

# **LOUTH - COUNTY GEOLOGICAL SITE REPORT**

<b>NAME OF SITE</b>	<b>Clogher Head</b>
Other names used for site	
<b>IGH THEME</b>	<b>IGH 4 Cambrian to Silurian</b> <b>IGH 11 Igneous Intrusions</b>
<b>TOWNLAND(S)</b>	<b>Clogher</b>
<b>NEAREST TOWN/VILLAGE</b>	<b>Clogherhead</b>
<b>SIX INCH MAP NUMBER</b>	<b>22</b>
<b>ITM CO-ORDINATES</b>	<b>717110E 784095N</b>
<b>1:50,000 O.S. SHEET NUMBER</b>	<b>36 GSI BEDROCK 1:100,000 SHEET NO. 13</b>

## **Outline Site Description**

This is an approximately 750-long coastal section, between Port Oriel in the north and Red Man's Cove in the south, comprising extensive foreshore outcrops backed in places by steep cliffs.

## **Geological System/Age and Primary Rock Type**

Most of the rocks in the section are Silurian (Llandovery–Wenlock) in age, comprising coarse–fine-grained calcareous greywackes of the Clogher Head Formation that pass in the south into mudstones of the overlying Red Man's Cove Formation. Both formations are intruded by Caledonian lamprophyre dykes.

## **Main Geological or Geomorphological Interest**

Clogher Head lies south of the Tinure Fault, the local surface expression of the Iapetus suture, the line along which the Iapetus Ocean closed at the end of the Silurian. The coastal sections in this part of Ireland provide some of the best opportunities to study the different rock formations and structural features associated with this major episode.

The structural evolution of the area was complex during and following closure of the Iapetus but is most obviously manifested in the large-scale Clogher Head Anticline and associated cleavage, both of which strike broadly northeast-southwest, parallel to the regional Caledonian trend. Spectacular folding is a feature of the cliff exposures. The rocks are cut by a near-vertical cleavage that is refracted where it transects beds of differing competence. Some surfaces show tectonic rippling, an effect produced by intersection of cleavage and bedding.

Lamprophyres are relatively uncommon basic or ultrabasic igneous rocks typically found as small intrusions and have been linked to deep melting in subduction zones. They are calc-alkaline, have a high content of mafic minerals and lack quartz. The dykes at Clogher Head were emplaced late in the deformation history: some are cleaved and some post-date cleavage formation. They are generally aligned parallel to the main cleavage but are locally discordant, cutting across the cleavage.

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

The entire site is within the Clogher Head SAC and proposed NHA. Its importance in the context of structural studies relating to closure of the Iapetus Ocean, the spectacular examples of folding and the presence of numerous lamprophyre dykes provide support for the proposed NHA designation.

## **Management/promotion issues**

Clogher Head is popular with walkers. Cliff erosion has led to renewal of fencing and erection of warning signs discouraging access to much of the foreshore between the head and Red Man's Cove. There is ample scope for erection of signage, especially at the northern end of the site where folding, cleavage and lamprophyres are all well displayed.



Large-scale asymmetrical fold in Clogher Head Formation greywackes (A4-size clipboard left) for scale), on Clogher Head.



Cleavage refracted as it crosses beds of different competence (yellow line shows trace) (left); tight symmetrical fold in greywacke (right).



Lamprophyre dyke (left of line) emplaced into vertically cleaved greywacke (left); symmetrical fold plunging to east, Red Man's Cove (right)



