

ciency has been thoroughly demonstrated. Superintendent Hall has built between the hoisting works and the large mill a frost and fire-proof house in which he has placed a "C. C." Knowles pump, which is intended solely for use as a protection against fire. In connection with this he has purchased two hose carts and 1,000 feet of substantial hose, and at suitable points around all of the works he has placed 14 fire plugs, and wherever there is an engine a reel of hose stands ready for instant use, not to say anything of the numberless buckets which hang around the premises in every conceivable place. Only once during the past year has there been any need for these apparatus, and then the men gave full emphasis to the fact that an ounce of prevention is worth a pound of cure. Some months ago the retort room caught fire and the alarm was promptly given by the engineer at the mill. In less time than it takes to tell it there were three or four streams pouring upon the burning building, and notwithstanding the fact that the boards were as dry as tinder, little more than the shingles suffered damage. The activity displayed by the men and condition in which the appliances are kept fully justifies the high esteem in which the Superintendent holds his fire brigades, and demonstrated that the men

PARROT MINE AND SMELTER

Mountains of Ore in Sight at the Present Time.

Richness and Extent of the Ore Body as It is Opened.

A Sketch of the Smelter and the Process by Which so Much Copper is Being Produced.

The Parrot has always been looked upon as one of the most valuable mines in this district, and a visit by any person who has the least knowledge of what constitutes a mine would certainly satisfy him that the Parrot is a very rich property, practically managed, thoroughly ventilated, and one which bids fair to pour additional wealth into the pockets of its stockholders, and to add to the prosperity of the city for a long time to come.

THE 130 FOOT LEVEL.

The shaft was sunk to this level in what is known as the South Ledge. The west drift on the 130-foot level is carried in 400 feet from the shaft. The ledge in the face of the drift is at present almost

barren and raises for the purpose of cutting the ledge into blocks, so as to determine its extent and to make it more economical and safe to work.

THE 230-FOOT LEVEL.

The ledge in this level is about 30 feet from the shaft and connects with the shaft by means of a cross-cut. The west drift is now in 350 feet. The face of the drift looks better now than it has for some time past, showing two feet of very fine ore. The drift on the north ledge, on the 230-foot level, is in 450 feet. The face of this drift is in barren ground, but the several stopes on the ledge on this level are looking well and show vast ore bodies ready for extraction.

THE 330 FOOT LEVEL.

The 330-foot level is very rich. No ore has been extracted from this point to the 230-foot level, and except from the drifts, two floors of stopes and a few raises, put up to determine the extent of the ore. The west drift on the south ledge is now being carried on with vigor, and the face shows good ore. The east drift is now 150 feet from the shaft. Some very fine-looking rock has recently been encountered in the eastern ground, between the 330 and 230-foot levels, upon which developments are being actively pushed. The west drift on the north ledge is in 400 feet from the shaft. There are four feet of good ore in the face of this drift. This ore was struck last Aug-

Drifts.....	295,120
Stopes.....	2,739,382
Total.....	3,034,502

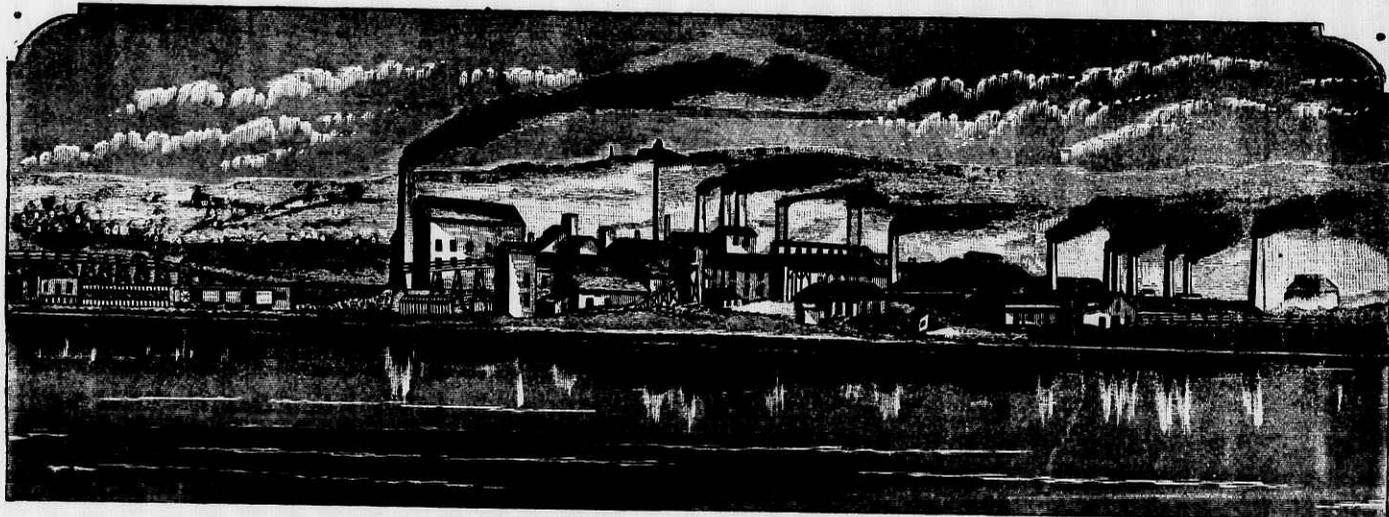
3,034,502

EXCELLENT MANAGEMENT.

The Parrot is one of the best managed mines in the country. Everything in and around the mine runs as if by clockwork. The hoisting machinery is after the most approved pattern: the shaft is as safe as it can possibly be made; the stations are all models of neatness, and the levels are all securely timbered. During the four years and seven months in which Superintendent Tibbey has had control of the company's affairs not a man has been killed, or met with a serious accident in the mine. The mine throughout is rendered very pleasant by the perfect mode of ventilation practiced by the management, and the general condition of the property is such as to reflect great credit on Mr. Tibbey's admirable management.

THE PRODUCTION OF THE MINE.

All metallurgical authorities agree that copper is the most permanent mineral. The celebrated copper mines of England and Wales have been worked constantly for the past two hundred years, without becoming exhausted. Mineralogy, like all other sciences, determines results from known experiments and experience, and judging from the well known tendency of copper veins to increase in size and richness as depth is gained, it is safe to predict that



THE PARROT SMELTER.

themselves take an earnest and lively interest in the affairs of the company.

Clark & Larabee, Bankers.

The banking house of Clark & Larabee is one of the pioneer institutions of the kind in Montana. It began business at Deer Lodge in the spring of 1870, where they still have a house under the management of Mr. S. E. Larabee. During the years of 1871 to 1875, inclusive, the Deer Lodge house shipped East from one to one and a half million dollars' worth of gold each year. The firm opened a house here in February, 1877, under the management of Mr. W. A. Clark. This was the first bank in Butte, and the business was at first small, but grew rapidly, until now it requires five men to do the work. The firm has been one of the most successful in the history of the Territory. It is safe to say that more people pass through its doors, daily, than any other bank in the West. The management is liberal, always leaning generously toward men who are building up the country, and many of the leading merchants of the city owe their prosperity to the aid extended them in their early struggles. Nevertheless, there is no bank in the country in the conduct of which more caution and discretion is used. In a business running up into the millions, its losses have been very small.

The large private fortunes of the individual members of this firm are liable for every dollar due depositors, and this fact being known, removes every vestige of anxiety on their part. This prosperous firm, so long and firmly established, is looked upon with confidence by our citizens as one of the safest institutions in Montana.

barren. This, however, is not looked upon as being very discouraging, as the experience of the management has been that in some places the ledge shows but a few inches of ore, while in other places it has widened out to thirty feet, and upwards. The average width of the ledge, however, of pay ore on this level is about six feet. There are on this level in the different stopes, drifts, etc., at least 35,000 tons of ore ready for extraction. It might be stated as we go along that Superintendent Tibbey has a sure method of determining the extent of ore bodies. A drift is carried in through the ledge a considerable distance on one level, and then raises are carried up at intervals along the vein to the level above. These cut the ledge into sections, or blocks, and by measurement the actual quantity of ore in sight can be arrived at. The different stopes on this level look well, and many tons of ore will yet be extracted from the same.

In fact, the western part of this level has not been worked to any great extent. The company heretofore have directed their attention to the eastern portion of the mine. The ledge in that part of the mine has been nearly all worked out from the 230 to 50 feet above the 130-foot level. It can, therefore, readily be seen that nothing has been done in the western part of the mine, with the exception of running the

shaft and was an entirely new thing, it having never been found on the upper levels.

THE MAIN SHAFT.

The main shaft has been sunk 450 feet and a new level opened up at the 430-foot station, and (as we presented some months ago, that the opening up of the level would prove that the ore body would increase in size) the vein in the north has been cut 28 feet from the shaft which shows a solid vein of ore of four feet in thickness, and assays 23 per cent. pure copper, which is eight per cent. richer than the ore in the upper levels. The cross-cut on the south drift of this level has been run 20 feet, but it is not expected that the south vein will be cut under fifty feet from the shaft. The mine has never looked so well as it does to-day, and Superintendent Tibbey, who is known to be very conservative in his estimates, says that without taking into consideration the ore in this level, there are 165,000 tons of ore in sight—truly an encouraging outlook for the Parrot.

THE DAILY PRODUCTION OF ORE

is now 320 tons, which will be increased to over 400 tons in another month. The following is the estimated amount of work done on the Parrot Mine:

Depth of shaft.....	450 ft
Air ways and winzes.....	630 " 1,080 ft
Linear feet cross-cuts.....	765
Drifts.....	4,316
Stopes.....	45,254 - 50,385 ft
Total length in miles.....	9.5
Cubic feet excavated, cross-cuts	53,550

the capacity of the Parrot mine as a copper producing property will be more than treble what it now is after the present generation shall have passed away. The mine has produced 300,000 tons of ore since it was opened, containing an average of 12 per cent. of copper.

The valuable minerals are chalcocite, bornite, chalcopyrite, enargite and tetraehedrite, popularly known as copper glance, variegated copper, copper pyrites, arsenical copper and gray copper, respectively.

The ore also contains sufficient iron in the form of iron pyrites and in the bornite and chalcopyrites for fluxing the gangue in smelting—the gangue is mainly quartz.

THE ORE IS ASSAYED

at the mine into two classes. The first class contains 18 per cent. of copper and but little gangue; the second class contains 10 per cent. of copper and requires to be concentrated before being smelted.

The mine produces easily sufficient ore to keep the smelter running, and there is sufficient ore in sight in the different stopes to supply the smelter to its full capacity without any further development for the next eighteen months.

There is a tramway and car track leading from the mine to the smelter, over which the ore is carried to the furnaces in small cars, hauled by mules. This is an economical way of transporting the ore, as each car has a capacity of five tons.