

Ageing the Yew

Allen Meredith, assisted by **Janis Fry**, explores whether the yew trees known to have existed on sacred sites in pre-Christian times could be the same trees that still survive in churchyards today.

Most people would find it quite surprising that there are references to trees on sacred sites dating back to at least 1500 years. Such trees can be found mentioned in literature concerning the visits of St Germanus and St Augustine in the 5th and 6th centuries.

With the coming of Christianity standing stones were removed, and springs and wells covered over, but there is little evidence of the removal of sacred trees as attempts to do so often caused a public outcry. In one case, at Wixford in Warwickshire, so strong was the feeling of the congregation that they threatened to hang the vicar from the tree, unless they received assurances that the tree would not be touched! As the Church gradually took hold in Britain, it took over the pre-Christian burial mounds and religious sites along with the yew trees that grew on them.

Proof that some of the early church sites pre-date Christianity is to be found in numerous examples of early Saxon, Roman and pre-Roman remains and artefacts uncovered in churchyards. These include sarcophagi,

Roman altars, sarsen stones, ogham stones and human remains indicating ritual activity on these sites dating back some considerable time before the 1st century. Many of these pre-Christian sacred sites (see Box below) have ancient yews. It is well known that pre-Christian people revered yew trees, as seen from ancient stone and wood carvings. Yews were sacred trees long connected with the dead and with burial grounds.

The question often asked, of course, is whether any of these trees from pre-Christian times could be the same ones still growing on these sites – and the answer is yes, it is possible. For example, scientific examination has established that the Knowlton Henge circle yews are undoubtedly ancient.

Such is the strength of this tree's life force that even a yew that has been cut down, can come back to life. The massive 30 foot girth yew at Llanwrin is a good example of that. This yew was cut down to the ground in the early 1980s but, remarkably, has since regenerated.

Of all trees in the world the yew is the most mysterious. Even its physical character can be a complex mystery. Looking at the skeletal hollow shell of old trees and the fresh skin of recent centuries covering it, we may wonder how long this regenerative process has been going on in the tree's lifetime. The answer is we don't know, but what we do know is that the yew is capable of continual regeneration. In other words it is capable of immortality.

When after many centuries, a yew becomes hollow it can rejuvenate itself by means of aerial branch roots or layered branches. An aerial root or roots can grow in the centre of the hollow trunk or around the old shell of the trunk. This can sometimes happen after severe storm damage or some other trauma, as in the case of the Tandridge yew, which over a century ago was storm damaged and struck by lightning. Consequently a kind of self-survival took over and it produced quite rapid growth from its surviving limbs. Yew

Sites with ancient yews, many of which have been established by archaeologists to be Saxon, Roman and Bronze Age.

Caerhun Wales	Ashtead, Surrey
Defynnog, Brecon	Broadwell, Gloucestershire
Gresford, North Wales	Claverley, Shropshire
Llanafan fawr, Powys	Cobham, Surrey
Llangernyw, Wales	Coldred, Kent
Llanillid, Glamorgan	Corhampton, Hampshire
Llanwrthwl, Wales	Darley Dale, Derby
Meidrum, Carmarthen	Kenardington, Kent
Pennant Melangell, Wales	Knowlton Henge, Dorset
Rhulen, Powys	Long Sutton, Hants
Fortingall, Scotland	Meopham, Kent
	Merdon Castle, Hants
	Sandhurst, Berkshire
	Tangley, Sussex
Addington, Surrey	Uppington, Shropshire
Alton Priors, Wiltshire	Warbleton, Kent
Ashbrittle, Somerset	

Features

trees like the one at Tandridge can grow in all directions and its large branches have re-rooted many feet from its original trunk.

In a grove, such as those on the North Downs, re-rooting is common. Over the centuries many yews, for example the ones at Iffley or Tandridge, had been described as dead or dying. Today they are full of life. No other native tree has such a capacity for rejuvenation.

Ageing such trees is almost impossible. At Defynnog and Llanerfyl in Wales we were able to establish through the DNA that, apparently separate portions of trunks were one tree. This contributed to us being able to evaluate possible ages for those trees (see *The God Tree* by Janis Fry).

However, controversial debate still goes on over the longevity of the yew. Yew enthusiast Ben Dolphin, referring recently to the ancient yews at Fortingall and Defynnog, said: "The Ancient Yew Group refutes the 5,000 year old claims for both trees. Their research suggests the Fortingall yew is in the region of 3,000 years old but, by their own admission, dating of ancient yews is difficult if not impossible. However, because science can currently offer no definitive answer either way, the claims and counter-claims are sure to continue for many years."

Dendrochronology difficulties

The most common method of dating trees is dendrochronology (ring counting), but this is problematic in the yew. Dendrochronology is not a new science; Robert Christison and J.E. Bowman, in early and late Victorian times, were discovering high ring counts in old yews at Gresford and Darley Dale suggesting ages of 1600-2000 years. Comparing their findings with modern research, they were not far out. It would not be an exaggeration to give the Darley Dale yew 2,000 years. Robert Christison was finding 48-90 rings per inch in the Fortingall yew and suggested it would



*Ancient yew at Rydyglafes chambered cairn, near Llangollen.
(Photo: Janis Fry)*

have attained a girth of over 22 feet in a thousand years. Christison estimated the Fortingall yew to be over 4,000 years old.

However, a spanner was thrown in the works between late Victorian times and the 1980s when it became generally accepted that yews were only 300-800 years old. This was mainly due to authors like John Lowe (1897) and E.W. Swanton (1958) who wrote books entirely on yew trees and who were therefore considered to be the experts on yews, rather than other writers, who studied all trees. It was assumed that all yews were multi-stemmed and had more than one trunk. Even Kew Gardens were led to believe that the old yew at Fortingall was actually two different trees. However, today's professional researchers, such as Tabbush and White, have turned the clock back, agreeing with the earlier opinions.

There is no accurate way to date an ancient yew by carbon dating or by dendrochronology since as a tree

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approaches a thousand years of age, it becomes hollow and, if there is no wood, there is nothing to date. A case in point here is the old yew at Dunsfold that was assessed as being 800 years old from a study using increment cores (bore samples), presumably from more than one tree! I would dispute this analysis as the Dunsfold yew is a hollow shell and using any other yew in the churchyard to verify an age is pure guesswork.

Yews may not always produce annual rings. The causes of this are not always understood but it is as though the tree has shut down and suspended its growth. In over 300 years, the Aldworth yew increased its girth by only one foot. The Crowhurst yew in Surrey also increased its girth by only one foot in 300 years but topping this is the Totteridge yew, which in 1677 was measured at 26 feet girth and is still 26 feet in girth in 2015. Of course, we may see this as an extraordinary

event, but we can point to at least 60 other yew trees recorded and measured over 200 years ago that have similar slow growth, or no significant growth at all. Severe climatic conditions are one possible cause. Yews like those at Totteridge or Acton Beauchamp, which don't seem to have changed much over the centuries, may help us understand this process.

Dating by measurement

Over many centuries several historic yews have been consistently measured and recorded and I would suggest, that working with facts like these, would be a more accurate way of dating yews.

Reg Wheeler and Alan Mitchell of the Forestry Commission at Alice Holt had their own methods of assessing the ages of yews, which are, broadly speaking, comparable with mine. We agreed that yews could live for 2,000 years or more. Alan Mitchell re-measured many yews in the 1980s, compared them with his 1950s and 60s measurements and concluded from this that yew trees were much older than he first thought. Reg Wheeler in the 1980s and 1990s methodically examined several hundred old yews and counted the rings from the decayed wood. His method was to collect different samples from one tree and take the average ring count per inch. I remember one particular old yew at Llandeiniolen where, by using our different methods of ageing, we agreed an age of 2,000 years. Both Alan Mitchell and Reg Wheeler were sceptical at first about yews living to a great age and we did not always agree about the age of particular yews. For instance, those at Llanerfyl and Breamore are over 30 feet in girth and are thought by some yew historians to be over 2,000 years old but I believe these particular yews would not be much older than the 6th century A.D. In the case of Llanerfyl, St Padarn who founded the site, was said to have planted his yew staff over his daughter's grave in the 6th century and it is suggested, given the extraordinary nature of his yew staff given him by the Archbishop of Jerusalem, that it was this staff that sprouted to produce such an extraordinary looking, monoecious tree.

Although girth measurements of individual yews, taken over the centuries, are one of the things to take into account when assessing age, the girth of a yew is not to be depended upon as an accurate guide to its age. Such things as storm damage, fairly common in such a long living tree, can cause a yew to rapidly increase its girth or considerably reduce its girth, as is quite clear with the yews at Aldworth and Forthampton, which are remnants of much larger trees.



The Uppington yew situated with Roman altar. (Photo: Janis Fry)

Features

Since it has recently become fashionable for the Church in Wales to age all yews, regardless of size or decrepitude, as being unremarkably at least either 500 years or 800 years, it may be useful to consider an example of a yew tree with a recorded planting date that makes it, beyond any doubt, 800 years of age. The yew tree investigated here is the Dryburgh Abbey Yew, commonly believed to have been planted in 1136 but whose true planting date is recorded in the Chronicle of Melrose, which clearly states that the tree was planted in September 1208 by William Malvoisin, Bishop of St Andrews. The girth of this tree in 1988 was 12 feet 7 inches. This is not very impressive in terms of yews. However, while it is certainly true that one swallow does not make a summer and there must be other 800 year old trees with a larger girth than this, it surely begs the question as to the age of the many yews, whose girth measurement is commonly 20 feet or more.

Local knowledge

Looking at the history of a particular yew, evidence may come from various sources including local knowledge and memories, which should not be dismissed. A recent example of this occurred at Ashbrittle. I first visited Ashbrittle in 1980 and found the old yew to be completely shattered. I made enquiries locally and it appeared scientists from Oxford and Kew had also recently visited the site for archaeological and arboreal reasons. Visitors told the churchwarden, Jack Smith, that the old yew was just a circle of trees, no more than a few hundred years old. This upset Mr Smith as knowledge of the yew had been passed on to him from his father, grandfather and great grandfather, who were also churchwardens. It was said a thunderbolt or lightning had struck the tree in the late 17th century. Some people would dismiss such stories as unreliable folk myths but on my first examination of the tree, I could see that the different separated portions of the trunk had splayed outwards leaving a central stem in the middle. It was clear to me that this was a very ancient yew on a pre-Christian burial mound and was perhaps some 3,000 years old. (I later obtained an early Victorian engraving of the yew by W.W. Wheatley, clearly showing the split.) Stories from those who lived with the trees and passed knowledge of them down through generations should always be listened to and taken into account.

Many early traditional accounts passed on from generation to generation about great ages for the yew are supported by literary accounts. "Some yews still standing are probably above 3,000 years old" suggested *The Magazine of Natural History and Journal of Zoology and Botany* in 1837. In



Ancient yews at Merdon castle, Iron Age Hillfort. (Photo: Janis Fry)

Lectures on Agricultural Chemistry and Geology Volume 2 (1843) James Finlay Weir Johnson noted: "oaks have lived to an average of 1,500 years, yew trees to 3,000 years". Sir Richard Philips asserted in his 1849 publication *A Million Facts, of Correct Data*: "Longevity of Plants; Yew *Taxus baccata* 3,000 years".

The use of ring counts to date old yews was explained in 1837 by J.E. Bowman in 'On the longevity of the yew, as ascertained from actual sections of its trunk', which appeared in the *Magazine of Natural History* volume 1. In *View of Nature* (1850) Alexander von Humboldt noted: "According to an estimate based on the number of the annual rings there are yews (*Taxus baccata*) of from 2,000 to 3,000 years old."

Similar estimates were published in the twentieth century. In *Woodlands* (1965) J.D. Ovington agreed: "Radial counts of annual rings from cross-sections through trunks of yews *Taxus baccata*, growing in Europe have shown some specimens to be over 2,000 years old." In the same year (1965) Herbert L. Edlin wrote that for yew: "30 rings per inch of radius is not exceptional and this, if a true average, gives

an age of 1,800 years. We are therefore dealing with trees that are probably 1,000 years, but quite possibly 2,000 years old." More recently, referring to the number of rings of sample solid trunks with similar diameter from yew trees in the Caucasus Region, Mikhail V. Pridhya (2002) noted: "So from available alive individuals nearby Khosta, exceeding a diameter of 2 meters, one knows that they can exceed an age of 3,000 years."

In *Trees: Their Natural History* (2014) Dr Peter A. Thomas, Researcher in Plant Ecology at the University of Keele, Staffs extended the estimated lifespan of yew further in comparison with other long-lived trees:

Oak (<i>Quercus</i> spp)	700-1000 years
Giant sequoia (<i>Sequoiadendron giganteum</i>)	3,000+ years
Bristlecone pine (<i>Pinus aristata</i>)	4,900+ years
Yew (<i>Taxus baccata</i>)	5,000+ years

Paul Tabbush and John White of the Forestry Commission examined the ancient yews in the wood at Kingley Vale in Sussex. They estimated a very large stump of yew to be 2,800-5,500 years old (Tabbush and White, 1996). This may seem extreme, but I would agree, and I estimate some of the yews at Druids Grove in Surrey to be over 2,000 years old. This is backed up by the dendrochronologist Andy Moir, who found very dense rings in some of the smaller yews at Druids Grove. It is worth mentioning here that in recent times some limestone cliff yews have been found to have up to 200 rings per inch! Based on this, it is only a matter of time before we discover yews only a few feet in girth, to be over 2,000 years old.

The Aldworth Yew

1661	Girth 27 ft at 4 feet from the ground (Captain Symonds).
1760	Girth 27ft at 4 or 5ft from the ground (Hewitt's History of Compton).
1799	Girth 27 ft or 9 yards in circumference (unknown recorder).
1830	Girth 27ft at 4 feet from the ground (Thomas Dugdale).
1836	Girth 27ft 3ins at five feet from the ground. (J.C. Loudon, Arboretum).
1857	Girth 27ft at 4 ft from the ground (James Alex Hawley, Gardeners Chronicle).
1897	Girth 28ft at 4ft from the ground
1935	Girth of yew south east of the church recorded as about 28ft at 4ft from the ground (William Bradbroke of Sutton Courtenay, 8th June).
1972	The tree was said to have a girth of 28ft.
1976	A storm in the night brought this tree down. A small part of the tree not blown down is in healthy condition.

Further evidence for ageing the yews has been gathered from over 60 individual yews measured and recorded over 200 years ago. There are also over 100 known planting dates, some as early as the 12th century, but most from the 17th and 18th century. We know of planting dates of many 300 year old yews, which now average about 11 feet in girth, and a couple of 800 year old yews of 14 and 17 feet girth. The evidence is quite clear therefore that many yews must be much older.

I could mention many examples of early recordings of old yews but one example, the Aldworth Yew, should be sufficient to give an idea of the very slow growth rate of an old yew and an example of regeneration (see box above).

Two early comments about this tree have been recorded. On 2 May 1664 Captain Symonds (a royal diarist) gave a detailed account of his visit to Aldworth churchyard: "In the churchyard is an immense yew tree, celebrated far and near for its gigantic dimensions and extreme old age. The trunk of this magnificent yew, which is said in its prime to have shaded an acre of ground, measures at four feet from the turf, no less than nine yards in circumference." The second comment is from Hewitt's *The Early History of Compton*



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written in 1844: "It is now going fast to decay, but its branches still ascend to a considerable height, and spread around many yards on every side. Its dimensions, and venerable decay, fully corroborate the report that it is coeval with the sacred pile. It does not appear to have increased of late, for, according to Rowe Mores, it measured just over 27 feet in the year 1760."

This is a well-documented account of the history of one yew, but as stated earlier, there is no easy way to age an old yew. If you find yourself near an old yew try counting some of the rings in the decayed wood. Should you find 40-50 rings per inch you will know it belongs to a very old tree but one of the problems we have is that there is no consistent pattern with the growth of a very old yew, although most hollow yews tend to slow down in old age. In the 1830s John Eddowes Bowman recorded ring counts per inch in the Darley Dale Yew as: 33, 33, 34, 35, 39, 53, 57, 62, and 66 giving an average of 46 years in one inch. This is an example of the slow growth of a yew.

I could continue to give many other examples of the slow growth of a yew, but I will conclude here with two expert observations. The first from Andy Moir in a proposal for the tree-ring analysis of yew trees at Knowlton Henge, Dorset: "A branch from the most northerly tree, allowed a rough ring count on the exposed section, which indicated 300 rings in a 10cm radius. Although, this slow growth rate cannot be directly applied to the tree girth to calculate age, it clearly indicates the potential of even a short 20cm core taken from the main trunk, to provide a sequence of some 600 rings."

Alan Mitchell in *Trees of Britain* (1996) produced a rough guide to the age of a yew based on girth measurement:

8ft = 200-250 years old;
16ft = 600-800;
20ft = 800-1,000;
30ft: = 1,500-2000+.

I would propose that there is enough evidence to conclude that yews, capable of continuous regeneration, capable of immortality, may well be capable of living for thousands of years more than anyone has so far imagined. At the present time their true ages are incalculable. We can only estimate a minimum age for each of these magnificent trees.

In recent years the Ashbrittle yew and a few others have become quite famous, not because they are 800 year olds as stated on notices being distributed to churches, regardless

of the particular tree and church site, but because they are viewed as being several thousands of years old. We should be glorifying these yews rather than concentrating on a minimal age, which belittles their importance. Celebrating these trees and getting them noticed, is their best protection. Many trees have already been lost and we must do all we can to ensure we do not lose any more.

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Allen Meredith began his research on yew trees over 40 years ago and wrote a series of articles for the International Tree Foundation in the early 80s. He is recognised by many tree experts as the leading authority on ancient yews and his work is featured in many magazines and books. His research began an upsurge of interest in the yew, so much so, that some yew trees such as those at Defynnog and Ankerwycke at Runnymede have gained international recognition.