
Excursion 7 Ring intrusions of Centre 3

(Map) Map of the Tertiary igneous complex of Ardnamurchan

The purpose of this excursion is to examine the more important ring intrusions ascribed to Centre 3 and the dramatic effect these rings have had on the topography of the area.

Take the road from Kilchoan to Sanna to the bridge across the stream Amhainn Chro Bheinn at the first sharp left bend beyond the junction with the Lighthouse road.

Locality 1 [NM 476 650]

Just past the stream there are several roadside exposures where it is possible to examine the outer-most ring intrusion of Centre 3, the quartz-gabbro of Faskadale. Travel north from here through the wide ring intrusion of the Great Eucrite and park beside the road just to the west of Craig an Airgid (see coloured map).

Locality 2 [NM 472 668]

To the east of the road on the western slopes of Craig an Airgid the exposure of eucrite is good and there is much evidence of ice action. The eucrite can be most easily separated from quartz-gabbro in hand specimen by having more plagioclase feldspar and less magnetite. The eucrite, which is extensively exposed and occupies higher ground, can often be distinguished by its weathering to almost "purplish" colour. From the summit of Craig an Airgid there is an excellent view across the complex of Centre 3 if visibility is good.

On the western side of the road (about 200 m from the road) is an excellent exposure of the quartz-dolerite veined with granophyre, forming a small knoll surrounded by boggy ground. There is also some net-veining of the dolerite by the granophyre. The very sharp contact between the dolerite and the later granophyre is very noticeable, but the granophyre lacks a chilled edge against the dolerite. Analyses of the dolerite and granophyre show no discernible change in chemistry of either rock type at the contact (Walsh 1971). This is despite the considerable difference in chemistry of the two rocks, the dolerite containing about 51% SiO₂ whereas the granophyre has about 72%. The dolerite veined with granophyre occurs as an incomplete ring intrusion and its exposure is intermittent.

Continue northwards along the road, crossing the biotite-eucrite, which is well exposed beside the road, although biotite cannot be detected in hand specimen (or in thin sections in most cases).

Locality 3 [NM 474 674]

Further north there is parking space beside a new bridge which crosses the Allt Uamha na Muice stream (the section of stream which joins the Allt Mam a'Ghail to the Allt Sanna). From this point a number of the intrusions of Centre 3 can be examined.

The stream cuts through the Sithean Mór fluxion gabbro. The outer portion of this crescent-shaped mass seen in the stream section to the south east of the bridge is a quartz-gabbro, cut by a narrow acidified dyke. In the stream section to the north-west of the bridge the inner part of the Sithean Mór intrusion can be examined. Near the stream fluxioning can be observed, which becomes progressively more important towards the inner margin of the intrusion. Fluxioning can also be seen in many exposures on the slopes of Sithean Mór (to the west of the bridge). The marginal apophysis of the Sithean Mór intrusion is seen on the southern slopes of Sithean Mór.

Return to the stream Allt Uamha na Muice, continue up this to the north-west and examine the inner eucrite. This is quite indistinguishable in the field (or laboratory) from the Great Eucrite. Further upstream the quartz-gabbro can be observed, but although the exposure in the stream section is good, no sharp contacts between the various ring intrusions can be seen.

Locality 4 [NM 463 683]

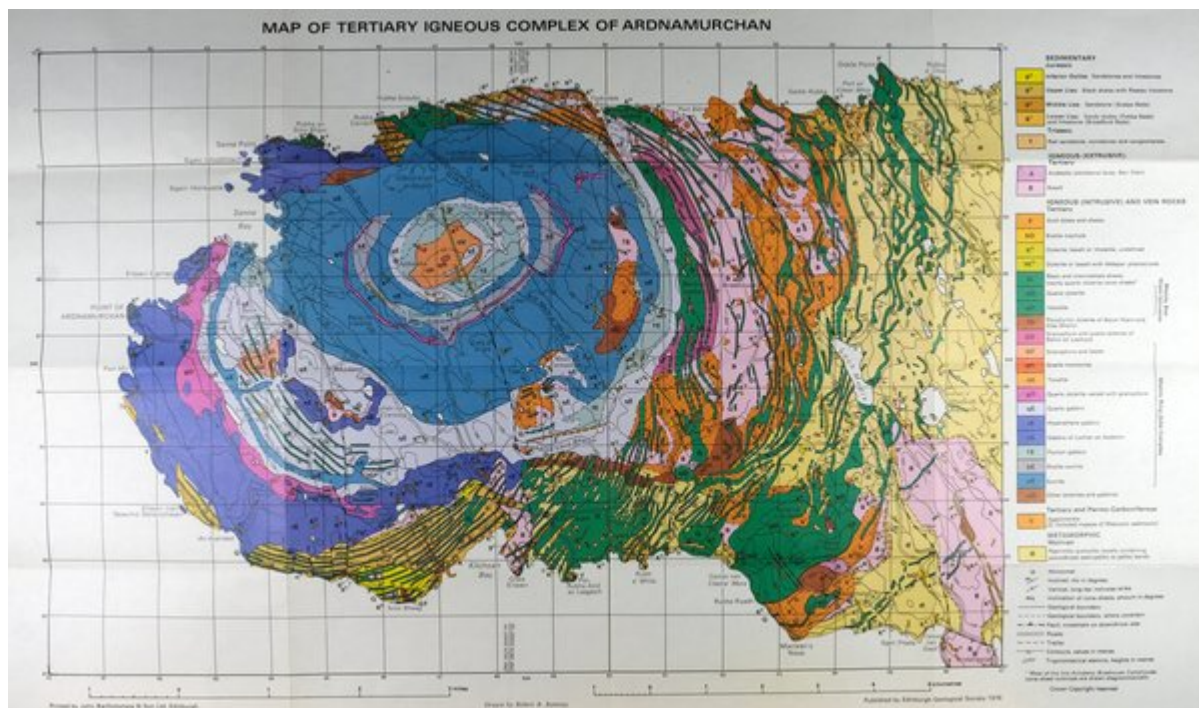
From Sithean Mór travel along the road to Sanna and park at Achnaha. The road to Achnaha roughly follows the outcrop of the quartz-gabbro, and at a roadside cutting where the road crosses the tonalite the outer margin of the latter can be examined [NM 466 679]

From Achnaha it is convenient to walk into the very centre of the complex to examine the rocks attributed to the final phase in the formation of Centre 3: the distinctive intermediate rocks, the tonalite and quartz-monzonite. From a point just to the north of the houses at Achnaha traverse due east, climbing first over the higher ground which makes up the Glendrian fluxion gabbro. The fluxion structure is quite well seen here. Then cross on to the tonalite, which is poorly exposed in an area of lower-lying ground. However, travelling eastwards exposure improves and the distinctive features of the tonalite rock can be easily seen with its light colour and abundant large platy crystals of biotite. Finally, the quartz-monzonite is reached 800 m east of Achnaha, on rising ground, on which stands a small cairn.

When visibility is good the dramatic effect of the geology of Centre 3 on the topography of the area can be seen from this spot. The Great Eucrite forms a vast natural amphitheatre surrounding the lower-lying inner complex. Standing on the quartz-monzonite and looking due south, it is possible to see the peak of Creag an Airgid. To the east is the ridge which includes Meall Meadhoin, to the north-east is the peak of Meall an Fhir-eoin (Eagle Hill), to the north-west is Meall Oach an Daraich, to the west Meall Sanna, and to the south-west Beinn na-h-Imeilte. Extensive ice-scoured outcrops of eucrite can be seen on all these peaks (see coloured map). In addition an inner ridge can be seen in the inner complex, formed by the Glendrian fluxion gabbro, extending from Druim Liath in the south round to above the old Glendrian farmhouse in the east and finally near to Achnaha. The quartz-gabbros in the centre usually occupy lower-lying land which has been previously cultivated.

An excellent view across Centre 3 can be obtained on a clear day from the peak of Meall an Fhir-eoin.

References



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