Strath 2

Old Kilchrist Manse

A small area at the contact between the Paleocene Beinn an Dubhaich Granite and Cambro-Ordovician Durness Group dolostone country-rocks that enables the structure of the dolostones, the timing of intrusion events, and the development of skarns along the contact, to be determined. The past mining of marble from small quarries within and adjacent to the granite records an interesting piece of Skye's industrial heritage.

Aspects covered: unmetamorphosed and metamorphosed dolerite dykes; folded, contact-metamorphosed Cambro-Ordovician Durness Group dolostones and marble; the Paleocene Beinn an Dubhaich Granite of the Eastern Red Hills Intrusive Centre; contact skarns; abandoned marble quarries.

Route: Cill Chriosd Churchyard – Old Kilchrist Manse (ruins) - abandoned marble quarries (- return Cill Chriosd Churchyard).

Distance: 2 kilometres.

Time: 2-3 hours.

General comments: A short excursion on easily accessed level ground with excellent exposures.

The ruined post-Reformation church of Cill Chriosd (Kilchrist, Christ's Church) dates to the early 16th Century, replacing an earlier medieval church. The west gable is, in part, of medieval age. The church closed in 1840, enabling the landowner of much of Strath, Lord MacDonald, to clear the villages of Suisnish and Boreraig on Loch Eishort, with the justification that they lived too far from the replacement church in Broadford. Many of the graves belong to members of the Clan MacKinnon. One grave of note is located just inside the churchyard gate, a medieval slab with a floriated cross. The hillock beside the ruins is locally known as Cnoc na-Aifhreann, or the *Hill of the Mass,* and may be related to a legend that Saint Maelrubha held mass here for local inhabitants in the 7th Century.

The ruins of the Old Kilchrist Manse are located *c.* 500m SE of Loch Cill Chriosd in the district of Strath. Loch Cill Chriosd (Kilchrist) is on the north side of the Broadford-Elgol (B8083) road, 5km (3 miles) SW of Broadford. Parking is available on the south side of the road, opposite the Cill Chriosd Churchyard.

From the churchyard, walk *c.* 500m SW along the road to the lochside where, on the south side of the road, a 30m-wide dolerite dyke, the Kilchrist Dyke, forms a prominent feature. Proceed SE along the ridge formed by the dyke, noting *c.* 50m SE from the road (beneath electric power cables) a *c.* 75m-long, elongate enclosure of relatively undisturbed, well-bedded, metamorphosed Cambro-Ordovician Durness Group dolostones. Continue to the vantage point of the SE end of this part of the intrusion.

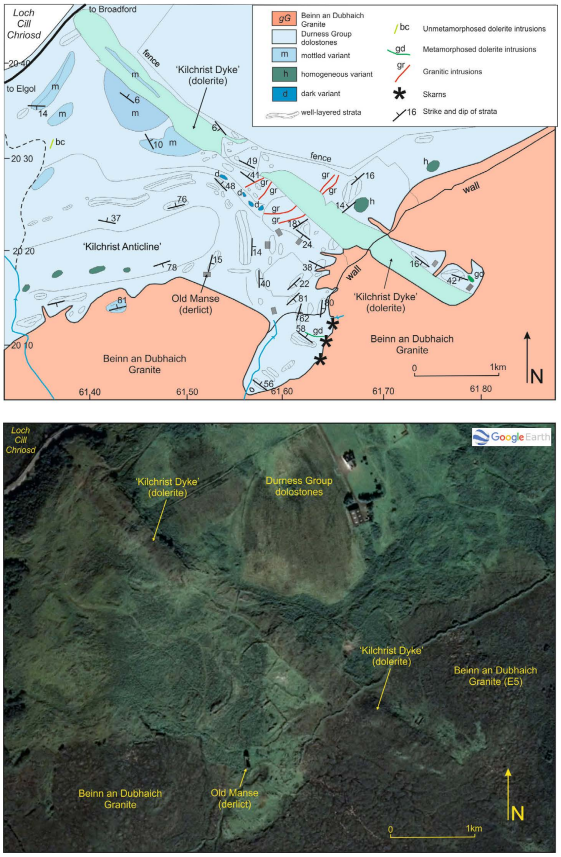

Figure Strath 2.1: Summary map and annotated Google Earth® image of the area around the Old Kilchrist Manse.

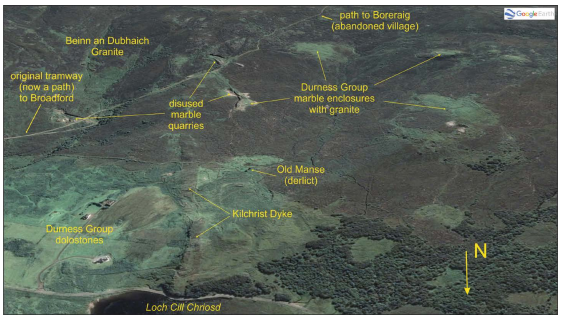

Figure Strath 2.2: Annotated oblique Google Earth® image of the area around the Old Kilchrist Manse.

Figure Strath 2.3: SW margin of the Kilchrist Dyke (left), against Durness Group dolostones (right). View towards the SE.

Locality 1 [NG 6150 2025]:
From here, the following features may be noted and examined:

(a) A distinct vegetation change marking the boundary between the heather-covered ground of the Beinn an Dubhaich Granite and the grass-covered ground of the dolostones;

Figure Strath 2.4: Contrasting vegetation of the heather-covered granite (far ground) and the grass-dominated dolostones (near ground).

(b) In the dolostones, to the SW of the dyke, the closure of the Kilchrist Anticline, which plunges ENE at a shallow angle. The deformation events associated with this structure pre-date the intrusion of the dolerite dyke. Furthermore, the marbles show an even earlier deformation episode in the form of boudinaged calc-silicate layers (originally chert) in the hinge of the anticline;

Figure Strath 2.5: The Kilchrist Anticline, NE of the Old Kilchrist Manse. View is towards the SE. Old Manse for scale.

Figure Strath 2.6: Detail of the hinge of the Kilchrist Anticline, plunging at a shallow angle towards the NE. Person for scale.

Figure Strath 2.7: Typical Durness Group dolostones within the Kilchrist Anticline. Pole *c.* 1m long.

Figure Strath 2.8: Detail of Durness Group dolostones within the Kilchrist Anticline, with boudinaged chert (structure). Lens cap *c.* 80mm across.

(c) An apophysis of the dolerite dyke, trending ESE, terminating just before the fence;

Figure Strath 2.9: Apophysis of the Kilchrist Dyke. Fence posts for scale.

(d) Also visible from this vantage point, on the higher ground further to the SE and surrounded by the granite, are spoil heaps associated with abandoned marble quarries (see Locality 3, below). Proceed SE onto the continuation of the dolerite dyke and note on the SW side of the intrusion the following two features:

(e) 1–2mm-wide veins of buff-coloured, coarse-grained granite, terminating in the marble;

(f) A small anticline, plunging to the west, within the dolostones.

Continue SE along the dyke to the granite-dolostone contact where it is cut and veined by the granite.

Locality 2 [NG 6167 2008]:

Along the distinctive granite-dolostone boundary, contact skarns are locally developed. All are magnetite-dominated. Also present are two deformed, metamorphosed dolerite dykes which are truncated by the younger granite. The skarns are located:

1. SSW of a small waterfall; enclosed within the granite;

2. SW of a deformed, metamorphosed dolerite dyke;

3. 2m SW of a poorly fenced-off, water-filled shaft. This skarn contains obvious malachite. Scattered rock-debris provides good material for examination, without recourse to damaging the very limited outcrop.

Figure Strath 2.10: Contact between granite (left-hand side) and dolostone (right-hand side). The dolostones display clint and gryke development (pavement surface and solution hollows, respectively).

Figure Strath 2.11: Metamorphosed dolerite dyke in country-rock dolostones, truncated by heather-covered granite. Margin of granite marked by pole (*c.* 1m long).

Proceed SE across the granite for *c.* 300m to the spoil heaps of a small, disused marble quarry.

Locality 3 [NG 6191 1977]:

Within the abandoned quarry are spoil heaps that provide good material for examination. The south face of the quarry is marked by a vertical contact of the granite and the enclosure of marble.

Figure Strath 2.12: Abandoned marble quarry, surrounded by granite, SE of Old Kilchrist Manse.

Figure Strath 2.13: Water drainage channel of abandoned marble quarry, SE of Old Kilchrist Manse.

Inward from the margin of the granite, the first 4–5cm is depleted in mafic minerals, before giving way to a concentrated zone of dark, alkali-rich pyroxenes.

The original dolostone was chert-bearing and, in the NE side of the quarry, prominent boulders contain good examples, particularly obvious on weathered surfaces. Subsequent thermal metamorphism by the granite in the Paleocene lead to the formation of the marble with various new silicate minerals. The marble was originally rich in forsterite, formed by high-grade thermal metamorphism adjacent to the granite, but subsequently hydrated to serpentine, giving the rock a patchy-developed distinctive yellow-green coloration. Dark aggregates of brucite, after original (metamorphic) periclase, are also common. During the thermal metamorphism, concentric zones of metamorphic minerals developed at the chert-dolostone boundaries, and, in consequence, the rock has a prominent 'spheroidal' appearance.

Figure Strath 2.14: Typical marble within the abandoned quarry SE of Old Kilchrist Manse, with remnants of chert nodules surrounded by concentric zones containing silicate minerals, mainly forsterite (Mg-rich olivine), now retrogressed (hydrated) to serpentine, and diopside. Coin *c.* 24mm across.

Figure Strath 2.15: Typical fresh surface of marble, with distinctive yellow-green serpentine after forsterite. Coin *c.* 24mm across.

End of excursion.

The history of marble extraction in Strath is described in **Excursion Strath 3**.