

Mike Baillie

## Verifying European Dendrodating

Dear L\*\*\*\*, here is my attempt at laying Illig's phantom-time idea to rest. I do not expect any followers of Illig to take the slightest notice even though the answer is unequivocal.

The question reduces to 'can dendrochronology independently date the Roman period to conventional Roman time?'

Now obviously there is no point in me claiming that dendrochronology can do this, because the Belfast tree ring team have already done that, and our assertions are not accepted by those who would support Illig's hypothesis. Fortunately we are helped enormously by the work of two Swedish researchers, namely Petra and Lars-Ake Larsson. It is fair to say that these are potentially 'hostile' researchers into the Belfast work, in that they have set themselves the task of rebuilding the Irish and European dendrochronologies specifically to test the Illig phantom-time hypothesis.

Using the Belfast raw data, that was released under Freedom of Information legislation, they have successfully replicated our modern era chronology from the present back to AD 26. This means that the Larsson-built chronology extends back well into the conventional Roman timeframe. This is important because it confirms the original 1980s Belfast work wherein we built an Irish oak chronology back to 13 BC and we then had a gap from

13 BC to 95 BC. We bridged the Irish gap with an English Roman chronology provided by Iain Tyers. The resultant linkages were published in various places including in *A Slice Through Time: dendrochronology and precision dating* (Baillie 1995). The question then reduces to 'can the Larssons link English Roman chronologies to the Irish AD 26-to-present chronology?'

The answer is that they can. On their web-site they show the whole English Roman complex of chronologies, all of which cross date internally. Subsets of these English Roman chronologies do cross date with the Larsson-produced AD 26 -to-present Belfast chronology as follows.

Billingsgate t = 4.0 c.f. Belfast (Larsson's)

Baynard's Castle/Chamberlain's Wharf t = 4.6 c.f. Belfast (Larsson's) and

Tower t = 4.9 c.f. Belfast (Larsson's)

This dendro effort by the Larssons is independent of the original Belfast chronology building exercise, and it seems they get the same answer as we originally did (i.e. this set of mutually supporting 't' values would be acceptable to establish a tree ring linkage). However it has to be remembered that this testing of Illig's hypothesis by the Larssons is their 'hobby'. As a result they can't bring themselves to say outright that the Irish chronology confirms Roman time. They do come close, because, at one point in discussing the various cross datings that they have generated between Roman chronology sections and their Belfast

chronology, they say “This might be the final proof that Mike Baillie’s bridge (between English Roman and Irish chronologies) is correct” ([www.cybis.se](http://www.cybis.se)). However, as would be expected, they veer away from that conclusion to discuss assorted spurious correlations that are not relevant to the main argument that I have just outlined.

So the preliminary dendrochronological proof, that Roman chronologies do fall in time exactly where conventional historical scholarship says they do, is that independent and potentially hostile researchers (the Larssons) have essentially duplicated the original Belfast Roman dating. But ironically it turns out that the ultimate proof was already sitting out there in the published literature and it involves radiocarbon calibration. Now there are many criticisms of radiocarbon (mostly ill founded) but in the case of the Belfast calibration results and the dating of Roman time there is an unequivocal answer, as follows.

The Belfast oak chronology was constructed specifically to allow a high precision calibration of the radiocarbon timescale for the last 7000 years. The precisely dated wood samples provided to Dr Gordon Pearson and his team at Queen’s University Belfast were cut out of the oak chronology that the Larssons have now successfully re-built. The measurements were made on what was at the time the most refined radiocarbon dating set-up in the world which was designed and tested to allow reproducible measurements of around  $\pm 20$  years or better. Now here is a key point.

When we were building the Belfast long oak chronology we had

a gap in the Irish record (as stated above) between 95 BC and 13 BC. Thus we could not provide Pearson with samples between those two dates. In order to complete the Belfast radiocarbon calibration, wood samples from the Roman chronologies being worked on in Sheffield and London were requested from Jennifer Hillam, so that Pearson could measure the radiocarbon ages of the bi-decades centred on AD 10, 10 BC, 30 BC, 50 BC, 70 BC, 90 BC and 110 BC. The resulting high precision radiocarbon dates, obtained by Pearson and his team on these actual samples of Roman wood, were:

AD 10    2004  $\pm$  17 BP

10 BC    1992  $\pm$  18 BP

30 BC    2033  $\pm$  18 BP

50 BC    2053  $\pm$  17 BP

70 BC    2063  $\pm$  16 BP

90 BC    2076  $\pm$  16 BP

110 BC   2101  $\pm$  14 BP

(Pearson et al. 1986 High Precision  $^{14}\text{C}$  Measurements of Irish Oaks to Show the Natural  $^{14}\text{C}$  Variations from AD 1840 to 5210 BC. Radiocarbon 28, 911-934)

If you compare this range of high-precision radiocarbon dates

with the dates obtained by Pearson for all the bi-decades after AD 30 (on Irish oak) you will find that there is no overlap. All high precision radiocarbon dates from AD 30 to AD 1840 give radiocarbon ages less than or equal to  $1977 \pm 16$  BP. So, this block of radiocarbon dates on actual Roman samples from England (with radiocarbon dates between  $1992 \pm 18$  BP and  $2101 \pm 14$  BP) cannot (cannot under any circumstances) belong to any time period after AD 30. Thus Pearson's calibration results give an absolute answer to the question of where Roman time lies.

I sent this information to Petra and Lars-Ake Larsson but, of course, they cannot accept any radiocarbon evidence to do with calibration because of the danger (in their view) of circular reasoning. But, of course, there is no circular reasoning here. The Larssons have themselves proven the Belfast oak chronology back to AD 26, thus the calibration measurements Pearson made back to AD 30 on Irish oak cannot be in question. The radiocarbon dates performed by Pearson on actual English Roman wood from AD 10 to 110 BC again cannot be questioned; they are what they are. Notably they do not overlap with any of the high precision measurements made on Irish wood by Pearson from AD 30 to AD 1840. QED Roman time falls exactly where it has been believed to fall, and Illig's phantom-time hypothesis also falls. Three centuries cannot be taken out of the 1st millennium AD.

Mike Baillie, Belfast, 25 Sept 2012

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To whom it may concern.

Those who discuss the 'phantom time' hypothesis enjoy semantic games with historical documents. However, scientists have their own approach to issues of chronology.

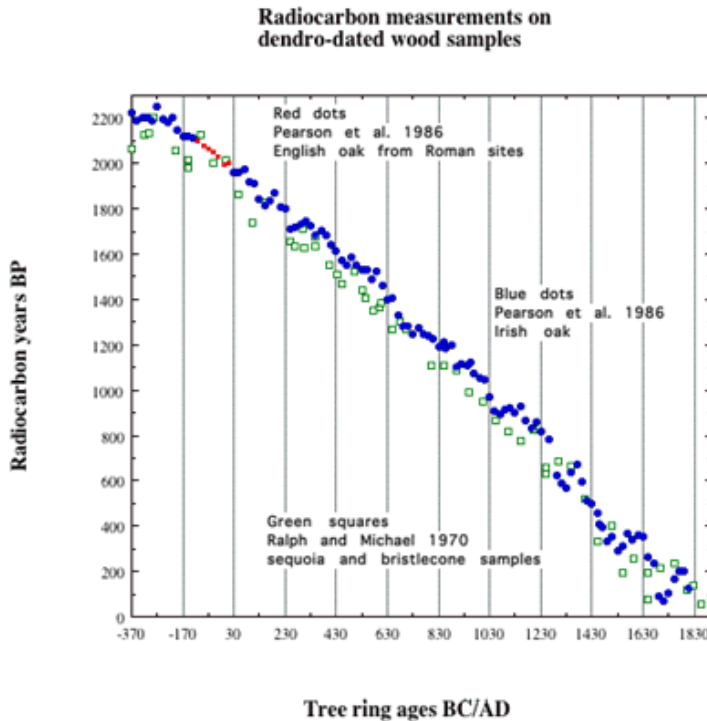


Figure 1. Radiocarbon dates on precisely dated samples of sequoia and bristlecone pine from N America (green squares) compared with high precision radiocarbon dates on precisely dated Irish oak (blue dots) and English Roman wood samples (red dots).

In 1970 Ralph and Michael published a radiocarbon calibration dataset (green squares in Fig 1). These dates were based on measurements on samples from ultra-long sequoia and bristle-cone pine trees from N America. Thus there can be no questioning of the tree ring scale with respect to these samples. (They used multiple samples to replicate the records and iron out any problem rings, but in essence they might as well have sampled from a single long lived tree).

People who have been keeping up with the debate will remember that in Ireland we could not find wood to bridge the 1st century BC and as a result we obtained samples from timbers from Roman sites in England (dated by dendrochronology against the Irish chronology). So I have plotted the seven Roman-wood dates for the bi-decades AD 10 to 110 BC in red while the remainder of the Irish oak calibration is plotted in blue.

Looking at the green squares it is evident that all the radiocarbon measurements on long-lived American trees from AD 30 to the 19th century give radiocarbon dates that are less than 1900 radiocarbon years BP, while all their dates on wood older than AD 30 are more than 1984 radiocarbon years BP. Although all these American dates were performed earlier and on inferior equipment, it is interesting to see that the high precision results produced by Pearson et al. at Belfast in the later 1970s and 80s duplicate the same basic trend. All the dates on Irish oak from AD 30 to the 19th century are less than 1977 radiocarbon years BP while all dates on wood older than AD 30 are more than 1992 radiocarbon years BP.

So, any way this figure is viewed the block of radiocarbon dates on Roman wood samples, measured by Pearson, cannot be moved forward in time to comply with the phantom time hypothesis (nor is there any good reason to even consider such a move).

Key papers:

Ralph E.K. and Michael H.N 1970 MASCA radiocarbon dates for sequoia and bristlecone pine samples. In, Nobel Symposium 12: Radiocarbon Variations and Absolute Chronology Ed I.U. Olsson. John Wiley and Sons New York. pages 619-623

Pearson G.W., Pilcher J.R., Baillie M.G.L., Corbett D.M. and Qua F. 1986. High-Precision  $^{14}\text{C}$  Measurement of Irish Oaks to Show the Natural  $^{14}\text{C}$  Variations from AD 1840 to 5210 BC. Radiocarbon 28, 911-934.

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Hi L\*\*\*\*\*, it is exactly what I would have expected. Words and more words and no attention to anything I said. It is the old story people will not be deviated from their 'hobby' by facts or logic. No surprises there.

It is particularly disappointing that they choose to latch on to



AD 235 and assume it is the same as AD 535.<sup>249</sup> Everyone is well aware of the AD 536-545 now 536-550 event which seems to be global. What they seem not to have noticed is that in *The Celtic Gods*; comets in Irish mythology (McCafferty and Baillie 2005) there is another tree ring event presented "Tree ring event at AD 237 in Irish oak and Swedish pine" (Figure 65 page 157, see attached). Here is what the text says:

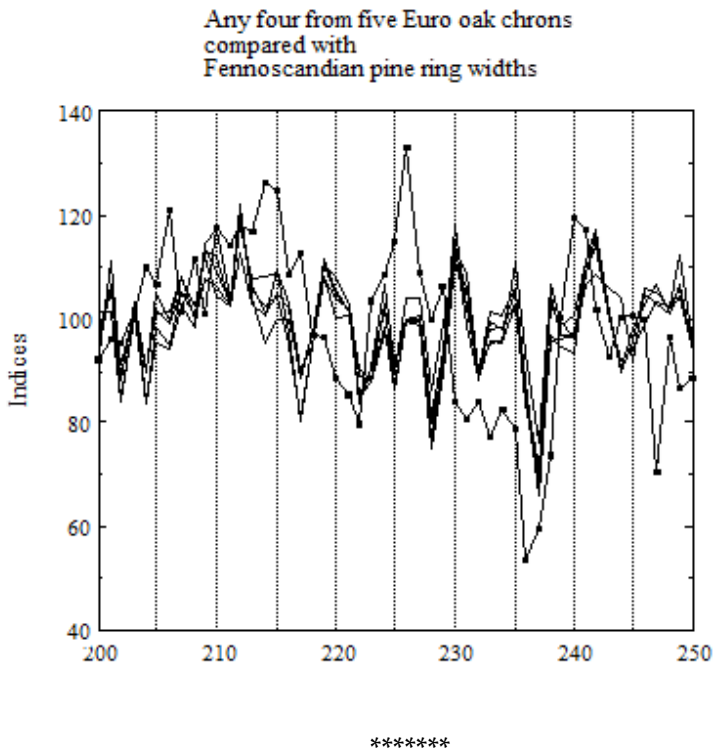
"It was only in the later 1990s, when a series of European oak chronologies were put together as part of an archiving program, that it was realized that there was a severe environmental downturn recorded across northern Europe at AD 237. Having noted the repeated occurrence of the '300-year' period in the myths, this event, exactly 300 years before 540, encouraged us to look a little further. It transpired that this was the period of a severe crisis in Roman history with something like four emperors in the single year 238 marking it out as unusual. It was also interesting that none of the three available Greenland ice-core records showed any volcanic signal in the vicinity of AD 237. This immediately raised the question whether this environmental event was also due to an extra-terrestrial cause?" (McCafferty and Baillie 2005 page 157)

So there you have it, two catastrophic events in Irish trees 300 years apart, in the first millennium AD, both at the key dates AD 237 and AD 536-550, and both published. Given that the

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<sup>249</sup> This possibility was earlier considered (and refused) in my „Nur ein Blick auf nie lügende Bäume“ (Die Präzision der Präzession, München 2003). See here on p. 315. (Franz Krojer)

Larssons have confirmed the integrity of our chronology back to AD 26, these events really have to be 300 years apart. So you cannot ignore the three centuries between these two events; it would be perverse to do so. However, I assume this evidence will also be ignored.



Baillie also contests the correlation threshold used by the Larsson's, that is unnecessarily high (around  $t = 6$ ). Here is what he says:

„As has been clear throughout your work, you set an arbitrary criterion for match acceptance, namely  $t = 6$ . That is in itself an illogical decision. Why? Because you show that to bridge, what you call, the Q1546 'gap' at 2400 BC you have to use the Croston Moss chronology. When we bridged that point in the Belfast chronology the Croston Moss chronology did not exist. Yet it seems we were able to get the right answer using multiple lower correlations, as in Baillie et al 1983. If we got the right answer, as you seem to prove, then you have also proved that it is not necessary to set an arbitrary matching criterion as high as  $t = 6$  to successfully build a chronology.“