

KILKENNY

AREA OF COUNTY: 2,061 square kilometres or 795 square miles

COUNTY TOWN: Kilkenny

OTHER TOWNS: Callan, Castlecomer, Gowran, Graiguenamanagh, Mullinavat, Thomastown

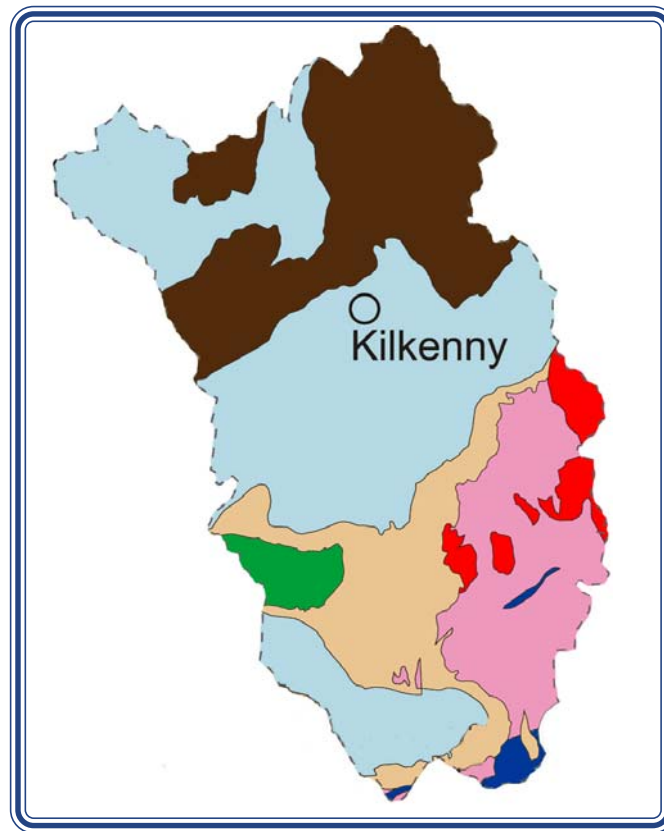
GEOLOGY HIGHLIGHTS: Devonian plants from Kiltorcan, Kilkenny 'marble', Upper Carboniferous amphibians, Dunmore Cave, Castlecomer Discovery Centre, Limestone Quarries, coal mining, brick making

AGE OF ROCKS: Ordovician to Upper Carboniferous



Limestone Quarry near Kilkenny

For over two centuries limestone was quarried at Archer's Grove just south of Kilkenny city. This black limestone became known as 'Kilkenny Marble'



Geological Map of County Kilkenny

Pink: Ordovician; **Dark blue:** Ordovician volcanic rocks; **Green:** Silurian sediments; **Beige:** Devonian sandstones; **Light blue:** Lower Carboniferous limestone; **Brown:** Upper Carboniferous coal and shales; **Red:** Granite.

Geological history

During the Ordovician period (490-450 million years ago [Ma]) and the later Silurian Period mud and sand was deposited into an ocean that divided Ireland in two. By Devonian (416 Ma) times the ocean had closed completely and a large continent had formed. Huge volumes of molten magma rose up into the Earth's crust, cooling slowly to form granite which, uncovered by later erosion, now forms the hills in the southwest of the county. Near the end of the Devonian, around 360 Ma, small lakes developed which were surrounded by vegetation such as the tree fern *Archaeopteris*.

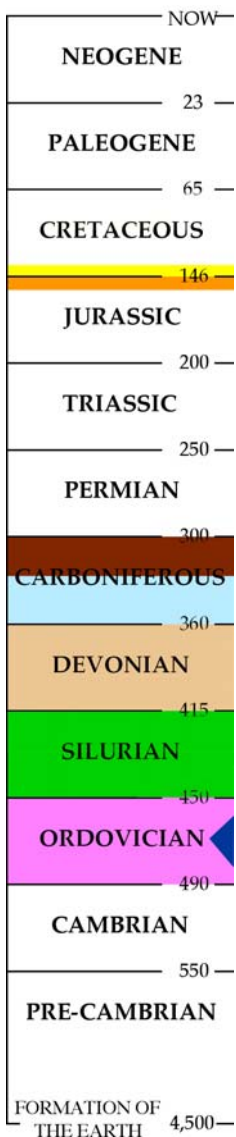
Later in the Lower Carboniferous (360-330 Ma) a shallow ocean covered the county and limestone containing shells was deposited. Eventually the sea gave way to swampy land where large forests of club mosses and ferns thrived. Remains of these plants form the coal that is found in the northern part of the county around Castlecomer.



Archaeopteris, a tree-fern (left and centre) and the freshwater mussel Archanodon (right) from Kiltorcan

The youngest bedrock in the county was discovered only by drilling near Piltown, near Carrick-on-Suir. Clay and sand preserved in hollows in the surface of the Carboniferous limestone contained pollen grains from the late Jurassic or early Cretaceous (not shown on map).

There are extensive spreads of glacial till, or boulder clay, and, particularly adjacent to the River Nore, thick deposits of gravel that were all deposited at the end of the Ice Age.



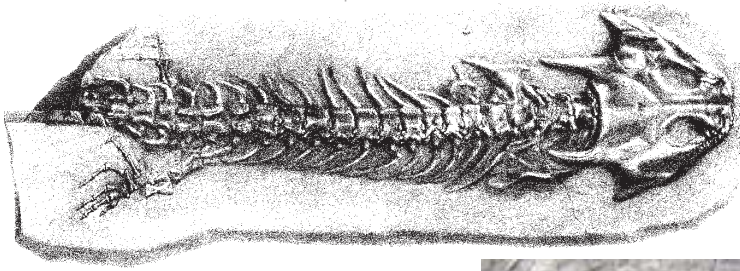
Kilkennyfossils

The oldest fossils in Kilkenny are those from the famous plant fossil locality at Kiltorcan, near Ballyhale. These Devonian land plants are of types we do not see today such as the treefern *Archaeopteris hibernica*, with a few other species. Also preserved are some freshwater mussel shells, fish scales and some rare arthropods.

During the Carboniferous the tropical sea contained many animals and fossils of these are plentiful in the important limestone quarries of the county. Some beds which were rich in shells make popular stones for cladding buildings with their white fossils in the blue limestone.

The Castlecomer coal mines have provided some fascinating fossils. The National Museum and Trinity College, Dublin have some very rare amphibians from the Jarrow Colliery, and

Geological timescale showing age of rocks in Kilkenny.



Lithograph (above) of one amphibian published in 1863 and actual fossil (right)



Fossil amphibians from the Upper Carboniferous coal of Jarrow Colliery, Castlecomer, Co. Kilkenny

replicas can be viewed at the Castlecomer Discovery Centre. Other coal mines provided plant fossils and some very small shells preserved with soft parts of the animal too.

Mining & Building Stones

Ahenny in the south west of the county (Slievenamon area) is well known for its slate quarrying in the 1800s. Several pits and workings are seen although mostly flooded now. A sculpture trail can now be seen in some of the old slate pits. As well as local stones for building, some important monastic and public buildings have also used imported stones.

Coal mining has a long record in Kilkenny, with extensive mining in both the Castlecomer and Slieveardagh (partly in Tipperary) coalfields. The Deerpark Colliery in the Castlecomer area only closed in 1979. Although coal mining ceased around Castlecomer, there is still extraction of shales and clays to make bricks in the Ormonde brickworks.

Suggested reading

- J. Walsh and Seamus Walsh. *In the Shadow of the Mines* (1999), J&G Print, Freshford.
- Dan Tietzsch-Tyler. *Building Stones of St. Canice's Cathedral, Kilkenny. An introduction to the rocks of the Kilkenny Region.* (1995) Geological Survey of Ireland and Bord Failte, Ireland.

Map adapted with permission from Geological Survey of Ireland 1:1,000,000 map 2003.
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