

# Trail 3: Hagdale and the Heogs

This trail explores the lower layers of the ophiolite. Discover the remains of the 19th Century chromite mining industry, and take a look at the 'Moho' - the boundary between rock from the ancient mantle and overlying rocks of the ocean crust.

We've seen how ocean crust formed when magma rose from the mantle to fill a magma chamber, where it solidified to form layers of different kinds of rock.

Along most of this trail you will be walking on dunite, formed in the lowest layer within the magma chamber. Dunite is made up mainly of the mineral olivine but in places it contains streaks and pods of chromite. The chromite crystallised early on as magma rose up from the mantle and so collected at the bottom of the magma chamber. Chromite is the mineral ore from which we get the metal chromium, and chromite quarrying was an important industry in Unst during the 19th Century.

Chromite bands in dunite



The quarry to the left of the panel (2) at the bottom of the slope, now almost completely filled in, was once nearly 40m deep and was the largest chromite working in Britain. A highly mechanised crushing and sorting plant was in operation at the quarry and a railway carried the chromite to Baltasound for shipping. Nearby is the earlier and now restored Hagdale crushing circle (3). The interpretive panels will tell you more about this important industry.

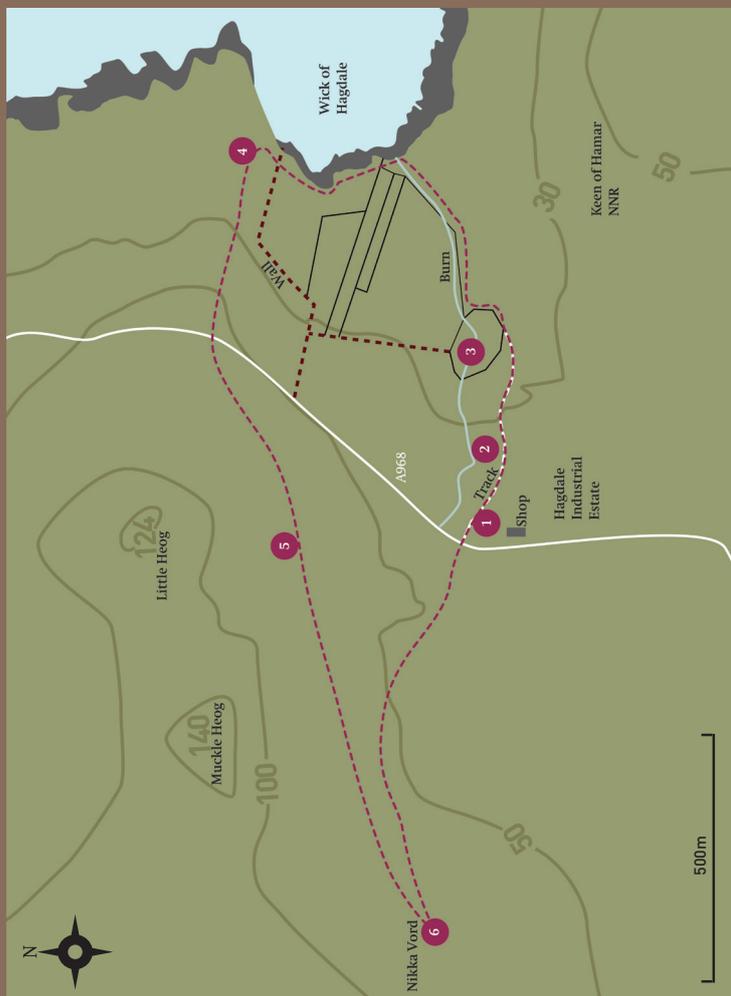
As you continue down to the coast and follow it northwards, think of yourself as being at the bottom of the ancient magma chamber. To the north-west you will see two craggy hills, the Heogs, standing much higher than the dunite on which you are walking. These are made of harzburgite, which was left behind in the mantle as the magma melted out. Harzburgite is made up of soft olivine and the much harder mineral orthopyroxene and so harzburgite is harder than dunite which is made of olivine alone. Soft rocks erode more quickly than hard ones, so the dunite forms the lower ground and harzburgite forms the hills. By looking at the shape of the land, and the variations of colour in the vegetation, you can start to 'see' the underlying geology.

The change from harzburgite in the Heogs to dunite marks the boundary between crust and mantle. This is the Mohorovičić discontinuity, or 'Moho', named after the Croatian seismologist who discovered it (4). Normally the Moho is many kilometres underground, but here you can walk across it!

Dunite / harzburgite mixing along the Moho



As you head up to the road you will be walking on harzburgite. Orthopyroxene crystals give it a knobby texture in contrast to the smoother dunite. Heading west along the boundary you can see where the two rock types mix (5). Moving out of the harzburgite, to the quarries and spoil heaps of Nikkavord (6) look out for bands of hard, black chromite minerals within the orange-brown dunite.



## Directions from Keen of Hamar

Allow 2 hours

By car / bike: Head to the main road and turn right. Beyond the Hagdale Industrial Estate turn right again at the sign to Hagdale Horse Mill and park (1).

Follow the track down to the interpretive panel (2) and then on to the restored chromite crushing circle (3).

Continue to the coast and follow it around to the north until you have taken the steps over the wall and reached the marker post (4).

Head up to the steps to the road (the ground is particularly uneven at the top of the hill so take care). Cross the road and the steps on the other side. Walk west until you come to the marker post (5).

Continue until you reach the old quarry pits (6).

Follow the track back down to the road and across to the car park.

## Interpretation

- Information panels at Hagdale chromite crushing circle.
- Marker posts at key sites.

## Access

- The ground is very uneven and waterlogged in places so proceed with caution and wear suitable footwear.
- Route includes a steep incline between the coast and the road.
- Sometimes cattle, including a bull are grazing.
- Be careful around the quarry pits; they are unfenced and deep.
- The route includes a number of two step and ladder stiles and involves stepping across a burn (stream).

## Facilities

Available at Hagdale.

