

LOUTH - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Barnavave Site D
Other names used for site	
IGH THEME	IGH11 Igneous Intrusions
TOWNLAND(S)	Commons
NEAREST TOWN/VILLAGE	Carlingford
SIX INCH MAP NUMBER	8
ITM CO-ORDINATES	718047E 809827N
1:50,000 O.S. SHEET NUMBER	36 GSI BEDROCK 1:100,000 SHEET NO. 8/9

Outline Site Description

This is a steep hillside site, approximately 500m southeast of the summit of Barnavave Hill, at a height of 220-240m OD, 30m north of the boundary of a Coillte Forest.

Geological System/Age and Primary Rock Type

The rocks are part of the Palaeogene Carlingford Igneous Complex. Gabbro is cut by narrow veins of acidic material and reaction between the two has produced zones of hybrid composition within the gabbro.

Main Geological or Geomorphological Interest

This is one of the sites subject in the first half of the 20th century to detailed research by Nockolds who considered it to provide the best examples of hybrid rock produced by reaction between gabbro and acid veins cutting it. The hybrid rock has a black and white speckled appearance. The acid veins are mainly granitic in composition but also include very thin, off-shoot veins of alkaline material composed mainly of alkali feldspar with minor components including calcite.

The dark, massive gabbro is criss-crossed by abundant thin veins of granite. Brecciation of the gabbro is common. Contacts between the granite and gabbro are typically sharp. Lobate or curved contacts indicate the gabbro was not fully solidified when the net-veining took place. Similar features are found at other sites, such as Barnavave Summit and Cooley Castle Quarry. Of particular interest here are the diffuse zones of hybridization found in gabbro adjacent to veins. In these zones the gabbro is altered by the addition of alkali (Na-K) feldspar and by alteration of the chemistry of plagioclase feldspar by addition of sodium (Na) in place of calcium (Ca). Hybridized gabbro is coarser-grained and much lighter in colour than the original.

Site Importance – County Geological Site

The site is one of a number in the Carlingford Complex that display brecciation of gabbro and net-veining of the gabbro by granite. The principal interest here is the well-exposed examples of hybridized rock and the presence of alkali-rich veinlets as off-shoots of granite, both of which have been described in detail in the literature, giving this site a well-founded scientific base.

Management/promotion issues

The site is within the Carlingford Mountain SAC and proposed NHA. It is in an upland area and there are no evident development threats to the site. The area is popular with walkers – the Carlingford Loop walk passes along the forest boundary to the south – but is likely to be of interest mainly to scientists and further promotion is not required.



General view of the site, looking west.



Gabbro net-veined by granite (left). Closer view (right) shows thin veinlets and diffuse areas of altered gabbro (coin is 24mm in diameter).



Brecciation of gabbro, net-veins of granite and an area of hybridized gabbro (H) appearing to merge with an acid vein on its left (coin 24mm in diameter) (left). Black and white, relatively coarse-grained “speckled” gabbro hybrid (right)



