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## Excursion 6 Minishal and north-west Rum

### Highlights

This excursion affords the opportunity to examine the north end of the Layered Centre, the major peridotite plug north of Glen Shellesder and minor intrusions cutting the Torridonian and Triassic rocks, as well as features in the sedimentary successions. The total distance is 18–20 km.

Take the Harris road to the point where Salisbury's Dam [NM 364 999] is visible. Upstream from the dam, the Kilmory River has cut steep-sided valleys in the easily weathered mafic rocks of the Central Intrusion (Figure 58).

### **Locality 6.1 Kilmory River – alkaline segregations in peridotite of Central Intrusion [NM 3639 9962]**

Follow the tributary of the Kilmory River south for about 200 m from the dam to where thin, pale-coloured alkaline segregations and veins traverse crumbling peridotite. Material used for U-Pb dating (60.53 Ma) of the Central Intrusion was obtained from these veins (Pearson *et al.*, 1996; Hamilton *et al.*, 1998). Return to the dam and walk west-north-west for about 700 m across north–south-trending scarps and exposures of gabbro and peridotite in the northern extension of the Central Intrusion (Figure 2) and (Figure 58).

### **Locality 6.2 West of Salisbury's Dam – replacement 'finger structures' in peridotite [NG 3583 0018]**

A prominent south-east-facing scarp exposes weakly laminated and layered, pale grey feldspathic peridotite underlain by brown peridotite (Figure 59). The contact is highly irregular. Finger-like protrusions of brown peridotite penetrate, cross-cut and apparently replace the overlying feldspathic peridotite. They are excellent examples of the replacement 'finger structures' found in the peridotites of the Rum Central Complex and elsewhere (Butcher *et al.*, 1985; Robbins, 1982; Emeleus and Bell, 2005).

### **Locality 6.3 Minishal – Main Ring Fault, sandstone and microgranite cut by peridotite [NG 3550 0022]**

About 300 m to the west of Locality 6.2, the contact between peridotite and the microgranite and sandstone to the west is obscured in a shallow, north–south depression. Indurated baked sandstone and microgranite are exposed in a north-north-east-trending scarp on the east face of Minishal. Careful examination of the exposures in the scarp reveals a continuous passage from sandstone through brecciated sandstone and microgranite to microgranite at the southern end. This faulted contact is part of the Main Ring Fault and it has been heavily overprinted by thermal metamorphism due to emplacement of the Central Intrusion (Hughes *et al.*, 1957; cf. Black, 1954).

### **Locality 6.4 Path north of Minishal – peridotite plug with some layering, intruding sandstone [NG 356 002]**

About 1 km to the north of Locality 6.3, the Kilmory Glen–Glen Shellesder path crosses a low col at 139 m [NG 357 001]. A very elongate peridotite plug extends north-north-west for about 600 m from a lochan just north of the path. Weakly developed centimetre-scale layering is developed in peridotite about 200 m north of the lochan. The adjoining sandstone is typically bleached and grey in colour. Continue in a north-west direction for almost 1 km, to the hill Sgaorishal [NG 3505 0195].

## **Locality 6.5 Sgaorishal – 'fissure-breccia' in sandstone, which is baked and bleached [NG 3523 0175]**

200 m south-south-east of the summit there is a narrow, north-north-west-trending zone of bleached and brecciated sandstone. This is one of many similar zones in northern Rum (especially on Mullach Mòr) where the sandstone has been severely baked, in some instances with the production of tridymite (now represented by quartz paramorphs) and commonly exhibiting indications of partial melting. A possible explanation is that headed dykes underlie these 'fissure breccias' (Harker, 1908; Emeleus, 1997). A thick, north-west-trending, dolerite dyke cuts sandstone on Sgaorishal summit. Continue west, skirting the southern side of Loch Sgaorishal, then take a direction slightly south of west for 400 m.

## **Locality 6.6 'West Sgaorishal' – contact of sandstone and peridotite exposed in plug [NG 3446 0198]**

A contact between peridotite and sandstone crops out on the west side of the line of peridotite exposures that marks the north-west-trending 'tail' of a major peridotite plug forming the summit of the unnamed, craggy hill (Locality 6.7) west of Loch Sgaorishal. The sandstone has been severely baked and partially melted, but the adjoining peridotite is fresh, with little indication of any chilling at the contact. The peridotite is intruded by a thin picrite dyke, one of the rare examples of minor intrusions cutting a peridotite or gabbro plug.

## **Locality 6.7 'West Sgaorishal' – matrix banding and strong jointing in peridotite plug [NG 3430 0224]**

In the vicinity of the summit (272 m) there is an excellent development of 'matrix banding' in peridotite (Dunham, 1965; (Figure 60)). On the north-west side of this intrusion, referred to as the West Sgaorishal Plug (Power *et al.*, 2003), the peridotite is in contact with Triassic sandstone and cornstone.

## **Locality 6.8 'West Sgaorishal' – Triassic cornstones at peridotite contact containing chalcopyrite and malachite [NG 3427 0229]**

The contact zone is notable for the development of areas of chalcopyrite in the peridotite, with malachite occurring in the sandstone nearby (at [NG 3422 0223]). The sulphide minerals found at this locality, and elsewhere on the margins of the plug, host platinum-group element mineralisation, which is also present in thin sulphide-rich dykes that cut the peridotite (Power *et al.*, 2003). The sandstone at this locality is part of a downfaulted strip (Figure 58); the main body of Triassic sandstone and cornstone in north-west Rum is a short distance to the north where it forms a long, low scarp that descends westward to the coast.

The Triassic Monadh Dubh Sandstone Formation of north-west Rum is about 600 m in thickness. Carbonate concretions ('cornstones') are common throughout the lower 400 m and are especially well developed in coastal exposures and low cliffs about 0.5 km north of Glen Shellesder (Figure 61; Steel, in Emeleus, 1997).

## **Locality 6.9 Monadh Dubh – plant and ostracod remains in Triassic silty sandstones [NG 3404 0300]**

Poorly preserved plant remains and ostracods have been recovered from silty sandstones belonging to the topmost Allt Dubh Member of the Monadh Dubh Sandstone Formation at this locality. About 300 m to the south-south-west the sandstones are cut by 'fissure breccias' and by a thick, badly weathered dyke of microgabbro. Numerous north-west- to north-north-west-trending basalt dykes belonging to the Rum Swarm crop out along the coast between Glen Shellesder and Kilmory. Very commonly their positions are marked by clefts and breaks in the sandstone cliffs (e.g. at [NG 3326 0295]).

## **Locality 6.10 North of Glen Shellesder – cornstones permeating brecciated Torridonian sandstone [NG 3301 0262]**

Low cliffs close to the coast expose angular, blocky fragments of Torridonian sandstone cemented by carbonate minerals to form a breccia at the base of the Triassic succession on Rum. Carbonate has also penetrated into the underlying sandstones and is prominent in the overlying bedded deposits (Figure 61).

## **Locality 6.11 Coast at Glen Shellesder – heavy mineral bands in Torridonian sandstone [NG 3300 0248]**

Sandstones belonging to the Sgorr Mhòr Sandstone Member of the Aultbea Formation crop out in raised beach stacks and on the foreshore south-south-west of Locality 6.10. The beds are high in the local Torridonian succession (Figure 3); they consist of fine-grained, laminated sandstones, commonly with dense black, heavy mineral-rich layers. Soft-sediment deformation occurs in the sandstones; this is picked out by deformed dark layers. The day may be completed by taking the path from Glen Shellesder to the Guirdil bothy (which will add 2.5–3 km), or by returning up Glen Shellesder to regain the road to Kinloch.

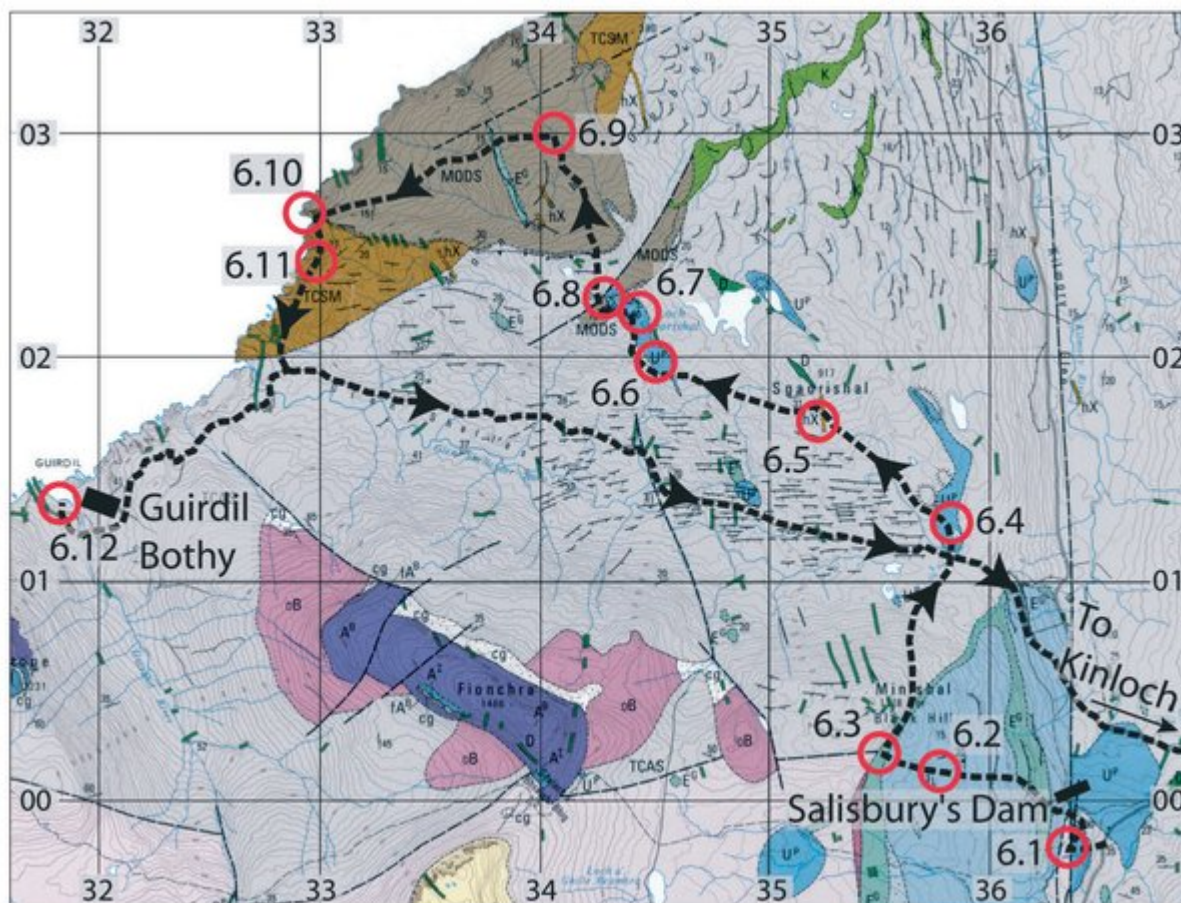
## **Locality 6.12 Guirdil Bothy – bloodstone and agate pebbles on the foreshore [NG 3196 0134]**

Bloodstone pebbles are usually to be found in gravels on the beach below the Guirdil bothy, together with small, finely banded pebbles of white agate. The return to Kinloch (about 9 km) is most easily made by retracing one's steps and following the path through Glen Shellesder rather than undertaking the long climb up Guirdil to Bealach a'Bhràigh Bhig and then to Malcolm's Bridge (see Excursion 5).

## **Excursions 7, 8 and 9 The Southern Mountains and Dìbidil**

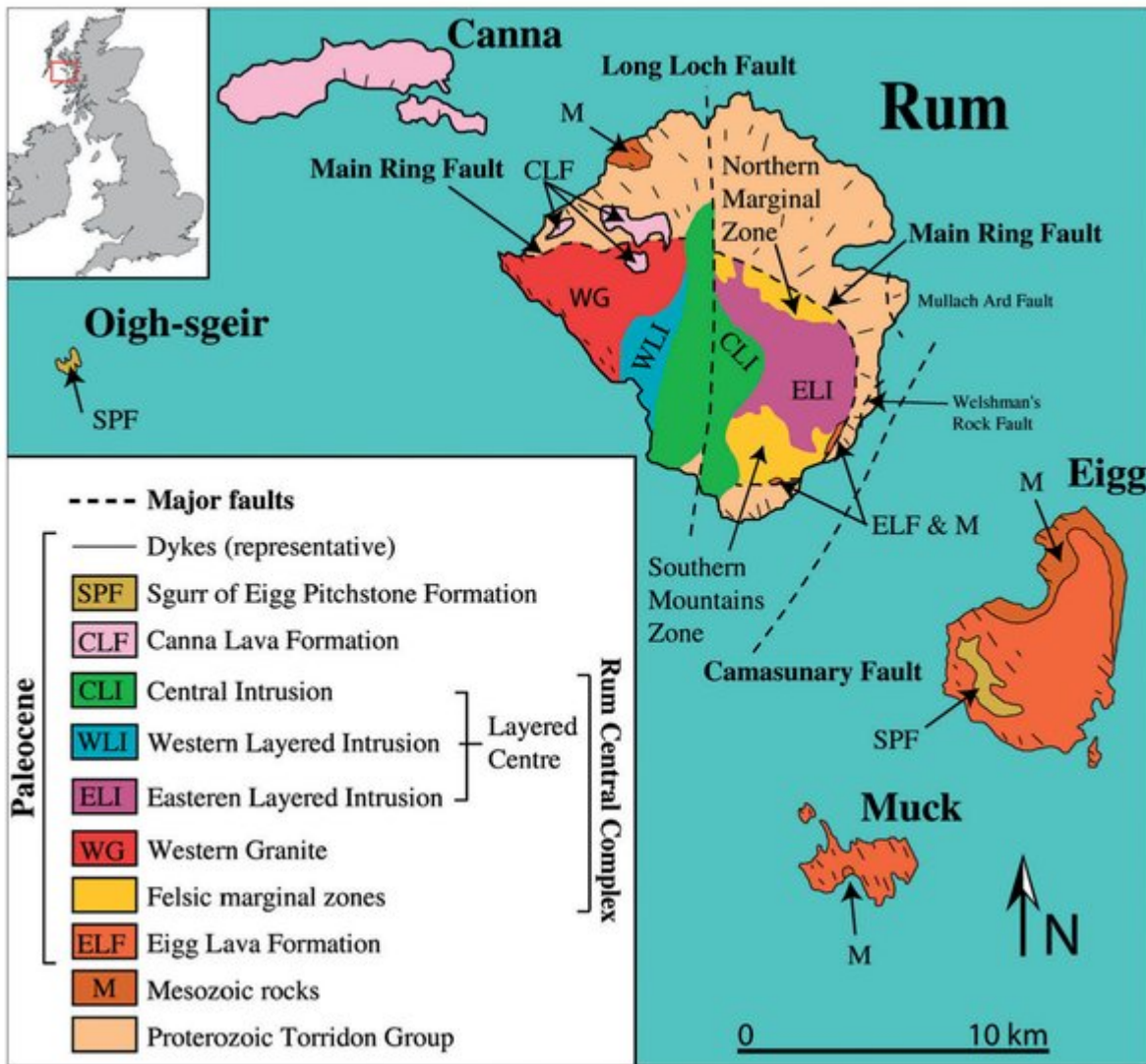
by E. P. Holohan, V. R. Troll and C. H. Emeleus

### **[References](#)**



(Figure 58) Geological map of the north end of the Central Intrusion, Minishal and the country around Sgaorishal and the north-west coast of Rum. Excursion 6. (See pp. 148–49 for full (Key); based on SNH 1:20,000 solid geology map; © SNH.)





(Figure 2) Simplified geological map of Rum and adjacent islands.



(Figure 59) Finger structures developed where peridotite has replaced overlying, layered troctolite. East of Minishal. North end of Central Intrusion. Locality 6.2. Scale: hammer shaft 30 cm.

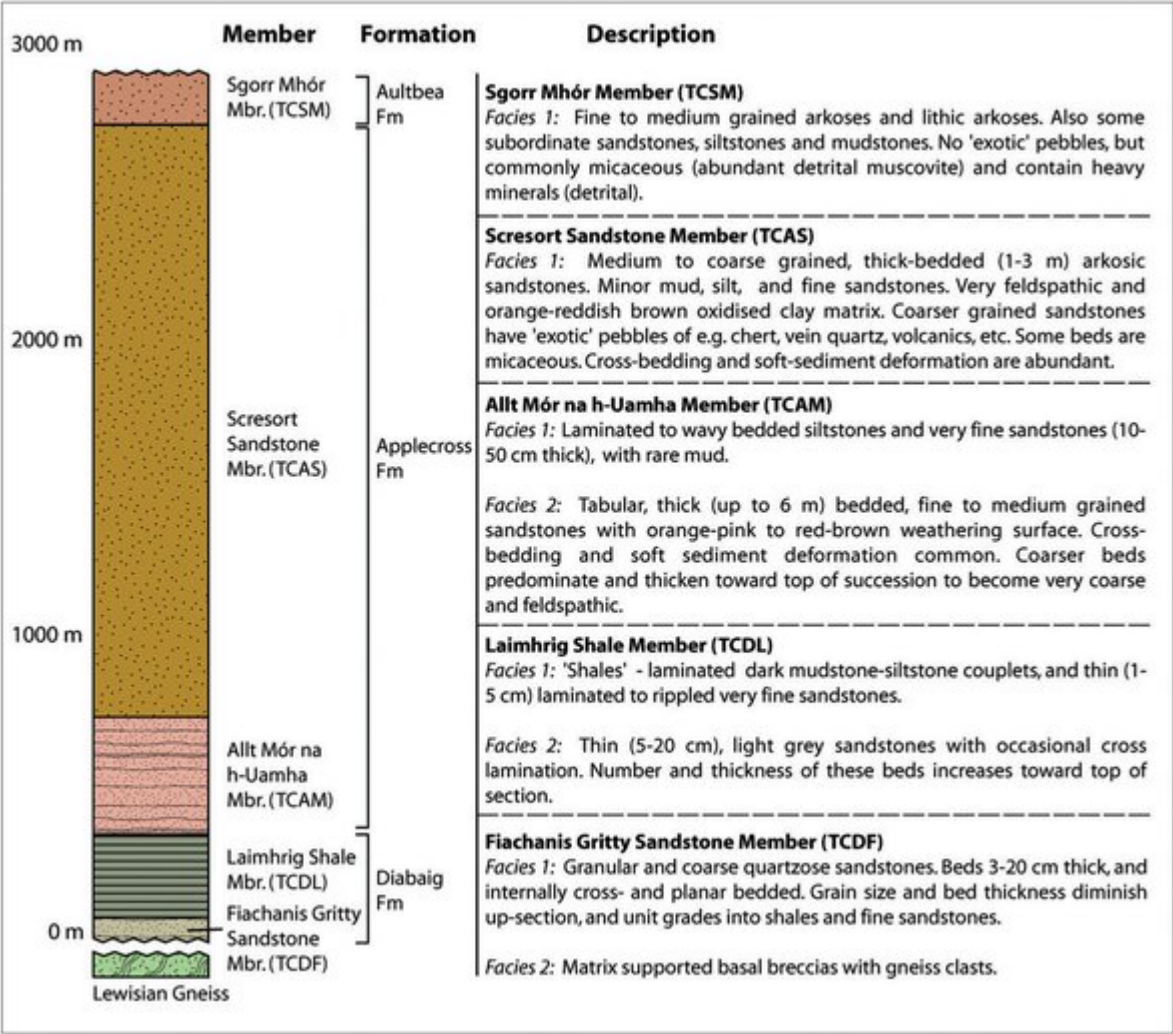




(Figure 60) Steep matrix banding in the West Sgaorishal peridotite plug. Locality 6.7, west of Sgaorishal.



(Figure 61) Triassic Monadh Dubh Sandstone Formation (MODS) overlying Torridon Group, Aultbea Formation (TCSM). Cornstones in the basal Triassic beds form a white band half-way up cliff and permeate joints and bedding planes in the underlying Torridonian sandstones at the base of the cliff for up to 3 m. Thin basaltic sheets cut the Torridonian rocks. Locality 6.10, about 1 km north of Glen Shellesder, north-west Rum. (Photo: Emeleus/BGS© NERC)



(Figure 3) Stratigraphy of the Torridon Group on Rum (after Nicholson, 1992).