to sink this shaft. The ground gradually improved, and at a depth of fifty-four feet presented an appearance exactly similar to the rich deposits previously excavated on the surface. This appearance has been most suitably and accurately described by Sir W. E. Logan as " a breccia or conglomerate, with a paste com- " posed of variegated and vitreous sulphurets of copper, mingled " with fine grained silicious matter, enclosing fragments of lime- " stone, some angular and some rounded, some of them almost " wholly calcareous and others largely silicious."* The average thickness of the bed in the ten feet thus sunk, was nine feet, the length of the shaft on the strike of the limestone, twelve feet. From the five cubic fathoms thus excavated, there were produced

$$1\tfrac{4\,4\,2}{5\,3\,7}\ \text{tons first quality ore of } 22.0 \text{ per cent.}$$
$$83\tfrac{4}{7}\quad \text{``}\quad \text{crush}\quad \text{``}\quad 4.5\quad \text{``}$$

These quantities, after allowing for the loss, correspond to 23.1 tons of 12 per cent ore, or 4.6 tons to the cubic fathom. The costs of mining the above five cubic fathoms, and bringing them to the surface, amounted to $133.33, which is equal to $26.66 per cubic fathom, and to $6.03 per ton of 12 per cent ore. Calculated at the above mentioned thickness of 1½ fathoms, a square fathom of the bed yielded 6.9 tons of 12 per cent ore, and cost $40. The sinking of No. 5 shaft was discontinued during the winter, but resumed during the summer, and at the end of July attained a depth of seventy-six feet on the incline. From it, at a depth of sixty feet, a gallery was carried towards the west, 30¾ feet; at which distance from the shaft the limestone was cut off by the hanging wall, every indication seeming to point out the presence here of a left-hand throw. This fault had a direction of N. 10° W. Some stoping was done both above and below this gallery. Up to the end of July there were excavated in shaft, drift and stopes, 65¼ cubic fathoms of ground. These yielded

$$53\tfrac{3\,2\,1}{5\,3\,7}\ \text{tons first quality ore of } 19.1 \text{ per cent.}$$
$$4\tfrac{4\,4\,4}{3\,3\,7}\quad \text{``}\quad \text{second}\quad \text{``}\quad \text{``}\quad 9.0\quad \text{``}$$
$$316\tfrac{4\,4\,2}{4\,4\,5}\quad \text{``}\quad \text{crush}\quad \text{``}\quad 3.95\quad \text{``}$$

which quantities correspond to $155\tfrac{4\,1\,3}{5\,3\,7}$ tons of 12 per cent. ore, or 2.38 tons per cubic fathom. The total expense of mining and raising this quantity was $1512.04; or $23.17 per cubic

* Report of Progress for 1858, p. 59.