

THE BLUE BIRD.

One of the Good Investments that English Pluck and Capital has Made in Developing the Resources of Montana.

The extensive silver mining property of the Blue Bird Company, Limited, is one of the finest mining properties in the whole country. It is situated near the town of Burlington, and is about three miles west of Butte.

The principal feature of its location is its being near, in fact on, the Montana Union Railroad, over which run trains operated by the Union Pacific and the Northern Pacific, on the south side of the property, with the Montana Central rapidly approaching Butte, which will also run a track directly to the company's property, from the northeast. The latter railroad will open a new field for wood supply, on which great store is placed, and will have the advantage of landing the supplies on the upper side of the mill. These supplies will be run into the mill by gravity, thus saving a great deal of labor and thereby reducing the expense of reduction of ores. Salt being indispensable in the process, and the mill being on the line direct from the salt deposits, the situation is more favorable than that of any milling property in Butte, as the salt can be delivered at the mill on the cars at a minimum rate.

In the immediate future it is contemplated that the Blue Bird Company will extend its own wood flume to the property, from which the three different sources is at present undetermined; but it is calculated that wood can be conveyed to the mill at a cost of \$3.00 per cord. Besides cord-wood, the mining timber supply can be brought in the flume cheaper than by any other means of transportation, and the water of the flume can be advantageously used in the milling process itself, as it will come from the clear, mountain streams.

Coal has been used by the company for the generation of steam, and it always keeps a large supply on hand, but at present only wood is being consumed, of which also a sufficient stock is kept in reserve. The time may come, however, now that the means of transport have increased, when it will be thought advisable to use both coal and wood, although the fuel for the process of roasting must be wood. The quicksilver used in the mill has been brought from California.

The location of the property, both for mining and milling, surpasses any other in the Butte District on account of its proximity to the railroad. The surroundings are congenial, the country being undulating and not too hilly to impede wagon transportation, and the roads naturally are in very good condition. The mine being to the west of Butte, it commands a more favorable market for wood and timber from the mountains to the west than the other mines on account of the shorter haul, and accordingly a large supply can be easily obtained. Before many months the competition between the new railroads and those now in operation, will have a tendency to reduce the freight rates. This would make the company more independent, and allow the milling of even very low grade ores at a profit. The property is crossed by two lines of telegraph and the company has its own office and private communication by wire with the outside world.

A large supply of mining timbers, sawed lumber and stulls is always kept on hand, and long ricks of cord-wood are stacked both at the mine and at the mill for future consumption. On the property are noticed numerous large dumps of ore, which have been accumulated in years past through development work only, and these constitute a large reserve of ore for milling at any time the company has occasion to use it to advantage.

The remaining supplies used by the company are obtained from the merchants of Butte. They consist principally of hardware, explosives, candles, and machinery and pump supplies in moderate quantities. Engine oil and

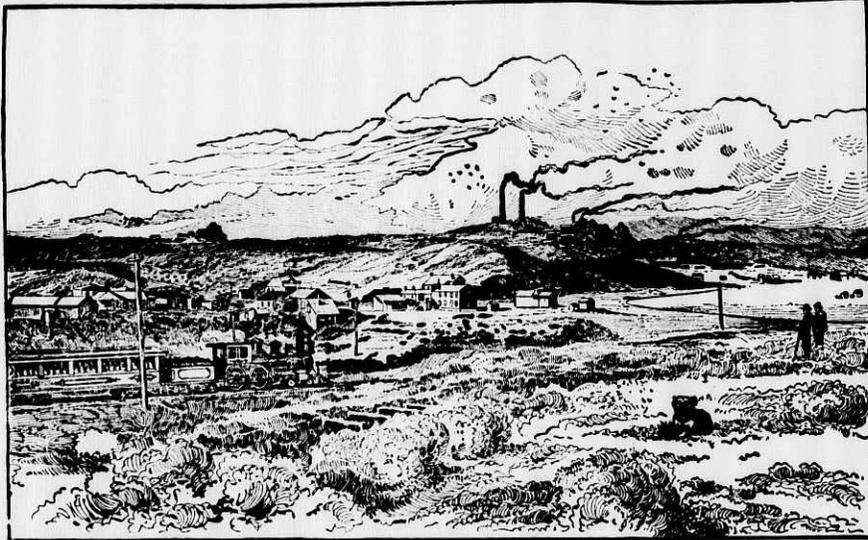
lubricants are imported from the East. Castings are bought from the local foundries, although the original machinery is of Eastern manufacture. The supplies, on the whole, are furnished as cheap, if not cheaper, than in any other mining camp in the West or Northwest.

One particular advantage which the Butte mining region has over more mountainous districts, is that freight is transported by broad-gauge roads instead of narrow-gauge, which results in lower freight rates being charged. Charcoal, brick and lumber are procured in the immediate vicinity.

THE MILL.

A very great advantage which the Blue Bird Mining Company has, is that it owns its own reduction works, and consequently is absolutely independent in this respect, and can avail itself of every economy in the cost of reduction. None but the company's ore is treated in the works. The process may properly

be termed a "dry-crushing, silver-chloridizing amalgamating process." The mill is well and carefully planned, and being within 2000 feet of the mine, is conveniently situated and, particularly adapted for the thorough reduction of the ore. Being so recently constructed it is naturally the most complete. Since the starting up of the mill in November 1896, when it was a 70-stamp mill, complete success has attended the operations, which will be plainly demonstrated when we state that since then an additional 20 stamps have been



GENERAL VIEW OF BLUE BIRD PROPERTIES.

added to the plant, and at present writing, are in operation also, making a total of 90 stamps under one roof,—the largest mill of its kind in the world. Eighty stamps are dropping on ore while ten are used to pulverize the salt. The following is an outline of the process:

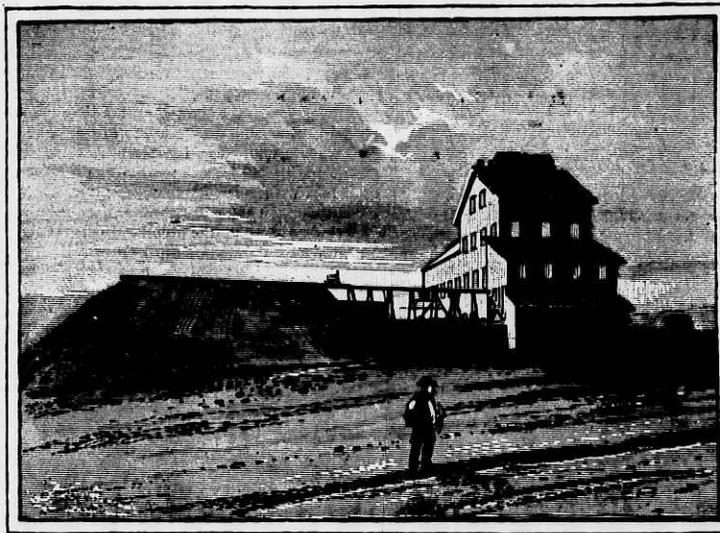
The ore is delivered from self-dumping cars, after passing over scales into the ore house at the top of the mill. Falling over "grizzlies" the coarse ore descends to the Blake crushers, beneath which it joins the fine ore and passes into automatic feeders, above three rotary dryers, 18 feet long, and with 40-inch cylinders; which revolve on the same principle as the White & Howells chloridizing furnaces, in use in other mills in the district. The ore is fed and withdrawn from the dryers automatically, and is conveyed to the stamp batteries, where it is pulverized by 850-pound stamps, making 90 drops per minute. Thirty mesh screens are used in the battery. As the pulp is conveyed by machinery to the roasting furnaces it is mixed with pulverized salt by a specially

adapted salt-feeding machine, and the mixture of pulverized ore and salt is conveyed to the top of the Stetefeldt roasting furnace by means of a belt elevator. The capacity of each furnace is 60 tons per day.

The Stetefeldt furnaces have been adopted by this company, though more expensive in construction, on account of their efficiency in chloridizing or roasting. The company believes that less silver is lost in roasting in these furnaces than in the rotary furnaces as used in other mills, with the exception of the Lexington mill, which has similar furnaces. Besides this, the wear and tear is less than in the rotary roasters. The roasting furnaces were especially designed for the mill, and have extra large dust chambers provided for the collection of the dust, which are connected with two mag-

nificent stacks on the top of the hill beyond the mill-site, shown in the cut. These present an imposing sight from the valley. The capacity of the dust and flue chambers is greater than that of any other mill and has corresponding advantages.

The ore is drawn through hoppers from the furnaces every four hours, and dumped into the cooling pits, where it is allowed to remain 36 hours. It is then shovelled into cars and conveyed to the pan room, where it is properly charged, there being 28 pans provided. The amalgamation process takes place by violent agitation in the pans, the charge of quicksilver, having a natural



THE BLUE BIRD MINE.