however, as yet, been constructed. The waste, after passing the buddle, is discharged into Rush Lake.

Taken as a whole, the crushing and amalgamating mill of the Company is a well-considered establishment, capable now of doing good work, and easily modified to meet the results of a more mature experience, without interruption of regular work.

ON THE TREATMENT OF THE ORES.

It is obvious, from what has been said, that the treatment of gold-bearing quartz earrying pyrites, in such a manner as to obtain from it the largest possible amount of the gold it contains, is by no means an easy problem. The gold in quartz is often so very fine as to be wholly invisible, even under a powerful microscope; in fact it is chemically jine, and may be compared to the condition in which this metal is precipitated from its solution by In this condition it will float upon water, and sulphate of iron. even when much coarser than this, as any one may satisfy himself by the simple experiment of stirring a leaf of gold-beater's gold in a glass of water. To bring gold in this state into contact with quicksilver, without loss of gold, requires peculiar and very nice mechanical arrangements. Then the coarse gold is sometimes "rusty," as the miners express it, that is, covered exteriorly by a film of oxide of iron, or of some other substance which cuts off' contact with the mercury, and so the gold escapes, not being amalgamated.

The gold which is associated *with pyrites* is obtained by the usual mechanical means, only very imperfectly; great loss of mercury follows the attempt at amalgamation, when the metal is associated with *arsenical* pyrites, and it is yet an unsettled problem how best to save all the gold in this association.

In California, according to the statement of KÜSTEL, the loss of gold by the amalgamation in battery with a copper-plated platform, with ores containing heavy gold, is from 35 to 40 per centum of the quantity shown to exist by the fire assay; but light gold gives a less favorable result. "A great many fine particles of amalgam adhere together, including also manganese scum. if preso ligeign r this a coppe Of

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