WEXFORD

AREA OF COUNTY: 2,352 square kilometres or 908 square miles

COUNTY TOWN: Wexford

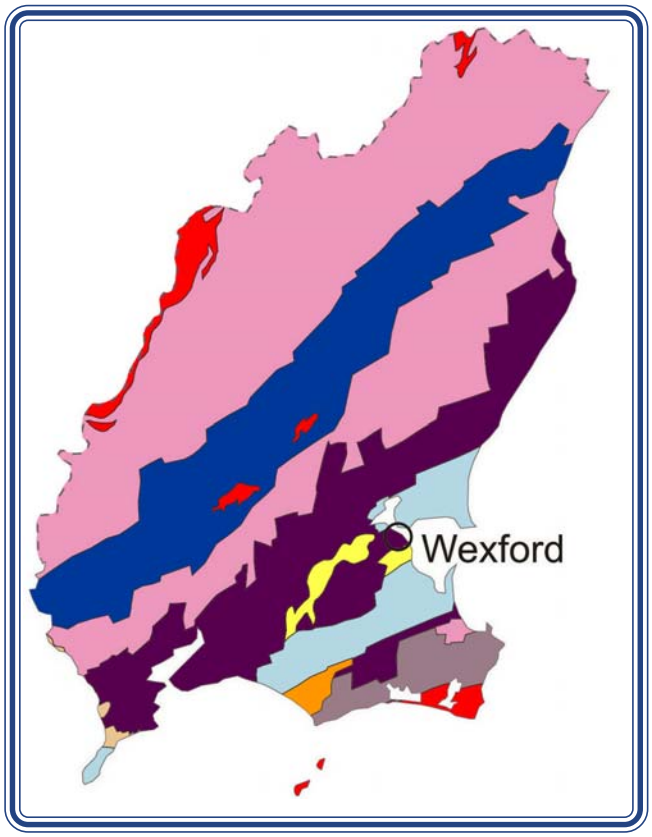
OTHER TOWNS: Bunclody, Enniscorthy, Fethard, Gorey, New Ross

GEOLOGY HIGHLIGHTS: Granites, Hook Peninsula, Fossil pingos

AGE OF ROCKS: Precambrian-Ordovician; Devonian-Carboniferous; Permian/ Triassic

Lighthouse at Hook Head

Adjacent to the lighthouse can be seen Lower Carboniferous limestone that contains many fossils.



Geological Map of County Wexford

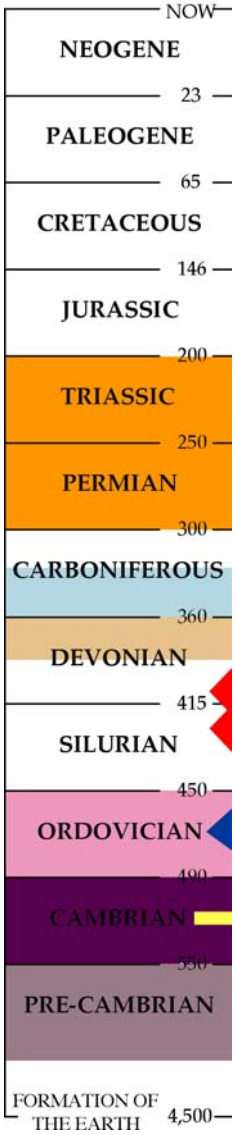
Light purple: Precambrian metamorphic rocks; **Purple:** Cambrian rocks; **Pink:** Ordovician; **Dark blue:** Ordovician volcanic rocks; **Pale yellow:** Quartzites; **Red:** Granites; **Beige:** Devonian sandstones and conglomerates; **Light blue:** Lower Carboniferous limestone; **Orange:** Permian and Triassic sediments.

Geological history

The oldest rocks are exposed on the coast in the south-east of the county, at Kilmore Quay and near Rosslare. These rocks were once sediments but already by 620 million years ago [Ma], in the Precambrian, they had been severely metamorphosed into banded rocks called gneiss by extreme heat and pressure.

By Cambrian times, beginning around 540 Ma, the southeast of Ireland was on the southern side of a vast ocean that would slowly close over the next 140 million years or so. The rocks from the Cambrian and early part of the succeeding Ordovician, until around 460 Ma, comprise black mudstones with many thin beds of grey sandstone and were deposited on the floor of a deep ocean basin. In later Ordovician times there was a great deal of volcanic activity. Volcanic islands, formed as the ocean was slowly closing, spewed forth enormous volumes of lava and ash.

Two fossils from the Lower Carboniferous limestones exposed at Hook Head: a bryozoan (left); and a crinoid [sealily] (right)



Geological timescale showing age of rocks in Wexford.

Somewhat later, in the Silurian around 435 Ma, bodies of molten magma ascended towards the surface but never reached it. They cooled slowly to produce the coarsely crystalline granite that now, exposed by later erosion, forms Carnsore Point and the Saltee Islands. More granite magma was intruded a little later, in the early Devonian around 405 Ma, and forms the Blackstairs Mountains in the west of the county. The Carnsore Granite is particularly beautiful with large pale feldspars set in a pinkish background matrix of smaller crystals of quartz, feldspar and mica.

In the Devonian (416 Ma) the ocean closed completely and a large continent had formed which was only sparsely vegetated because land plants were still at an early stage in their evolution. Coarse sandstones and conglomerates were deposited by rivers that flowed down the mountains and across the flood plains which in time itself were slowly drowned by a warm ocean that migrated northwards during the Carboniferous period (350 Ma). Mudstones and later limestones, often packed with many types of fossils, were deposited. A continuous section of Devonian to Carboniferous rocks can be seen on the Hook Peninsula where old unfinished millstones cut in conglomerate can be found at its northern end. Now preserved in the Carboniferous limestones are corals, crinoids (sealilies), brachiopods, and bryozoans (pictured above) and echinoids (sea urchins) best viewed at

Hook Lighthouse (350 Ma). Please do not collect these fossils: they are protected by law. Some red sandstones were deposited in a desert environment during the Permian and Triassic periods but evidence of these rocks cannot be seen at the surface. Geologists know about these through drilling deep into the rock succession.

Fossil Pingos and Kettle Holes

County Wexford contains some rare features left over as the ice of the last Ice Age melted. As the glaciers and icesheets broke up some large blocks were left remaining embedded in glacial till or boulder clay. Eventually these melted and small circular ponds were left behind. These are kettle holes.

Modern-day Pingos are domes of ice that develop close to icesheets. They become covered by thin layers of soil and debris and when they eventually melt leave large circular walls of debris. Fossil pingos can be found at Camaross.

Building materials

The Normans invaded Ireland in 1169 and entered the country at Baginbun Bay, Co. Wexford. Not only did they bring soldiers but also stone masons who were familiar with working limestones in Normandy and southwest England. In time this influenced the choice of some materials that later builders used for construction of churches and other important buildings. At Tintern Abbey which was built by the Cistercians after 1200 the stone used for decorative work is a mixture of the pale-coloured limestone from Dundry, Somerset and local Old Red Sandstone.

Pottery works

Clay is a product of the erosion of granite. It is thought that the Leinster Granite was open to the surface by 350 million years ago, Rain has caused the white feldspars to undergo chemical alteration to clay and these clays over time became washed downslope and settled into pockets near Enniscorthy and elsewhere. They were later exploited by potters. Most clay now used is imported as the Irish resources are largely exhausted.

Map adapted with permission from Geological Survey of Ireland 1:1,000,000 map 2003.
Image credits: Patrick Wyse Jackson (all).
Text by Patrick Wyse Jackson & Mike Simms