
Noblehouse, Lamancha

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OS 1:50000 Sheets 66 Edinburgh 72 Upper Clyde Valley and 73 Galashiels and Ettrick Forest

B.G.S. 1:50000 Sheets 24W Biggar and 24E Peebles

Introduction

Chert and spilitic basalt lava form the base of one of the older sequences in the Southern Uplands, the probable Llandeilo (mid-Ordovician) succession contained in the northernmost structural block adjacent to the Southern Upland Fault. These lithologies are well exposed adjacent to the A701 road between Leadburn and Romano Bridge, in the neighbourhood of Noblehouse Farm, Lamancha, where cherts are sufficiently ferruginous to have been mined as iron ore in the late 19th century. Overlying the chert-basalt assemblage are siltstones and greywackes including the aptly-named 'haggis rock', a coarse granular greywacke containing angular clasts of various colours (Ritchie and Eckford, 1936). A conodont fauna from the Noblehouse chert and from a similar lithology exposed near Ruddenleys (2.5 km north-east from Noblehouse) provides evidence for the Llandeilo age of the sequence (Lamont and Lindstrom, 1957). The lavas and cherts are thought to be the remains of oceanic crust on which the Southern Uplands greywacke sequences were deposited, although the chemistry of the basalts does not compare closely with that of modern mid-ocean ridge basalts (Lambert et al. 1981). This excursion is based largely on previous accounts by Lamont (in Craig and Duff, 1975) and Leggett (1980).

1. Craighurn Quarry: Haggis Rock

The distinctive 'haggis rock' coarse greywacke, can be most readily examined in the disused Craighurn quarry [NT 237 544]. The quarry is situated close to the A703 Edinburgh-Peebles road, just south of the Leadburn crossroads with the A701 road. As the A703 is followed south it rises steeply up across the Southern Upland Fault on to the lower Palaeozoic greywackes. To the north of the fault the lowerlying ground within the Midland Valley is underlain by Carboniferous strata. About 1.5 km south of the Leadburn crossroads there is a large lay-by on the south-west side of the road. The quarry entrance is immediately opposite on the north-east side of the road.

The best exposures of the 'haggis rock' variety of coarse greywacke are to be seen at the farther (NE) end of the now largely overgrown quarry. These are most easily reached by skirting the top of the quarry face on the south side. Bedding in the generally massive greywackes is much obscured by faulting and shearing but the long axis of the quarry trends approximately parallel to the regional strike. Since bedding is generally steeply inclined in this part of the Southern Uplands it is quite possible that the 'haggis rock' bed has been preferentially worked. In the large, upstanding crag at the rear of the quarry is a coarse greywacke composed of angular to rounded grains and granules of various colours set in a sandy matrix. Pink and red chert, felsite and granite clasts contrast with darker, green and black clasts of gabbro, dolerite, andesite and spilite. To the Scottish gourmet the visual association with haggis will be immediately clear. The provenance of the 'haggis rock' must have contained a great variety of rock types and is generally thought to have lain to the north of the area in which the greywackes were deposited. On its northern margin within the quarry section the 'haggis rock' is in contact with thin-bedded, fine-grained silty greywackes. Most of the exposed contacts are faulted but one possible bedding contact is sub-horizontal. However, this is by no means a continuous trend and the overall structural relationship seems to be sub-vertical. From the Quarry return to the Leadburn crossroads and turn left (south-west) onto the A701 for Moffat. This road runs parallel to the Southern Upland Fault which is marked by the break of slope 200 to 300 m south-cast of the road.

2. Noblehouse Burn: haematitic chert

Continue on the A701 through Lamancha to Noblehouse Farm [NT 184 501] about 8 km south west of Leadburn. Vehicles can be left, with permission, adjacent to the farm and a track leads from the south side of the farm eastwards towards the forestry plantation. Although the stream section in the Noblehouse Burn, to the north of the track, is now very overgrown and exposure is poor, red haematitic chert can be seen in the vicinity of an old excavation and mine shaft worked in about 1885. The iron oxide content of the cherts is as high as 50% locally.

3. Grassfield Quarry: basalt

Continue for about 1.2 km eastward along the track from Noblehouse Farm and into the forestry plantation where a track turns off to the south into Grassfield Quarry. Massive basalt in the south face of the quarry is overlain by several metres of well-pillowed lava.

The dip and way up of the sequence can be confirmed by examining the shape of individual pillows. Tops are commonly smooth and convex whereas bases have 'sagged' and now bulge into the spaces between the underlying pillows. Vesicles are concentrated towards the top of pillows, a phenomenon best observed in the pillow lavas which form the eastern side of the quarry. Between these pillows can be seen iron-rich, siliceous mudstone and chert deposited either as a syn-magmatic precipitate or as a metalliferous sediment which infiltrated inter-pillow spaces after eruption of the lavas. Elsewhere, notably on the south face of the quarry, both chert and crystalline calcite fill fractures in the lavas. One such fracture filled by bluish-green chert was reported by Lamont to contain algal remains similar to the form *Girvanella*. Immediately west of the quarry is an exposure of red chert, apparently overlying the basalt, from which Lamont (in Craig and Duff 1975) reports various small brachiopods and conodonts.

4. Old Quarry: haematitic chert

From Grassfield Quarry return along the track towards Noblehouse and at the edge of the forestry plantation head north. In an old quarry beside the central of the three streams, red haematitic chert can be seen. The chert is severely fractured and quartz-veined but rather irregular bedding can be discerned dipping steeply to the south-east.

5–8. Ironstone Cottages Burn: section

A section across the sub-vertical strata is exposed in the Ironstone Cottages Burn running north-west across the strike from bottom to top stratigraphically. It commences with 100 m of basalt (5) which forms a prominent ridge extending from the stream for about 1.2 km towards the north-east. The south-eastern margin of the basalt outcrop is faulted against siltstones and fine grained greywackes which are patchily exposed on the hillside to the south-east of the basalt feature. In the stream section the basalt is a fairly fresh, aphyric, greenish-grey rock with sparse vesicles but it becomes increasingly weathered towards the top (downstream). To the north-west the basalt is overlain by a thick development of red chert and siliceous, iron-rich mudstone, which is exposed over 25 m of the stream section (6). The cherts are generally structureless but for some vague foliation dipping steeply south-east. Iron content of the chert is very variable reaching a maximum of 40% total Fe in the vicinity of an abandoned, water-filled mine shaft in the north bank of the stream. There the rock has a reddish-purple metallic sheen, red streak and crumbly texture. Old mining records indicate that between 1884 and 1886 more than 6000 tons of Ore were extracted. The northern margin of the metalliferous chert is marked by a complex imbricated zone (7) in which tightly folded and faulted slivers of greywacke, siltstone, chert and basalt alternate. This zone continues downstream to the Southern Upland Fault which here throws Lower Old Red Sandstone conglomerate down to the north-west. The conglomerate, seen in several rather poor stream exposures (8) has greywacke and basalt cobbles up to 20 cm in diameter in a weathered, sandy matrix. Rejoin the A701 at Ironstone Cottages and return to Noblehouse Farm.

9. Bents Quarry: North Greens Limestone

Lower Palaeozoic strata to the south of the Southern Upland Fault may be contrasted with the Upper Palaeozoic rocks north of the fault at Bents Quarry, Macbiehill [NT 184 520]. Return north-east along the A701 for 1.2 km, then left along

the minor road to Carlops; the quarries are 1 km from the turning on the right side of the road. Here the North Greens Limestone belonging to the Lower Limestone Group of the Carboniferous, has been extensively worked for agricultural lime. Throughout the quarried complex the limestone has sub-horizontal bedding with gentle dips to the north-east. The best exposures are along the northern margin of the quarry and show thin beds of rather nodular muddy limestone, with shaly partings. The limestone contains abundant crinoid ossicles together with a varied fauna (including the corals *Dibunophyllum* and *Siphonodendron junceum*, the bryozoan *Fenestella* sp., the brachiopod *Antiquatonia sulcata*, *Avonia* sp., *Echinoconchus punctatus*, *Eomarginifera* spp. and *Productus* sp., and an orthocone nautiloid. On the south side of the northernmost quarry is a well-preserved lime kiln.

[References](#)