



*Aspects covered:* pyroclastic deposits (mainly tuffs); subaerial plateau lavas; pillowed lavas; dolerite sills; Jurassic sedimentary rocks.

*Route:*

- i. Penifiler-Camas Ban-(Penifiler)
- ii. Portree-Sgeir Mhor-Am Bile-Creag Mhor-Port a' Bhata-(Portree)
- iii. Lon Druiseach

*Distance:*

- i. 2 kilometres
- ii. 7 kilometres
- iii. 2 kilometres

*Time:*

- i. 2 hours
- ii. 4 hours
- iii. 2 hours

*General comments:* For the purposes of this excursion, cars and minibuses, but not coaches, are the only means of transport. For Part (iii), a shovel may prove invaluable.

The town of Portree is located on the north side of Loch Portree, on the east coast of north Skye. It lies 40km (25 miles) NW of Broadford on the A850 road. The general geology around Portree consists of Jurassic strata (2F) capped by Lower Tertiary tuffs (3A), plateau lavas (3D) and interbasaltic sedimentary rocks (3B), all of which dip at a shallow angle to the west (10C). NW-SE - trending dykes of the Lower Tertiary regional swarm (9B) cut the various igneous and sedimentary units. Locally, large masses of lava and tuff have landslipped (11D) to the east; an event thought to be post-glacial in origin (11B). The plateau lavas form spectacular coastal cliffs east of Ben Tianavaig, south of Loch Portree, and also, east of Bealach Cumhang and Sithean Bhealaich Chumhaing, north of the Loch.

This excursion is split into three parts:

- i. On the south side of Loch Portree, at Camas Ban
- ii. On the north side of Loch Portree, between Sgeir Mhor and Creag Mhor
- iii. The stream bed of the Lon Druiseach, 4km (2.5 miles) north of Portree

(i) From Portree, follow the main (A850) road south for 2.5km (1.5 miles) to the Braes (B883) road, immediately south of Loch Portree. If travelling from Broadford, the road to Braes is a very sharp right-hand turn-off from the A850 road. Proceed along the B883 road, across the Varragill River, to the Penifiler turn-off (0.8km (0.5 miles)) and continue to Penifiler (1.5km (1 mile)). Parking for 4 cars or 3 minibuses is available on the west side of the road 100m from the road-end (*which is a turning point only*). From the end of the road walk NE over the step-like trap topography of the plateau lavas (3D), past a prominent cairn approximately mid-way en route, to the bay of Camas Ban. Descend the grassy slopes in the middle of the bay to the dark sandy beach.

### **Locality 1 [NG 4932 4238]**

On the east side of Camas Ban, the Lower Tertiary volcanic sequence consists of a dolerite sill (9H) intruded into palagonite tuffs (3A). The sill is columnar-jointed, columns being typically 30cm across,

and these fan out in an irregular fashion. The palagonite tuffs may best be examined on the west side of the beach on the wave-cut platform.

## **Locality 2 [NG 4912 4250]**

The dark, bedded and false-bedded tuffs (3A) on the west side of Camas Ban consist of highly-altered basaltic ashes containing the secondary clay-like material palagonite, and matrix-supported, bomb-sized (15cm) rock-fragments of angular to subangular basalt. This ejecta was most likely derived from local vents, not now exposed. The ash component of these deposits consists of upward-fining cycles, approximately 20cm thick. The uppermost part of the exposed tuffs have, in part, been leached to form a highly ferruginous laterite (3A), (3C). In the crags above the west side of the bay the base of the plateau lava sequence (3D) may be examined. The first (lowest) lava flow is a highly vesiculated basalt which infills slight irregularities in the underlying tuffs. A Lower Tertiary lignite seam (from 30cm to 1m thick) at the top of the tuff sequence (directly below the lowest lava) was worked for low-grade coal (3A) during the 18th Century, yielding an estimated 500-600 tons (Parish records, reported in Macculloch 1819). The partially-collapsed entrance to the drift mine may be examined at the base of the crags. Above the lignite, the vesiculated, rubbly base of the lowest lava grades into, over 1m, a coarse-grained, crudely-jointed dolerite, forming the massive, central portion of this flow. Individual flows within the plateau sequence can be seen readily in the cliffs to the east of Camas Ban.

From here, return to Camas Ban, and thence to Penifiler.

(ii) Return (or proceed) to Portree and follow the route through the town signposting Staffin (A855) to where the junction to Budhmor is indicated. Follow this minor road down the hill and around the north side of Loch Portree, across the River Chracaig. Proceed 200m beyond the river over the bridge, to where parking for 4 cars or 3 minibuses is available on the south side of the road. Follow the prominent footpath SE along the coast, past the promontory of Sgeir Mhor. Note on the south side of Loch Portree that the plateau lava sequence dips at a shallow angle to the west.

## **Locality 3 [NG 4950 4354]**

From Sgeir Mhor, to the NE, a thick dolerite sill of Lower Tertiary age (9H) is exposed along the coast. Proceed NE along the path and cross, via a small wooden gate, a dry-stone wall, beyond which the ground opens out into a meadow. Walk across the gently sloping, cultivated ground, over Middle Jurassic strata (2F), to just beyond the crags of Am Bile, at the base of the Creag Mhor cliffs. A few metres east of Am Bile, in the vicinity of a small stream, a fault downthrows the Lower Tertiary volcanic sequence exposed in the cliffs, bringing the contrasting rocks of Lower Tertiary and Middle Jurassic ages into juxtaposition.

## **Locality 4 [NG 5054 4472]**

Follow the lowest exposures of the volcanic rocks on the east side of the small stream for 200m, to where the sequence is dominated by a series of pillowed, plagiophyric, tholeiitic basalt lavas (with pillows up to 1m across). For reference, this locality is directly above the point on the beach where the grey pebbles give way to a boulder beach representing the beginning of the shoreline scree from the lava sequence. Individual pillows have ropy surfaces and contain radiating pipe amygdaloids of various carbonates. Between and below the pillows are sporadic exposures of palagonite tuff, up to 0.5m thick. The tuffs (3A) are dark brown, rich in crystals and glass, and contain amygdaloids of zeolite and opaline silica. Below the tuffs are further exposures of amygdaloidal basalt (up to 2m thick).

Return to Am Bile and, either, proceed across the cultivated ground back to Portree, or, follow the indistinct path along the immediate foot of the crags below Am Bile. The upper parts of these crags consist of false-bedded, calcareous grits and sandstones and sandy limestones of the Middle Jurassic Bearreraig Sandstone Formation (2F). Occasionally, horizons of calcareous concretions ('doggers') are observed. Below these units, at the eastern end of the exposures, are more massively-bedded sandstones, which give way, downwards, to poorly-exposed shales.

This whole sequence of Jurassic strata, similar to the overlying lava pile, dips at a shallow angle to the west and is cut by several vertical, inweathered basalt and dolerite dykes which form prominent gullies trending NW-SE in the rock-face.

Return to the north side of Loch Portree.

(iii) Return to the Staffin (A855) road and proceed north from Portree for 4km (2.5 miles) to where the road crosses the Lon Druiseach. Parking for 4 cars or 3 minibuses is available on the east side of the road, 250m north of this point, in a small, abandoned, road-side quarry. From here, walk ESE, across open ground to the moraine-filled valley (11B) of the Lon Druiseach, for 900m, passing under the large water pipe and on the north side of the sluice, to the main southern tributary.

### **Locality 5 [NG 5016 4716]**

150m upstream from the confluence, on the brown, soil-covered east bank, the following rock sequence is exposed (modified from Anderson and Dunham 1966):

(TOP)	m
4. Basalt lava with amygdales at its base merging into	7.0
3. Palagonite tuff with pillowed, amygdaloidal lavas	1.6
2. Thin-bedded, brown tuffs	4.5
1. Pale yellow sandstone of the Valtos Sandstone Formation (Great Estuarine Group, Middle Jurassic)	
(BASE)	

Invariably, rocks from the lower part of the sequence are covered with soil debris from the easily-weathered tuffs. This soil is most easily removed with a shovel.

Return to the road.

## **References**

### **Appendix 1: Glossary of petrological names and terms**

### **Appendix 2: Glossary of fossil names**

### **Appendix 3: Glossary of place names and grid references**

At all times follow: [The Scottish Access Code](#) and [Code of conduct for geological field work](#)

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