

Percentage of Gold.

There is one very marked defect in our system of gold mining that does not exist in silver mining, and which the sooner remedied the better. We refer to an entire absence of all positive knowledge as to what the ores being worked contain. The skillful silver miner, becomes daily, and often hourly, acquainted with the value of the ores being worked, and at the end of every run can figure up the percentage obtained and lost. If a large loss he immediately begins to investigate the cause and seek a remedy.

This is not the case with gold miners, who are usually perfectly oblivious of what their ore contains, contenting themselves in cleaning up what they can and considering it the best they can do. In this they may be right and may not, as they have no reliable data to work from. Possibly were they to adopt the course pursued in silver mining, they would often be aroused to an effort for bettering their results, if they found a serious loss was being sustained.

It is asserted by Mr. Almarin B. Paul, the inventor of the Paul process of dry amalgamation, that the gold mills of California do not on the average obtain over one-third of the value of the ores. This conclusion is arrived at after ten years' experience on ores from all sections of the State, and hundreds and hundreds of assays and other tests which he has made during this time. Mr. Paul is not alone in this opinion, but other of our oldest and most practical men hold to the same belief.

The opinion of many quartz miners is that they save from fifty to sixty per cent., but opinions as against positive critical investigations are not to be received.

Which view may be correct, we hope our gold miners will endeavor to determine by adopting such a system of assays as is used in silver mining. It is this close critical investigation into what they are doing, which not only makes silver mining popular but makes the silver miner the best possible gold miner. His education is such that he investigates, and thinks it very singular that our gold miners know so little of the value of their ores except by comparison.

Gold miners may say gold assays are unreliable. It is not so much its assays as the manner of selecting the rock which is to be assayed. If it is desired to take the trouble to get at the value of the ores being worked, it can easily be done. But ores must not be selected from specimen pieces, or one piece made to answer for a whole batch. Several methods may be suggested. One is to have your feeder take a piece of ore of given size from every shovelfull he fills for the battery, and after these pieces have accumulated to a hundred pounds or more, have the entire lot pulverized, dry sampled and assayed. To be certain, have half a dozen assays made and average the lot.

Another and possibly easier, but not so correct way will be, to collect every half hour a bucketful of material as it flows from the battery, being as careful to retain the water as the crushed ore, for the reason that the water often contains as much as the sands. Continue this during a run. Allow the whole to settle well and then draw off the water carefully, dry the whole, mix well and properly sample for assay. This is but little trouble, and we think will tend to give our gold quartz miners some different views as to their loss and the value of their property.

Considerable data might be presented to support the belief in an unwarrantable loss of gold and lack of intelligent investigation in this direction among even our best gold miners; but, there now seems to be a general desire to better the past working, and we think that in endeavoring to awaken a renewed interest in investigation, considerable benefit will be the result. —Scientific Press.

The Toughened (Bastie) Glass.

Notwithstanding so much has recently been said upon the subject of the Bastie (toughened) glass, the general reader seems to be still eager to scan every new paragraph that finds its way into the public prints. Yielding to this general desire we note that another series of experiments with regard to the character of this glass has recently been tried in New York by Prof. Egleston of Columbia College before the New York Academy of Sciences.

The most wonderful characteristic of this glass, as developed by the Professor, was its marvelous power of resisting heat. In several of his experiments two thousand degrees of heat were directed on the center of a plate of prepared glass eight inches square, until at the point of contact with the flame the glass became red hot. The first plate was a poor one, and broke after being subjected to this heat for three minutes. The others were not broken by it. Ordinary glass stood such tests only eight seconds. The practical application of this was, that if a fire was started in a room with windows of this glass, the frame work of the window would burn out and allow the glass to fall before a draft would be created.

Lamp chimneys were then tested by using kerosene lamps with a combination of Bunsen burners, which threw a blue flame, showing that the heat was intense along the whole length of the tube and six or eight inches above it. Water was boiled in a vessel of this glass. The water boiled out and the vessel remained uninjured. The temperature of the vessel was then raised to 150 or 160 degrees and cold water was poured in with the expectation that it would crack the glass. But the water began immediately to boil, and the glass was unburnt.

ECONOMY IN RAILROADING.—While the gross earnings of all the railroads in the United States in 1874 were \$6,000,000 less than in 1873, the net earnings were \$5,500,000 more—the operating expenses having been reduced to the extent of \$11,500,000. This eleven and a half million dollars, as the annual savings in the cost of running the railroads of this country, means just so much money kept out of the pockets of dishonest contractors and managers and divided among the shareholders in dividends, or the people in the reduction of transportation. The improvement in the management may be fairly attributed to the clamor which has been raised within the two years just past against dishonest management, and the determined efforts manifested to inaugurate a reform in past abuses.

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