and zinc, more attention should be given to their concentration and treatment, a subject that has received little thought in the past and generally they will be found a welcome asset.

The ore having been delivered at the Mill the next process is, to extract the gold as effectually as possible, and I would impress upon mining men that Amalgamation is a Science, and that it does not mean feeding so much rock under stampers with the addition of water to splash out the crushed particles, which are then conducted over some amalgamated copper plates. Any school boy or ignorant man can do that and catch a certain percentage of the gold.

The Science of Amalgamation is arresting and separating the last particle of gold that can profitably be extracted from the quartz rock, and I mean by this, that there is a point of gold saving, beyond which it costs more to extract the extra percentage than the value of the gold recovered.

The two first objects are to get the particles of crushed rock out of the mortar box, when reduced sufficiently to pass the screens without unnecessary pounding, and secondly to retain the gold in or as near the box as possible, and with this idea an amalgamated plate is generally placed inside the mortar box with quick silver being introduced at intervals on the crushed ore or pulp leaving the box, the great object is to check the forward flow of pulp as much as possible without causing it to silt, the tendency of a check being to precipitate any particles of gold either floating on the water, or held in suspension onto the amalgamated copper plate.

The advantages and disadvantages of introducing quicksilver into the mortar boxes, are much disputed, but I have found that with most ores it answers well, provided a copper plate is securely fixed at the back in a recess cast for the purpose but in case of introduction, it should be used cautiously, otherwise it will be flowured and splashed out onto the plates and probably a good deal will pass away into the tailings, as it is found flowured quicksilver will not readily remain on the copper plate.

In case of grease and oil getting into the box with the quartz, it is advisable to introduce common caustic soda every few hours, as this dissolves the grease and keeps the inside sweet.

For ordinary quartz, I find a drop of 8 9 inches 80 to 85 times a minute most effective, and with course gold a steel wire screen with 1000 holes per square inch, in some ores however, the gold is so finely disseminated, that 2000 holes is not too fine but the capacity of the mill is naturally reduced with the smaller mesh.

The pulp as splashed through the screens falls on a plate 10 inches wide inclined towards the battery, with a pitch of 1 in. 10 or 12 and is thus directed over a series of two ripples of quicksilver with a third one below empty, so as to catch any quicksilver washed over, and thus protect the plate which should be 4 feet long with two ripples below, the upper one only being filled with quicksilver, from here the pulp passes over a second plate 4 feet long and then is conducted to the concentrator.

Although there are numerous patents for concentrating they are mostly very expensive, and often decidedly complicated, and I find the old fashioned straight