Water and Gold.

As we get more knowledge of working gold ores and more fully realize the importance and difficulty of saving the very fine gold which all of them contain to a greater or less degree, the more must we recognize the fact that the water on which we depend so much, is, in truth, a great thief. Practically all of the processes in vogue for working gold, either in placer or quartz, involve the liberal use of water. Yet where there is any fine gold the water will carry it off in greater or less quantities.

It will be surprising to any one who has never made the experiment to see how long very fine gold will remain in suspension in water placed in a glass or bottle. Not only for hours but for days can fine particles be discerned with a lens, still suspended in the water, when most of the gold has precipitated. If this is the case in still water, how much can the constantly flowing water in batteries or sluices not carry off? Aside from that "rusty" or coated gold which refuses to amalgamate, large losses are constantly going on by reason of the tendency of very fine gold to " float " or remain in suspension in agitated water. There are places in this and other countries where floats covered with sheepskins are placed in rivers to collect these floating particles of gold. How far from the source the gold will be carried no one knows, but that it will go a long distance is certain.

It is not too much to predict that as we become more economical and careful in our methods of working gold ores and other auriferous material, the greater will be the tendency to work such ores and material with as little water as may be. Perhaps the miners of the future will depend on a dry process as much as we do in these days on the wet ones. The objection to such dry methods as have been advocated are mainly because they are comparatively slow; but possibly we can make more money by doing things slower. There is no better amalgamator than the old-fashioned arastra, but it is not a machine that can be hurried to advantage. It is possible that the element of time in amalgamation has not been sufficiently recognized, Mexicans, who are good metallurgists, do not work ores as rapidly as we do, but they get more out of them as a general thing.

Much improvement has been manifest of late years in the working of gold ores, but it has been mainly in the direction of attention to details, care and less extravagance and waste. There has been no radical change in processes. We can work ores cheaper and to a higher percentage than formerly, so that mines that would not pay 10 or 15 years ago are profitable now. Yet there is still a percentage of loss, which we ought to stop. How much of this is due to the quantities of water we use it is difficult to determine. It is very well understood, however, that such ores as have much fine free gold are hard to work anywhere near the fire-assay value. All gold ores and earth have more or less fine gold, much of which we now lose by our methods. At any rate, if we get rid of using water, one well-known element of loss will be avoided .

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