
Excursion 11b: Holy Island

((Figure 15), localities 1a to 5a)

Holy Island, dominating the approaches to Lamlash Bay and rising steeply to a height of 314m, is about 3 km long and, at its widest part, 1 km broad. It derives its name from its association with St. Molaise or Molios, a disciple of Columba, who came here about A.D. 680. The island is mainly composed of a massive sill-like intrusion of trachyte. The thickness of this intrusion (240m or so remain) and its failure to extend to the main island, suggests that it may be mushroom-shaped or laccolithic in form.

The island can be reached from Lamlash during the holiday season. Whilst waiting for the boat dykes on the shore may be examined, especially the composite dyke 180m southwest of the site of the pier, and the NE–SW crinanite dyke 275 m northeast of the pier site. The position of the landing place on Holy Island, although necessitating a walk of about 1.6km along the path which runs along the western side, will allow a visit to the cave or cell of St. Molaise. Runic inscriptions on the sandstone wall of the cave include one of 11th century date. There are six others from the 12th or 13th centuries one of which refers to King Haakon of Norway's expedition of 1263 (which culminated in his defeat at the Battle of Largs in that year). The cell was cleared of accumulated rock material in 1908 when a paved floor was revealed and a mass of "kitchen refuse", consisting of limpet and oyster shells and fragmentary bones, mainly of domesticated animals, was discovered. Nearby is a small well said to have been blessed by the saint and as a consequence the water is reputed to have curative properties.

1a. [NS 0628 2852] In the vicinity of the jetty at the lighthouse buildings coarse analcime-olivine-dolerite with pale-coloured veins is extensively exposed. Northwestwards from the buildings highly-baked sandstones outcrop; these rocks carry quartz paramorphs after tridymite. At the seaward end of this area of sediments the dolerite contact is seen to be intricate and transgressive. Farther to the north another strip of baked sandstone underlies a thin dolerite sill. There is little doubt that these intrusive rocks are the continuation of the Kingscross intrusion which, on Arran mainland, is also split by intercalations of sandstone.

2a. [NS 0687 2871] The foreshore and cliff at this point are cut by a 27 m thick dyke-like intrusion of trachyte with margins which locally show flow-banding. Although sufficiently fresh material for detailed examination has not been obtained, the rock closely resembles that of the laccolithic intrusion occupying the greater part of the island. The dyke may well be a feeder of the latter. Scree and downwash, however, cover its landward extension and the margin of the main intrusion is covered at the likely position of the junction.

3a. [NS 0694 2909] A short distance north of Pillar Rock Lighthouse [NS 068 292] the analcime-olivine-dolerite can again be seen. Here it encloses bands and patches of sandstone baked to hard quartzite in which once more tridymite has been developed. The junction between the dolerite and the enclosures is often intricate. The sill rock is generally quite fresh.

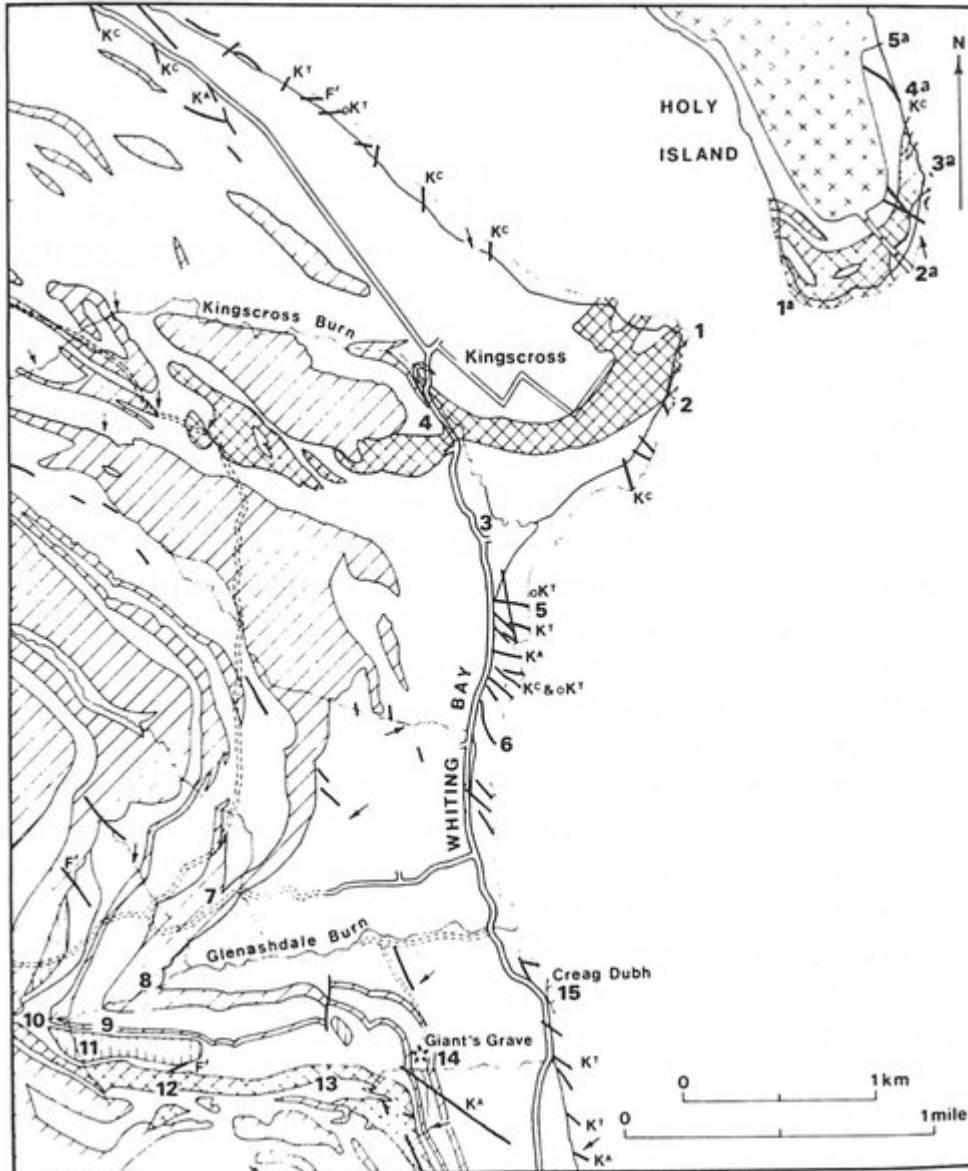
4a. [NS 0675 2953] The cliff backing the raised beach shows a shallow synclinal arrangement of well-bedded, bright red sandstones which exhibit carious weathering on a large scale. The overlying crags of trachyte show regular columnar structure. Trachyte debris forms the main component of a storm beach on this section of the coast. The sediments are cut by a NW trending dolerite dyke which can be traced up the lower cliff. It does not, however, cut the overlying trachyte.

5a. [NS 0664 2978] Here the margin of the trachyte turns abruptly east-northeast and cuts across the sandstones. Against the latter the igneous rock has a nearly vertical contact and it develops relatively small horizontal columns. A short distance to the north, normal vertical columns are displayed after a short stretch in which the jointing is poorly developed. In spite of its great thickness the intrusion has resulted in little alteration of the sediments, the red and brown colours of the latter being retained almost up to the contact.

The trachyte is a rather fine-grained rock which, when fresh, has a deep blue-grey colour. It breaks and rings like a phonolite giving rise to abundant slabby scree. It weathers readily to light-grey or buff colours. Rhythmic bands, due to

weathering are often beautifully shown by this rock. These may be seen by fracturing weathered slabs. The fresh rock is interesting in that it contains a blue soda amphibole usually referred to riebeckite. Recent work has shown the mineral to be arfvedsonite. The amphibole in the Ailsa Craig microgranite, the rock chemistry of which closely resembles that of the Holy Island, has recently been reclassified as a riebeckitic arfvedsonite (Howie *et al.* 1981, p. 126). The other mineral components of the Holy Island trachyte are sanidine, sodic ferrohedenbergite, iron ore and quartz.

References



(Figure 15) Geological sketch-map of the Kingscross—Whiting Bay area to illustrate Excursions 11 and 11a. Note that the Triassic sediments have been left blank. Where indicated the identity of the dykes is as follows: K^C crinanite, K^T tholeiite O K^T olivine-tholeiite K^A 'andesitic' quartz-dolerite, F¹ pitchstone