

**GOLD MINING BY QUARRY PROCESS.**

Many of the common metals are mined in various parts of the world by the quarry process, but in very few places are the precious metals found so situated that this method can be used. A correspondent of the Mineral Industry, writing from Alaska, states that there are two places in the United States where gold mines are worked as open quarries. One is on the Homestake property at Deadwood, S. D., and the other is on the Alaska-Treadwell, of Alaska. The correspondent describes the latter, calling the open pit a funnel, as follows:

The larger axis of this funnel extends across at the surface somewhat over 1,000 feet; the shorter diameter is perhaps 500 feet. The point of the funnel is down about 300 feet. The whole area is open to the sky. Up along the edges are men that look like pigmies drilling holes for blasting with compressed air fed through hose from the works. The holes are generally drilled about eight feet deep into projecting spurs, and ropes securely fastened above are dropped down past the workmen to assist them in going up and down.

Down at the bottom of this huge funnel are men, mostly Indians, sledging the larger rocks into smaller pieces. The Indians get \$2 per day for this work, without board; white men get the same and board. The work is dangerous. Any amount of rocks are hanging around the sides, ready to go tumbling and bounding down at any time.

This crater is called the "glory hole." It is open about all the time for men wanting work, but white men are not tumbling over each other to secure jobs. A man killed or hurt is a common occurrence, and there are no laws to recover damages. For that matter, there are no particular laws of any kind. But more of this in another letter.

I watched the workmen making a blast. The mine superintendent and myself were standing in the mouth of an old tunnel, used when the shaft bottom was not so low down, but now abandoned, as a lower shaft tunnel has taken its place.

At a signal we took cover further in, as the blasting, though across from us 400 feet, was still 200 feet higher up, and fragments might reach us. There came a deafening and ringing report. The air was filled with pieces and a cataract of rocks went down the nearly perpendicular slope. Five more reports followed in quick succession, and a regular avalanche—I should say at least 60 or 80 tons of rocks—went thundering down 285 feet. Some of these pieces would weigh several tons. The workmen at the bottom had taken refuge in caves dug in the sides, and came forth to their work when the storm was over.

All this material is dropped through a shaft at one side, at the extreme low point of the pit, into a still lower tunnel coming in from the works, and

taken thence to the crushers on iron cars pulled by a dinky locomotive.

Of course a heavy mass of this rock accumulates at the bottom, wider at the base and narrower at the top, and, as the material is taken away below to go down the shaft into the underneath tunnel, slides of this loose rock take place, often overwhelming the workmen. This is the dangerous part. This slope of loose stuff may extend more than 100 feet high, and the rocks gather a high velocity in making the descent.

To the above we may add that in Colorado there are operations in which large bodies of low grade, or even very rich ore, scattering through a large body of rock, are worked on a large scale by an open cut or quarry, rather than by the usual shaft and tunnel. At Leadville, for many years the Antioch mine, and at Silver Cliff, the Racine Boy, and other ore deposits were worked in this fashion. At the Antioch they found a huge body of porphyry impregnated more or less with low-grade gold ore, seldom exceeding \$5 on an average to the ton. This was developed by a big open quarry, nearly 100 feet deep, 100 feet wide, and over 100 feet in length. As it was impossible to sort the ore, the quarry material was run from the mine direct by chutes into a large stamp mill and treated. Only by such development and treatment on a large scale was it for a time successful.

At Silver Cliff a horizontal body of rhyolite lava deeply stained with oxide of iron and manganese was found to carry near the surface, and more or less through its mass, very rich horn silver deposits. This plateau was forthwith worked over several acres by an open quarry from 20 to 50 feet deep, without any particular system or order until a zone was reached in which it is said the rich ore no longer continued. Some of the mines around Silver Creek are developed by an open cut like a railroad cut straight through a hill; others by an open, crater-like pit 75 or more feet wide and as many deep.—Mines and Minerals.

**KLONDIKE'S ESTIMATED WEALTH.**

Captain Healy, manager of the North American Transportation and Mining Company, estimates that the output of gold from winter drift mining was about \$2,000,000, and that from summer sluicing between \$500,000 and \$700,000. As to the probable yield for the coming winter and summer, the estimates depend upon the number of men that will be employed. If wages shall not exceed \$1 an hour, and no rich discoveries draw many men away, Edgar Mizner, the secretary of the Mineowners' Association, says the yield should reach \$11,000,000 from these sources: El Dorado, \$4,000,000; Bonanza, \$4,000,000; Hunker, \$1,500,000; small creeks and branches of these, and side-hill claims,