

being three and a half and two and a half feet. The three succeeding tables are rectangular, and have respectively the lengths of seven, eight and six feet; their breadths being twenty-four, fourteen and twelve inches. In many stamps there are used besides fixed tables, others having an oscillating movement, which is in some cases lateral, in others backwards and forwards. Thus each battery of the De Wolf Company at Waverley has the first table fixed, while the three others below it are shaking tables, with a lateral movement."

"Steam power is employed for the greater number of the stamp mills of Nova Scotia. These of eight stamps I found to be worked by engines nominally of eight, twelve and twenty horse-power, and reducing from six to twelve tons of quartz in twenty-four hours. The mill of the New Haven and Renfrew Company has an engine of thirty, and that of the De Wolf Company one of fifty horse-power, the most powerful in the mining region, and capable of being employed not only to move the stamp mill, but to raise the mineral and the water from the neighboring shafts."

"The two largest mills of Nova Scotia,—that of Mr. Bürkner at Waverley, and that of the Ophir Company at Renfrew, are moved by water power. The first, which has during a long time, treated thirty-six tons of mineral in twenty-four hours, has probably done more work, and certainly furnished a greater amount of gold than any other in Nova Scotia. The water-wheel of the Ophir mill has a diameter of sixteen feet and a breadth of eight feet, divided into two series of buckets. The force of the fall is estimated to equal fifty horse-power. This mill, with twenty-four stamps, reduces from twenty-four to twenty-eight tons of quartz in twenty-four hours, works with great regularity, and is conducted with great skill by Mr. H. M. Huff. Besides the water power, this mill is furnished with a portable steam engine of seven horse-power, which heats the water for the batteries, turns a circular saw for cutting wood, and could be made, in case of need, to work two of the batteries."

"The amalgamation of the gold in the batteries during pulverization, is adopted in most of the mills of Nova Scotia. This requires the introduction into the boxes at regular intervals, of small quantities of mercury,—the amount depending on the richness of the mineral. At the Ophir Mine, there is added at the beginning of the operation and subsequently, every four hours, a spoonful of mercury. After several days working, however, if the mineral is not very rich, the quantity of mercury is diminished; but if the contrary is the case, the additions are made more frequently. In this connection, I cite some valuable details from the work of Mr. Arthur Phillips on *The Mining and Metallurgy of Gold and Silver*, recently published in London. I may, however, remark that with the exception of two not very satisfactory trials made at Wine Harbour and at Lawrencetown, the use of amalgamated plates within the boxes, has not been tried in Nova Scotia."

"When the method of amalgamation in the battery is adopted, the batteries are often provided with amalgamated copper plates about five inches in width, extending the whole length of the box; one on the feed side, and the other at the discharge,—the former being protected by the sheet-iron lining of the feed-hopper, and each having an inclination of from forty to forty-five degrees towards the stamps. When these plates are not employed, spaces for the accumulation of the amalgam are allowed between the dies and the sides of the box, and vertical iron bars are placed within the grating, between which the hard amalgam is found to collect. * * * * *

One ounce of gold requires for its collection about an ounce of mercury; but when the gold is in a finely divided state, the addition of another quarter of an ounce is thought to be advantageous. The proper proportion is, however, readily ascertained by watching the discharge. If any particles of amalgam, which may pass through, are hard and dry, a little more mercury must be introduced; but if, on the contrary, they be soft and pasty, or if globules of mercury make their appearance, the supply to the battery must be diminished. When the proportion of mercury has been properly adjusted, the amalgamation of the gold is completely effected, except in cases in which the ores contain large quantities of lead or antimony, and have been previously burned for the purpose of expelling their more volatile constituents, by which treatment, the particles of gold often become coated in such a way as to interfere with their combination with mercury. When the proper proportion of quicksilver has been regularly introduced, and the rock contains coarse gold, from sixty to eighty per cent. of the gold saved is caught in the battery;—but