Baryte and fluorite from Loch Bruicheach, Beauly, Inverness-shire.

By Sir Arthur Russell, Bart.

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LOCH Bruicheach (One-inch Ordnance Survey of Scotland, popular edition, sheet 37; Six-inch Inverness-shire, sheet 18) is situated 7½ miles (about 9 miles by road) south-west of Beauly and is best reached by taking the road from that town to the keeper's house at Clunevackie and thence by a track to within about half a mile of the actual locality, a low cliff bordering the north-east shore of the loch. Attention was apparently first directed to the locality about the year 1884 by a Mr. John Ross, one of Lord Lovat's gamekeepers, and Mr. Thomas D. Wallace of Inverness, having received through him specimens from there of baryte and a mineral which he, Mr. Wallace, recognized as resembling fluorite, visited the spot with Mr. Ross in May 1885. In August of the same year Mr. Wallace gave a description of the occurrence in the pages of this Magazine,[1] and in July 1886, also in this Magazine, there appeared a note and analysis of the fluorite by Professor W. Ivison Macadam of Edinburgh, who in collaboration with Mr. Wallace proposed for the mineral, without any sort of justification, the name bruiachite.[2] Macadam's analysis of the fluorite was very inaccurate and showed only 10 % of fluorine. In 1889 Professor M. Forster Heddle, at the instigation of Dr. T. Aitken of Inverness, made a satisfactory analysis and determined the optical characters of the so-called bruiachite, a second analysis being made by Mr. J. Stuart Thomson, and the results were embodied in a paper in which it was shown that the mineral was a perfectly normal fluorite.[3]

The following notes are based on specimens of baryte and fluorite which I collected at Loch Bruicheach in the summer of 1935. On the north-east shore of the loch a low sloping cliff formed of coarse conglomerate belonging to the basement bed of the Old Red Sandstone resting on schists of the Moine series, is traversed by a nearly vertical vein of baryte carrying small strings of fluorite. This vein has a north-east direction and a width of from one to two feet and is exposed for a few yards only on the sloping cliff face. Mr. Wallace claimed, however, to have traced it 'into the loch for a distance of twelve or fourteen yards'.

The baryte is pink in colour and fills the entire vein with compact banded somewhat radiating concentric layers, between which, in places, are comb-like layers of white to colourless highly crystalline fluorite 2 cm. to a mere thread in thickness. The thicker layers of fluorite are invariably divided by a medial line sometimes amounting to an open crack, and curiously enough this often actually divides the individual crystal segments forming the comb, suggesting

[1] T. Wallace, Notes on northern minerals. Min. Mag., 1885, vol. 6, pp. 168–169.

[2] W. I. Macadam, On the chemical composition of the mineral bruiachite, found by Mr. Thomas D. Wallace, of Inverness, at Loch Bhruithaich, Inverness-shire. Min. Mag., 1886, vol. 7, p. 42.

[3] M. F. Heddle, On the identity of bruiachite and fluor. Min. Mag., 1889, vol. 8, pp. 274–277.

that the crack was formed subsequently to the filling. On free surfaces the baryte has a tendency to form cock's-comb aggregates of crystals. One narrow cavity in the vein was found to be lined with a crust of small but very beautiful crystals of baryte. These crystals are colourless and extremely brilliant, though 'en masse' they appear somewhat yellowish from an underlying rusty coating on the massive baryte and fluorite. They attain a length of 5 mm., are doubly terminated, and lie in parallel position with in some cases a concentric arrangement and the large faces of (102) usually uppermost. They are elongated in the direction of the *b*-axis and show the forms[1] *a* (100), *b* (010), *c* (001), *m* (110), *d* (102), *κ* (130), *o* (011), *r* (112), *g* (113), *z* (111). The face (102) is always very prominent, the other faces varying much in development. Figs. 1 and 2 represent two typical measured crystals drawn with (010) in front in order to better show the development.

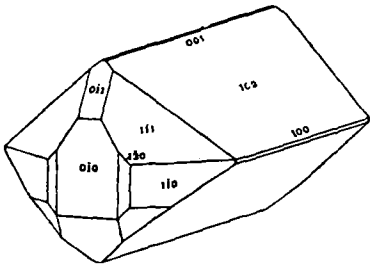

FIG. 1.

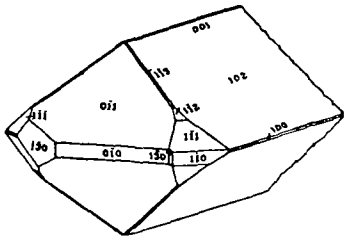

FIG. 2.

FIGS. 1 and 2. Crystals of baryte from Loch Bruicheach, Inverness-shire.

In addition to the colourless fluorite, this mineral rarely forms bluish-lavender crystalline layers up to 5 mm. in thickness between compact pink and buff-coloured sandy baryte. More rarely still the layers of colourless fluorite contain little cavities lined with small yellowish or white cubes up to $2\frac{1}{2}$ mm. along the edge, with crystals of baryte. No trace of any metallic mineral was observed in the vein.

[1] Axes of reference ($a : b : c = 0{\cdot}8152 : 1 : 1{\cdot}3136$) and letters as in Dana's System of mineralogy, 6th edit., 1892, and V. Goldschmidt, Atlas der Krystallformen, 1913, vol. 1.