

clear ; the fine sands would require more water, less grade, and a large spread, while the slimes with a fluid pulp would be passed in a very thin stream over plates with a low grade. The condition of the amalgam on the different plates could then be kept suitable for each class of gold, being hardest for the coarse material and softer for the slimes ; a feature which would be impossible on the ordinary plate. By this method of working, plate amalgamation is carried out in a scientific manner, giving every particle that will amalgamate a chance to do so by proper contact, and at the same time reducing scour to a minimum.

The amalgamating-tables should be placed some distance from the crushing-machines so as to be free from vibration, and properly attended to without fear of injury from the rough usage they are likely to receive in the present mill.

After amalgamation, each product may be concentrated separately on suitably adjusted machines, and the tailings treated by cyanide ; the coarse and fine sands would be leached by natural percolation, and the finer slimes worked by the efficient but more complex filter-press process. After each treatment samples may be systematically taken, and assays would show the extractions being obtained and whether coarser or finer crushing is advisable.

The opinions expressed in this paper I have advocated for many years past, and feel certain that our present stamp-milling methods require improving in the direction stated. At the present time I am unable to enter more fully on this important subject, but hope this paper may induce others, who have probably better opportunities of doing so than myself, to experiment.

CONCLUSION.

In the following Appendix will be found—(a) the annual reports of the Inspectors of Mines, Wardens, Managers of Government Water-races, Government Geologist, and that of the Engineer for Water-conservation ; (b) the questions used at the last examinations of candidates for certificates of competency as mine-managers and battery-superintendents ; (c) a list of persons to whom certificates as mine-managers, battery-superintendents, and dredgemasters, have been issued ; and (d) the usual statistical returns.

I have, &c.,
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The Hon. the Minister of Mines, Wellington.
