

**Dendrochronology** (or tree-ring dating) is a method of dating wood based on the analysis of tree-ring growth patterns.

**Growth Rings:** as a tree grows it puts on new growth every year just under the bark. This annual growth is called an ‘annual ring’ or a ‘tree ring’. Trees grow tree-rings of varying width according to the weather: a wide ring in a good year and a narrow ring in a poor year.

The sequence of tree-rings, a pattern of wider and narrower rings, reflects the weather in that time. Thus, over the life span of a tree, its tree rings form a type of fingerprint that it shares with other trees of the same species growing in the same climatic area. When a tree is cut down you can see the pattern of tree rings and thus calculate the age of the tree. Of course, the pattern of rings is more varied in temperate zones, like Ireland, where the weather differs more from season to season.

You don’t need to cut down the tree to see its pattern of tree rings. A bore through a tree, from the bark edge to the pith or centre is all that is required. By taking bores from old trees, plotting the patterns of their tree rings, scientists are able to build up a ‘master chronology’ going back to the age of the oldest tree. In Ireland the most useful tree for this method is oak. The master chronology has been extended back in time by using samples of oak from bogs and archaeological contexts.

Thus, any sample of oak, with enough tree rings present, can be dated by matching its pattern against the pattern of the master chronology. If the bark is present then the exact year the tree was cut down can be calculated.

