

In Alta Mining District

Up Little Cottonwood, where in the early days of Utah mining, many millions of dollars net were wrung from the snow-clad mountains, the various groups then worked being sounded at comparatively shallow levels, is a most active properties whose only complaint is the lack of the season to cast its resources on the Salt Lake market. It shows up Alta way, and it is nothing for a road to be cut through twenty or thirty feet of snow in order to allow the ore sleds to bring out a bit of rock during the severe winter months. Alta, in bidding adieu to the year 1907, closed one of its most successful years, and the most prosperous season in the period of rejuvenation now progressing.

Columbus Consolidated.
When one thinks of Alta, he naturally calls to mind first of all the Columbus Consolidated property. The banner shipper of the district, and the only dividend payer up that way so far, the Columbus Consolidated is the leader. The history of the Columbus mine has been written many times, and justly so, for it illustrates the character of grit and confidence its founders brought to bear on what was generally considered up to their era a hopeless and unfruitful field. Alta owes a deep debt of gratitude to Tony Jacobson and A. O. Jacobson, the ones who had faith enough in Alta to begin work there after the camp had remained neglected for many years. No one knows the difficulties met and surmounted by these two successful Salt Lake mining operators, nor how it was done; they have never told those things, but everyone knows and appreciates what they have made of the Columbus mine and the other properties up that way in which they are the leading spirits.

Down to the 300-foot level the Columbus has demonstrated the continuation of its resources, the 300-foot developments of splendidly important character during the year just ended. Work was continued on down to the 400-foot level in the past few months, but difficulties incident to storms up the canyon so crippled the equipment that the task of opening up the resources on the lower level had to be deferred until the year that has just dawned. The ore bodies, however, that had made their appearance were amply able to provide more than enough tonnage to keep the mill going at full capacity, and to provide rich shipping rock that needed only to be loaded in wagons to be ready for the market. New ground in the Columbus mine is being opened up continually, and with returns that more than promise a long life of prosperity to the organization.

Columbus Extension.
Near to the Columbus is the Columbus Extension property, owned by an organization mostly composed of Columbus people. The Extension is what its name implies, an extension of the Columbus ore system, and the work on the Extension ground has not been fruitless during the past year. In sending in a long and deep tunnel, the management recently broke into a large cave, into which poured a constant stream of wet sand, much after the fashion of shelled corn pouring from an opening in the bottom of the crib. The management fought the difficulties incident to mining under such conditions, and in spite of herculean efforts, each hour of work being fraught with great danger to life, the endeavor to stem the tide of sand had to be abandoned. The management then began to drive an upraise from the tunnel level, and splendid progress in this line of activity has been registered, with every indication of success eventually. Accompanying the sand were huge boulders of sulphide ore, showing that above the cave was a typical Alta ore chute, while the sands themselves were made up to a large extent of granulated sulphide ore.

Mr. Jacobson stated a short time ago that it was the intention of the Columbus Consolidated company to secure the Extension property, and that an option to this effect had been secured. But the Columbus officials desired to accomplish more development work on the new ground in order to justify the investment in the property. In a given time. These who know Alta are certain that the deal will be consummated early in the year 1908.

South Columbus Mine.
Adjoining the Columbus mine is the property of the South Columbus company, another Jacobson organization that was rounded out late in 1906. The South Columbus joined the Alta list of producers and shippers in 1907, although not a great tonnage was sent down the canyon on account of the management being unwilling to stoop out such ore found, desiring to continue all effort to reach the ore bodies proper. By means of the oil Quincey tunnel, the management was enabled to prosecute its development work with ease, and several fissures still presenting full faces of splendid copper, silver and gold ore are being pushed ahead, bound for the intersection with the contacts, where the company has every reason to anticipate the real resources within their lines. This work is being rushed forward by the company, the officials wisely having financed the company shortly after organization. It is not too early to certainly expect from the South Columbus some very meritorious performances during 1908, and that it will come close to the Columbus in its amount of shipments to the market can only be prevented by the lack of facilities which may be provided during the year. The South Columbus has been equipped with every possible modern convenience for mining, and for the comfort of its employees. Like the Columbus Consolidated, it has ample boarding house facilities for the men, and the machinery necessary to progress in mining.

Columbus Wedge.
Touching the South Columbus is the noted old Wedge group of claims, on which in early days was centered much wise endeavor. The Wedge is one of those Alta properties whose ores appear to be read by all to point the way to proper development work. During the past fall, the Wedge company, just recently organized by strong Utah and Michigan capitalists, uncovered a four-foot vein of ore on the surface, whose silver and gold values reminded old timers of the halcyon days of Alta. The ledge was sunk on to the ninety-foot level where drilling now being done is disclosing satisfactory results. Plans are now on foot looking towards a consolidation of the South Columbus and the Wedge companies, a deal that will be rounded out early this year. Combined, the two groups will make an ideal mining proposition, for the ore veins extend from the one to the other in such a fashion that to mine one, the other must necessarily be developed.

Con. Flagstaff and Emma.
A strong combination of Utah and Eastern capital has control of the Consolidated Flagstaff and the Emma copper properties up the canyon, work having been carried on faithfully during the past year with satisfactory results. Equipment just recently was installed allowing the two organizations to continue exploration work on the two mines with greater speed, and both will be found worthy of the confidence that the officials and the friends of the two organizations have reposed in them. Both are located in such a manner that the causes that impelled nature to load the famous old Emma mine with riches necessarily obtained with the two mines under discussion. Both are liable to splendid disclosures at any shot.

Emma Is a Shipper.
The mention of the famous old Emma property recalls to mind that this old producer of millions in profits is again showing up bonanza form. Under the masterful impulse of "Uncle" Jesse Knight, the wizard of Tintic, the old Emma property was recently reorganized, and work started on the same. A great deal of preliminary work had to be done on the Emma, just as all old mines require in order to make them safe for work and certain for results. The company reinstalled timbers, new tracks, new equipment everywhere in the mine, boarding and bunk house accommodations for the men, all constructed along lines best calculated to protect the improvements from disaster from snowslides. A few weeks ago the management broke into several new chutes of ore, meeting with uniform success in preparing shipments for market from several different faces in the property. But the Emma has just started on its new ex-

ceeding wet season, but this work is now being resumed and the outlook is very bright for the production of a large tonnage of high-grade ore on that ground.

Two New Shippers.

Two new shippers were added to the Alta list in 1907, the City Rocks and the Albion companies. The City Rocks company during the season completed its payments for the ground within its lines, and starts the new year with splendid prospects. The company has been sending down the canyon some mighty handsome and valuable rock, and there is every indication that the management, recently returned for another year's service, will be as successful in the coming twelve months. The City Rocks during the last year started a new crosscut tunnel which will bring to light all the many veins that cross the group, and at a vertical depth that will leave no further doubt as to the permanency of the property.

The Albion has been a hard worker for several seasons, the past year being no exception to the rule. Shipments were made to the local ore market, and the group has been so developed that hereafter it will not be a difficult matter to reach the resources as heretofore. All the workings have been connected so as to make work to the ores an easy matter. There are many promising properties up the canyon that deserve special mention, and the organizations doing work up that way are worthy of every possible assistance. Alta is not a readily accessible mining camp, perched high up the mountains, where severe winters, snowslides, heavy snows, and distance to the market, all combine to retard mining operations which, at best, are expensive and slow. Alta is no easy proposition. But the district has been productive of many millions of dollars' worth of ore, and not until the old camp was revived the past few years has a very great death been gained anywhere in the camp. With depth has come success anew, and the year 1908 opens on one of the brightest sort of prospects for this section up Little Cottonwood.

The Daly West Mine

Park City's old standby is still making history, and the Daly West Mining company is certainly deserving of that title. In spite of the unfavorable smelting situation and the great handicap under which the company is laboring under the present unseemly condition of the Ontario tunnel, they have distributed to the stockholders \$378,000 in dividends for the year 1907. For the past two years the company has been forced to confine its energies to the upper levels of the mine, and while the results have been very satisfactory, as is clearly shown by the dividends paid this year, they are nothing compared with what they have been when the lower levels were available to the company. The Daly West has a total dividend record to its credit of \$5,777,000, and all indications point to the continuation of handsome distributions for many years to come.

The Daly West secured control of the Ontario properties during the past year and this noted old dividend payer is considered a very valuable asset. The Bamberger interests are to be congratulated on adding to their holdings, which also include the following subsidiary companies: The Weber Coal company of Coalville, Utah, and the Park City Light, Heat and Power company, all of which receive the same able management as the Daly West company. Improvements have gone steadily ahead in spite of the many handicaps the company has had and the developments are highly gratifying to the management. The work on the Little Bell, of which the Daly West owns a 20 per cent interest, was stopped for a considerable time on account of the

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Bamberger, president; H. G. McMillan, vice-president; J. Barnett, secretary; W. S. McCornick, treasurer, who, with F. J. Hazenbark and W. H. Dickson, compose the directorate. The properties are in charge of the following well-known and experienced mine operators:

Ernest Bamberger, general manager; P. L. Williams, general superintendent; George Ames, superintendent Ontario mine; T. J. Lewis, superintendent Weber Coal company.

E. L. Talbot, superintendent Daly West mine; F. W. Sherman, superintendent Daly West mill.

A notable feature of the properties is that while the earnings have increased the cost of production has decreased.

American Smelting & Refining Co.'s Garfield Smelter

Representing an investment of \$5,000,000, with every indication that more money will be spent on it as growth is needed, the new smelter of the American Smelting & Refining company at Garfield is the pride of Utah. The Utah Copper and Boston Consolidated companies' mines led to the building of this giant plant.

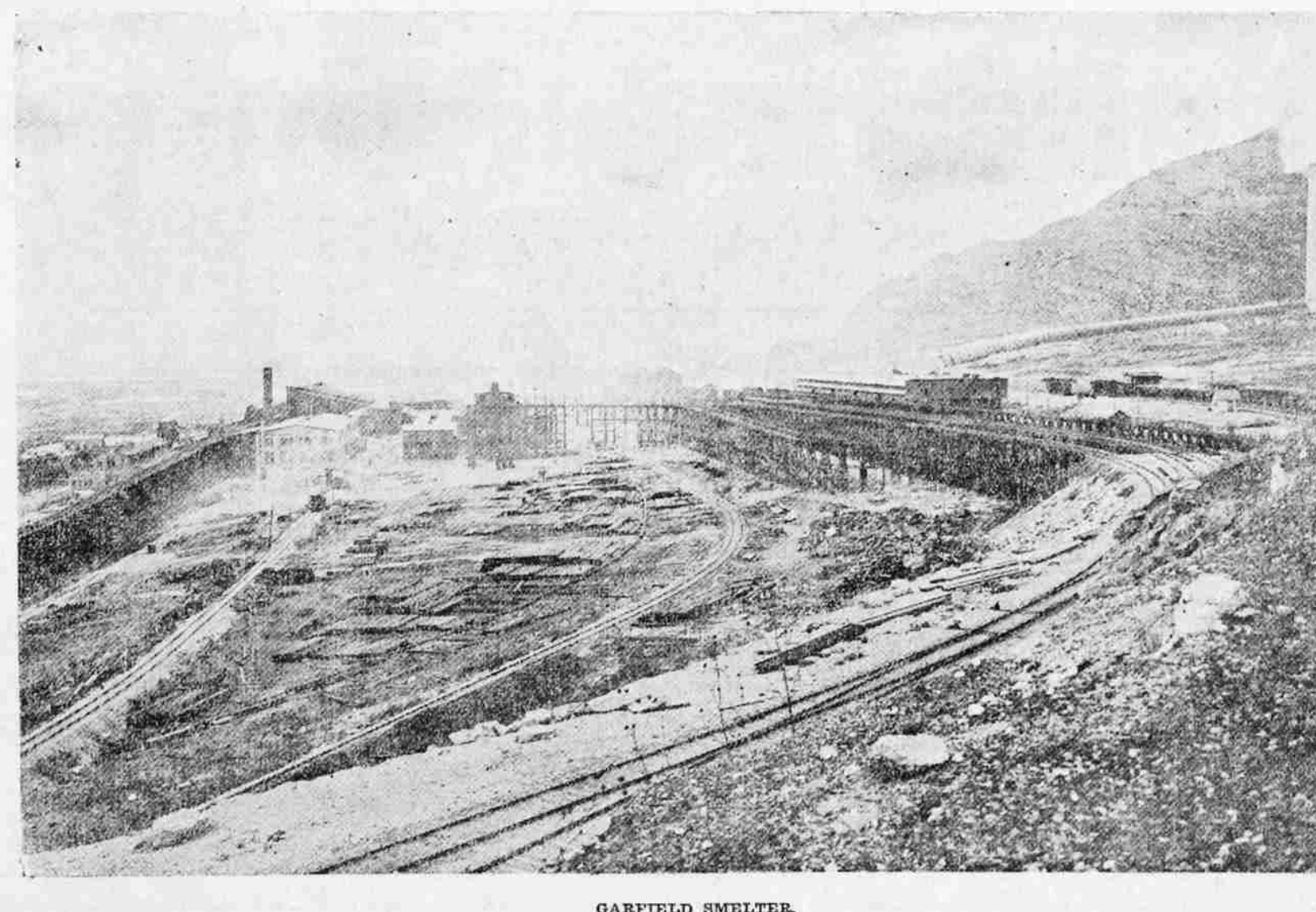
Garfield was determined upon during the middle of 1905. The Guggenheims, the leading spirits of the American Smelting & Refining company, being convinced of the unlimited possibilities of the two big mines and being prominently interested in the Utah Copper company, realized that the facilities for handling such enormous tonnages were entirely inadequate.

The question then arose as to the best location for a smelter plant, which would be within easy reach of the camp Bingham and out of the reach of all owners of agricultural lands whose premises might be damaged by the fumes escaping from the plant. Numerous lawsuits had already been filed against the smelting companies operating at Murray, and the Guggenheims, with their usual foresight, determined upon proceeding along the line of keeping free from all such interferences.

The Garfield site was selected, with the high mountains on one side and the Great Salt Lake on the other, where the largest copper smelter of its kind in the world, and one of the most modern communities in the West, were started.

Equipment of Smelter.

The stack measures in size thirty feet. Three furnaces, each 2300 feet from the reverberatory furnaces to the stack stand twenty-four feet above the foundation. Their shape is oval; the width being the base being twenty-four feet. The walls are three inches in thickness. For the purpose of facilitating cleaning the flues they are provided with numerous openings and hopper bottoms, and arranged with mechanical feeders. Near the reverberatory furnaces are four converter stands, each 96x138 feet. A Huntington & Heberlein converting plant, with a capacity of twenty pots, has also been installed.



GARFIELD SMELTER.

Two electric cranes, running the length of the main smelter building, are capable of handling a sixty-ton weight, each having a sixty-foot span. Electric cranes are also used in the power house and the machine shop, and each portion of the plant is well provided with the latest facilities for work.

The McDougall roaster building is 60x222 feet in extent, and it contains sixteen eighteen-foot furnaces. The area of the two smelting mills are each 78x82 feet. The main smelter building is 360 feet long, 395 feet wide. Two reverberatory furnaces have been installed, and the third will soon be in commission. The present plant, having a capacity of 1500 tons daily, is almost completely in commission, for the plant is now treating 1000 tons a day. This unit will be added to until the capacity is brought up to 3000 tons a day. The plant is under the direction of Charles W. Whitley, the general manager for the Utah possessions of the Guggenheims.

Use 7,000,000 Bricks.
A total of 7,000,000 bricks were used in the stack, dust chambers and reverberatories, besides extensive steel and cement work. More than \$1,000,000 has been expended on the flue and stack alone.

The power plant building alone is a monster brick structure supported by steel trusses and having an elaborate roof. Here there are facilities for developing when necessary 5000 engine horse-power and 6300 boiler horse-power.

Everything is of the best that money can buy, and is placed for years of service. Almost economies have been practiced in its assembly, and yet so very large is it in all respects that many hundreds of thousands of dollars scarcely describes the expense of its installation. The engineroom is 256 feet long and 80 feet wide. The boiler plant attached is 128 feet long and 30 feet wide. Coal is delivered to the boilers in dump cars from the railroad on an elevated trestle through seven gigantic pocket shoots, and affording in the aggregate capacity for 700 tons. Coal is delivered by gravity from these "pockets" in piles, in front of the furnaces, and is shoveled into the furnaces by hand.

There are four 350 horse-power Sterling boilers which are operating at 150 pounds steam pressure. There are also waste-heat boilers in the reverberatory furnace building, each equipped with two 350 horse-power Sterling boilers. Steam is taken from these boilers into the same "header," or conveyance pipe that feeds from the other boilers. The total boiler capacity installed is 3500 horse-power and provision is made for the installation of two more 350 horse-power boilers and a superheater when the same may be required.

Great Engine Equipment.
The engineroom equipment constitutes what engineers consider the most complete up-to-date plant operating at any smelter anywhere. Other such power plants are larger, and having more capacity, but none is regarded as superior in its class.

There are two 17x31x36 compound engines that are driven 120 revolutions per minute; 400-kilowatt 250-volt, direct-current generators which supply electrical energy for power and lighting; one 550-kilowatt 400-volt generating alternating current turbine, delivering for the Garfield Water company; two 15x30x36 tandem, compound Corliss engines driven 120 revolutions per minute, and directly connected to No. 10 blowers, which deliver 300 cubic feet per minute each, at 32 ounces pressure, into the blast furnaces; two 23x50x124 forty-eight-inch, cross-compound blowing engines, with capacity of 1800 cubic feet each per minute, at 75 revolutions per minute, at 12 pounds pressure, for furnishing air for the copper converters; and there is also a 500-cubic-foot cross-compound two-stage air compressor delivering air at 100 pounds pressure, for the shop tools and pneumatic devices.

The smelting operations of the American Smelting & Refining company in Salt Lake valley, previous to embarking on the larger scale at Garfield, have been confined at the plant at Murray seven miles south of Salt Lake, which was undertaken in 1902, as the successor of several small independent smelters previously operating in this vicinity independently. In the beginning the Murray plant was designed for growth, and has grown until it has a capacity of 360,000 tons of ore annually, and 30,000 tons per month.