

# CARLOW

**AREA OF COUNTY:** 896 square kilometres or 345 square miles

**COUNTY TOWN:** Carlow

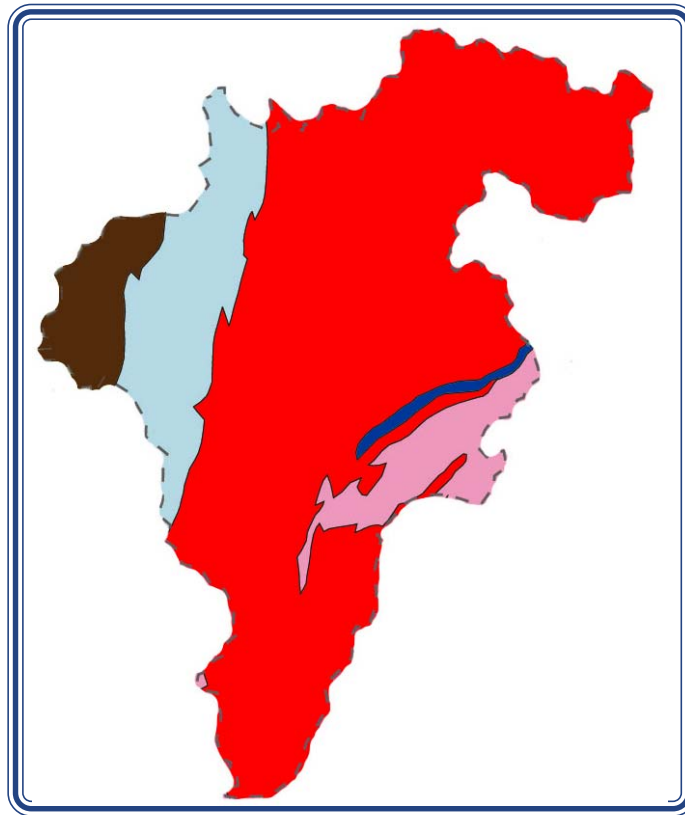
**OTHER TOWNS:** Bagnelstown, Clonegall, Hacketstown, Leighlinbridge, Tullow

**GEOLOGY HIGHLIGHTS:** Granite working and the Carlow fence, limestone quarries, Ballymoon esker, Leighlinbridge meteorite

**AGE OF ROCKS:** Ordovician to Carboniferous; Quaternary



**Culm Crusher at Old Leighlin**



**Geological Map of County Carlow**

**Pink:** Ordovician; **Dark blue:** Ordovician volcanic rocks ; **Light blue:** Lower Carboniferous limestone; **Brown:** Upper Carboniferous shales and coals; **Red:** Granite.

### Geological history

The oldest rocks in Carlow are from the Ordovician period (490-450 million years ago [Ma]), in the east of the county. They are sea floor sediments which were caught up in the closure of an ocean that once separated two continents. The mountain range that was pushed up at the end of the Silurian period was then deformed with the intrusion of large granite masses (plutons) about 400 Ma. The Leinster granite underlies most of the county, both the Blackstairs Mountains and the Tullow lowlands. It was formed underground and the molten igneous rock cooled slowly. The rocks that covered it have since been eroded away. The Ordovician rocks were metamorphosed by the heat of the granite.

In the early part of the Carboniferous period, the sea covered the lower ground, depositing limestone. During this time 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



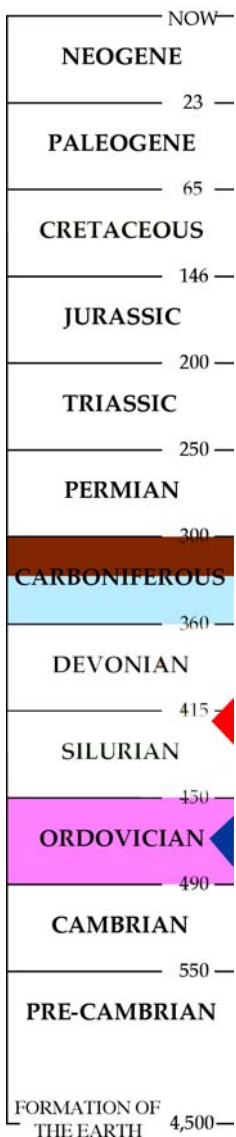
**Exposed coalseams (dark) in Co. Carlow**

stones for cladding buildings and are easily recognised with their white fossils in the blue limestone.

Upper Carboniferous rocks occur in west Carlow and form part of the Castlecomer Coalfield spanning Counties Carlow, Kilkenny and Laois. The rocks were formed in a delta environment,

with occasional swamps forming coal in the sequence. For much of the following 300 million years Ireland was mostly a land area dominated by erosion rather than sedimentation. There are also some features of deep weathering of the landscape in the Neogene period.

The last development occurred during the last 1.6 million years when ice ages came and went. The last one ended about 10,000 years ago, giving Carlow some glacial deposits of till (boulder clay) or sand and gravel across the lowlands. An esker (the international name for these features comes from the Irish name: eiscir) formed at Ballymoon, near Bagenalstown, from a river flowing beneath the ice, leaving a long narrow ridge of sand and gravel.



**The Leighlinbridge Meteorite**

A spectacular recent event occurred in Carlow in November 1999 when a meteorite plummeted to Earth from space. Samples of the meteorite (pictured right) were recovered at Leighlinbridge. The meteorite has been classified as an ordinary chondrite and is thought to have originated in the inner asteroid belt. To date 4 specimens of the meteorite have been recovered totalling 271g in weight.



**Geological timescale showing age of rocks in Carlow.**

## Mining & Building Stones

Carlow has no significant mining history for metals although there has been exploration in modern times for minerals such as spodumene and andalusite associated with the Leinster Granite. Some deposits were found but none have been economic to mine.

The rich legacy of granite building stone in Carlow is important. As well as in houses, churches, canal locks and public buildings, granite has been used for the distinctive Carlow 'fence' (pictured above at Oak Park). At one time many areas were covered by large boulders of granite. These have been 'cleaved' and broken down with chisels and wedges to use in building, clearing fields for agriculture at the same time.

Carlow is on the edge of the Castlecomer Coalfield, and there are some old coal pits on the hills above Carlow town, although these are now reworked for sandstone. Around the area there are some old grinding stones, used to grind down poor quality coal, called culm, to mix with clay to make 'bombs'. These were once the poorer people's main fuel for stoves and fires.



Modern quarrying is mainly for limestone. At Leighlinbridge, dimension stone for cladding buildings is a major industry, whilst other quarries produce agricultural lime at Clogrenan (pictured left), and aggregates for building blocks and roads.



Map adapted with permission from Geological Survey of Ireland 1:1,000,000 map 2003.  
Image credits: Matthew Parkes 1, 3 (top), 4 (top and bottom); Rob Elliott 3 (bottom).