

SCOTTISH BOULDERS

THE first Report of the Committee appointed to collect statistics as to boulders, has been recently issued by the Royal Society of Edinburgh, and contains much that is interesting both to the geologist and archæologist. The first object of the committee, and that to which their labours have as yet been solely directed, has been to ascertain the districts in Scotland where any remarkable boulders were situated. Their second object will be to select those which might be deemed worthy of preservation, with the view of requesting landed proprietors and tenants of farms not to destroy them. The committee sent out a printed list of queries, applicable to boulders apparently above 20 tons in weight, one of the queries being directed to ascertain the occurrence of "kaims" or "eskar," *i.e.* long banks of sand or gravel. The following are some of the most important results educed by the inquiry:—

"1. From a tabular list we learn that Aberdeenshire possesses the largest number of boulders, and also the boulders of greatest magnitude. Ross and Cromarty stand next, then Perth, Argyll, Inverness, Kirkcudbright, and Forfar.

"2. In regard to size, the largest boulder reported is one of granite, in the Parish of Pitlochry, called 'Clach Mhor' (big stone), being about eight yards square, and estimated about 800 tons. There are two boulders between 500 and 600 tons weight, one in Ross, the other in The Lewis. There are three boulders, between 200 and 500 tons, seven between 100 and 200 tons, twenty between 50 and 100.

"3. With regard to the nature of the rocks composing the boulders, the largest reported are of granite, though there is one known to the convener of the committee, still larger, of conglomerate, in Doune parish. The most numerous are composed of compact greenstone; but these are generally of small size. The next most numerous class are of grey granite. There are also many of gneiss, graywacke, and conglomerate.

"4. The boulders reported generally differ in regard to the nature of the rocks composing them from that of the rocks of the district in which they are situated; and, in many of the reports, reference is made to the district from which the boulder is supposed to have come. Thus, in those parts of Perthshire, Forfarshire, and Kincardineshire where the Old Red sandstone formation prevails, and over which multitudes of granite, gneiss, and conglomerate boulders are lying, most of the reporters have no hesitation in pointing out that the parent rock is in the Grampian range, lying to the north or west. So also in Wigtonshire, where the graywacke formation prevails, and on which many boulders of grey granite are lying, the general opinion is that they came from the granite hills of Kirkcudbrightshire.

"5. The boulders mentioned in the reports are of various shapes. Some approach a cube, well rounded of course on the corners and sides. That is the shape mostly possessed by granite boulders. Others again are of an oblong shape, and this is particularly the case with whinstone and graywacke boulders. A point of some importance occurs in regard to oblong-shaped boulders. The direction of their longer axis, in the great majority of cases, is stated to coincide with the direction in which they have come from the parent rock, when the situation of that rock has been ascertained. Thus in Auchterarder parish, there is a boulder 10 ft. long by 6 broad, the longer axis of which points north-west. In Auchtergaven parish there is a granite boulder 10 ft. long by 8 ft. broad, the longer axis of which points due north. In Memuir parish, Forfarshire, there are two large granite boulders, the one 14 ft. by 9 ft., and the other 13 ft. by 9 ft., the longer axis of which points north-west. In each of these cases the reporters seem satisfied of the situation of the parent rock, and in each case the longer axis of the boulder points

towards it. It appears, also, that where there are natural striations or ruts on the boulders, these almost always run in a direction parallel with the longer axis; and that when there are striæ crossing these the number of such oblique striæ is comparatively few.

"6. Notice in the reports is taken of the remarkable positions occupied by some boulders. Thus, the Ardentiny report refers to a large boulder called 'Clachan Udalain,' or the nicely balanced stone, so called, as the reporter states, because 'it stands on the very edge of a precipice, and must have been gently deposited there.' On Iona, near the top of the highest hill in the island, which is about 250 feet above the sea, there is a great boulder of granite. There is no granite in the island. The nearest place where that rock occurs is in the Ross of Mull, &c., with an arm of the sea intervening.

"7. With regard to kaimes or long embankments of gravel or sand, there are twenty-three parishes reported to the Committee as containing them. They appear to be most numerous in Aberdeenshire, Forfarshire, and in the east of Perthshire. In Kemnay parish there is a kaim said to be $2\frac{1}{2}$ miles long, running east and west. In Airlie parish there is a kaim 2 miles long, also running east and west. In Fettercairn parish, Kincardineshire, and also in Tarbet parish, Ross-shire, there are several kaimes parallel to, and not far distant from, one another."

The committee proceed next to notice points of archæological interest connected with boulders, and are surprised at the large number of them possessing names by which they are known in the districts to which they belong. The names may be classified under several heads:—First, there are names having reference to the agency by which the boulders were supposed to have come into the district. Second, there are names indicative of the use to which boulders were put. Third, there are names making the boulders commemorative of certain events. Fourth, some boulders form such prominent landmarks that they have been used to mark the boundaries of estates, parishes and counties, and are still in many parts of Scotland recognised as affording evidence on that subject. On these points the committee give some very curious information which must be highly interesting to archæologists, and indeed to all who take an interest in the history of the race.

Great numbers of boulders have legends attached to them, one of the commonest being that the boulder was thrown to the spot where it lies by some giant, demon, or even by "Auld Nickie Ben" himself, for some wicked purpose of course; and it is very interesting to notice, that almost invariably, the place from which the legend says the huge stone was thrown, is the nearest spot containing the formation to which the boulder belongs. It is well known that, as a rule, boulders differ from the formation on or in which they are found, and in reference to what we have just mentioned, the place from which the giant or devil took his throw is often at a very considerable distance, sometimes on a different island. For example there is a large conglomerate boulder near the top of a hill, in the island of Edag, one of the Orkneys, which goes under the name of the "Giant's Stone." The legend says it was flung by a giant from the island of Stronsay; now there is no conglomerate rock which could have supplied the boulder in Edag, though there is in Stronsay.

The British Association at its last meeting so highly approved of the scheme of the Royal Society of Edinburgh, that it appointed a committee of some of its most influential geologists to carry out a similar scheme for England and Ireland.

The committee are very anxious that the boulders reported on should be examined by experienced geologists, who may be visiting the districts where they are situated, and are willing to lend the reports they have received on condition that the results of the inspection be made known to the committee.