providing reduction works. But the most stupendous undertaking planned for the coming year is the construction of a great concentrator and smelter at the Cactus mine in Beaver county by the Newhouse Mines & Smelters company. The concentrator is to have a capacity of 3,000 tons daily.



SOME OF THE BIG SMELTERS OF THE STATE.

The new Ontario mill at Park City is nearing completion.

The outlook for smelter and mill building, as can be judged by the foregoing, is exceedingly bright.

UTAH'S EARLY SMELTERS.

The first record of smelting in Utah was as far back as 1867 when the Woodhull brothers built and operated a small plant in Alta, but with indifferent success. Of course, the machinery was crude in those days, and the furnaces did not begin to make anywhere near a close saving of values.

At about the time the Woodhulls had their plant in operation another smelting venture was undertaken near the site of the present summer pleasure resort at Brighton, and a granite pile represents the ruins of the primitive plant which can be seen to this day. In this works an attempt was made to treat copper as well as lead ores, which is said to have come from the group of claims now owned by the Mountain Lake Copper company, near the divide of the mountain range at the head of Big Cottonwood canyon. Financially the undertaking did not pan out, and the smelter's season of activity was short.

Three years later, in 1870, a smelter was erected at the Miller mine in American Fork canyon, and is said to have been the first enterprise of the kind to pay its way, and more, in this part of the mining regions of the west. The property was owned by the Aspinwall syndicate of New York. The ore treated was high grade, and for some time as much as 100 tons per day was reduced to the bullion state. When the mine ceased operations the plant was dismantled and became a thing of the past.

While Alta was at the height of its early day prosperity a gentleman by the name of F. A. Pascoe built and operated a small plant in connection with his lime kilns near the Warm Springs. He handled all the way from 20 to 30 tons daily and made money. Later he increased the capacity to 75 tons per day, and still later, built a plant at Stockton for the treatment of lead-silver ores, which undertaking also proved a success.

PLANTS WERE SHORT LIVED.

There were several other plants erected, but most of them were short lived. The Davenport smelter was the name of one built especially to handle the output of the Davenport mine, one of the producers in Alta during its early history. This plant was built by Buell & Bateman, and was located about five miles east of the present town of Sandy, near the mouth of the Little Cottonwood canyon. It was about 1876 that Mather & Geist obtained a lease on the smelter, increased its capacity to over 200 tons per day, and operated it successfully for a number of years. In the same locality the old Saturn smelter was built and run on Alta ore for about three years when it, too, was dismantled and the building torn down. John W. Kerr, well known to local mining men in those days, was the builder.

In the early 70's the Shauntic smelter was built in the valley below the Harrington & Hickory mine in Beaver county; the Horn Silver Mining company also built one for the treatment of its high grade silver ores, and an old slag dump marks its location in the upper part of the town of Frisco. At Milford, one or two plants were operated for a time, but they were short lived.

BINGHAM'S FIRST SMELTER.

In 1873 the Winnemuc smelter was erected at the mouth of Bingham canyon to treat ores from the mine bearing that name. A few years afterwards Ellsworth Daggett consummated a deal for the sale of the mine and plant to a Holland company. The plant paid good profits for a number of years, and was closed down in the early 80's.

BEGINNING OF THE MINGO.

During the same year the Highland Chief smelter was built, and this period marked the placing of the smelting business upon permanent basis in Utah. After being in continuous operation for about two years the works were sold to the Pennsylvania Lead company, at which time Joseph E. Schwartz of Pittsburg was the principal owner. The plant was erected at Sandy and was afterwards known as the Mingo, and was operated until about four years ago, when the property was absorbed by the American Smelting & Refining company, which came into existence less than half a dozen years ago. Soon after the purchase of the Mingo it went out of commission and was dismantled.

GERMANIA ESTABLISHED.

At about the time of the construction of the Highland Chief, the Germania plant was established at Murray, by Christopher Billing. This was the most complete of any that had been established up to that time, and had a lead refinery in connection with it. It was operated on a small scale for awhile, but in due time it was remodeled, enlarged and improved and after it had been in operation for a period of about 10 years it was sold to a San Francisco syndicate, and soon afterward T. R. Jones, the present manager of the ore purchasing department of the United States smelter, was installed as manager. Many changes in the plant were made during the administration of Mr. Jones. It was enlarged and improved a number of times. Mr. Jones continued in charge until after the transfer of the property to the American Smelting Refining company, four years ago. He retired about two years ago, when C. W. Whitley, then manager of the smelters at East Helena, Mont., was chosen as his successor and is still the local head of that institution. The roasting furnaces of the Germania are still in commission, but a newer and more up-to-date plant, built nearby, handles the bulk of the ores sent in for treatment.

HOW THE HANAUER ORIGINATED.

Late in the 70's Benjamin Morgan tried his hand at the smelting business in the Salt Lake valley and put up a single 15-ton stack near Murray. In 1882 Abraham Hanauer acquired the property, improved and operated it until it was sold out to the American company at about the time of the consummation of the deals for the Mingo and Germania plants. The Hanauer was also blown out for good.

COMPETITION BECAME EXTINCT.

The sale of the trio placed the American in possession of all the active plants in the state and until the advent of the independent smelters, which occurred soon after the merger, producers were entirely bereft of the benefits of competition.

Other early day smelters are worthy of some mention. They were the Sheridan, built at West Jordan in 1873, by New York parties with whom was associated Jacob E. and Simon Bamberger. The plant treated from 150 to 200 tons per day and after being in commission for a number of years was sold and abandoned. During the following year, 1874, as an outgrowth of the Jordan mine, Carson & Buzzo built the Jordan smelter. Later, the plant was operated by L. H. Holden, father of A. F. Holden, the present managing director of the United States Mining company. The property subsequently passed to a French company and is now a part of the United States company's domains at Bingham.

LEAMINGTON FAILURE.

The Leamington smelter was erected at Leamington, on the present main line of the San Pedro, Los Angeles & Salt Lake railway. The plant was built for the purpose of treating the ores of the Detroit, Beaver county, and Tintic mining districts. It was operated only for a brief period and it is alleged that none of the producers who shipped their ores there ever received a cent in return. After a time the plant was taken over by McCornick & Co., on a judgment. Later this plant was bought up by the American, and much of the machinery has been removed. A number of years ago the managers of the old Dyer mine operated a small smelter at that mine, which is located in Uintah county, with considerable success. It was purely a private enterprise and no custom work was attempted.

E. P. Ferry, who was an active figure in the early history of the camp of Park City, erected a smelter there in the early '80s. He obtained his ore from the Utah & White Pine mines, now a part of the Daly-Judge company's holdings and brought his fluxes from the edge of the Uintah reservation. The enterprise, however, was unprofitable.

SALT LAKE COPPER PLANT.

It is only within recent years that the copper mines of Utah could be operated profitably, for the reason that the smelters were not equipped to handle that class of ores. Copper ores were not wanted; and it was almost impossible for the owners of such mines to dispose of their output at any price. A ray of hope came to the copper producers in the boom times, about 1890, when prominent citizens subscribed a bonus for the erection of the copper plant in North Salt Lake. The building was erected and the plant equipped with machinery, but the furnaces were never heated. It was a complete failure, and experts who examined it declared that it could never be a success with the equipment provided. The plant is now owned by the Lewisohns. The latter spent considerable money a few years ago in rearranging the machinery with a view to putting it in commission for the treatment of the ores of the Copper Mountain mine in Boxelder county and at the same time entering the market for such classes of ores as their own mines could produce. For some reason, never made quite clear to the general public, the plans fell through with and the plant still stands, as it always has, in idleness.

COMMENCEMENT OF COPPER ERA

The beginning of the construction of the Highland Boy smelter for the Highland Boy mine in Bingham marked an important event in mining in Utah. This work was begun about five years ago when Samuel Newhouse and Thomas Weir owned a large proportion of the stock in that well known Bingham mine. Just about the time of the completion of the plant, however, Messrs. Newhouse and Weir disposed of a greater part of their holdings to the Utah Consolidated Mining company; which was, until within the present year, an English corporation. The properties—the mines and smelter—are now operated under the name of the Utah Consolidated Mining company. The success of the smelter was a boon to Bingham and at once left no doubt about Utah being destined to cut an important figure in the world's production of copper. It stimulated the search for copper properties with the result that new districts were opened up and mines discovered which are already recognized as being among the richest in the world; yet copper mining is only in its infancy in this region. The Highland Boy plant was built to handle a capacity of 500 tons per day. The average better than that, about 520 tons; producing upwards of 1,250,000 pounds of copper bullion monthly. Although the percentage of copper contained in the ores of Bingham is small, by handling large tonnages, the cost of extraction and treatment is reduced to a minimum, thus in the aggregate, enabling producers to realize good profits. Preparations are now being made to enlarge the capacity of the Utah Consolidated plant, the directors have authorized the expenditure of $250,000 in that direction, and Manager R. H. Channing has already awarded the contracts for material and equipment. The capacity will be brought up to at least 800 tons per day. The work of construction will soon be under way and it is expected that the additions will be completed early in the coming year. Mr. Channing's knowledge of smelting and mining is most thorough, and his achievements since his connection with the Utah Consolidated properties are certainly gratifying to the stockholders of the corporation, and he stands foremost among Utah's mining men.

SECOND INDEPENDENT PLANT.

The building of the original Highland Boy plant led the way for others; for it was not long after it had been "blown-in" that the Bingham Consolidated Mining company, owning vast territory in the old camp of Bingham, had a plant of 500 tons' capacity, ready for commission at Bingham Junction.

The first fires were kindled on Jan. 31, 1901, about nine months after the ground was broken for the building. The main smelter building is constructed of steel and iron. It is built on the terrace plan, covering an area of ground 150x400 feet, in addition to which are numerous small buildings. A complete bricquetting plant, of 100 tons' capacity, forms a part of the equipment.

UNITED STATES SMELTER.

The United States Mining company's smelter was started up a year ago last October. The cost was about $750,000, and it has capacity for the treatment of 1,000 tons of ore per day. This smelter is also well equipped, containing machinery of the most modern type, including the briquetting plant. In addition to the six copper furnaces, the company will shortly commence the erection of a lead stack. The mines of the United States company contain large quantities of lead ores, particularly the Centennial-Eureka, in the Tintic district, while the Bingham mines of the corporation can produce this class of ores in large tonnages.

HELPED THE PRODUCERS.

Undoubtedly the construction of the independent pyritic smelters has been of immense benefit to the producer, notwithstanding the liberal spirit that had been displayed by the American Smelting & Refining company. The three plants were built primarily for the output of the mines to which they belong, but it has been necessary to go into the market for the purchase of the required fluxing ores for their own product. This has created a competition which has worked very much to the advantage of the shippers.

AMERICAN'S GREAT SMELTER.

The largest of the valley plants is the great works of the American Smelting & Refining company, erected near the site of the old Germania plant near Murray, which was blown in in July, last year, at a cost in excess of $1,000,000. A more modern plant is not in existence anywhere in the country. It is a complete affair in every respect, and has capacity for the treatment of 1,600 tons of ore daily, while the old Germania, since being overhauled, could take care of 800 tons very conveniently.

The big plant is divided into two parts, the roasting and smelting departments. The former comprises the crushing mill and two furnace houses; one containing the Bruckners, the other, the hand raked reverbratories of standard design. The roasting furnaces stand in a long building, constructed of steel, and are set at right angles to the longest axis of the building. In the usual manner they communicate, at their feed end, with a large dust settling flue, which leads to the main chimney of the works. The ore is brought in on a tramway, over the furnaces and is charged into them through hoppers.

The steel blast furnace house, connected with the latter department, contains eight furnaces, each 48x160 inches at the tuyers. They are very high and arranged for methodical charging. Everything about the plant is arranged to work automatically as much as possible. The stack is 225 feet high.

THE MAJESTIC SMELTER.

A decidedly important event took place in Beaver county a little over a month ago in the starting of the new smelter of the Majestic Copper Mining and Smelting company, near Milford. This plant was blown in early in November; but only for an experimental run, and the results have been most gratifying to the management of that proposition as well as to the people of Beaver county in general. The run has thoroughly demonstrated that the Beaver county ores are of a character very desirable for economical smelting. The plant has capacity for the treatment of 350 tons per day, the copper furnaces provide for 250 tons and the lead stack is capable of taking care of 100 tons fed into it every day. Only the copper furnaces have been blown in and it is hardly likely that the balance of the plant will be started up until the company does further development work. General Manager William A. Farish has advised the stockholders that further exploration is necessary before they can expect to keep the plant in continuous operation at its full capacity, although there is sufficient ore blocked out to keep the plant in operation for an indefinite period.

Another event of importance in southwestern Utah during the year was the completion of the Dixie smelter, near St. George, by the Utah and Eastern Copper company and it is now in successful operation. The plant has a capacity of 100 tons per day and is soon to be increased.

YEAR'S TONNAGE OF THE LOCAL PLANTS.

THE smelters located in the Salt Lake valley have handled an immense tonnage of ore during the present year. Into the furnaces of the four plants is fed each day more than 3,000 tons; aggregating at least 1,250,000 tons of ores and fluxes since Jan. 1 last. The plants of the American Smelting & Refining company have handled 1,600 tons per day; the Bingham Consolidated and United States, 800 tons each, while the Utah Consolidated has done better than 500 tons daily. Like the modern smelting plants, the advent of the automatic sampler has done its share towards reducing the expense of handling ores. In the up-to-date sampler all the ores are crushed; and the rate charged for this service is from 40 to 50 cents per ton. Formerly, under the hand method of sampling, the seller or buyer could not begin to expect the results that can be obtained under the present methods, for only recently ores sent to the sampler, the cost ranged from $1 to $2.50 per ton. The railroads have made some concessions to the shippers of low grade ores; for instance, Tintic producers have been granted a rate of $1.50 per ton on ores of the value not to exceed $15, a reduction of $1 per ton. The basis of settlements adopted by the smelting companies in treating with customers is to pay them for 90 per cent of the lead contents, 95 per cent of the silver, $19 per ounce for gold, while 1 3-10 per cent is deducted from the copper. No penalty is charged on ores containing not to exceed 7 per cent zinc.

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