

KILDARE - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Chair of Kildare
Other names used for site	Grange Hill
TOWNLAND(S)	Carrickanearla, Conlanstown, Cannonstown.
NEAREST TOWN	Kildare
SIX INCH MAP NUMBER	17, 22
NATIONAL GRID REFERENCE	272590 217750 = N 7259 1775
1:50,000 O.S. SHEET NUMBER	55 1/2 inch Sheet No. 16

Outline Site Description

Natural rock exposures scattered over and around a hilltop

Geological System/Age and Primary Rock Type

Ordovician volcanic rocks (andesite) surrounded by fossiliferous sedimentary rocks of sandstones and mudstones.

Main Geological or Geomorphological Interest

The Chair of Kildare is an artificial mound on the edge of Grange Hill which is an inlier of Ordovician rocks, that is older rocks entirely surrounded by younger rocks. The north western boundary of the elongate inlier is a major fault, whilst the younger Devonian red sandstones and Carboniferous limestone unconformably overlaps on the south eastern side. A thick mantle of glacial sediments mean that rocks are poorly exposed except in the centre of the hill which rises from the plains of Kildare and the Curragh in a distinctive landmark. The site includes many facets of geological importance and interest.

The oldest rocks have been dated by a few graptolite specimens as early Ordovician, and these are unconformably covered by sandy sediments with lots of volcanic ash and fossils indicative of a shallow water environment, including large coarse ribbed brachiopods (shellfish), trilobites and bivalves. These are best exposed behind the cottage on the northern shoulder of the hill. Immediately above them is a massive deposit forming the bulk of the erosion resistant hill. This is of andesite – a volcanic rock which is also the rock in the Hill of Allen further north east in the inlier. Both hills were perhaps once volcanic islands in an Ordovician sea, or if not, then they formed seamounts just below the surface on the continental shelf edge, within the Iapetus Ocean of that time, around 450 million years ago.

Overlying the andesites are some mudstones and siltstones, often calcareous, but also rich in fossils. These include a wide variety of brachiopods, trilobites, gastropods and other marine invertebrates. The fossils in the two sequences of sedimentary rocks below and above the andesite give a tight constraint on the age of the volcanic rocks. They are also important in charting part of the migration of animals such as brachiopods and trilobites across the Iapetus Ocean, often via volcanic islands, helping our understanding of the biogeography of a time when faunal diversity was expanding very rapidly.

The south western side of the Hill of Allen, adjacent to the Chair of Kildare itself (an artificial mound) is famous for the Kildare Limestone, a localised carbonate mound deposit, exposed as scattered outcrop. Although renowned for fossils they are in fact very difficult to see and extract, as they are composed of the limestone itself. Some groups, such as the trilobites have been well described, and again, form an important international comparison. A very small exposure also yields an internationally known Hirnantia fauna, a discrete end Ordovician assemblage.

Overall, the Kildare inlier, encompassed by this site, the Hill of Alen and Dunmurry Hill, form an interesting and geologically very diverse landscape, which forms a landmark from the otherwise flat and featureless Quaternary plains overlying Carboniferous limestone bedrock.

Site Importance

The site is the most important part of the Kildare inlier and will be designated as an NHA for its diverse geology and palaeontology, in a national context.

Management/promotion issues

The site is private farmland and commonage and not accessible without local permission. Fossils are a major interest of the site, but it is not really suitable to promote for this as they are either intractable or unexposed without excavating holes. Previous research (eg Parkes and Palmer 1994) demanded digging of trenches etc to identify fossiliferous localities. They are no longer exposed.



Exposures of the Kildare Limestone Formation



A view of Grange Hill from the Kildare Limestone summit near the Chair



The mound of the Kildare Limestone Formation from the Chair of Kildare artificial mound



Typical field at Cannonstown in the fossiliferous mudstones, which are only exposed by trenching.

Chair of Kildare

