

WICKLOW

AREA OF COUNTY: 2,024 square kilometres or 781 square miles

COUNTY TOWN: Wicklow

OTHER TOWNS: Arklow, Avoca, Baltinglass, Blessington, Bray, Dunlavin, Greystones, Rathdrum, Tinahely

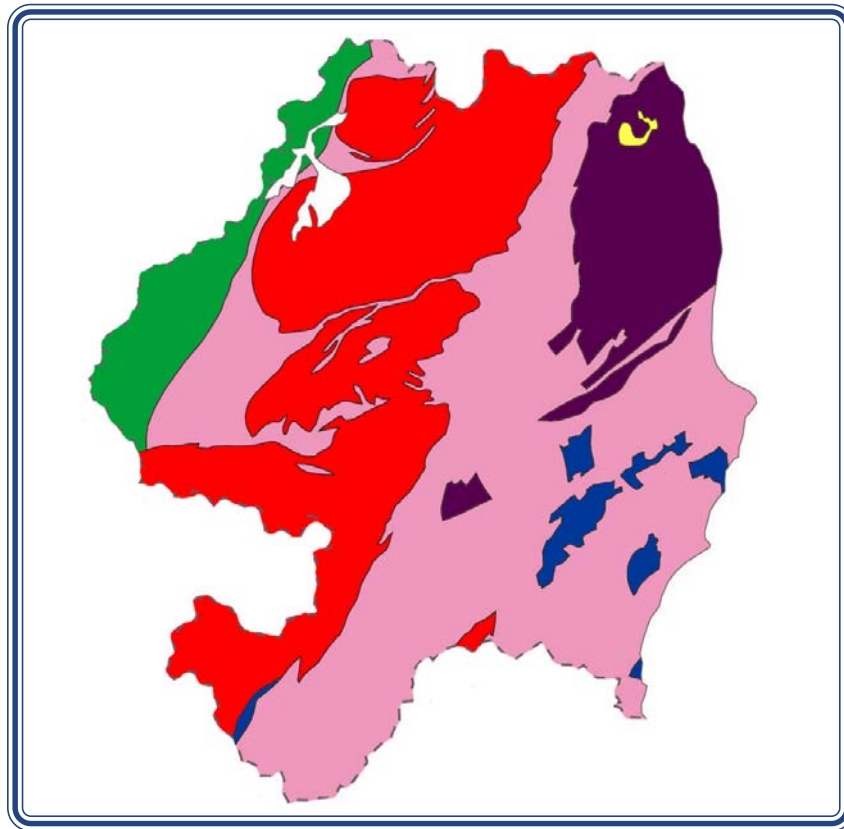
GEOLOGY HIGHLIGHTS: Cambrian trace fossils, Glendalough mining activity, Avoca copper mines, Leinster granite mountains, Glacial deposits.

AGE OF ROCKS: Cambrian to Silurian; Pleistocene



View towards Bray Head along the promenade at Bray

Bray Head is composed of Cambrian red and green shales and greywackes together with quartzite which makes up the resistant ridges at the summit



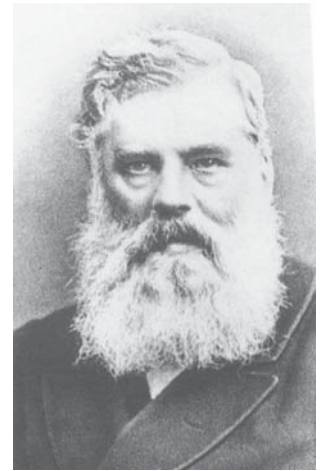
Geological Map of County Wicklow

Purple: Cambrian shales and greywackes; **Pale yellow:** Quartzite; **Pink:** Ordovician; **Green:** Silurian; **Red:** Granite; **Dark blue:** Ordovician volcanic rocks.

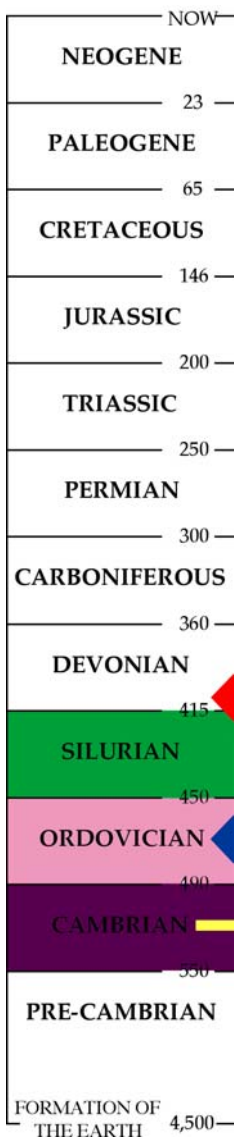
Geological history

The oldest rocks in Wicklow are those of the Cambrian period (550-490 million years ago [Ma]) that occur near Bray. These are a mixture of shales and greywackes that were deposited in deep water in an ocean called the Iapetus Ocean that divided Ireland in two. Sandstones deposited in this ocean were later metamorphosed into quartzite, and now make up the hard ridges of Bray Head and the distinctive Sugar Loaf mountains [these are **not** volcanoes but owe their shape to the weathering characteristics of quartzite].

During the Ordovician period (490-450 Ma) Ireland was south of the equator, and the Iapetus Ocean had begun to close. Sediments continued to be deposited off the land into this ocean and volcanic rocks were also produced in this tectonically active region. At the start of the Devonian (405 Ma) molten granite magma was injected into the overlying rocks which were baked around the granite margins. At this time veins containing lead, zinc and silver formed in the granite. The granite was injected in several batches



Oldhamia radiatia, a Cambrian trace fossil from Bray Head (left) named after Thomas Oldham a Dublin geologist (right)



to form large masses called batholiths. As these cooled slowly below the surface they solidified into a coarsely crystalline rock. Eventually 100 million years later the overlying rocks had been eroded away so that by the Carboniferous period the granite was at the surface.

In the last million years Ireland was affected by the Ice Age. Glaciers flowed down mountain valleys forming icesheets and eroded rocks and deepened valleys. When the ice finally melted, large lakes at Enniskerry and Blessington formed into which sands and gravels were dumped. These are now useful resources for building. Sometimes the melt water rushed through valleys like the Glen of the Downs and widened them.



Glendalough situated in a U-shaped glaciated valley. This was deepened by a glacier that moved through it during the Ice Age. Since the Ice Age sediments have accumulated in the lake.

Geological timescale showing age of rocks in Wicklow.

Lead Mining, Gold & Building Stones

Glendalough and Glendasan were important mining centres in the 18th century when lead was the prime ore extracted from the veins that ran through the granite. The ore was moved to Ballycorus in Co. Dublin for smelting. At Avoca copper was extracted from the 1800s until very recently.

Glendalough showing some old mining buildings and the waste tips from mining,



Gold was found in the Gold Mines River near Woodenbridge in the 1790s and this resulted in a 'goldrush' where prospectors would use a goldpan and wash river sands looking for traces of gold. While some nuggets were discovered there was not enough gold recovered to allow long-term working.

Model of a Gold nugget 12 cm wide found in 1790s in the Gold Mines River.

Leinster Granite is a hard-wearing stone that can be cut into blocks and polished or left rough. Stone from Blessington and Ballyknockan was an important building and facing stone used in many buildings in Dublin from Georgian times.

Leinster Granite (polished) from Ballyknockan with interlocking crystals of glassy quartz, white felspar and black mica.



Map adapted with permission from Geological Survey of Ireland 1:1,000,000 map 2003. Image credits: Patrick Wyse Jackson 1, 4 (bottom); Geological Museum, Trinity College, Dublin 3 (top left and right), 4 (centre); Matthew Parkes 3 (bottom), 4 (top).