

CORK

AREA OF COUNTY: 7,457 square kilometres or 2,879 square miles

COUNTY TOWN: Cork

OTHER TOWNS: Bandon, Bantry, Charleville, Cobh, Mallow, Midleton, Millstreet, Skibbereen, Youghal

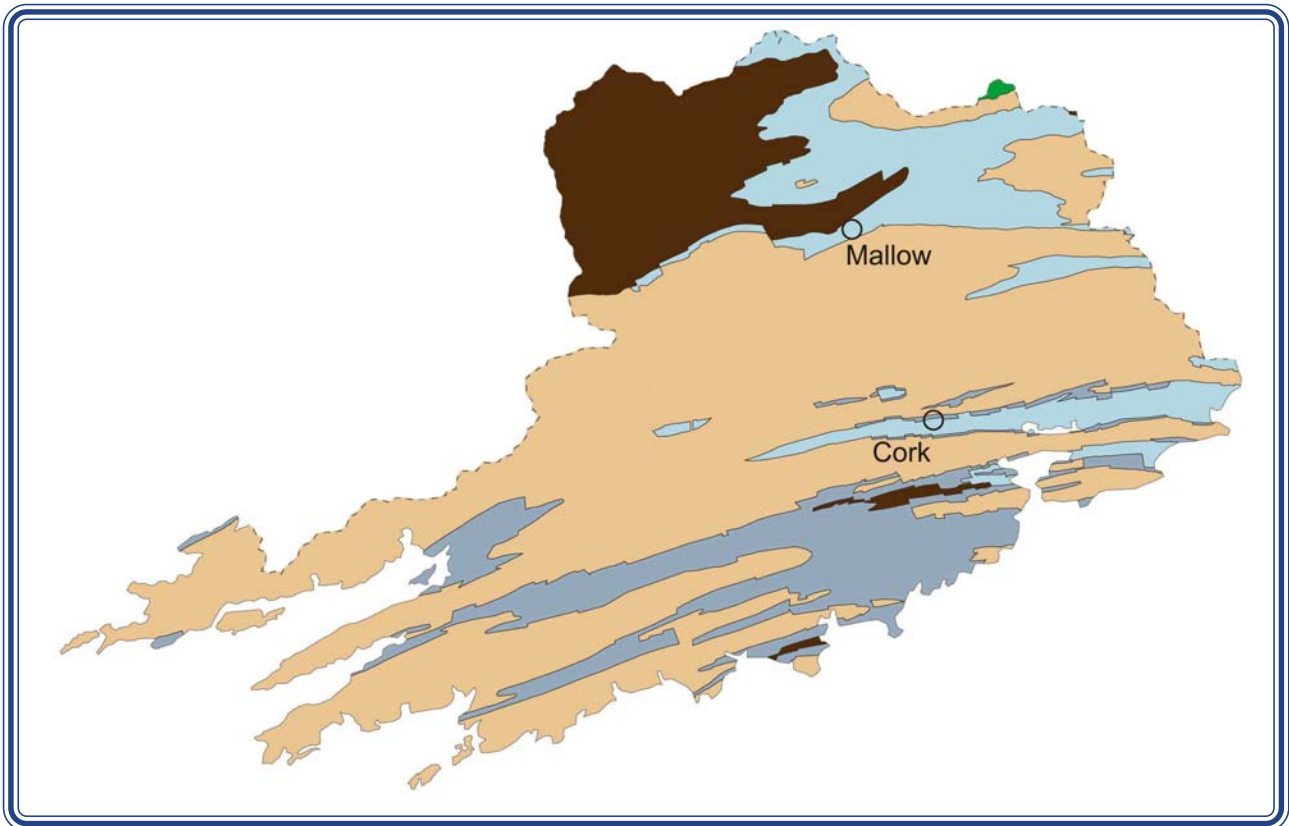
GEOLOGY HIGHLIGHTS: Copper mines, Cork Red Limestone, Kanturk coalfield, Jurassic and Palaeogene infill deposits.

AGE OF ROCKS: Silurian to Carboniferous; Jurassic; Paleogene



River Blackwater at Banteer, Co. Cork

The River Blackwater as well as the River Lee flow eastwards through Co. Cork in valleys underlain by Carboniferous Limestone. These are hemmed in by ridges of Devonian sandstones and conglomerates



Geological Map of County Cork

Green: Silurian; **Beige:** Devonian sandstones and conglomerates; **Dark blue:** Lower Carboniferous sandstones and mudstones; **Light blue:** Lower Carboniferous limestone; **Brown:** Upper Carboniferous shales and coal.

Geological history

The rocks in Co. Cork largely belong to the Devonian (415-360 million years ago [Ma] to Carboniferous (360-300 Ma] periods. However there is a small occurrence of older Silurian rocks in the northeast of the county on the edge of the Galtee Mountains. For millions of years during the Devonian Ireland was part of a large continent. In general the climate was seasonally wet, and a sparsity of terrestrial vegetation allowed dunes to form in places. Temporary rivers flowed towards the south and in times of rainfall these became torrents with flashflooding and they carried coarse cobbles and pebbles as well as sands downstream. These later were also lithified and are called conglomerates (coarse) and sandstone that collectively make up the Old Red Sandstone.

At the beginning of the Carboniferous an ocean began to spread northwards over Ireland. In south Cork a deep marine basin developed called the Munster Basin and this became infilled with shales and mudstones many



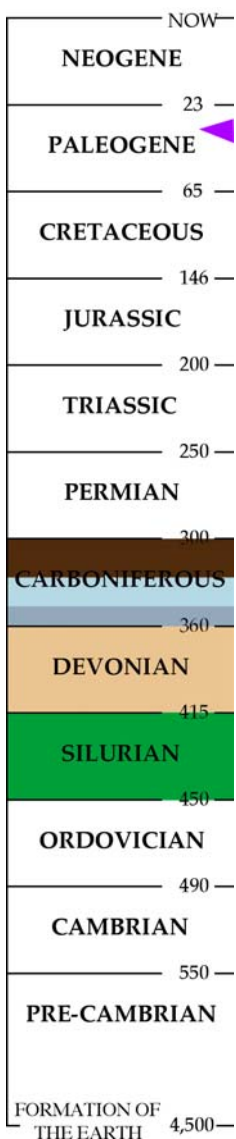
Quarry at Ballygiblin showing an orange clay that has infilled a solution hollow or cave in the Lower Carboniferous limestone. Pollen in this clay has proved that it is Paleogene (30 Ma) in age.

of which now contain flattened fossils. Overlying this were deposited limestones which were precipitated in a shallow, warm tropical ocean. Later

in the Upper Carboniferous large southwest flowing rivers carried muds and shales into a deepening ocean, while close by at the same time forests in warm swamps thrived. The shales now cover the northwest of the county and the plants which had become compressed by overlying rocks turned into coal that was for many years mined at Kanturk.

Approximately 270 Ma during the Permian period a mountain-building event called the Variscan affected the rocks in Co. Cork. Two continents collided and the rocks were folded into a series of ridges (anticlines) and valleys (synclines) that have an east-west orientation. Across the ridges erosion has removed the younger rocks to expose the Old Red Sandstone while in the valleys the younger Carboniferous rocks still remain. By and large the rivers in Cork flow along the limestone synclines and in the west they have been drowned by seawater to form rias.

Metal deposits such as copper were carried by hot fluids into the rocks of west Cork and these were later mined. During the Jurassic, around 180 Ma, and later during the Paleogene, much of Ireland was land and the exposed limestone became riddled with caves and fissures. Some of these cavities became infilled with clay and are now the only rare evidence for these very young rocks or sediments in the county. Jurassic clays have been found at Cloyne, near Cork, while Paleogene clays are known from Ballygiblin, near Cecilstown.



Geological timescale showing age of rocks in Cork.

Copper Mining in west Cork

Copper was used by early settlers in Ireland to make bronze weapons. West Cork was an important site for copper mining during the Bronze Age 4000 years ago, and mines were opened at Mount Gabriel (top right). Here miners built fires against the rock and then quenched it with water to break up the stone. The metal ore was then picked out and smelted into useful objects.

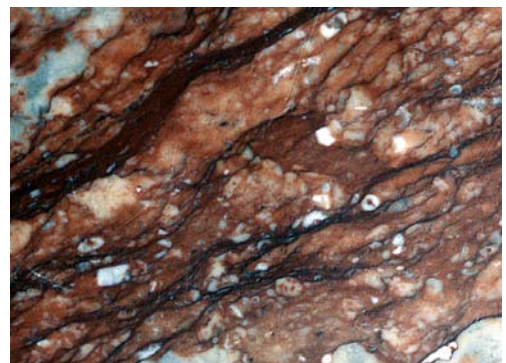


Between the 1700s and the 1880s numerous copper mines were opened in the Bearhaven and West Carbury districts where miners came from Cornwall and Wales. The famous Man Engine House at the Mountain Mine, Allihies (centre right) was used to transport the miners down the mine. Other engine houses were used to pump water out of mines.



Cork Red Limestone

This Lower Carboniferous limestone (bottom right) was used for decorative work in churches and other buildings until the 1920s. Quarried at Baneshane, Cobh, and Middleton it contains small circular crinoid fossils and was easily polished. The red colour comes from iron oxides eroded from the underlying Old Red Sandstone.



Suggested reading

- William O'Brien and Anna Brindley: *Mount Gabriel: Bronze Age mining in Ireland* (1994) Galway University Press, Galway.

Map adapted with permission from Geological Survey of Ireland 1:1,000,000 map 2003.
Image credits: Mike Simms 1, 3; Matthew Parkes 4 (top); Mining Heritage Trust of Ireland 4 (centre); Patrick Wyse Jackson 4 (bottom).