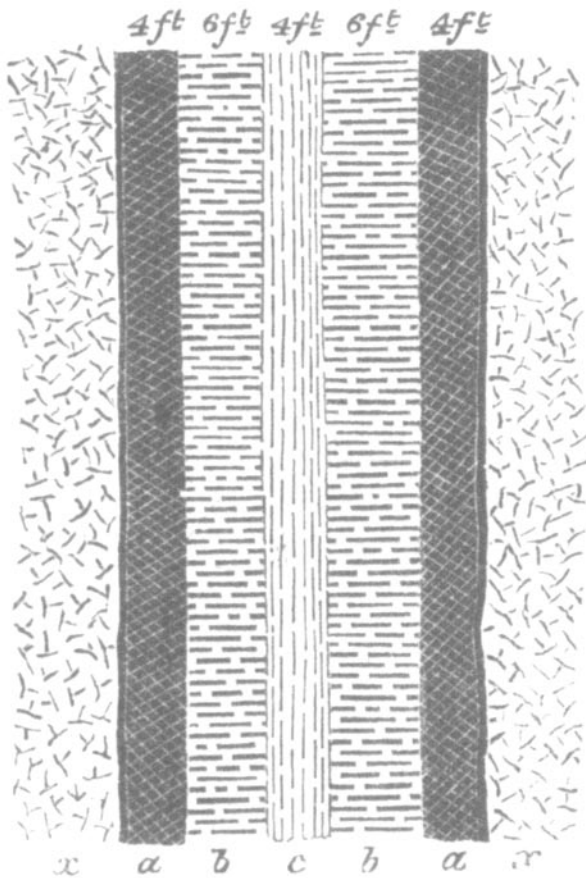


# 5 GAZETTEER OF PITCHSTONE OUTCROPS ON THE ISLE OF ARRAN

## North Arran (the 'Granite')

1. Beinn a' Chliabhain  
NGR: NR 970 407  
A composite dyke with basic sides and a pitchstone centre occurs 50m north of the highest point (675m), and again 300m to the east.  
Porphyritic, colour unknown.  
[Gunn et al 1903](#), 94; [Tyrrell 1928](#), 207.
2. Beinn Nuis  
NGR: NR 958 394  
A pitchstone dyke, 2m wide, is found approximately 500m south-east of the summit.  
Porphyritic, grey-green to dark green.  
[Gunn et al 1903](#), 94; [Tyrrell 1928](#), 208.
3. Beinn Tarsuinn I  
NGR: NR 958 411  
A pitchstone outcrop is visible 150m south-west of the summit. There are probably other small outcrops on this hill. 'One [dyke] is of green pitchstone, and cuts the granite sheer through in a north and south direction from bottom to top of the cliff. It is [1–1.5m] wide, prismatic across and, owing to the more rapid



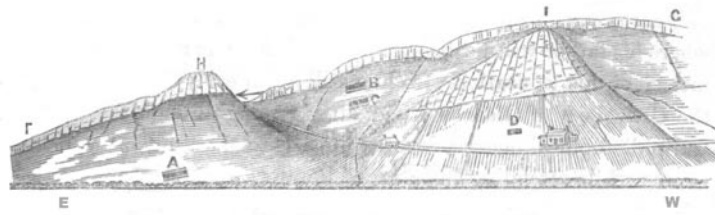
*Illus 25 Diagrammatic plan of the Cir Mhor dyke (CAT 8) ([Judd 1893](#), 545): x = granite; a = augite-andesite; b = quartz-felsite; c = pitchstone porphyry (b, c = quartz-pantellerite).*

- disintegration, depressed below the level of the granite. [...] The pitchstone is decomposed into a thin white film in many places along the outer edge of the dyke, next to the granite, in consequence, probably, of the oxidation and removal of the iron which enters into its composition. The dyke is in some parts of its course obscured by debris, but upon the whole is, perhaps, the best defined dyke of this rock occurring anywhere in the granite of Arran.' ([Bryce 1859](#), 100).  
Porphyritic, grey-green to dark green.  
[Gunn et al 1903](#), 94; [Tyrrell 1928](#), 208.
4. Beinn Tarsuinn II  
NGR: NR 961 415  
No information available.  
Porphyritic, grey-green to dark green.  
BGS, Arran, 1:50,000, Solid edition, 1987; Ballin (2006 survey).
5. Caisteal Abhail I  
NGR: NR 966 437  
On the ridge between Cir Mhor and Caisteal Abhail, a pitchstone dyke occurs in the cliff a little south-east of the strong spring, and approximately 400m south of the point marked 858m on the BGS, Arran, 1:50,000, Solid edition, 1987.  
Porphyritic, dark, colour unknown.  
[Gunn et al 1903](#), 94; [Tyrrell 1928](#), 208.
6. Caisteal Abhail II  
NGR: NR 968 443  
A pitchstone outcrop occurs west of the highest point, and may be traced a considerable distance in a north-west direction by the loose fragments lying at the surface.  
Porphyritic, dark, colour unknown.  
[Gunn et al 1903](#), 94; [Tyrrell 1928](#), 208.
7. Caisteal Abhail III  
NGR: NR 969 444  
A pitchstone dyke may be found under a crag about 100m north of the summit.  
Porphyritic, dark, colour unknown.  
[Gunn et al 1903](#), 94; [Tyrrell 1928](#), 208.
8. Cir Mhor  
NGR: NR 974 430  
Pitchstone forms the centre of a composite dyke on Cir Mhor, running east-west. The dyke is exposed in a steep gully on the eastern face of the mountain, attainable by a stiff climb from The Saddle between Glen Rosa and Glen Sannox. It consists of five members: two external margins, each approximately 50cm thick, of a brown-weathering spheroidal tholeiite, which is blue on a freshly-broken surface; two interior quartz-felsites, a whitish rock with well-marked vitreous contacts against the tholeiite, each band being almost 2m thick; and finally a central band of pitchstone approximately 60cm thick, which narrows in one place to c 30cm. Microscopic examination shows that the felsite is merely a devitrified phase of the pitchstone. Measurements across the dyke roughly halfway up the gully show that the total width there is about 5m. Judd gives the min. and max. widths as c 3.5m and c 9m, respectively.  
Porphyritic, dark green.  
[Judd 1893](#), 543–551; [Gunn et al 1903](#), 94; [Tyrrell 1928](#), 208.



*Illus 26 The composite dyke of Cir Mhor (CAT 8) (Gregory & Tyrrell 1924, Plate 26B): P = pitchstone; F = felsite; T = tholeiite.*

9. Coire nan Ceum  
NGR: NR 974 456  
At this locality, a 2m thick dyke of porphyritic felsite with pitchstone on its northern margin crosses the burn in a north-easterly direction. A short distance downstream is a thin northwest-trending basaltic dyke. A series of moraines is to be seen on the corrie floor a little higher up. These are among the most recent in the whole of Arran and were probably formed by a small glacier about 9500 BC.  
Porphyritic, colour unknown.  
**Macgregor 1983**, 120.
10. Corrie Burn  
NGR: NS 00 41  
A coarsely porphyritic pitchstone with phenocrysts (up to 7mm) of skeletal plagioclase, embayed quartz and euhedral clinopyroxene in a matrix of flow-banded glass was found, probably as a loose block, in the Corrie Burn, probably outside the granite. Texturally this resembles some of the pitchstones (for example Bute, An Cumhann) found associated with quartz-feldspar porphyry intrusions, but lacks K-feldspar phenocrysts.  
Porphyritic, colour unknown.  
**Kanaris-Sotiriou & Gibb 1985**; Kanaris-Sotiriou & Gibb pers comm 2007.
11. Creag Dhubh  
NGR: NR 964 456  
Approximately 1.5km north of Caisteal Abhail a pitchstone dyke roughly 2m wide is visible for a short distance under the scars of Creag Dhubh.  
Porphyritic, colour unknown.  
**Gunn et al 1903**, 94; **Tyrrell 1928**, 208.
12. Dubh Loch  
NGR: NR 908 428  
On the slopes of Bheinn Bharrain approximately 400m north-west of the Dubh Loch is a pitchstone outcrop, c 1–1.5m thick, which may be traced to the WSW for nearly 200m.  
Porphyritic, yellowish, streaky.  
**Gunn et al 1903**, 94; **Tyrrell 1928**, 208.
13. Garbh Allt  
NGR: NR 981 387  
One of the authors found a large nodule of pitchstone in the footpath descending from Beinn Nuis, on the northern side of Garbh Allt, and approximately 100m from the footbridge across the burn, at the mouth of Glen Rosa. This location may correspond to Macgregor's (1983) fig 6.12: '... note the presence of occasional thin dykes and crush-lines in the granite'.  
Porphyritic, grey-green to dark green.  
Ballin (2006 survey); **Macgregor 1983**, 86.
14. Glen Chalmadale  
NGR: NS 95 49  
Loose boulders (specimens in the Hunterian collections, Glasgow; collected by Tyrrell 1930).  
Sparsely porphyritic, dark green.  
Information in the archives of the Hunterian Museum.
15. Goatfell, SE  
NGR: NS 00 39  
On the south-east slope of Goatfell, above the woods surrounding Brodick Castle, there are some blocks of a magnificent pitchstone of a different character from most other pitchstones from The Granite. They lie in the bed of the carrier, which conveys water from the mill dam. The rock was not found in situ, as the ground is here very unfavourable for examination, the mountainside being covered with debris from the higher granitic masses and thickly coated with turf.  
Porphyritic, greenish-black, dull.  
**Allport 1872**, 7.
16. Iorsa Valley I  
NGR: NR 934 432  
In a stream roughly 1.5km north-east of the outlet of Loch Tanna there is a pitchstone dyke, c 1–1.5m thick, with a course due north.  
Coarsely porphyritic, dark green.  
**Gunn et al 1903**, 94; **Tyrrell 1928**, 209.
- 17–20. Iorsa Valley II a–d  
NGR: NR 938 391  
Near the heads of two small streams, approximately 1–1.5km north of Loch Nuis, dykes and sills of various kinds of pitchstone crop out in at least four places.  
Porphyritic, dark green.  
**Gunn et al 1903**, 94; **Tyrrell 1928**, 209.
21. Iorsa Valley III  
NGR: NR 909 373  
Approximately 600m SSW of the outlet of Loch Iorsa a pitchstone outcrop with a width of 2–3m is visible for about 10m.  
Porphyritic, dark green.  
**Gunn et al 1903**, 95; **Tyrrell 1928**, 209.
22. Penrioch  
NGR: NR 885 455  
North-east of Penrioch and nearly 800m ESE of Auchmore or South Thundergay is a remarkable pitchstone, only visible for approximately 6m.  
Porphyritic, black.  
**Gunn et al 1903**, 94; **Tyrrell 1928**, 208; **Robinson 1931**.
23. Saddle, The  
NGR: NR 982 428  
To the east of Cir Mhor, and nearly 400m south-east of The Saddle, is a pitchstone source, running WNW.  
Porphyritic, greenish grey.  
**Gunn et al 1903**, 94; **Tyrrell 1928**, 208.
24. Stachach, Goatfell  
NGR: NR 990 417  
On the ridge called Stachach, c 300m north of the summit of Goatfell, is a minor pitchstone source. This dyke is composed of a light-grey felsite, enclosing xenoliths of a darker igneous rock (variolitic tholeiite in thin-section). Small pitchstone fragments are scattered all over the outcrop, and as these also contain the basic xenoliths, it is probable that the felsite is merely a devitrified pitchstone.  
Porphyritic, dark brown.  
**Tyrrell 1928**, 210.



*Illus 27 The Dun Fionn II pitchstone outcrops (CAT 28–29): B & C = the two higher outcrops. Continuation of the upper source behind Dun Fionn, indicated by arrow; D = portion of outcrop seen near South Corriegills (supposed continuation of shore outcrop A); F & G = Trappean ridge, extending from Clauchlands Point towards Lamlash Road; Dun Fionn (H) forming part of same; Dun Dhu (I), of claystone porphyry, rising a little in front, with a hollow between (Bell 1874, fig A).*

## Central Arran

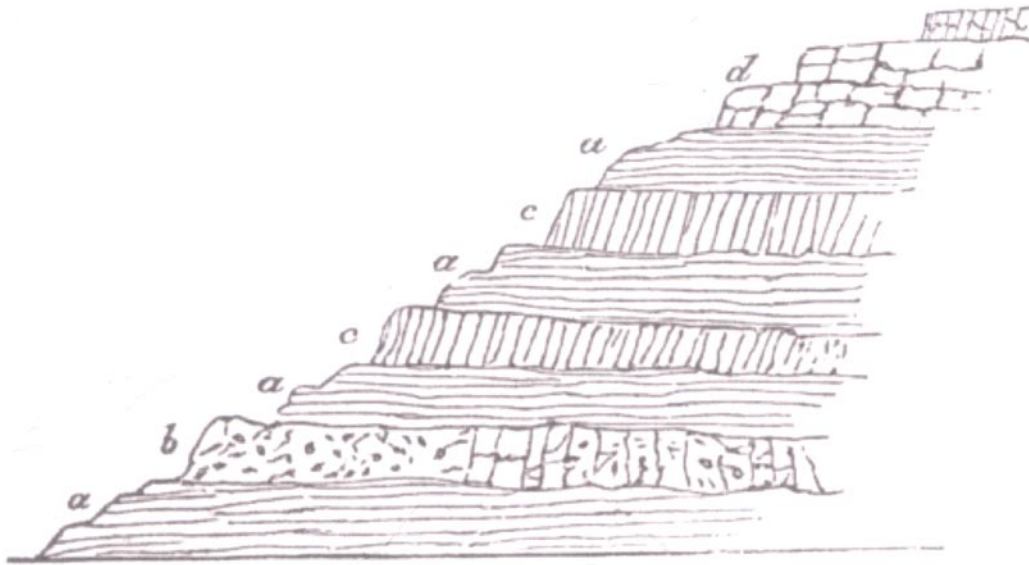
25. Allt nan Calaman  
NGR: NR 973 340  
Loose boulders near the head of Allt nan Calaman (specimens in the Hunterian collections, Glasgow; collected by Tyrrell 1930).  
Black, porphyritic.  
Information in the archives of the Hunterian Museum.
26. Glenloig  
NGR: NR 950 341  
In a small stream on the west side of the main valley, 1km south-east of Glenloig Farm, there is a pitchstone dyke, approximately 1m wide. It runs in a north-west direction and thins south-west. The dyke cuts the explosion-breccia of the Central Ring Complex.  
Texture unknown, dark green.  
Tyrrell 1928, 212.

## Brodict Bay

27. Brodict Schoolhouse  
NGR: NS 009 365  
The Schoolhouse pitchstone is exposed in the Schoolhouse garden, and in the wood to the west. It appears to be a sill injected into the steeply-dipping New Red Sandstone of that area. It also contains feldspar and olivine crystals, and is often beautifully flow-banded. Porphyritic, dark-green to black.  
Gunn et al 1903, 94; Tyrrell 1928, 210; Macgregor 1983, 80, fig 6.2.
28. Carn Ban  
NGR: NS 015 346  
Gunn reports that, on the south-east side of this old cairn, c 1200m south of Invercloy, are many small fragments of pitchstone, ‘. . . probably nearly in place’. He assumes the presence of a small pitchstone outcrop, but the existence at the location of a cairn suggests that the finds could be of a cultural character. Gunn’s finds should be examined, and the site inspected, to clarify whether this site represents a pitchstone source or a small settlement site.  
Porphyritic, dark grey to black.  
Gunn et al 1903, 94.
29. Clauchland shore (‘The Great Pitchstone’)  
NGR: NS 051 337  
This is the pitchstone which has so often been described as the Corriegills pitchstone. It is, however, properly

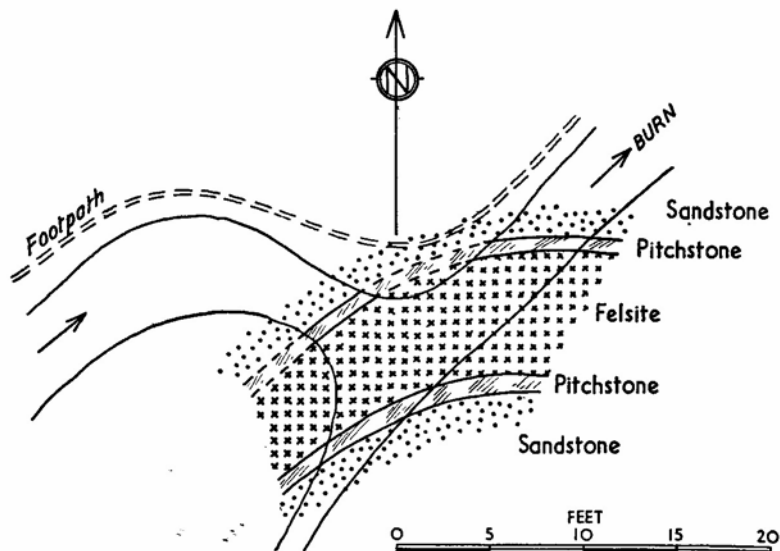
on the Clauchlands, and not on the Corriegills shore. It is visible near the base of the crags for 150m, and dips SSW at 30°, nearly as the sandstone below it, but it clearly cuts the sandstone, though there is little alteration caused by it. Nearly 200m south of this it is visible on the foreshore for about 15m. The maximum thickness may be estimated at c 7m.  
Generally aphyric but a few well-shaped crystals of quartz are also present, dark bottle-green.

- Gunn et al 1903, 93; Tyrrell 1928, 213; Macgregor 1983, 94, fig 7.15a.
30. Clauchland Hills  
NGR: NS 027 337  
On the path from the Lamlash Road (Cnoc na Dail forest car park) to Dun Fionn, there is a stretch of maybe 20–30m where small pitchstone pebbles can be found. This variety is – from a prehistoric knapper’s point of view – beyond doubt the best-quality pitchstone to be found on the island, being absolutely homogeneous, and resembling obsidian greatly.  
Aphyric, almost black.  
Ballin (2006 survey).
31. Clauchlands Cottage  
NGR: NS 042 327  
On the southern slope of the Clauchland Hills a pitchstone dyke occurs in the burn near Clauchlands Cottage. Its direction appears to coincide with that of the burn at the point, that is, NNW.  
Texture unknown, black.  
Gunn et al 1903, 93; Tyrrell 1928, 213.
32. Corriegills shore (‘The Small Pitchstone’)  
NGR: NS 046 343  
About 450m south-east of the mouth of the Corriegills Burn a felsite sheet, associated with pitchstone on its lower (northern) margin, crosses the shore in a WNW direction. Where best exposed on the shore it is some 6–7.5m thick but it decreases rapidly in thickness seawards to a metre or so. It has been intruded along the bedding of the red sandstones, here dipping to the SSW at between 25° and 35°. Its upper margin is highly irregular and appears to be much more steeply inclined than the sediments. Its sill-like form is seen when traced inland, where it cuts the raised beach cliff and appears in both branches of the Corriegills Burn about 1.6km to the WNW (see North Corriegills I & II, below).  
Aphyric, dull greenish-grey to green – near the sandstone with a wrinkled appearance like ropy lava, ‘. . . perhaps the finest spherulitic rock in Britain’ (Tyrrell 1928, 212).  
Gunn et al 1903, 93; Tyrrell 1928, 212; Macgregor 1983, 92, fig 7.11a.

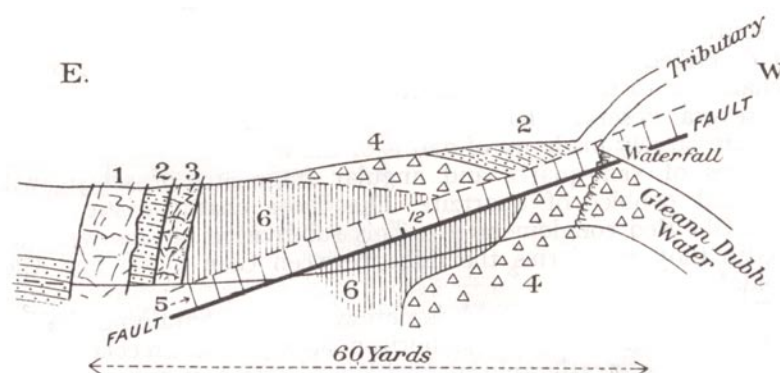


Illus 28 The two higher Dun Fionn outcrops (CAT 28–29; B and C in fig 6.2): a = sandstone; b = feldspar porphyry; c = pitchstone; d = overlying trap (Bryce 1859, 114).

33. Dun Fionn (Clauchland Hills) I  
 NGR: NS 046 338  
 On the southern slopes of Dun Fionn, below the fort, a dark spherulitic pitchstone sill cuts the dolerite of the Clauchland Hills. It can be traced westwards by means of loose fragments. It is probably a continuation of the lower of the sills described below.  
 Aphyric, dark green.  
 Gunn et al 1903, 93; Tyrrell 1928, 213; Macgregor 1983, 98, fig 7.6.
- 34–35. Dun Fionn (Clauchland Hills) II–III  
 NGR: NS 041 339  
 The term Dun Fionn pitchstone may properly be applied to two exposures on the slope above the Dun Fionn path halfway between Dun Dubh and Dun Fionn. These two exposures form sill-like outcrops just beneath the scarp of the Clauchland dolerite sill. The lower one shows a thickness of c 6m, and the upper one of c 3.5m. No contacts are visible, and the outcrops cannot be traced more than about 50m in any direction when they disappear under the turf.  
 Aphyric, dark-green.  
 Bell 1874; Gunn et al 1903, 93; Tyrrell 1928, 213; Macgregor 1983, 98, fig 7.6.
36. Glen Cloy (Scott's Sill)  
 NGR: NS 003 351  
 The Glen Cloy pitchstone is part of a composite sill occurring in the bed of the stream in Glen Cloy, at a point about 300m ESE of the house of High Glen Cloy. The total thickness of this sill, most of which is felsite, is c 3.5m. Overlying the felsite, and generally separated from it by a joint-plane, is another intrusion, the thickness of which is approximately 30cm. It is a black rock of flinty appearance, with isolated porphyritic feldspars, and traversed by numerous veins of quartz and calcite. On the south side of the burn the two rocks can be seen in contact, the line of contact being perfectly sharp and well-defined. At the upper surface of this black rock its appearance gradually becomes more glassy, and finally it passes to a black lustrous pitchstone, the thickness of which varies between 10 and 12cm. It shows the same porphyritic minerals as the black rock, and apparently differs from the latter only in the glassy nature of the groundmass. It also contains, occasionally, inclusions of the overlying conglomerate.  
 Porphyritic, black.  
 Gunn et al 1903, 94; Scott 1915 (a), 140; Tyrrell 1928, 137.
37. Glen Dubh I  
 NGR: NR 996 346  
 A quartz-felsite dyke, about 7.5m wide, and trending NNW to SSE, occurs in the Glen Dubh Water about 100m above its confluence with the Glen Ormidale Water. This is a grey rock with numerous small angular xenoliths of variolitic tholeiite and it becomes a dark, pitchstone-like material at its western contact.  
 Porphyritic, dark grey.  
 Tyrrell 1928, 211.
38. Glen Dubh II  
 NGR: NR 995 344  
 Two hundred metres farther up the Glen Dubh Water a massive quartz-felsite sill occurs, intersecting the Permian basaltic breccia horizon. At both lower and upper edges it is chilled to a banded, greenish, pitchstone-like rock, the upper contact being against the breccia, and the lower against a basalt dyke. This sill is of the same petrographic character as the above-described dyke.  
 Porphyritic, banded, green.  
 Tyrrell 1928, 211.
39. Glen Dubh III  
 NGR: NR 994 343  
 Just above the second eastern tributary to the Glen Dubh Water, c 400m SSW of the confluence with the Glen Ormidale Water, there is a massive felsite dyke, approximately 9m wide and trending NNW to SSE. On its western side it appears to have a chilled pitchstone edge against a c 2.5m-wide dyke of porphyritic basalt.  
 Porphyritic, colour unknown.  
 Tyrrell 1928, 211.

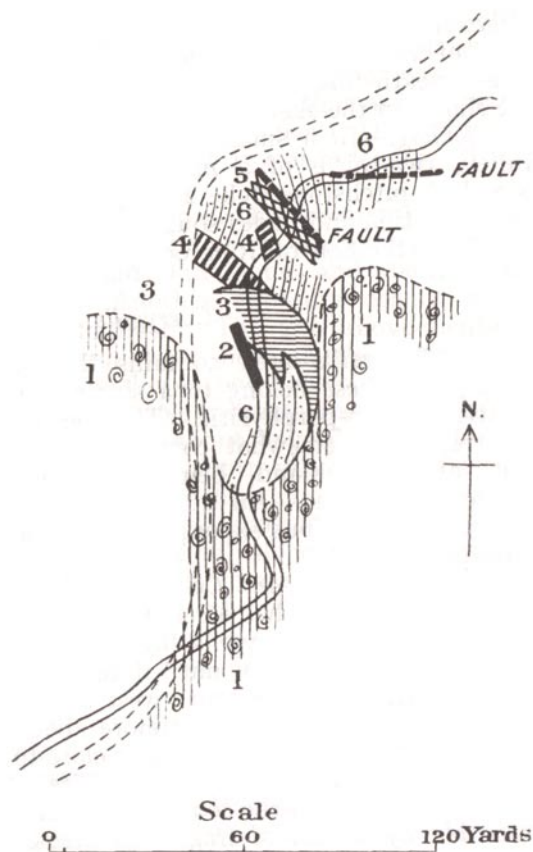


Illus 29 Plan of the Glen Cloy felsite-pitchstone sheet (CAT 30; 'Scott's Sill') (Tomkeieff 1961, fig 7).



Illus 30 Map of exposures in Glen Dubh Water. 200m above the confluence with Glen Ormidale: 1 = porphyritic basalt dyke; 2 = New Red Sandstone; 3 = dyke of dense basalt; 4 = New Red Sandstone volcanic breccia; 5 = crinanite dyke; 6 = felsite sill (Tyrrell 1928, fig 5).

40. Glen Shurig  
 NGR: NR 995 366  
 This outcrop occurs as a 1.5m-thick dyke in the lower Old Red Sandstone, and is exposed in the bed of the road leading from the String Road to West Shurig Farm. The exposure is much obscured by vegetation and drift material.  
 Porphyritic, dark-green.  
 Gunn et al 1903, 94; 1915 (a), 147; Tyrrell 1928, 210; Macgregor 1983, 88, fig 6.23.
41. Kilmichael I  
 NGR: NS 006 351  
 A pitchstone outcrop, probably a sill, is exposed for 1–1.5m in the hillside 400m north of Glenrickard and approximately 300m SE of the Glen Cloy exposure (location 30).  
 Porphyritic, black.  
 Scott 1915 (a), 141; Tyrrell 1928, 210.
42. Kilmichael II  
 NGR: NS 004 351  
 This outcrop is indifferently exposed in a small burn in the wood north-east of Kilmichael, approximately midway between The Glen Cloy outcrop and Kilmichael I.  
 Porphyritic, coal-black.  
 Scott 1915 (a), 141; Tyrrell 1928, 210.
43. Lag a' Bheith head  
 NGR: NS 008 330  
 Near the head of the main western branch of the Lag a' Bheith, approximately 3–3.5 km SSW of Brodick Pier, there are exposures of a complex of pitchstone, felsite and basalt, which are rather hard to interpret. The complex is bounded by a fault on its north-eastern side which brings it down against Triassic marls and cornstones. Basalt adjacent to the fault is much crushed and slickensided. The main exposure of pitchstone occurs at a little fall a few metres higher up the burn.  
 Porphyritic, green.  
 Gunn et al 1903, 93; Tyrrell 1928, 211.



Illus 31 Sketch-map of exposures in the main western headwater of the Lag a' Bheith, 2 miles SSW of Brodick Pier: 1 = felsite sill; 2 = basalt dyke; 3 = shattery basaltic intrusion; 4 = pitchstone dykes; 5 = crushed basalt dyke along fault; 6 = marls, cornstones, and sandstones of the Trias period (Tyrrell 1928, fig 28).

44. Lag a' Bheith I  
NGR: NS 017 341  
A thick pitchstone occurrence is exposed in the Lag a' Bheith burn, just above the point where the old

Brodick-Lamlash road crosses the burn. It appears to be a sill as it passes beneath the strata of New Red sandstone in an obscure section on the upstream side of the exposure. Downstream it is flanked by a basalt dyke.

Texture unknown, dark-green.  
Gunn et al 1903, 93; Tyrrell 1928, 214.

45. Lag a' Bheith II (Gunn's Birk Glen)  
NGR: NS 018 341  
A pitchstone outcrop is visible in the old Brodick-Lamlash road nearby.

Texture unknown, dark green.  
Gunn et al 1903, 93; Tyrrell 1928, 214.

46. Lag a' Bheith quarry (Tomkeieff's 'Magmatic Rolls Quarry')  
NGR: NS 020 341

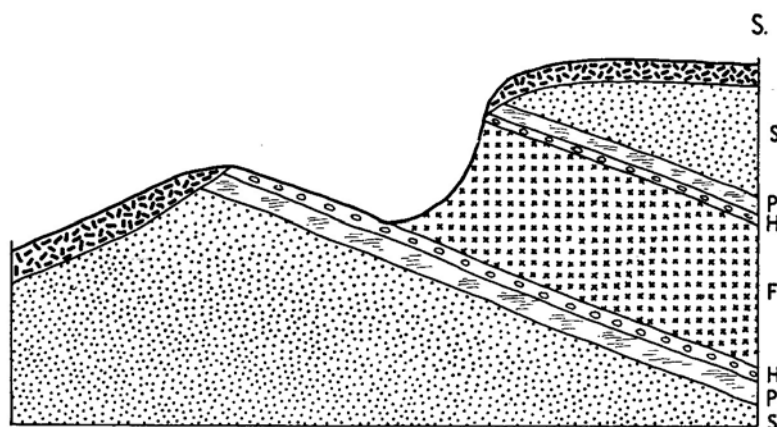
In this quarry a complete section of a c 7.6m thick felsite sheet is seen. The felsite is a light-coloured porous rock with platy and poorly developed columnar jointing combined. On both margins the felsite is rimmed by spherulitic hornstone bands, about 2-5cm thick, and 10-15cm thick banded pitchstone. Immediately west of the quarry pitchstone and felsite are seen in the stream bed of Lag a' Bheith (locations 43-45, above); no doubt the continuation of the quarry outcrop.

Aphyric, dark green to black.  
Tomkeieff 1961, 10, fig 5; Macgregor 1983, 102, fig 7.11.

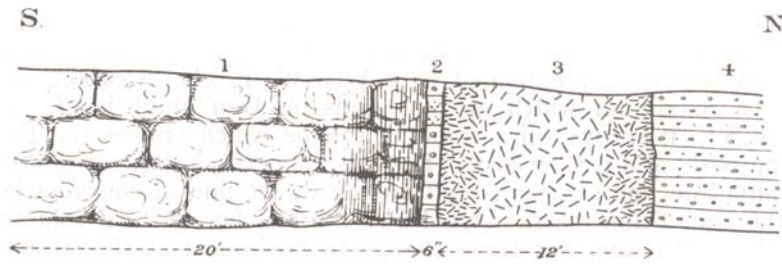
47-48. North Corriegills I-II  
This is a sill of felsite which at two places has a selvage of pitchstone. It runs from the road near North Corriegills, by a somewhat sinuous course in a general ESE direction, until it reaches the Corriegills shore at a point approximately half a kilometre south-west of the mouth of the Corriegills Burn. Its total length is therefore about 1.5km. The rock is traceable by means of fragments across the fields to the shore, where a remarkable section is exposed (Corriegills Shore, above).

Tyrrell 1928, 212.

47. North Corriegills I  
NGR: NS 032 348  
Follow the Corriegills road for a distance of about 1km. Here the road forks, one branch leading to North Corriegills and the shore at Dunan, the other to South Corriegills. Pitchstone associated with felsite outcrops in the northern branch of the Corriegills Burn; however, a better section of this



Illus 32 Lag a' Bheith quarry ('Magmatic Rolls Quarry'), N-S section: S = sandstone; P = pitchstone; H = hornstone with magmatic rolls; F = felsite (Tomkeieff 1961, fig 5).



*Illus 33 Section across dykes on the eastern slope of Sgiath Bhan, between Glen Dubh and Glen Ormidale, Brodick: 1 = massive quartz-felsite becoming banded and pitchstone-like on its northern edge against 2; 2 = thin strip of sandstone and conglomerate; 3 = basaltic dyke, chilled edges shown by the size of the stippling; 4 = New Red Sandstone sediments (Tyrrell 1928, fig 27).*

intrusion occurs in the southern branch of the burn at locality 48.

Aphyric, dark-green.

Gunn et al 1903, 93; Tyrrell 1928, 212; Macgregor 1983, 97, fig 7.2.

48. North Corriegills II

NGR: NS 034 347

About 90m downstream from the road a felsite-pitchstone sill forms a series of small waterfalls in the burn. Careful examination of the outcrops reveals massive, spherulitic felsite underlying indurated sandstone and underlain by pitchstone.

Aphyric, dark green.

Gunn et al 1903, 93; Tyrrell 1928, 212; Macgregor 1983, 97, fig 7.3.

49. Sgiath Bhàn

NGR: NR 990 342

On Sgiath Bhàn, the ridge that separates Glen Ormidale from Glen Dubh, are a number of large outcrops of quartz-porphry dykes, which are associated, perhaps accidentally, with basaltic members. On the eastward slope of the hill, and trending ENE, there is a massive dyke of quartz-porphry at least 7m wide. The southern contact is not seen, but towards the northern contact the rock becomes fine-grained and banded parallel to its vertical margin. At the actual junction with a strip of baked sandstone, it is practically a pitchstone. On the other side of the strip of baked sandstone there is a basalt dyke c 4m thick. Traced upwards, this dyke suddenly crosses the quartz-porphry, and then resumes its former direction, but now on the southern margin of the acid dyke.

Texture and colour unknown.

Tyrrell 1928, 201.

50. South Corriegills

NGR: NS 038 345

A felsite sill runs on an approximately parallel course to that of the North Corriegills sill (locations 32, 47-48), and about 400m south of it, through the district of South Corriegills. It is well exposed in the road, and there is a beautiful spherulitic rock which is distinctly pitchstone-like in places. It cannot be traced any farther east from this point, but westwards it runs as far as Corriegills Wood. Its length is thus approximately 800m. At a spot 100m west of the road Gunn found a pitchstone exposure about 7-8m in length. This is probably connected with the felsite sill.

Aphyric, dark-green.

Gunn et al 1903, 93; Tyrrell 1928, 213; Macgregor 1983, 98, fig 7.4.

51. Strathwillan

NGR: NS 023 342

A pitchstone, probably a sill, occurs near the junction of two stone dykes, about 400m east of the Brodick-Lamlash road and 650m ENE of the Lag a' Bheith outcrops.

Texture and colour unknown, dark.

Gunn et al 1903, 93; Tyrrell 1928, 214; Macgregor 1983, 97, fig 7.3.

### Lamlash Bay

52. Allt Lagriehesk

NGR: NS 015 295

'Pitchstone was seen by Gunn in the Allt Lagriehesk, about 300m SSW of the Woollen Mill.'

Aphyric, colour unknown.

Tyrrell 1928, 215.

53. Allt Lebnaskey

NGR: NS 015 294

Near the point in Allt Lebnaskey, where Rao reported a pitchstone exposure, a small lithic scatter was found (Ballin's 2006 survey). The artefacts included one pitchstone scraper, some pitchstone fragments of probable flakes and tabular scrap, as well as burnt flint. The question is, whether Rao actually found geological pitchstone in situ, or whether he assumed the presence of an outcrop on the basis of secondary material. This must be checked, to find out whether this location represents a small settlement site only, or a small settlement site in conjunction with a small pitchstone outcrop.

Aphyric, dark green to black.

Rao 1959, 239.

54. Cordon Wood

NGR: NS 025 301

Pitchstone occurs in the wood approximately 100m south-west of Cordon, Lamlash, as part of a small felsite sill in that locality.

Texture and colour unknown.

Tyrrell 1928, 215.

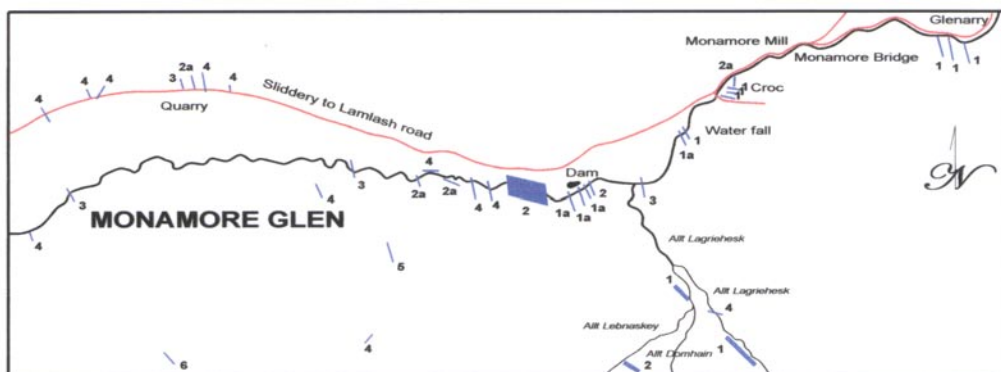
55. Croc

NGR: NS 021 299

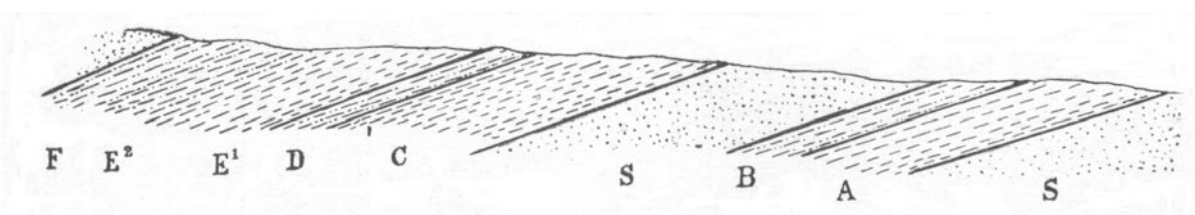
'Pitchstone was seen by Gunn at a point on the moor 250m ESE of Croc.'

Texture and colour unknown.

Tyrrell 1928, 215.



Illus 34 Minor acidic sills and dykes in Monamore Glen: 1 = pitchstone sills; 1a = pitchstone dykes; 2 = felsite sills; 2a = felsite dykes; 3 = olivine-tholeiite dykes; 4 = tholeiite dykes; 5 = tachylyte dykes; 6 = craignurite dykes (redrawn from Rao 1959, 239).



Illus 35 Section in Monamore Glen: S = sediments, c 9m thick between the sills; A = pitchstone, c 6m; B = devitrified felsite, c 3m; C = pitchstone, c 7.5m; D = platy felsite, c 1.25m; E<sup>1</sup> and E<sup>2</sup> = spherulitic pitchstone, partly devitrified, c 7.5m; F = devitrified rock, c 3m (Scott 1915 (b), 31).

56. Glenarry  
NGR: NS 020 300  
'Further, three thin sills of pitchstone are exposed near Glenarry'.  
Aphyric, colour unknown.  
Rao 1959, 237, 239.
57. Mill Dam  
NGR: NS 011 298  
Near the head of the unnamed tributary which falls into the Monamore Burn, a little above the Mill Dam, at a point 600m SSW of the seventh milestone on the Ross Road, there is a well-marked felsite sill which appears to underlie the coarse dolerite of the Monamore complex. This sill has a pitchstone-like facies at the above-mentioned point.  
Aphyric, colour unknown.  
Tyrrell 1928, 215.
58. Monamore Burn I  
NGR: NS 018 301  
In the Monamore Burn, near the farm of Croc, there occur three pitchstone outcrops and a dyke of felsite. Beginning the section at the small runnel which enters the burn from Croc, and working westward, the first dyke to be encountered is one of hard, dark felsite, the direction of which is approximately NNW to SSE, judging from its jointing. After a blank interval of c 7m, a pitchstone sill occurs in sandstone which dips 5–10° to the west. The lower part of the sill consists of a much-jointed pitchstone, which is immediately overlain by a green devitrified rock. The thickness of the complex is approximately 10m.  
Aphyric, bottle-green.  
Scott 1915 (b), 16; Tyrrell 1928, 214; Macgregor 1983, 186 Note 22.
59. Monamore Burn II  
NGR: NS 017 300  
After an interval partly occupied by sandstone, a second pitchstone sill consisting of four members appears. At its base, there is about 8m of green pitchstone, followed by 1–1.5m of hard, green, platy felsite, then by 3m of spherulitic pitchstone, passing upward into a banded variety, and finally, at the upper contact, there is c 2m of a banded green rock of felsitic appearance.  
Aphyric, dark green.  
Scott 1915 (b), 16; Tyrrell 1928, 214.
60. Monamore Burn III (Woollen Mill)  
NGR: NS 015 299  
The third pitchstone outcrop occurs upstream at the Woollen Mill, about 150m south-west of the above exposures. It makes a strong bar across the stream, striking north-west to south-east. The rock consists of a brown, banded, spherulitic glass, the banding being parallel to the edge of the dyke. At the margins it becomes red and devitrified. The upstream margin plunges abruptly through the sandstone like a dyke with a steep hade, but the downstream margin appears to overlie a ledge of sandstone in almost horizontal position, and hence is sill-like.  
Aphyric, dark green but also brown to red, banded.  
Scott 1915 (b), 16; Tyrrell 1928, 214.
61. Monamore Cairn  
NGR: NS 017 288  
Pitchstone pebbles are plentiful in the area immediately around the cairn (a 10m band around the cairn was inspected, as in 2005/06 the forest around the cairn had been harvested and ploughed). It has been suggested (Affleck et al 1988, 46) that the recovery



of pitchstone pebbles may indicate the dispersal of pitchstone across Arran by glaciers, but the uneven distribution, with some parts of the island being completely devoid of any pitchstone (for example, most of the area between Cnoc na Dail and Glen Dubh) and with pebble sources usually being spatially severely restricted (like the Clauchland Hills source), does not support this. It is more likely that small localised scatters of pitchstone pebbles indicate small local (presently obscured) outcrops.

Aphyric, dark green to black.

Ballin (2006 survey); also see [MacKie 1964](#).

62. Shore dyke, opposite Holy Island

NGR: NS 041 292

No additional site information available.

Texture and colour unknown.

[Macgregor 1983](#), fig 15 (unnumbered exposure).

## Whiting Bay

63. Allt Dhepin I

NGR: NS 014 272

In the stretch of moorland between Urie Loch and Loch na Leirg there occur two pitchstone exposures which may be parts of one and the same intrusion. One of these appears on the old Lamlash–Kilmory track about 800m south-east of Urie Loch (see below). What is apparently its continuation occurs *c* 800m to the south-east, in the eastern branch of a tributary of the Allt Dhepin. Only one face of this dyke is exposed, and its thickness cannot, therefore, be measured. It has a marked platy fracture parallel to its vertical edge, and is traversed by numerous thin veins of felsite up to *c* 8cm in width, interjected roughly parallel to the walls of the dyke.

Porphyritic, greenish-black or greyish-black.

[Scott 1915 \(b\)](#), 25; [Tyrrell 1928](#), 215.

64. Allt Dhepin II

NGR: NS 018 253

Along the steeply-plunging eastern edge of the Garbad quartz-dolerite, several of the small tributary burns of the Allt Dhepin reveal exposures of felsite which occasionally have a pitchstone-like facies. With this persistent intrusion may perhaps be correlated a felsite mass in the gorge of the Allt Dhepin. At one point this is a dyke, but it passes rapidly into a little columnar sill which is injected at the base of the Garbad quartz-dolerite sill. Numerous dykes and sills of felsite occur in this area, but it is not always easy to decide whether they belong to the quartz-dolerite-craignurite series, or to the later pitchstone-felsite suite. Many of the larger masses unquestionably belong to the former.

Texture and colour unknown.

[Tyrrell 1928](#), 216.

65. Cnoc an Fheidh

NGR: NS 016 249

A NNW to SSE-orientated dyke of pitchstone occurs on the slope approximately 400m south-east of Cnoc an Fheidh (268m OD), about 1200m NNW of Loch Garbad.

Porphyritic, colour unknown.

[Tyrrell 1928](#), 216.

66. Cnoc Mor

NGR: NS 025 256

A little north-east of Cnoc Mor, on the north side of Glen Ashdale, *c* 2.5km WSW of Whiting Bay Pier, is a pitchstone outcrop. From the available evidence, it appears to represent a dyke running WNW to ESE and must be from 5 to 7m in width.

Lightly porphyritic, black when fresh, slaty-blue when somewhat weathered. Steel-grey forms are also known from this source.

[Tyrrell 1928](#), 216.

67. Dippin

NGR: NS 049 227

Xenoliths(?) of pitchstone on a tholeiite dyke cutting a crinanite sill in a road-side quarry. The location is near the 12th milestone, on the main road SW of Largybeg Point.

Coarsely porphyritic, black.

[Tyrrell 1916](#), 193.

68. Glen Ashdale Burn

NGR: NS 027 249

A short distance downstream of a little waterfall, and some 37m or so downstream from a stone wall, xenolithic dolerite appears. About 90m upstream from the wall the feldspathic quartz-dolerite is followed by a slabby-jointed, deeply weathered, highly feldspathic quartz-dolerite which is succeeded by spherulitic felsite. The top of the sill is seen at a bend in the burn 128m upstream from the wall: it passes under baked sandstone, above which comes a thin felsitic intrusion, the uppermost part of which is a dark-banded pitchstone-like rock.

Lightly porphyritic, dark green to black, banded.

[Macgregor 1983](#), 149.

69. Torr an Loisgte I

NGR: NS 039 245

A composite dyke of pitchstone and felsite occurs south of Torr an Loisgte on the south side of Glen Ashdale, cutting the scarp of the Dippin crinanite in that locality. It strikes approximately NNW, and can be traced about 70m southwards, although it cannot be followed on to Torr an Loisgte. The marginal parts of the dyke, each *c* 1m thick, are composed of pitchstone; the central part, almost 3m thick, is a banded spherulitic felsite. The junctions between the two varieties are perfectly sharp, and the intrusion must therefore be regarded as composite. The dyke has 45° to the south-west, and appears to occupy a NNW–SSE line of movement.

Lightly porphyritic, dark green (E) or grey (W).

[Scott 1915 \(b\)](#), 22; [Tyrrell 1928](#), 216; [Macgregor 1983](#), 150, fig 15.13.

70. Torr an Loisgte II (burn)

NGR: NS 038 250

Boulders of pitchstone are numerous in the burn which descends from Torr an Loisgte to Glen Ashdale, but no pitchstone *in situ* could be found.

Porphyritic, dark green.

[Tyrrell 1928](#), 216.

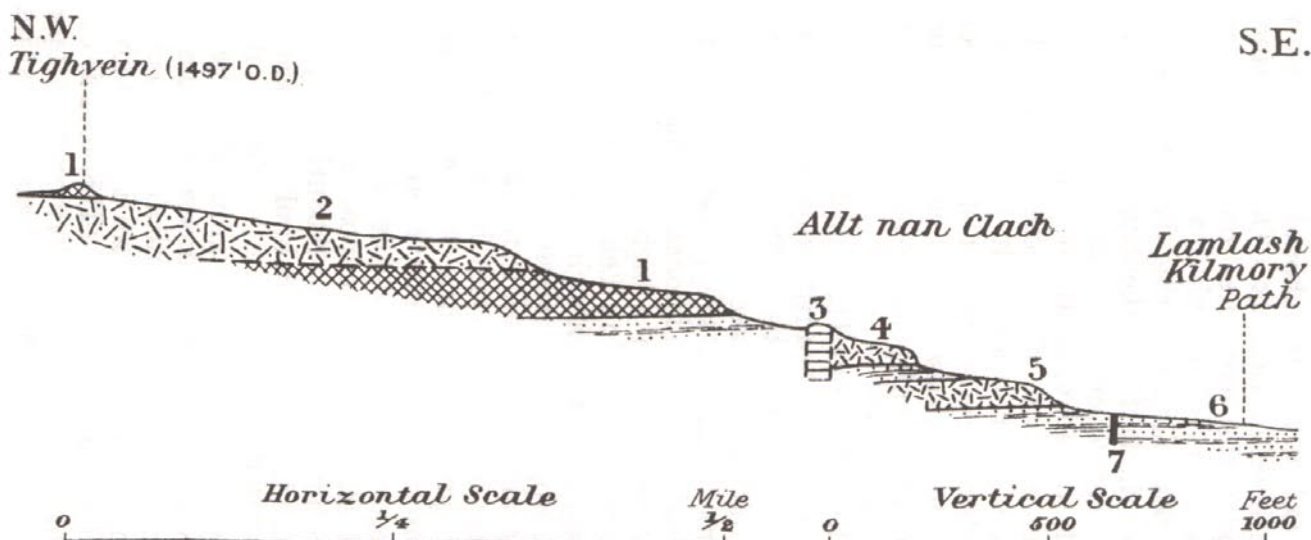
71. Torr na Baoileig I (W)

NGR: NS 025 247

As an example of the felsite masses of the district, which show no association with the more basic rock types, the Torr na Baoileig intrusion may be examined in the Allt Dhepin gorge. Access is obtained by crossing the feature formed by the Baoileig quartz-dolerite a short distance east of the lower end of the gorge of the Baoileig Burn. The rock is somewhat poorly preserved coarse spherulitic felsite or granophyre. Towards the south end of the gorge, and on the left bank of the stream, the margin of the intrusion transgresses hardened sandstone and marl. Locally, the contact rock is a pink and green banded felsite, sometimes associated with a green pitchstone. The felsite and sediments are cut by a rotted basic dyke.

Porphyritic, green.

[Macgregor 1983](#), 150, fig 15.11.



Illus 36 Section from Tighvein to the head of the Allt nan Clach: 1 = augite-diorite; 2 = micro-granite; 3 = pitchstone; 4 = quartz-dolerite; 5 = craignurite; 6 = Triassic sediments; 7 = basaltic dyke (Tyrrell 1928, fig 17).

72. Torr na Baoileig II (E)

NGR: NS 030 246

A pitchstone dyke is seen in the depression between Torr na Baoileig and the scarp of the Dippin crinanite sill, at a point about 800m WSW of Torr an Loisgte. In one exposure it appears to cut the Baoileig felsite, in another the crinanite. A boulder of pitchstone was found halfway up the crinanite scarp. The dyke appears to run ENE to WSW.

Porphyritic, green.

Tyrrell 1928, 216; Macgregor 1983, 150, illus 15.12.

73. Urie Loch

NGR: NS 008 275

In the stretch of moorland between Urie Loch and Loch na Leirg there occur two pitchstone exposures which may be parts of one and the same intrusion. One of these appears on the old Lamlash-Kilmory track about 800m south-east of Urie Loch. It trends north-west to south-east and has a thickness of 6 to 7m. What is apparently its continuation occurs c 800m to the south-east, in the eastern branch of a tributary of the Allt Dhepin (see 63 above).

Porphyritic, green.

Scott 1915 (b), 25; Tyrrell 1928, 215.

### South Arran

74. Allt an t-Sluice

NGR: NR 929 259

A pitchstone sill is visible in the Allt an t-Sluice, a headwater of the westernmost tributary of the Sliderry Water. The exposure is approximately 3km ESE of Kilpatrick Point. Roughly 3m of pitchstone is visible; it forms a ledge in the bank of the stream, in the channel of which red marly sandstone is seen.

Porphyritic, colour unknown.

Tyrrell 1928, 217.

75. Allt an t-Stuie I (W)

NGR: NR 995 268

Two pitchstone dykes occur near the head of the eastern headwater of the Allt an t-Stuie (or: An Sloc),

the main branch of the Kilmory Burn. The exposures are located c 800m SSW of the summit of Tighvein. They trend in a NNW to SSE direction. The western dyke cuts 'felsophyric quartz-porphyr'. Porphyritic, green.

Corstorphine 1895, 448; Scott 1915 (b), 24; Tyrrell 1928, 216.

76. Allt an t-Stuie II (E)

NGR: NR 995 268

Two pitchstone dykes occur near the head of the eastern headwater of the Allt an t-Stuie (or: An Sloc), the main branch of the Kilmory Burn. The exposures are located c 800m SSW of the summit of Tighvein. They trend in a NNW to SSE direction. The eastern dyke intersects the dolerite of the Tighvein complex.

Porphyritic, green.

Corstorphine 1895, 448; Scott 1915 (b), 24; Tyrrell 1928, 216.

77. Allt nan Clach (Glas Choirein)

NGR: NS 003 268

Near the head of the Allt nan Clach, one of the headwaters of the Kilmory Burn, approximately 800m to 1km south-east of the summit of Tighvein, there is an exposure of pitchstone, the relations of which are very obscure, because it is entirely surrounded by peat. It forms a low, flat-topped knoll elongated in a WNW to ESE direction, and measuring 100m by 30m. It may form part of a thick dyke, or it is possibly a lenticular swelling on a sill-like mass.

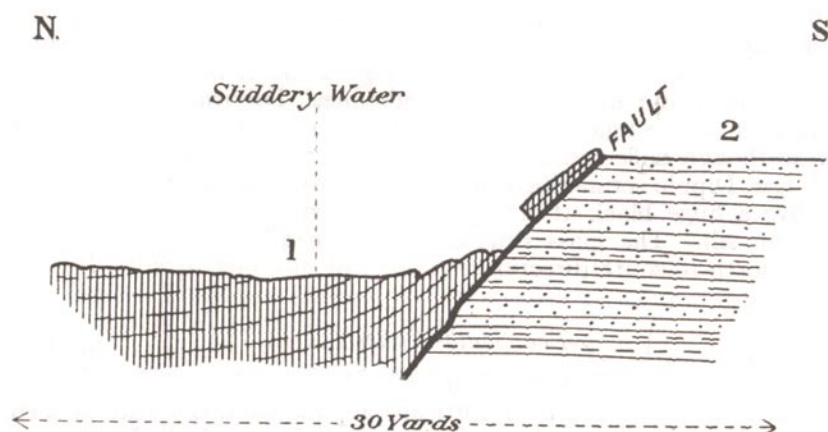
Coarsely porphyritic, green.

Scott 1915 (b), 25; Tyrrell 1928, 215.

78. Burican

NGR: NR 947 252

Just above Glenrie Bridge, on the Sliderry Water, c 550m south of Burican Farm, a pink-banded felsite is seen, with what appears to be a faulted junction against the Triassic sediments. The nearly horizontal, slabby joint-planes of the igneous rock turn up until they become almost vertical at the junction. The absence of shattering suggests that the felsite has come up along the fault. The Burican pitchstone forms a ledge between the road and the Sliderry Water above the felsite. It slopes down towards the



Illus 37 Junction of felsite against Triassic sediments, Sliderry Water, just above Glenrie Bridge (Burrigan): 1 = felsite, with slabby jointing; 2 = Triassic sediments (Tyrrell 1928, fig 29).

river, and has a visible thickness of 7m. It seems probable that it represents the upper part of the banded felsite.

Porphyritic, green.

Scott 1915 (b), 26; Tyrrell 1928, 217; Macgregor 1983, 185, Note 21.

79. Cnocan a' Chrannchuir (Allt na Craoibhe)

NGR: NR 916 272

This occurrence is in a small burn called Allt na Craoibhe, on the north-east side of Cnocan a' Chrannchuir, about 2.5km south-east of Blackwaterfoot. It is very poorly exposed, consisting of scattered blocks of pitchstone, and approximately ½m of the rock in situ. From the fact that baked whitish sandstone is seen nearby on the same level, the exposure is thought to be part of a dyke.

Porphyritic, green to dark green.

Tyrrell 1928, 217.

### Machrie Bay and Drumadoon Bay

80–81. Auchagallon I a–b

NGR: NR 897 348 and 898 349

In the stream c 400m north-east of the village there are two pitchstone dykes close together, and the more northerly of the two is accompanied by felsite. Both range somewhat north of east.

Porphyritic, colour unknown.

Gunn et al 1903, 95; Tyrrell 1928, 209.

82. Auchagallon II

NGR: NR 892 347

A small pitchstone dyke occurs in the old sea-cliff to the west of the village on the north side of a sandstone quarry.

Porphyritic, light green to dark green or black.

Gunn et al 1903, 95; Tyrrell 1928, 209.

83. Auchagallon III

NGR: NR 891 345

A pitchstone outcrop also occurs on the shore about 80m south of the jetty (Cleiteadh Buidhe).

Porphyritic, brown.

Gunn et al 1903, 95; Tyrrell 1928, 209.

84. Drumadoon Point

NGR: NR 884 287

On reaching the northerly part of Drumadoon Point, the relations between the 'Doon' and the Point can be discussed, bearing in mind the structure in the

'Needle' at the south of the sill. The dykes cutting the porphyry are interesting, especially those at the northerly end of the lower porphyry, and the porphyritic pitchstone a little farther to the south. The base of the lower porphyry is exposed both in the north and in the south, where it is basified and grades to basalt with xenocrysts.

Porphyritic, colour unknown.

Tomkeieff 1961, 30.

85–89. King's Cave I–V

NGR: NR 883 309

Five separate exposures of pitchstone occur on the shore and in the cliff bounding the raised beach to the south of King's Cave, halfway between Tormore and Drumadoon. Three of these exposures are in and about a recess in the cliff made by a small stream. Just below the path on the south side of the recess there is a pitchstone sill c 7m thick, resting on sandstone and dipping SSE at 5–10°. A little higher up there is a small mass of shattered pitchstone. At a higher level on the opposite side of the recess there is first a sill of spherulitic felsite about 10m thick, and then another of banded pitchstone. Assuming that the spherulitic felsite is the same intrusion as the lowest pitchstone, an assumption for which there is petrographic warrant, the relations of the four igneous masses may be explained as in the section (illus 38) by means of a north-west to south-east fault running along the line of the above-mentioned gully.

This fault-plane appears to be occupied by a felsite-pitchstone dyke, for felsite is found on the shore at the north-west end of the line, and a pitchstone dyke is recorded by Gunn at the south-east end near the head of the gully. In the cliff bounding the raised beach immediately to the south of the above-mentioned exposures, another sill of pitchstone is exposed, which may represent a third horizon of this rock.

Porphyritic, greyish green to dark green, banded.

Gunn et al 1903, 95; Tyrrell 1928, 220; Tomkeieff 1961, 29.

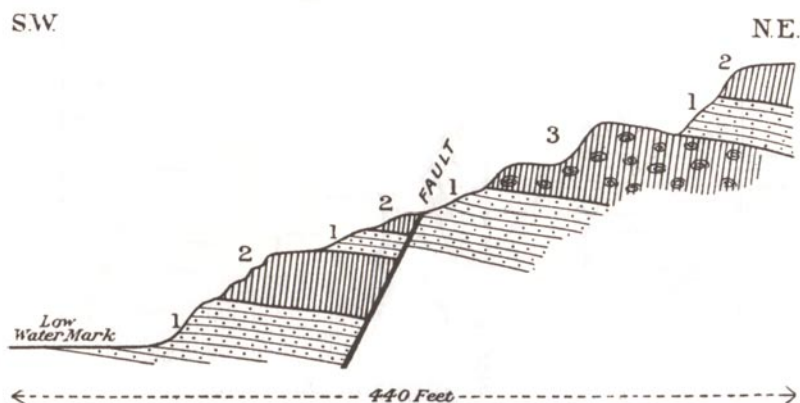
90. Machrie Burn

NGR: NR 925 362

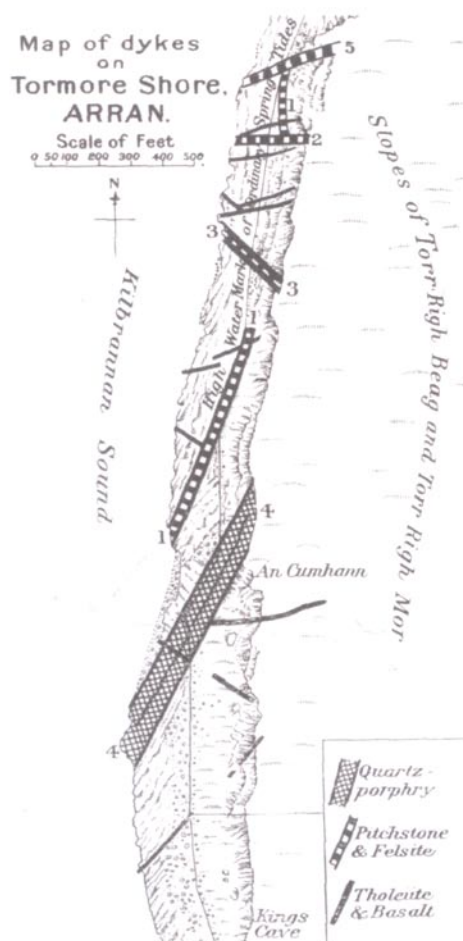
A dyke of pitchstone, c 2m in width, crosses this stream in a NNW direction about 1200m NNE of Cnoc na Ceille. The stream here is called Allt Airidh Niall.

Porphyritic, light green.

Gunn et al 1903, 95; Tyrrell 1928, 209.



Illus 38 Section across pitchstone exposures south of King's Cave, c 1.5 km north of Drumadoon: 1 = New Red Sandstone sediments; 2 = pitchstone; 3 = spherulitic felsite (Tyrrell 1928, fig 31).



Illus 39 Map of dykes on the Tormore shore, based on Judd (1893, 552): 1 = tholeiite-pitchstone composite dyke (Judd's No. I dyke), composite at south end but only pitchstone at north end; 2 = tholeiite-pitchstone composite dyke (Judd's No. II dyke); 3 = tholeiite-pitchstone composite dyke (Judd's No. III dyke); 4 = composite dyke of quartz-porphry and tholeiite (Judd's No. IV dyke); pitchstone dyke (Judd's No. V dyke) (Tyrrell 1928, fig 30 – with later amendments).

91. Tormore (Judd's No. I Dyke)

NGR: NR 884 315

This is the largest pitchstone intrusion on the Tormore shore. The Tormore shore is the 1½km-long strip of rocky coast which stretches southwards from the southern side of Machrie Bay. The dyke appears at low-water mark 200m north of An Cumhann, and runs in a NNE direction. At high-water mark, however, its direction becomes more northerly, and it ultimately passes from sight under boulders and raised beach material. It reappears at the northern end of the section for 100m or so, with a northerly course. Its total exposed length is thus about 600m. At the northern end of the outcrop the pitchstone appears to be a vertical dyke, but towards its southern extremity, according to Judd, it hades at less than 60°. At its northern end it consists entirely of pitchstone; the southern exposures, however, show the pitchstone passing on both sides into banded, spherulitic felsite. On its eastern margin, moreover, a band of dark tholeiite intervenes between it and the adjacent sandstone.

Sparsely porphyritic to porphyritic, dark green to dark bluish-black.

Judd 1893, 554; Gunn et al 1903, 95; Tyrrell 1928, 218; Tomkeieff 1961, 27.

92. Tormore (Judd's No. II Dyke)

NGR: NR 885 316

This dyke occurs near the north end of the Tormore section. It runs east to west, and appears to intersect the north to south dyke. Its thickness is c 9–10m. Its sides are composed of tholeiite weathering in the usual spheroidal fashion, but the centre is a quartz-felsite which occupies about half the width of the dyke. A pitchstone dyke or vein, 15–60cm in width, is found sometimes intersecting the felsite, and at other times the adjoining tholeiite.

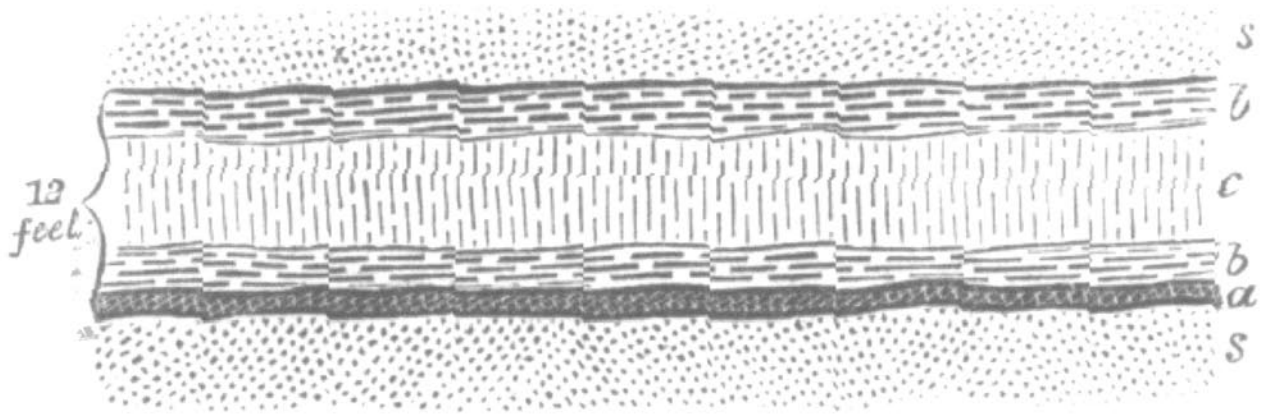
Porphyritic, dark green.

Judd 1893, 555; Gunn et al 1903, 95; Tyrrell 1928, 218; Tomkeieff 1961, 27.

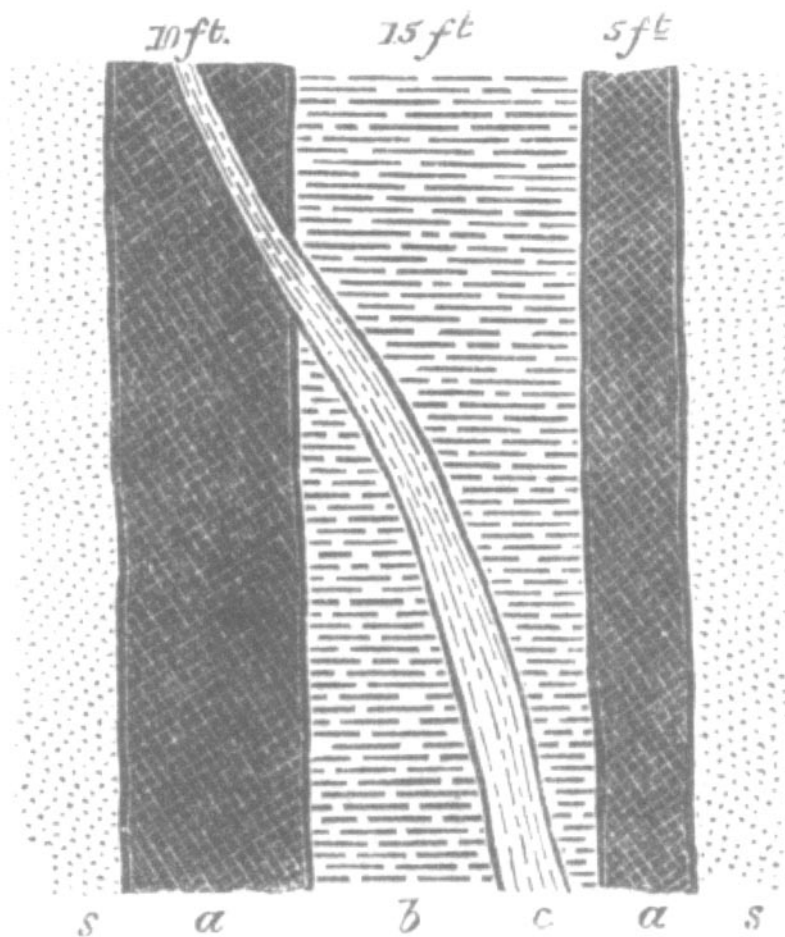
93. Tormore (Judd's No. III Dyke)

NGR: NR 884 315

About 120m south of Judd's Dyke No. II, another composite dyke occurs, which trends north-west to south-east. It is from 12m to 15m wide, and is mainly composed of tholeiite. Somewhat asymmetrically



Illus 40 Diagrammatic plan of Judd's No. I Dyke: a = tholeiite; b = banded and spherulitic felsite (andesite); c = pitchstone (andesite); s = sandstone (Judd 1893, fig 2).



Illus 41 Diagrammatic plan of Judd's No. II Dyke: a = tholeiite; b = quartz-felsite (dacite); c = pitchstone-porphry (dacite); s = sandstone (Judd 1893, fig 3).

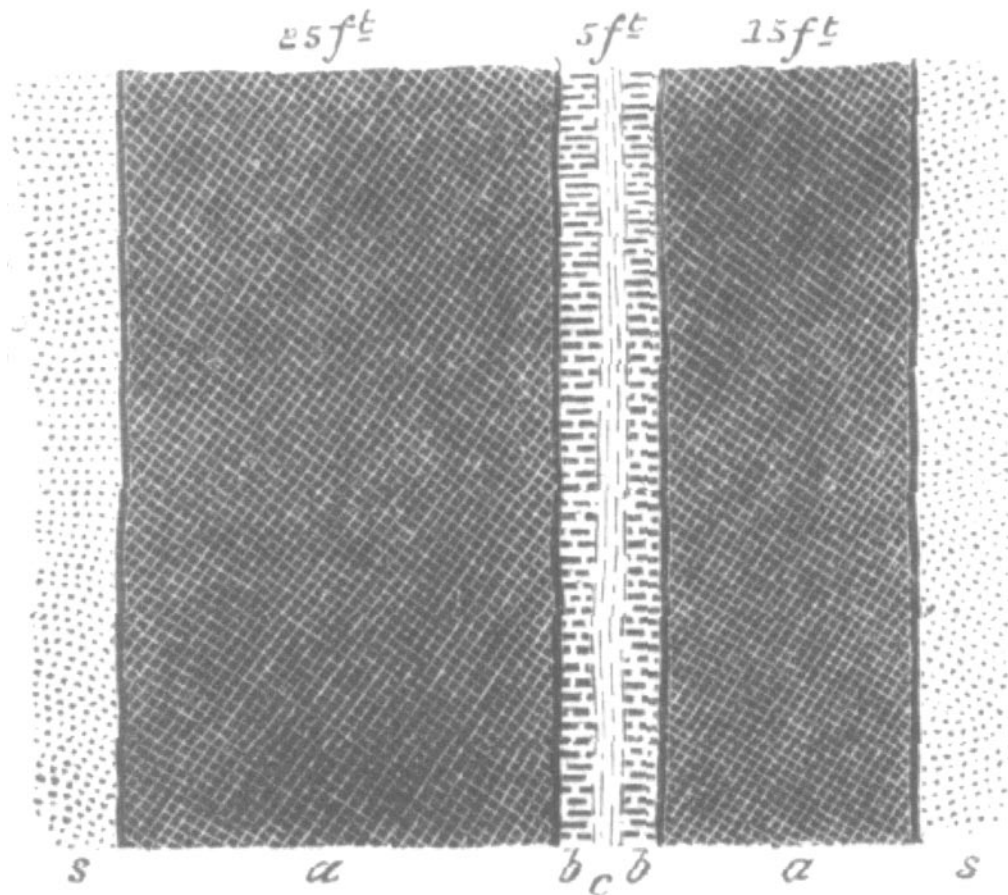
placed there is a median band of acid rock about 1.5m thick, of which the central c 60cm consists of pitchstone, and the remainder of quartz-felsite.

Porphyritic, dark green.  
Judd 1893, 556; Gunn et al 1903, 95; Tyrrell 1928, 218; Tomkeieff 1961, 27.

94. Tormore (Judd's No. IV Dyke)  
NGR: NR 8840 3116

A poorly exposed area of highly porphyritic yellowish-brown pitchstone occurs close to HWM, on the east outer margin of the large composite dyke at An Cumhann (Judd's No. IV dyke). This is almost certainly a glassy variant of the porphyry making up the central part of this large dyke.

Highly porphyritic, yellowish-brown.  
Kanaris-Sotiriou & Gibb 1985.



Illus 42 Diagrammatic plan of Judd's No. III Dyke: a = tholeiite; b = quartz-felsite (dacite); c = pitchstone (dacite); s = sandstone (Judd 1893, fig 4).

95. Tormore (Judd's No. V Dyke)

NGR: NR 885 317

'Southwards from Leacan Ruadh, the path follows the 25-foot raised beach until it is crossed by a pitchstone dyke, Judd V, which, contrary to the information in the *Memoirs* [that is, Tyrrell 1928], forms a prominent exposure of some 12 feet (c 3.5m). The edges are undulose but the exposure can be traced into the cliff. It terminates the northerly end of the long north-south dyke, Judd I.' (Tomkeieff 1961, 27.)

Porphyritic, dark green.  
Judd 1893; Tyrrell 1928, 218; Tomkeieff 1961, 27.

96. Tormore

NGR: NR 886 315

In the path behind (east of) Judd's dykes, there are some pieces and nodules of pitchstone. They may derive from one or more of the known dykes, extending inland, or they may indicate the presence of other (now possibly obscured) local intrusions.

Porphyritic, dark green.

Ballin (2006 survey); Faithfull (various geology excursions).