

Diamond rock boring machine

Ulverston Mirror 13/1/1871

A Valuable machine. On Friday, in last week, Messer's Hannay, Brogden and other Gentlemen of the town and neighbourhood, met at Lindal, to witness certain boring operations, conducted under the superintendence of Captain Beaumont, the patentee of the diamond rock boring apparatus. The machinery is very simple, and the experiments were completely satisfactory. In order to describe the borer, we may state that at the end of a hollow steel tube, similar in size to one of the gas pipes laid in the public streets, and round the edge thereof, are fixed eight small diamonds. This tube, like the ordinary boring chisels, can be lengthened by the addition of other pieces, as it forces its way through the earth. A spur wheel, driven by a small engine, causes the diamond tube to revolve at a great speed, and under the power applied it perforates the hardest obstacle without in any way injuring the machinery. As an instance of rapidity with which it works, we may state that in four minutes it cut through 3 feet of mountain limestone. It can bore to any depth at an expense comparatively trifling. The rock, or other material, as it is cut, is forced up the hollow tube, which, from time to time has to be emptied, the rock coming out in solid pieces, like pillars. The machinery, we believe, is still at work for Mr Brogden in a field between Dalton and Lindal, and it fully answers its purpose. Of course, boring will now come general. Not only will iron ore be "scratched" for, but solid rock will be pierced in search of the valuable commodity. We fancy, too, that in time an adaptation of the principle to assist miners in their boring for blasting purposes, underground, will come into use. The weary labour of driving blast holes will thus be done away with by machinery worked on the principle of the diamond-boring machine. Of this we may rest assured- the hematite trade will now be developed to an extent hitherto scarcely dreamed of.

Ulverston Mirror 3/2/1872

The boring operations with the diamond rock borer at Lindal Cote, on land leased to Messer's Brogden and Sons, have been very successful. Up to last evening, the machine had reached a depth of 287 feet, the last 13 feet being in ore of the Whiteriggs Vein, thus realising the object for which the borer was employed.

Ulverston Mirror 10/2/1872

Mining operations at Furness The diamond rock borer. The enormous and unprecedented demand for the Ulverston hematitic iron ore, which contains in many instances 90% of metal, during the last year has stimulated the Furness iron masters to redouble their exertions to keep up the supply. Steam boring machines had a few years ago superseded the old fashioned and slow process of hand boring, but it was till very recently that more decided measures were attempted to try over the ground in the neighbourhood of rich deposits, as well as new field of work. On the 18th December 1871, the diamond rock borer, (Captain Beaumont patent) worked by the Machine Tunnelling Co., London, were first brought into play. The place selected for operations was Lindal Cote, near Ulverston, at the mines of Messer's Brogden. These were conducted under the superintendence of Mr J Vivian. The principle feature of the machine is the boring bar of steel, 1 ¼ inches in diameter, studded at intervals on the circumference with black diamonds (carbonites). The core of the bar measures 1 1/8 in. diameter, leaving 1/8th of an inch to be forced down to bring up the debris.

This being the first time this process has been used in seeking for the hematite ore, the proceedings have been well regarded with great interest by all the leading proprietors in the neighbourhood, as well as the trade in general. The boring apparatus is worked by a 8 horse portable engine, and is calculated to perforate from 10 to 20 feet per day, but in a consequence of the weather having been so unfavourable, and the persons who were employed new at their work with the machine, the results have not been so great as might have been expected. Still, all that has been done is very encouraging, and promises to inaugurate a new state of things in this wonderfully rich iron ore country.

At first, 25 feet of alluvium were gone through with the tube; then 251 feet of hard carboniferous or mountain limestone when ore was struck, and the borer went through 31 feet; next 3 feet 6 of mountain limestone; and again into the hematite ore; where it went through more than 6 feet of what promises to be a good deposit. At this depth of 310, the boring goes on at no greater rate than 10-12 feet per week. It brings up solid cylindrical pieces of rock of all the strata it passes through, and thus shows a section of them much better than any old plan. The bar works with a rotary motion, and insinuates its self slowly but surely through the hard and solid rock- something like a cheese taster. Occasionally, when it comes into contact with quartz the resistance is so great that the diamond now and then detaches itself

from the bar, but as a rule, the apparatus succeeds remarkably well. It is about to be used in the search for coal which has been energetically carried on hereabouts for the last few years.