

# LOUTH - COUNTY GEOLOGICAL SITE REPORT

<b>NAME OF SITE</b>	<b>Barnavave Quarry</b>
Other names used for site	
<b>IGH THEME</b>	<b>IGH11 Igneous Intrusions</b>
<b>TOWNLAND(S)</b>	<b>Commons</b>
<b>NEAREST TOWN/VILLAGE</b>	<b>Carlingford</b>
<b>SIX INCH MAP NUMBER</b>	<b>8</b>
<b>ITM CO-ORDINATE</b>	<b>718151E 810204N</b>
<b>1:50,000 O.S. SHEET NUMBER</b>	<b>36 GSI BEDROCK 1:100,000 SHEET NO. 8/9</b>

## Outline Site Description

The site is a small disused quarry on the eastern flank of Barnavave Hill, 200m above the upper road between Carlingford and Grange Irish.

## Geological System/Age and Primary Rock Type

The quarry was excavated in the early 20<sup>th</sup> century along the contact between gabbro of the Palaeogene Carlingford Igneous Complex and the Lower Carboniferous limestone country rock.

## Main Geological or Geomorphological Interest

In the upland area of Barnavave and Slieve Foy, at the eastern end of the Cooley peninsula, the Carlingford Complex comprises a series of layered gabbros cut by slightly younger intrusions of dolerite and granite. The rock exposures along the summit and eastern flank of Barnavave display a range of textures and compositions that reflect physical mixing of the different rock types as well as chemical reaction between them. Reaction between gabbro and granite has given rise to “hybrid” rock types, with a composition intermediate between the basic and acid rocks. Nockolds first described these rocks in detail, basing his work mainly on the exposures in Barnavave Quarry.

At the northern end of the quarry, the western wall consists of massive, medium-grained gabbro interleaved with finer-grained material (dolerite) of similar composition. At the southern end, the basic rocks are veined by granite. Reaction between the granite and gabbro is apparent in the gradational contact observed between them in places and the alteration of both to rock of intermediate composition (see photos). Other features observed in the quarry include a dolerite cone sheet at its southern end and, in the southeastern corner, boulders of calc-silicate skarn, products of contact metamorphism of the country rock limestone when intruded by the hot magma that formed the gabbro.

## Site Importance – County Geological Site; may be recommended for Geological NHA

The quarry represents a convenient, readily accessible exposure of gabbro and associated lithologies of the Palaeogene Carlingford Complex, particularly hybrid rocks formed by reaction between gabbro and granite. Such rocks are exposed elsewhere in the complex but the comprehensive lithological and mineralogical description of the rocks in the literature provides a strong scientific underpinning to the site.

## Management/promotion issues

The site is part of the Carlingford Mountain SAC and proposed NHA. It is in an unspoilt upland area overlooking Carlingford village, popular with walkers and occasionally used by grazing animals. It is well preserved, contains excellent exposure and is easily accessible from the road, making it ideal for educational purposes.



View of the quarry, looking south.



Gabbro xenolith surrounded by zone of hybridization (left) and hybridization within granite vein cutting unaltered gabbro (right), both in southwestern corner of quarry.



Dolerite cone sheet intruding gabbro in western wall of quarry (left) and loose boulder of calc-silicate skarn (right) near contact with limestone countryrock at southeastern end of quarry.



