LAOIS

AREA OF COUNTY: 1,719 square kilometres or 663 square miles

COUNTY TOWN: Portlaoise

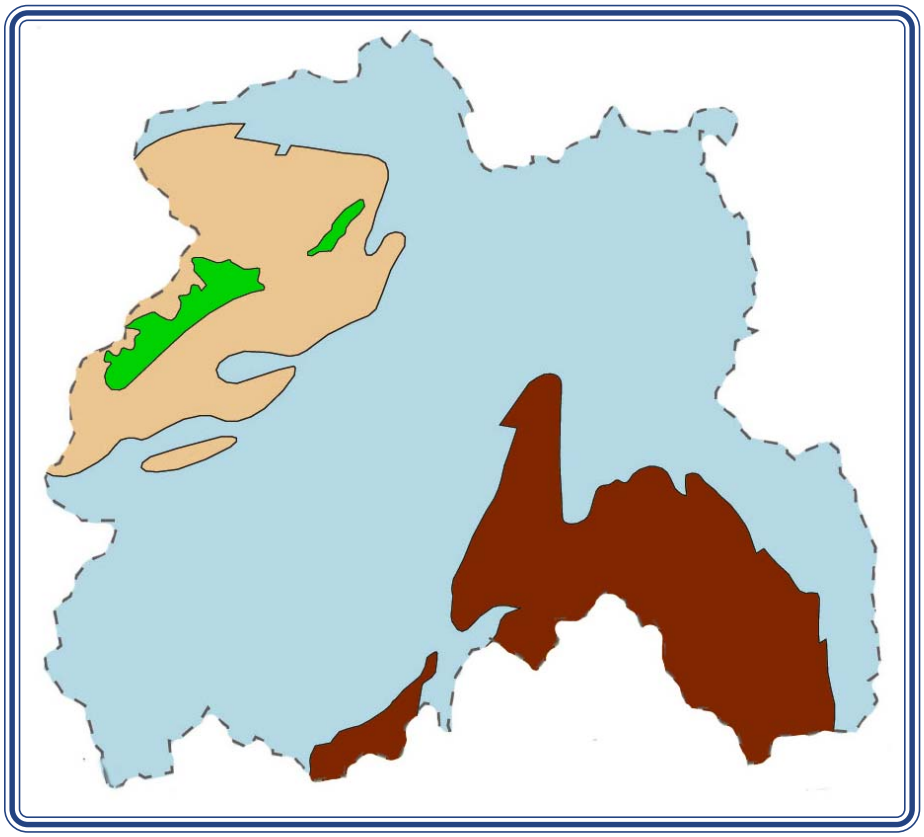
OTHER TOWNS: Abbeyleix, Mountmellick, Mountrath

GEOLOGY HIGHLIGHTS: Limestone quarries, Rock of Dunamase and the Stradbally Hills

AGE OF ROCKS: Silurian - Carboniferous, Pleistocene

Rock of Dunamase

Carboniferous limestone forms the Stradbally Hills and the Rock of Dunamase.



Geological Map of County Laois

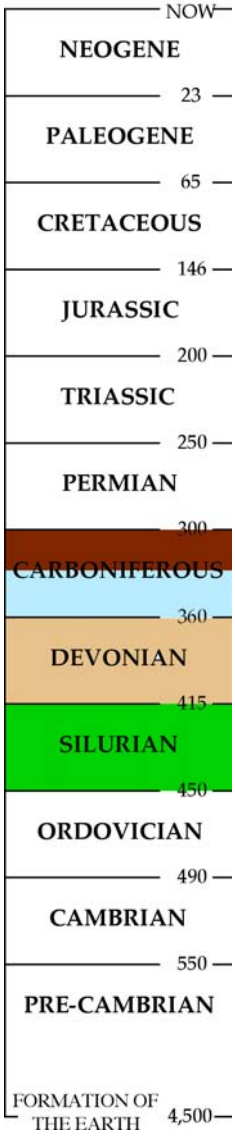
Green: Silurian; **Beige:** Devonian; **Light blue:** Lower Carboniferous limestone; **Brown:** Upper Carboniferous shales.

Geological history

The landscape of Co Laois is mostly rather low-lying. In the north-west lies the eastern part of the heavily wooded Slieve Bloom Mountains, which are formed of the oldest rocks in the county, while in the south-east is the northern tip of the Castlecomer Hills, formed of the youngest bedrock in the county.

The oldest rocks in the county occur in several patches towards the centre of the Slieve Bloom Mountains where erosion has stripped away the younger rocks, but they are only exposed in the banks of a few streams. These grey mudstones, siltstones and sandstones are Silurian in age, around 425 million years old (Ma), and were deposited on a deep ocean floor. Lying above them are red to brown mudstones, sandstones and pebble beds, with occasional peculiar knobbly limestones called 'cornstones'. All of these were deposited on river floodplains in an Equatorial semi-desert environment, with the 'cornstones' actually forming within the soils of the time. Spores are the

Waterfall on the River Barrow flowing over Carboniferous sediments in the Slieve Bloom Mountains



Geological timescale showing age of rocks in Laois.

only fossils that have been found, but they show that these rocks are of earliest Carboniferous age, just a little less than 360 Ma.

Soon after the start of the Carboniferous, sea level rose to flood across these low plains. The first of the marine rocks to be deposited were dark grey fossiliferous mudstones, but above these is a series of thick grey limestones which underlie much of the low ground across the county. At certain levels these limestones are quite fossiliferous, with shells of brachiopods and nautiloids, corals, fragments of crinoids, and rarer fossils such as trilobites. Mostly these limestones accumulated as horizontal layers on a fairly shallow sea floor but for a time, around 340 Ma, peculiar steep-sided limestone 'mud mounds' formed on the sea bed. Some of the younger layered limestones, around 325 Ma, are much darker in colour and were deposited in considerably deeper water. Although the limestones mostly form low ground across the centre of the county, they are well exposed in various working and disused quarries and on some of the low hills in the south of the county, notably the Rock of Dunamase.

The low hills in the south-east corner of the county are of younger Carboniferous rocks, between 320 and 315 Ma. The earliest of these particular rocks are black mudstones and

thin limestones, often containing patches of iron pyrite or 'fools gold', that accumulated in deep, poorly oxygenated water. Above them lie sandstones and mudstones that were deposited by river deltas as sea level fell. Younger still is a series of sandstones and mudstones with thin coal seams, formed from plant material buried in a swamp, that formed the basis of the now defunct Leinster Coalfield.

As elsewhere across Ireland, the ice sheets and glaciers of the last Ice Age have modified the Laois landscape, although in a more subdued way than in some of the more mountainous regions of Ireland. The main effect has been to blanket much of the lowlands with glacial till, or 'boulder clay'.

Laois fossils

Fossils, particularly corals and brachiopods, are common in the Carboniferous limestones exposed in quarries and hillside crags. Slightly younger fossils, particularly plant remains and marine animals called goniatites (right), occur in some of the rocks of the Leinster Coalfield but since the abandonment of the coal mines these rocks are seldom exposed.

Mining & Building Stones

Flagstone Quarry (Upper Carboniferous) at Wolfhill

Many small quarries were opened in the Carboniferous limestones for building stone and agricultural lime but today only the large Ballyadams Quarry is still worked for limestone aggregate and agricultural lime. Mining of high grade coal formerly took place in the Leinster Coalfield, but all of the seams are thin and none of the mines, underground or opencast, are still working.

Map adapted with permission from Geological Survey of Ireland 1:1,000,000 map 2003.
Image credits: Mike Simms 1, 4 (bottom); Kevin Higgins 3 (licensed for reuse under the Creative Commons Licence).

Text by Mike Simms