

CHAPTER XVIII.—THE KIND OF TOOLS BY WHICH THE CUP AND RING CUTTINGS WERE SCULPTURED.

It has been argued that such sculpturings could not belong to the distant and so-called Stone age in archæology, because they could not have been cut except by metallic implements. In speaking, for example, of some sculptured stones in the sepulchral chambers and cromlechs of Wales and Brittany, Dr Lukis observes that it is difficult to conceive the possibility of the stones being cut by any but metallic tools (*Archæologia*, vol. xxxv. p. 250). MM. Merimée and Closmadeuc express a similar opinion as to the impossibility of sculpturing the stones of Gavr Inis without metallic implements (*L'Ile de Gavr Inis, &c.*, p. 14).

In most localities the ring and cup cuttings are found chiefly, and in some instances solely, carved upon the comparatively soft and easily worked sandstone rocks of the district. In Northumberland, as already stated, all the sculptured rocks hitherto discovered are sandstone, while the older and harder rocks in the neighbourhood of the sculptured stones show no markings whatever. But in other localities the rings and cups are engraved on stones and rocks far more difficult to cut, as on whinstone in the cromlech near Ratho; on dense schist as in Argyleshire; or on hard primitive granites, syenites, &c., as on the stones at Rothiemay, Midmar, &c. The presence, however, of the rings and cups upon these harder and more primitive rocks does not necessitate the knowledge and the use of metallic tools on the part of the sculptors. For I have found experimentally that the rings and cups can be engraved deeply and without difficulty upon the Argyleshire schist, and even upon hard Aberdeen granite, with a flint celt and a wooden mallet. In the Edinburgh Antiquarian Museum there is a block of grey Aberdeen granite from Kintore, forming one of the sculptured stones of Scotland, and containing upon one side two crescents, &c. (See it figured in Mr Stuart's "Sculptured Stones of Scotland," pl. cxi. fig. 3.) On the back of this hard granite Mr Robert Paul, the doorkeeper of the Museum, tried for me the experiment I allude to, and cut, in two hours, two-thirds of a circle with a flint and wooden mallet. The flint used was about three inches long, an inch in breadth, and about a quarter of an inch in

thickness. The circle which he sculptured with it in the granite was seven inches in diameter; and the incision itself was nearly three quarters of an inch broad, above a quarter of an inch in depth, and very smooth on its cut surface. In hewing out the circle with the flint, its sharp tips from time to time broke off, but another sharp edge was always immediately obtained by merely turning it round.

The result of this simple and decisive experiment seems to me to be important, as showing that if these archaic cuttings could be sculptured alike either by stone or by metallic tools, their mere character and form afford no evidence whatsoever that they were not carved till after the discovery and use of metallic implements. In other words, the experiment shows that they might have been produced before the introduction of metals—or during the Stone age.