

# Geology

By Mike Simms

Lough Carra, and its surrounding catchment of rivers, streams and springs, lies entirely on hard grey limestone. These limestone beds were deposited originally on the bed of a shallow, clear, equatorial sea during the early Carboniferous Period, around 340 million years ago. In places they contain the fossil remains of some of the creatures that lived there including corals, gastropods and brachiopods.

The limestone was originally deposited in horizontal layers but subsequent tectonic movements have tilted them so that now they dip to the east at an angle of a few degrees. This means that in general the older beds of limestone are found towards the west side of the lough, with younger beds towards the east. The oldest beds exposed around the lough shores are rather muddy grey limestone while the youngest, seen at only two or three places on the eastern side of the lough, contain many nodules of an impure type of flint known as chert.

The same tectonic forces that tilted the rocks here also created fractures, known as joints, which cut across the limestone beds and divide them into regular shaped blocks.

## Limestone landscapes

Limestone is an unusual rock because it is weakly soluble in water. Consequently, in the damp climate that prevails in the west of Ireland any exposed limestone becomes sculpted by water. Away from the lake shores exposed areas of limestone are etched by rainfall which, percolating down the joints, widens them to form fissures, or grikes, separating typically rectangular blocks, called clints. This is the typical form of limestone pavement such as is found in the Burren.

However, this typical limestone pavement is mostly absent on areas of limestone which are submerged when lake levels are high. This might at first seem odd but it is because the water in the lake, which is fed from springs in the limestone, is already completely saturated with calcium carbonate and so cannot dissolve the limestone.

Two types of limestone sculpting are, however, found around the shores of Lough Carra, and are peculiar to lakes where the water is saturated. On horizontal surfaces the limestone is sometimes covered with small cup-like depressions a few cm across. This is called “eggbox pitting” because of its similarity to the depressions and pinnacles in an eggbox. It is formed when rainwater interacts with puddles of lake water left on the limestone surfaces following floods.

More intriguing are small tapering tubes which extend upwards into limestone boulders and overhanging ledges. These are found only in the seasonally flooded zone of Lough Carra and form by ‘condensation corrosion’, when water vapour condenses on the inside of air pockets trapped by rising lake levels.

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Beds of limestone with eggbox pitting and tube karren at Castle Carra



Smooth lakeshore limestone with scattered eggbox pitting, Partry House Estate