The Broadford area, Skye - an excursion

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Figure 21 Excursion 7 The Broadford area modified from Hallam 1959 Excursion, location map

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Excursion 7 The Broadford area (Figure 21) (modified from Hallam 1959)

Purpose: To examine Lower Jurassic sedimentary rocks and Lower Tertiary minor intrusions.

Aspects covered: Lower Jurassic sedimentary rocks; Lower Tertiary basic dykes; Lower Tertiary composite intrusions; faults.

Route:

1. Broadford–Ob Lusa–(Broadford)
2. Broadford–Waterloo–the Ardnish Peninsula–Ob Breakish–(Broadford)

**Distance:**

1. 1 kilometre
2. 5 kilometres
3. 2 kilometres.

**Time:**

1. 2 hours
2. 4–5 hours
3. 1–2 hours.

**General comments:** Coastal exposures are involved and, therefore, low (preferably spring) tide conditions are necessary.

This excursion is split into three parts:

1. The coastal section at Ob Lusa, 5km (3 miles) east of Broadford Bay (Beds 1 to 13 of the Broadford Beds, see section below)
2. The coastal section of the Ardnish Peninsula, on the east side of Broadford Bay (Beds 11 to 28 of the Broadford Beds, see section below)
3. The coastal section on the west side of Broadford Bay, at Corry, consisting of strata above Bed 28 (see section below).

The full section of Lower Jurassic strata (modified from Hallam 1959 and Hudson and Morton 1969) consists of:

**UPPER BROADFORD BEDS, 38.6m +**

**Semicostatum Zone**

(TOP)

<table>
<thead>
<tr>
<th>Layer</th>
<th>Description</th>
<th>Fossils</th>
<th>m</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.</td>
<td>Sandstones, siltstones and shales, with abundant <em>Arnioceras</em> and <em>Euagassicerus</em> spp.</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>Sandstone with abundant <em>Agassiceras (scipionanum)</em></td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>Shales with bands of <em>Gryphaea (arcuata)</em></td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>Thin sandstones and sandy shales. Large <em>Pararnioceras</em> at base</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>(GAP) approximately</td>
<td>12.2</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>Thin sandstones and sandy shales, with abundant <em>Arnioceras</em> (aff. <em>semicostatum</em>) and <em>Pararnioceras</em> (aff. <em>parthenope</em>). <em>Gryphaea (arcuata)</em> common; <em>Spiriferina (walcotti)</em></td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Oolitic ironstone, weathering reddish. <em>Piarorhynchia (juvenis)</em> and bivalves, especially <em>Chlamys</em> (?) (calva), common</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Sandstones and subsidiary shales, poorly fossiliferous</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Shale with <em>Coroniceras</em> (reynesi) and <em>Arnioceras</em> (aff. <em>semicostatum</em>)</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Sandstone with abundant <em>Coroniceras</em> (reynesi). <em>Arnioceras</em> and bivalves common</td>
<td>0.6</td>
<td></td>
</tr>
</tbody>
</table>
TRIASSIC STRATA

Broadford is located on the main (A850) road in the central part of Skye, 16km (10 miles) west of the ferry port of Kyleakin and 40km (25 miles) south of Portree. Coastal exposures around the bay are dominated by Lower Jurassic sedimentary rocks (2F) cut by Lower Tertiary dykes (9B).

(i) The coastal section at Ob Lusa, 5km (3 miles) east of Broadford Bay (Beds 1 to 13 of the Broadford Beds, see section below)

From Broadford, proceed east along the Broadford-Kyleakin (A850) road, towards Kyleakin, for 5km (3 miles) to the turn-off to Kylerhea. Ample parking for cars, minibuses and coaches is available on the south and north sides of the main road, immediately east of the turn-off. Continue on foot east along the north side of the main road, past the forested ground, for 750m. Gain access to the shore through the gate to the small croft. On the east side of Ob Lusa poorly-bedded, red Torridonian...
arkoses and sandstones of the Applecross Group crop out (2B). They strike NE-SW and dip at 25° to the NW. Cross over the pebble beach to the promontory NE of the croft to where Lower Jurassic sedimentary rocks are exposed. The unconformity which separates the Torridonian and Jurassic strata (with intervening Triassic strata?) lies unexposed below the pebble beach. At Ob Lusa Beds 1–13 of the Lower Broadford Beds are well-exposed.

(ii) The coastal section of the Ardnish Peninsula, on the east side of Broadford Bay (Beds 11 to 28 of the Broadford Beds, see section below)

Return to the parking area and proceed to the east side of Broadford Bay. Follow the minor road signposting Waterloo for 1km to its end, where parking for 4 cars or 3 minibuses is available. (Coach parties should alight at the Waterloo turn-off and walk the 1km). Access to the Ardnish Peninsula is gained from the end of the metalled road via a short footpath over a narrow drainage ditch and through a wooden gate. Immediately to the NW, on the shore, is the promontory of Rubh' Achadh a' Chuirn, consisting of a 10m-wide multiple dolerite dyke trending NNW-SSE. Small faults, with significant strike-slip displacements, disrupt the strata to be examined and can be traced for several tens of metres on the foreshore. It is suggested that in order to follow the stratigraphic section provided above, the sequence is traversed from oldest to youngest. As these strata dip at a shallow angle to the NW, the oldest units crop out on the SE side of the peninsula. For ease of location within the sequence it is proposed to start at the distinctive, red-weathering Bed 20, an oolitic ironstone (see above). Follow the rough path ENE along the NW side of the peninsula (above the High-Water Line) for approximately 1km to the first tidal inlet. On the NE side of the inlet sandstones, siltstones and shales (Bed 28) provide particularly good specimens of the bivalve Gryphaea (arcuata), which have been outweathered by tidal action. Specimens can be collected either in situ, or from the many boulders strewn around the inlet. From the inlet continue NE along the coast for a further 600m to a 5m-wide, NW-SE trending, multiple dolerite dyke, which forms a prominent wall-like feature. Walk a further 150m to the NE side of the Rubha Ardnish and cross over the peninsula (to the SE) to the top of a 4m-high coastal bank. At this point a small, solitary tree growing in this bank should be nearby (30–50m). Proceed SE in a direct line towards the graveyard on the far side of the major inlet of Ob Breakish. This can only be done at low tide. Cross a broad spit of land (only exposed at low tide) to its SE side. Here, the distinctly red-weathering oolitic ironstone (Bed 20) crops out in a small bank (opposite an island). With this bed identified, it is possible to locate all units above and below. It is suggested that the muddy inlet to the SE is crossed, onto the island, and thence proceed the short distance to the SE side of the island. Here, the lowest strata exposed belong to Bed 12. From here, traverse up through the section in a direction directly (NW) towards Rubha Ardnish.

(iii) The coastal section on the west side of Broadford Bay, at Corry, consisting of strata above Bed 28 (see section below).

Return to the road-end at Waterloo and thence to the main (A850) road. Continue into Broadford and to the west side of the bay. Immediately west of the bridge over the Broadford River, follow the minor road along that side of the bay to the pier at Corry. Parking for 5 cars or 2 minibuses and turning-room for a coach is available at the end of the metalled road. Gain access to the beach north of the pier through a small gate. Between the pier and the promontory of Rubh' an Eireannaich higher horizons (Turneri Zone, above Bed 28) of the Broadford Beds crop out (Hallam 1959). These
strata dip at a shallow angle (10–15°) to the NW. The dominant lithologies are calcareous siltstones and shales, containing Gryphaea (arcuata), passing upwards, to the north, into coarser, but similar, material. Lower Tertiary dykes of the regional swarm (9B), together with composite dykes and sills (7H) cut these strata. Proceed north, up through the sedimentary succession, to the promontory of Rubh' an Eireannaich. Here, a 5m-thick composite sill, intruded into sandstones and siltstones, crops out. Both the sill and the underlying strata are cut by thin, irregular, basic dykes. The sill is described in detail in Section (7H) of Chapter 7. A complete section through this sill is most easily examined on either side of a small pebble beach at the cliff face, rather than on the exposures of the headland itself. Further along the coast, to the NW, two other sills (20 and 30cm thick, respectively) with compositions similar to the basic margins of the main Rubh' an Eireannaich composite sill, intrude Lower Jurassic sandstones.

Return along the track above the beach to the pier at Corry.

**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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