

done by a pound, or any other given weight of coal consumed in working a steam engine ; since the quantity of water that the engine will raise to a given height, or the number of quarters of corn that it will grind, or, in short, the amount of any other description of work that it will do, is proportionate to that duty. As the principal working of mineral veins can only be continued by descending deeper every year, the difficulty of extracting metals is continually on the increase, and can only be overcome by those en-

in Cornwall, of which Mr. Taylor considers the average duty, under ordinary circumstances, to be above 90,000,000 ; and which has been made to lift 97,000,000lbs of water one foot high, with one bushel of coals.

The effect of these improvements on the operations of mines, in facilitating their drainage, has been of inestimable importance in extracting metals from depths which otherwise could never have been reached. Mines which had been stopped from want of power, have been reopened, others have been materially deepened, and a mass of mineral treasure has been rendered available, which without these engines must have been for ever inaccessible.

It results from these rapid advances in the application of coal to the production of power, and consequently of wealth, that mining operations of vast importance, have been conducted in Cornwall at depths till lately without example, e. g. in Wheal Abraham, at 242 fathoms, at Dolcoath at 235 fathoms, and in the Consolidated Mines in Gwennap at 290 fathoms, the latter mines giving daily employment to no less than 2500 persons.

In the Consolidated Mines, the power of nine steam engines, four of which are the largest ever made, having cylinders ninety inches in diameter, lifts from thirty to fifty hogsheads of water per minute, (varying according to the season) from an average