

drift to it. And knowing the distance exactly, and the kind of rock intervening, we were able to let the driving of this by contract and on very reasonable terms.

I regret, from the fact of our boring operations being yet incomplete, that I am not at liberty to give full figures and details, but hope on some future occasion to return to the subject and publish a full account of this work, which has proved valuable and interesting to me, and may be of use to other phosphate miners.

I will therefore conclude with some description of the machine in use at our mines, which has given the greatest satisfaction, absolutely costing nothing in repairs during the six months we have had it in daily use.

The diamond drill we have in use is the Bullock drill and of the prospecting type, it is capable of boring holes up to a depth of 1,200 feet; in hard rocks such as gneiss or diorite it will bore at the rate of about 20 feet per day of ten hours, and in phosphate, one foot in three minutes, and it requires about four horse-power to drive it efficiently. It bores holes of $1\frac{3}{4}$ inch in diameter bringing up a core 1 3-16 inch diameter.

The motive power is supplied by a pair of light and compact trunk engines, fitted with slide valves of novel construction, which permit the using of the smallest possible part, and reducing the clearance to a minimum, thus effecting a large saving in the use of compressed air.

It is light and portable and can be used with equal convenience on the surface or underground, and will bore in almost any direction.

It is unnecessary to give further particulars here, and I will therefore refer enquirers for more to the catalogue of the makers.

Finally, however, I desire to express the opinion that the diamond drill is equally useful in prospecting for mica, graphite and all minerals of more or less irregular occurrence.

As a mining tool in every-day operations it is of the greatest value—in testing ground ahead, in sinking, driving or stoping, and it is not infrequently used in boring blast-holes as well.
