

Notes on Northern Minerals.

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Barytes at Loch *Bhrùthaich* (Bruiaich).

MY attention was first directed to this rock by Mr. Cruickshank, clerk of works at Beaufort Castle, in July of last year, when, from the description he gave of it, I ventured to pronounce it barytes. Specimens were soon after this put into my hands by Mr. Cruickshank, when I found that my conjecture was a correct one. There was another mineral associated with the barytes, of which we will speak afterwards. The specimens received were so very fine, that I resolved to visit the locality to be able to describe its surroundings and procure specimens for myself. This I did in May last in company with two of my colleagues and Mr. John Ross, one of Lord Lovat's gamekeepers, and who I believe was the first to call attention to this new locality.

General Description of Locality.

Loch Bruithaich, on the south shore of which this rock was found, is on Lord Lovat's property, and situated nine miles west of Beauly, with no regular road, however, within four miles of it. It lies encircled by hills in the very centre of one of the most interesting districts in the north, whether looked at geologically or archæologically; but more especially the latter. The entire district is literally covered with tumuli, hut-circles, vitrified forts, and cup-marked stones. Every rising ground, in fact, seems to have been occupied as a place of defence by the primitive Celtic inhabitants. The loch is 942 feet above average sea-level, and contains an island with the remains of a crannoge, the position of which will be easily found with the aid of the accompanying map.

Geology.

By reference to the same map, the whole district from Beauly to the loch will be found covered with Old Red Sandstone. Around Beauly it furnishes capital building materials, the whole of Beaufort Castle, lately reected, being built of it.

As we proceed westwards, the lower Old Red Conglomerate begins to show itself at the surface at Kilmorack, and continues westward to Loch Bhruthaich, where it is bounded by the underlying metamorphic rocks. The old red surrounds the loch on the north, south, and east, while the west is bounded by the metamorphic rock. We might almost say that this loch occupies a basin in the Old Red Conglomerate measuring $1\frac{1}{4}$ miles long by half a mile broad.

The barytes is interbedded with the conglomerate at the south-east corner of the loch. It is exposed on the face of the cliff, and can be traced into the loch for a distance of twelve or fourteen yards.

Both conglomerate and barytes dip to the S.S.E. at an angle of 56° .

The thickness of the barytes bed varies from 12 to 14 or 15 inches.

It has an associated mineral of a semi-transparent nature, very friable, and one or two specimens showed a bluish tint resembling fluor spar.

I have sent specimens of both minerals to Mr. Ivison Macadam, who has kindly undertaken an analysis of them, which I hope will be in time to accompany these notes.

The only other locality known to me in the north where barytes is found is in Gollachy Burn, in the parish of Engie, Banffshire.*

This is one of three places north of the Grampians where we have contemporaneous volcanic rocks in the lower Old Red Sandstone. The other places are Rhynie, near Huntly, and the Shetland Islands.

At Gollachy, a thin vein of barytes runs through the broken rock that overlies the bed of diabase-porphyrite.

NOTE.—Mr. Anderson, in his *Guide to the Highlands*, says:—"Near Little Struay, half a mile from the bridge, a lead mine situate in a thick vein of heavy spar, traversing gneiss, was some years ago (1847) opened by Lord Lovat, but for the present it has been abandoned."

Graphic Granite.

The gneiss of Kirkhill differs petrologically in different localities. At one place it is a hard compact contorted rock; at another it can be split into good roofing material; at another it assumes the form of a highly brecciated granitic rock, which in many places develops into graphic granite.

The arrangement of felspar in the latter is peculiar, being broken up

* *Geol. Trans.* Vol. iii. Part iii. p. 336.

into small pieces, which assume a laminar structure. This arrangement of the felspar with the quartz filling up the interstices produces the graphic form of granite. According to Lyell, "the crystals of felspar appear to have been formed first, leaving the space between them now occupied by the darker coloured quartz."

The other localities known to me in the north are Portsoy, Foyers, Lentrán, Rispond (Durnen), Lairg, and Ach-na-laich (Ardron).

Limestone of Kirkhill.

There is a considerable development of limestone interbedded with the metamorphic rocks of this district. Quarries have been wrought, but now entirely disused, at Kirkton, Blair-na-henachie, Wester Chines, and Rebeg.

At the latter place this industry was very successfully carried on for a good many years. The kilns were very skilfully constructed on an unusually large scale for this district. Great quantities were shipped, and for this purpose a canal was cut by the late proprietor.

The lime from this quarry was particularly adapted for building purposes.

The same limestone is found in Glenurquhart, Foyers, and Strathnairn.

It presents a variety of character, from soft argillaceous to highly crystalline forms. Different minerals are found associated with it in several places:—

At Wester Chines	...	...	...	Tourmaline.
,, Rebeg	...	...	...	Abriachanite* and reddle or raddle.
,, Foyers	...	...	...	Graphic Granite.
,, Glenurquhart	...	...	...	Allanite, pyrrhotite, sphene, zoisite, kyanite, Edenite, tremolite, actinolite, &c.

* For analysis see *Min. Mag.* Vol. III. pp. 65 and 66.