The Minerals of the Treshinish Islands.

By Prof. M. Forster Heddle, F.R.S.E.

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THROUGH the cordial assistance and generous hospitality of Mr. Brown, of Dunipace, formerly a member of the Mineralogical Society, I have lately been enabled to add very largely to the list of mineral localities in the Western Islands of Scotland.

Mr. Brown most ardently associated himself with me in my special pursuit, throughout the whole time when I was his guest during two yacht voyages,—visiting every island where there appeared to be any hopes of "a find," and revisiting such localities as had been already noticed by Macculloch or others.

I now lay before the Society a bare rescript of my notes on the Treshinish Islands, near Mull, as these will suffice to indicate the large amount of new information connected with the trappean islands generally which is now in my possession.

Our previous knowledge as regards these Treshinish Islands is, so far as I am aware, confined to the following statement regarding them in Macculloch's first volume :—

"The geological history of these islands is comprised in a few words. "They are all formed of trap rocks. The uppermost bed, where two are "visible, consists of basalt, having a perpendicular fracture but no "columnar forms. The second is an amygdaloid, containing indifferent "specimens of mesotype and analcime ; and where, as in some places, a "still lower bed is accessible, it is a repetition of the upper basalt."

Avoiding all geologic considerations, my notes on the minerals are as follows :—

Bachd More.—"The Dutchman's Cap." At the south-east corner in the lowest visible bed—a soft "basalt"—scolezite. In an overlying amygdaloidal bed, and markedly at the upper surface of that bed, very fine specimens of analcime *overlying* stilbite, and generally covered by "cottonstone" (mesolite).

At the summit of the island, in a disintegrating amygdaloid, analcime, and rarely chabasite, but in separate cavities.

The intervening bed of "basalt" appeared to be barren.

Bachd Beg.—Poor specimens of analcime, and of stilbite.

Lunga.—On the east side of its southern extremity, in amygdaloid, analcime *per se*.

Other cavities contain :—

Faröelite, scolezite, and analcime.

Faröelite, scolezite, and gyrolite.

Faröelite, scolezite, and stilbite.

The island closest to Lunga to the north, Sgeir a Chaisteal, contains at its south-east corner fine analcime ; and in other cavities chabasite *over* scolezite.

At its north-east corner it contains gyrolite.

The islet nearest to Fladda Sgeir an Our yielded nothing.

Fladda.—At its east-south-east corner, in the lowest visible bed, some cavities contain gyrolite overlying mesolite ; others have in addition apophyllite, which overlies the gyrolite.

An overlying basalt bed is apparently barren.

The next tufaceous bed contains cavities at its upper surface only ; some of these are solidly plugged with scolezite, analcime, and " cotton-stone " ; while others carry chabasite in simple twins, *overlying* scolezite.

The upper bed of basalt contains gyrolite only, and that rarely.*

Cairn a Burgh More and *Cairn a Burgh Beg.*—On the east side of both, in the lowest soft basalt bed, gyrolite over faröelite.

There are some points of interest in this record.

One is the frequent occurrence of gyrolite. There are but four localities in Scotland given for this mineral in Messrs. Greg and Lettsom's work —three of these on the authority of the present writer. Since its publication, I have found the mineral in twelve new localities only, in examining the extended shore-line of our western trap islands : and yet here, in a stretch of some half-dozen miles, we have five or six additional localities.

I still regard gyrolite as being, with the single exception of epistilbite, the rarest of the Scotch zeolites, and very much the most difficult to obtain in even fair specimens—now that the Skye localities are exhausted. Here, as elsewhere, the collector must not expect to gather good specimens unless he carry ponderous hammers and chisels, and can devote considerable time to the extraction. Indeed, the occurrence here of good specimens is, so far as I could ascertain, very questionable, as the apparently large druses which are seen prove, upon being excavated, to be for the most part little better than flat scales. They occur within an inch or two of the upper

* There is a small well-sheltered cove on the north-west side of Fladda, in which small craft, up to eighteen tons or so, could lie; and a rock-cave near its head is comfortably covered over at its entrance.

surface of a dense though somewhat soft bed of amorphous dolerite ; they have a form which is similar to the vesicles of air which collect beneath the ice of a frozen pond : and they convey to the mind very forcibly the impression that pre-existent vesicles of aqueous vapour had risen through the substance of a plastic flow until they had been arrested, and had been at the same time flattened horizontally, by coming in contact with a chilled and rigid crust.

The dominance of plugged steam-pores in the *upper* portion of the amygdaloidal beds is beautifully apparent in these islets, and tells its own tale simply and unmistakeably.

The writer obtained one specimen of gyrolite which has crystals which show definite faces, and hence he has hopes of being able to determine the crystalline form of the species.

The frequent occurrence of scolezite, elsewhere rare in Scotland, next calls for remark.

Another point of interest is that, in the cases indicated in the foregoing list by *italics*, the order of formation—solidification—deposition—or whatever term is most fitting—of the several zeolites—*i.e.* from without inwards to the centre of the druse, is sometimes departed from.

This order may be said to be an absolute one. It is a rule exemplified, I find, by numberless examples, and it is a subject which cannot but throw much light upon rock decomposition.

It is a subject, however, in which fixed chemistry must go hand in hand with speculative geology, and so I must not enter upon it here, the more so that it stands apart from the purpose of this note, which is to show that much yet remains to be done in the working up of mineral localities.