by its greater specific gravity, which keeps it in the mortar for a longer time than the quartz and feldspar. This district is behind the times in some respects; there are no rock breakers nor automatic feeders, but the necessity for these is not so great as in mills of larger capacity and lower grade ores.

*Black Hills, South Dakota Practice.*—A marked difference is at once seen when comparing this with Gilpin County practice. The ore in the Black Hills is exceedingly low grade, averaging about 4½ pennyweights per ton, hence, if it is to be treated successfully the capacities of the mill must be large.

The gold is found in quartz and pyrites finely distributed through vast masses of mica and amphibole schists, and frequently impregnating the schists themselves. From a geological standpoint the region consists of an outcrop of Archaeon rocks, about 1½ miles long and ½ a mile wide, surrounded by later sedimentary rocks. The oxidized portions above water line are especially free milling, giving tailings that carry only 25 cents a ton, while from the unaltered ore they sometimes run as high as $2.25 cents per ton. A description of the Homestake mill will be typical of the whole district, as there is very little variation, and only in minor points.

The ore as it comes from the mine is thrown upon grizzlies from which the fine material passes directly to the ore bins. Until a few years ago the coarse ore was put through Blake crushers, the largest in the market having a receiving capacity of 9 inches by 15 inches. They were set to crush from 1½ inch to 1¾ inch stuff, and 8 of them working 20 hours a day easily kept 160 stamps supplied with ore. These have now been entirely superceded by the Gates gyratory crusher, which has a much larger capacity. In the Highland mill of 160 stamps, two No. 6 Gates crushers keep the batteries well supplied with ore. The feeding of the ore into the battery is done automatically. Both the Challenge and Tullock feeders are in use and give very satisfactory results. The mortars are small compared with those used in in Gilpin County. The inside bottom dimensions are, width, 10½ inches, length 50 inches, total inside height 47 inches. The depth of discharge varies considerably as the dies wear down, but in the Home-