

ARSENIC PLANT FOR SUMPTER.

AN INDUSTRY WHICH WILL RECEIVE ATTENTION IN TIME.

Mining Man Gives Brief Statement of Process of Treating Arsenical Ores—Small Outlay of Capital—Big Returns—District Offers Good Field—Abundance of This Mineral Here.

An industry which will probably receive attention in time to come in the Sumpter district, and which offers a profitable field for investment is the production of arsenic. According to expert authority there is an abundance of ores in the surrounding country carrying arsenical values which it will pay to reduce in connection with the ordinary smelting process. An arsenic plant involves the outlay of small capital and can be operated in conjunction with any reduction works where the ores smelted carry arsenical values. It is not probable, however, that the present smelting company contemplates an immediate move in this direction, although it is a matter which, it is stated, is likely to come under future advisement. A well known mining man has this to say relative to the subject:

"The production of arsenic is an industry which has received but little attention in this country, although not for the lack of adequate conditions and not because it does not offer a profitable field for investment. Smelting companies in the past have in fact passed the matter up without any serious consideration. In the Sumpter district there is plenty of ore carrying arsenical values, and since the process of reduction is simple and involves but small expense operated in connection with a smelting plant, there is no reason why the present smelter people should not, in time, install such a plant. Arsenic is an article of commerce used largely in the manufacture of glass paper, calico printing and also in medicine. It is extracted from the ores by a process known as sublimation, which consists of allowing the arsenical vapors from the smelter to cool in brick chambers where the metal is precipitated in the form of a grayish powder. This powder is then roasted and the fumes driven into a separate set of chambers where the arsenic again sublimes in an almost chemically pure form. These chambers fill several times a year, depending upon the character of the ore and the capacity of the plant. The arsenic collects in a grayish crystalline form practically filling the openings. It is then taken out, pulverized and is ready for shipment.

"The plant itself is very simple, the chambers being usually constructed of brick, having an aperture something like 6x6 feet with doors at intervals for taking out the arsenic, and communicating with a stack for carrying off the vapors. The arsenical fumes from the smelter are usually conducted underground to the first set of chambers where the metal is deposited in the crude form. Only three or four men working on shifts are required to keep the plant going."

There is at present only one arsenic plant in the United States, and this is run in connection with the Puget

Sound Reduction company's smelter at Everett, Washington. The arsenopyrite or mispickel ores of the Monte Cristo mines, owned by the same concern, furnish the means of operation. The plant was built about two years ago. It is said the venture has long since passed the experimental stage and is now on a paying basis.

PROFITS IN LOW GRADE ORES.

Great Progress Made in Cyaniding Operations With Low Grade Propositions.

The greatest strides which have been made in the gold mining industry of late years have been in connection with low grade propositions. The accomplishments in this connection are simply remarkable. Chiefly through the aid of cyanide, vast deposits of low-grade ore have been rendered profitably marketable, where otherwise they would have been valueless. Not all classes of low-grade ore can be so handled and the operation depends also upon the conditions under which the deposits occur. Nor is it only to cyanide that the low-grade mining industry owes its success. There are other factors, chief among which is the scientific and economic systems of operation which have been devised.

The matter of the cyaniding operation is very interesting. Prof. Merrill, the cyanide authority, recently said: "The average value of the sand treated in 1902 was \$1.65 per ton. The average cost of cyanide treatment was .353 cent per ton. The average percentage recovered in bullion by the treatment during the past six months was 74.7. The slimes carry an assay value ranging from 80 cents to \$1.10 per ton.

"The maximum monthly tonnage of this plant was attained in October, 1902, when 40,236 tons, or 1298 tons per day, were treated. This gives to the Homestake company the largest sand treatment cyanide plant in the world, the next largest being I believe, that of the Simmer and Jack, in South Africa."

The Homestake company has certainly accomplished wonders in the matter of mining and treating low-grade ore. Nor has the company followed a selfish or niggardly policy. From time to time the world is told of what is being done and how it is being done.—Journal and Intvesor.

F. O. BUCKNUM

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