

should be carefully sampled down to get a fair average for determination.

At the School of Mining at Kingston special arrangements exist for sampling large lots. The ore is first put through the crusher, quartered down on the sheet-iron floor, then further reduced by being run two or three times through adjustable rolls and quartered after each reduction. Finally it is reduced to a powder by means of the sample grinder, quartering on oil-cloth being again resorted to between each reduction by the grinder. The resulting sample taken is generally about seven pounds. From this about half a pound is quartered out for fire assay, and the remainder is kept for panning and amalgamation assays, if these are needed. In the case of a new ore, whose qualities are unknown, the amalgamation and panning assays are of great importance when a mill test is not made of the ore. Coupled with these a fire assay of the concentrates will, of course, be necessary. Where the character of the ore is known a fire assay of it is all that is necessary. In making a run of ore it should be carefully sampled by being collected every hour from the feeder, so that a check is kept on the result of the mill. The tailings, however, give even a more valuable check, and in tests of ore at the Mining Laboratory at Kingston they are caught every half hour. As the slimes from the tailings are evaporated nothing is allowed to escape examination.

With reference to sampling a vein or ledge for testing I shall merely make one suggestion. Where the sampling is not on a large scale, say such as testing the face of a drift being driven on the vein, it is sometimes thought that the drillings give the best average. My experience would lead me to doubt this, for the jar of the drill tends to make any particles of gold settle to the bottom, and, therefore, escape the scraper. The fairest average of a vein is undoubtedly obtained by picking or wedging across the whole face in several places and mixing the resulting ore. In getting ore from any mineral vein or deposit as a sample, what we are after is not mineralogical specimens, but an attempt to find out how many dollars can be obtained from a certain quantity of material which has been opened to view. How much more ground may be expected to yield similar results is a problem which geological knowledge and experience sometimes help the mining engineer to solve, but oftentimes he can see no further into rock than any other man.

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