
Chapter 17 Beinn Mheadhon, Torness, and Creag na h'Iolaire felsites

Introduction

Three early felsite-intrusions now fall to be considered. With many other felsites, they are lettered F on the one-inch Map, Sheet 44, but their positions are easily recognized on (Plate 5) (p.165). The Beinn Mheadhon and Torness intrusions are of considerable bulk; the Creag na h'Iolaire is of much smaller dimensions. All three are fluxional felsites or rhyolites. A comparatively early date is clearly indicated in the case of the Beinn Mheadhon and Torness Felsites by the fact that they are traversed by abundant representatives of the Early Basic Cone-Sheets described in Chapter 21. The Beinn Mheadhon Felsite is also cut by the Early Acid Cone-Sheets of its neighbourhood (Chapter 19). The Creag na h'Iolaire Felsite does not come into contact with Early Basic or Early Acid Cone-Sheets, but it is cut to pieces by another set of basic sheets dealt with in Chapter 27. under the title of Creag na h'Iolaire Sheets. The Torness Felsite is probably rather earlier than that of Beinn Mheadhon. It breaks up and yields fragments to the Sgùrr Dearg vent-agglomerates (Chapter 16), whereas the Beinn Mheadhon Felsite is of later date than these latter. The only doubt attending this conclusion depends upon the possibility that the agglomerate in the vicinity of the Torness Felsite may be of somewhat later date than is usual in the Sgùrr Dearg neighbourhood.

The three intrusions are considered below under two headings: Field-Relations and Petrology.

Field-relations

Beinn Mheadhon Felsite

The Beinn Mheadhon Felsite is sparingly porphyritic with small feldspar phenocrysts, and much of it is highly fluxional and spherulitic. The fluxion-structure is often steep or contorted, but near the margins it helps to give an insight into the structure of the mass (Figure 31). Careful examination shows that the Beinn Mheadhon portion of the outcrop is more or less flat-bottomed (with a protuberent tongue at its western end, north of Loch a' Mhàim, see one-inch Map); and that this flat-bottomed portion is connected south-eastwards with a dyke or inclined sheet which sinks eastwards and northwards under Dùn da Ghaoithe. The greater part of the flat-bottomed swelling lies in fairly open ground, geologically speaking, and, though there are several acid and basic cone-sheets cutting it, they do not obscure the original continuity of the mass. It is far otherwise, however, with the south-western margin of this swelling, and also with the narrow dyke-like outcrop running south-eastwards to Màm Lìrein. All along this line, nothing is seen of the felsite except isolated lenticles enclosed among a host of Early Basic Cone-Sheets. In Màm Lìrein, a minor swelling occurs giving rise to an easily recognizable outcrop.

Looking from the Sound of Mull, one can recognize the pale smooth country of the main mass of the Beinn Mheadhon Felsite, presenting a rather bedded appearance at a distance owing to the cone-sheets that traverse it. Some lava-craggs east of Allt Achadh na Mòine are due to induration of the country-rock in the vicinity of the felsite, and serve to mark the top of the intrusion.

At the margin of the felsite, both top and bottom, a thin basaltic, or tholeiitic, layer is commonly met with (Figure 31). It is about 2 ft. in thickness; and, between it and the mass of the felsite, there intervenes a narrow belt of xenolithic hybrid rock resulting from partial digestion of the basalt by the felsite. The Beinn Mheadhon intrusion thus affords a typical example of a composite intrusion on a particularly large scale (pp. 8, 32).

The Beinn Mheadhon Felsite is later than all the breccia of its neighbourhood. This is very clearly seen at the head of Allt Achadh na Mòine where the characteristic basic margin of the intrusion is found in contact with agglomerate. It is equally well-shown by the unbrecciated appearance of the mass as a whole, which contrasts vividly with the condition of the neighbouring lavas.

Torness Felsite

The Torness Felsite is a white fluxional felsite represented by lenticles enclosed among Early Basic Cone-Sheets. Typical exposures are seen in the Lussa, River, near Torness Cottage. Farther down-stream, half-way towards Arinasliseig Cottage, the felsite is crowded with small black xenoliths—but this is unusual.

The Torness Felsite is everywhere intensely shattered, and material of the same type is abundant as fragments in neighbouring outcrops of agglomerate, as, for instance, in the stream draining Coire nan Each, above Torness. A junction of the felsite and agglomerate is seen three-quarters of a mile east by south of Torness. The locality can be recognized on the one-inch Map, since the margin of the breccia takes a sudden bend westwards just at this point to pass through the critical outcrop. The felsite is here seen to break down into breccia, in which there is an admixture of foreign material. E.B.B.

Creag na h'Iolaire Felsite

The Creag na h'Iolaire Felsite is only visible as lenticles among basic sheets. Its original limits may be gathered from (Plate 5) (p. 165), and its present interrupted condition from a glance at the one-inch Map. It is a fluxional felsite, and the earliest rock of its immediate neighbourhood; but beyond this there is little to say. (O.T.C.)

The left half of the intrusion as shown in this section is flat-bottomed; the right half continues downwards away from the observer.

Petrology

The Beinn Mheadhon Felsite

Specimens collected from Beinn nam Meann ([S15691](#)) [NM 663 384], ([S15692](#)) [NM 663 384] are of a compact rock that shows fluxional banding and a parallel arrangement of its occasional small felspar-phenocrysts. The micro-porphyrific crystals are oligoclase or acid labradorite, but have usually suffered some alteration with the formation of epidote and secondary quartz. Typically, the matrix is banded, and under the microscope shows a distinct separation of devitrified from more glassy material, the latter occurring as indefinite yellowish streaks and patches. Throughout the matrix are scattered pilitic microlites of oligoclase, which are enclosed alike in the more completely devitrified patches, composed mainly of alkali-felspar, and in the yellow glassy material. In the more vitreous portions magnetite is relatively abundant as minute crystals. Ferro-magnesian minerals are poorly represented, but a few small pseudomorphs after idiomorphic augite have been noted.

Slight variations are noticeable in different parts of the outcrop. At the head of Gleann Lirean, the rock ([S15693](#)) [NM 678 345] contains somewhat larger phenocrysts of felspar, the microlithic character of the little oligoclase-crystals is more pronounced, and devitrification of the base has given rise to larger feldspathic patches. There is still, however, a residuum of more or less evenly distributed dark vitreous matter.

Towards its margin, south-east of Beinn Mheadhon summit, the composite nature of the mass becomes apparent, for it is bounded by a basic rock ([S16466](#)) [NM 6641 3875] of typical tholeiitic nature. At the junction of felsite and tholeiite, there is a slight change in the composition of the former, and in addition the acid rock has taken up xenoliths of its more basic neighbour. There has also been some granulitization of the tholeiite at its contact with the felsite; but the line of demarcation is fairly sharp.

The tholeiite at its outer margin is chilled ([S16276](#)) [NM 6542 3876], ([S16277](#)) [NM 6542 3876], and takes the form of a dark finely vesicular chloritized glass, devoid of porphyritic constituents, but full of microlithic felspar. It has produced slight contact-alteration, for a millimetre or so, of the country-rock (agglomerate), bringing about the local transformation of chlorite into biotite.

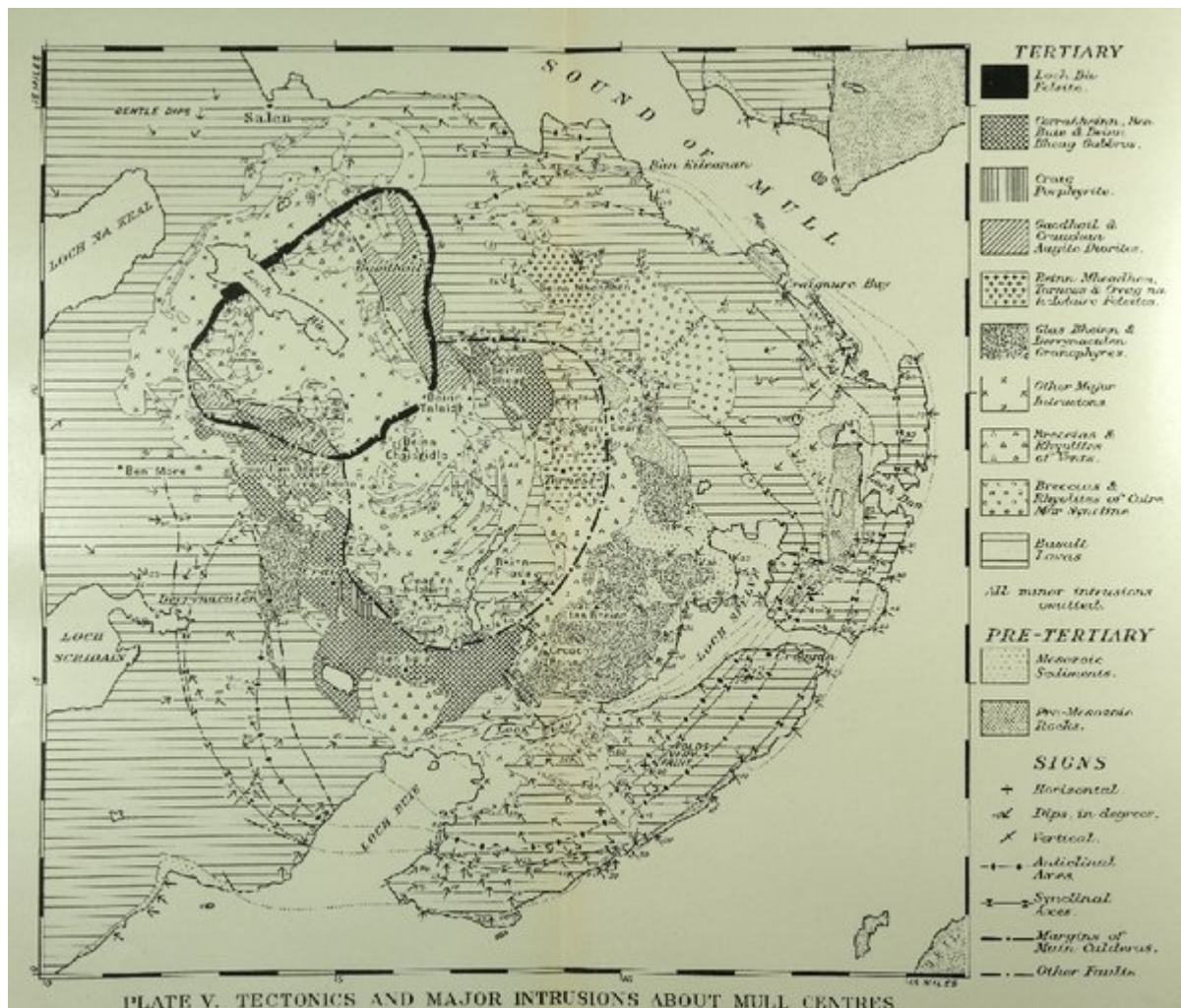
The Torness Felsite

The Torness Felsite ([S15061](#)) [NM 6511 3220], ([S18684](#)) [NM 6476 3322] is a grey, fine-grained rock with occasional small micro-porphyrific crystals of perthite and orthoclase in a completely devitrified matrix. This latter now consists of minute irregular patches of alkali-felspar and quartz, with a subordinate microlithic development of early-formed felspar. There are no recognizable pseudomorphs after ferro-magnesian minerals, but chlorite is somewhat evenly distributed throughout the rock.

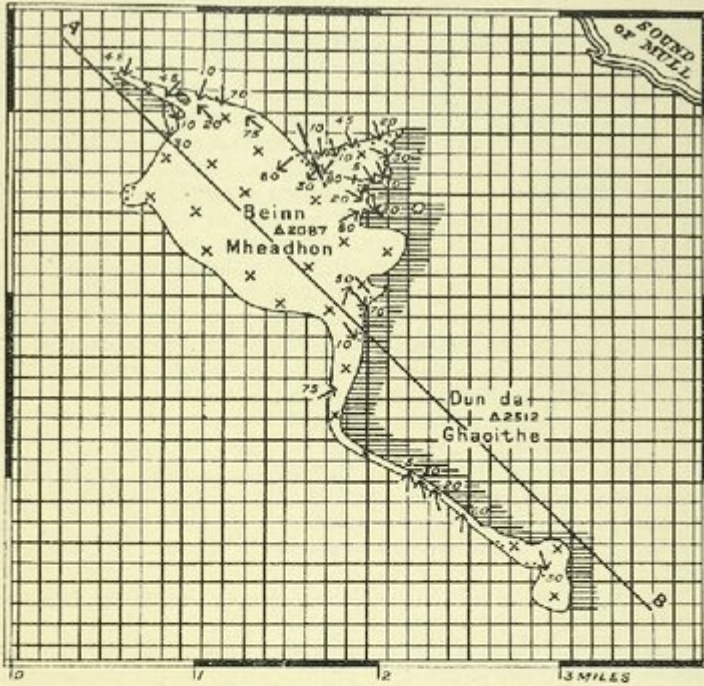
In the Lussa River, west of Arinasliseig Cottage, there occurs a local xenolithic facies of this intrusion containing abundant dark patches: some of these consist of albitized basic plagioclase in intimate association with serpentinous pseudomorphs after olivine ([S15060](#)) [NM 651 317]; others are composed of granular chlorite and albite with a little epidote ([S15059](#)) [NM 651 317]. We are evidently dealing here with fragments of basic rock picked up by the felsite and partly assimilated, but the source of the basic material is obscure.

The Creag na h'Iolaire Felsite

As represented by the specimen ([S17866](#)) [NM 6029 2843] this felsite is a fine-grained rock that consists of micro-crystalline quartz and alkali-felspar in a chloritic and epidotic base. The rock under the microscope has the appearance of having suffered much crushing and alteration with the separation of its crystalline components from each other. E.B.B.






(Plate 5) Map showing calderas, major intrusions, and folds

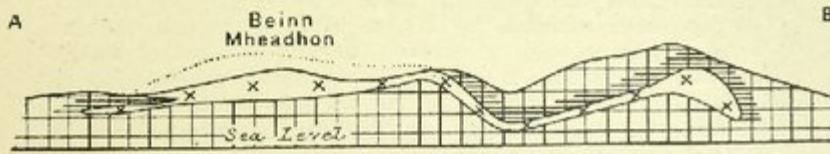


Country-Rock below Felsite.  Country-Rock above Felsite.

..... Thin Basal Layer at margin of the Felsite.
 Part of this layer is broken up by Felsite and converted into xenoliths.

 Fault.  Dip in degrees. } Fluxion-Structures.
 Vertical.

SECTION TO TRUE SCALE ALONG A-B.



(Figure 31) Map and section of Bheinn Mheadhon Felsite.