

is added, after the ore has been brought to this condition, by straining through a dry cloth over the paste, one or two ounces of quicksilver for a charge of six and eight hundred pounds of ore. If free gold is found after the amalgamation has been some time in process, a little more mercury is added. After four or five hours the pulp is diluted with water, and discharged. This process is repeated until one hundred, or one hundred and fifty tons are worked through, the quicksilver always being added in proportion to the gold in the ore from one to one and a half ounces to each ounce of gold in the quartz. It is essential that the amalgam be dry, or else a loss of quicksilver, and an imperfect amalgamation, follows. How unlike this is to the practice in Nova Scotia, any one will see who has witnessed the usual process there.

From what has been said, it will appear that unless ores are very pyritous, and especially unless the quantity of arsenical pyrites is very great, the California method will obviate the use of any process of concentration by buddles or otherwise, and the "tailings" may be safely neglected. Such, I understand, is the latest California experience in quartz mining. The gold in the pyrites is mechanically but very minutely divided, and, unless it is brought into forcible contact with the mercury *by friction*, will not amalgamate.

Even those ores which contain gold in such a condition that it cannot be liberated by grinding, can be treated in the pans after roasting.

The process of separation of gold by chlorine, known as "Plattner's Process," is also very successful upon these sulphurets, and arseniurets which require to be roasted before treatment. It is a process which requires moderate chemical skill, but gives results even closer than those obtained by the pan process, especially if all coarse gold is first removed by mechanical means.

None of your ores appear to me to require this treatment, and it is therefore needless to give its details.

VALUE OF THE PYRITES IN THE TANGIER ORES.

The average quantity of pyrites in your ores is, to a good degree, a matter of conjecture, but it has been variously estimated

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