

Science and the three missing Medieval Centuries - FAQ

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1.)

Q: Why should I consider this ridiculous idea? Sorry, but a jump in time, which makes the year 912 A.D. the direct successor of 614 A.D., appears absolutely incredible to me.

A: Your astonished disbelief is very understandable. Everyone, who reflects this idea for the first time, reacts just like this. My first reaction was the same. But the contradiction between my school knowledge and the large number of historical and archaeological pieces of evidence already available did raise my curiosity. I wanted to know precisely. Therefore, I reviewed the scientific datasets supporting chronology.

2.)

Q: What qualifies you, Mister Korth, to propagate such a ridiculous claim that brings you into conflict with all the established dating scientists?

A: I am a physicist with a background of 25 years in metrology within IBM Research. So I have some experience how to evaluate measurement data. I really do not want to hold a controversial position. But I feel the necessity to address several findings that were not taken into account, up to now, by the mainstream chronology.

3.)

Q: Are you saying, the scientists have established a worldwide conspiracy?

A: Of course not! Nobody could imagine a shortened chronology. Therefore, the available datasets were assembled in order not to conflict with the established historical model. Just because it appeared so natural, nobody had to state that the results, too, were based on the assumption of an uninterrupted chronology.

4.)

Q: But your claims apparently contradict the unanimous statements of the scientists?

A: With respect to their statements, scientists are quite cautious. It is said, for example that dendrochronology, i.e. an overlapping sequence of tree rings covering more than 17.000 years, offers a reliable means for age determination. This is correct in so far that a piece of wood can be placed reliably into dendrochronology. Wood samples having the same age can be verified. The statement that the different methods of age determination are cross-confirming is correct, too, under the above assumption. Of course, right now the idea of three missing centuries is rejected emphatically. This may be understood from the difficulty to agree that for many decades dating was done under an incorrect assumption. The dating work of many scientists and their institutions was just not so accurate, as it was pretended against their customers.

5.)

Q: How will you show that your claims are correct? A positive, ultimate proof for such a theory is

just not possible. You may consider that even Darwins Evolutionism may be taught today, more than a century after its formulation, at the schools within several States of the USA, only under the pretext of an unproved theory.

A: What can be shown is that the conservative idea of an uninterrupted chronology including the early middle-ages cannot be maintained. Geophysics and the laws of statistics are contradicting this view. However, if there is a gap within chronology, the width of this gap follows from the already available datasets. So the trick is, to do the approach in two separate steps.

6.)

Q: What makes you so confident that you could disprove the conventional chronology?

A: Several datasets have been published within the last 30 years that support the missing centuries, when they are reevaluated carefully. A probability value can be calculated for every dataset, indicating the likelihood to obtain these data with the conventional chronology. Therefore, if the conventional chronology were valid, all the datasets must match (Vice versa: When there is a gap of 300 years, all the datasets must confirm this). Combining the probabilities of the independent datasets, this reduces the likelihood of the conventional chronology to a negligible value. If there are, for example, ten independent observations that originated with a probability of 10% for each under the conventional chronology, then the total probability will be just 1 in 10.000.000.000. In this case we can say that this chronology is wrong.

7.)

Q: Do you really feel that this kind of statistics can prove your claims?

A: Let me give you an example from archeology: When the Yarmal-Europe gas pipeline was built, during the mid-nineties, archaeologists from Poland saw the unique chance of excavations along the trench. So right across Poland, some 724 places with human artifacts were found. Let's do a simple calculation: Assuming that 500 of the excavated places were distributed evenly over the last 3000 years, we would expect an average of 50 places for every group of three centuries. As the places were hit randomly by the trench, we would expect a standard deviation of 7, i.e. between 43 and 57 places will be found within one half of the 300 year intervals. Only once within a million cases, the six-fold of the standard deviation will be exceeded, i.e. there will be less than 8 or more than 92 places representing 300 years. As there was not a single place that could be assigned to the early middle-ages (referring to H. Heinsohn), we can only conclude that Poland was practically uninhabited during this period or that the time-frame itself is unreal.

8.)

Q: What are the observations that support your claims?

A: Several carefully measured datasets were published, covering the recent two- to three thousand years. At first there is dendrochronology. I have programmed a stochastic model that simulates the assembly of a dendrochronology. Then there is the radiocarbon method that allows to find the age of a sample from the decay of the ^{14}C contained therein. In addition, the annual pattern of sedimentation, the varves, can be evaluated. Moreover, I have analyzed the annual coverage of tree samples on which dendrochronology is based, i.e. the number of trees representing a given year. Finally, I have analyzed the shape of an 'oak growth' history.

9.)

Q: Within dendrochronology 300 years shall be missing? Are you really saying that the trees rings did not grow during some periods?

A: Of course not. What matters is, how the tree-rings were assigned to the real years. If 2000 rings are squeezed into 1700 real years, ambiguities and mis-assignments are inevitable.

10.)

Q: But everybody can test that there is no gap within dendrochronology. Are you pretending that the scientists cheated, when they assembled the tree sequence?

A: Dendrochronologies were composed from separate pieces of wood, using a mathematical cross-correlation technique to find the best match of the ring-width sequences. This made sure that the matches were not coincidental. The procedure became necessary, because in most cases the match cannot be verified visually. A problem arises, when the ring-width varies periodically, e.g. due to the 22-year cycle of the sun magnetism. In this case, there is a good chance that an offset of 22 years will result from the matching procedure.

11.)

Q: How is the accuracy of dendrochronology linked with the calibration of the radiocarbon dating method?

A: The 'Intcal98' calibration curve – a highly reliable product of several decades of international scientific cooperation – connects radiocarbon age with dendrochronology. This means, only if the radiocarbon age values comply with the laws of physics and statistics, this will be true for dendrochronology, likewise.

12.)

Q: Why do you pretend that the Intcal98 calibration curve is confirming the missing of 300 years?

A: There is an offset of some 300 years, when the long-term trend of several thousand years is extrapolated towards the reference year 1850 A.D. Then, there is another observation: If there were a gap of 300 years, dendrochronology has 300 excess rings, so some real years must have been replicated. This leaves a gap within the radiocarbon scale, where, of course, replication is impossible. As a result, one would expect the very steep transition zones that can be observed within Intcal98.

The Intcal98 Calibration Curve

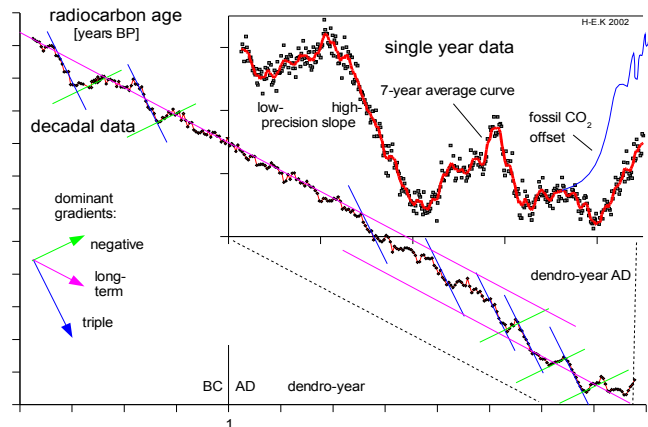


Fig. 1: Single year (insert) and decadal data show the anomalies of the radiocarbon calibration curve, i.e. long-term trend offset, dominant gradients, 'Wiggles', irregularly scattering values and the 'Suess-effect' after 1850 A.D. (Data excerpted from Stuiver, 1998).

13.)

Q: And what would be the impact of mis-assignments due to periodic ring width variations?

A: If these mis-assignments will repeat, the result would be a section of the calibration curve having a different slope. While, for the long-term trend, one radiocarbon year is corresponding to one tree-ring, there will be sections where the slope is reverted or where it is tripled. This can be seen within Intcal98. As a consequence, there are sections, where three or even more trees within the dendrochronology show the same ambiguous radiocarbon age.

14.)

Q: Couldn't it be just coincidence, when the calibration curve pattern does not contradict your theory of 300 missing years?

A: Of course, but this would be very unlikely. In relation to the total number of imaginable calibration curves and their probabilities, only a tiny fraction would match.

15.)

Q: Wouldn't it be possible to test the calibration curve, counting some thousand tree rings of a sequoia tree, starting at present, and measuring the radiocarbon of the rings?

A: Sure, but this would not help very much. Presumably, a single tree would produce another pattern than Intcal98 that needs to be explained. If, on the other hand, the Intcal98-pattern should be reproduced, the problem to understand the production mechanism of ¹⁴C remains.

16.)

Q: Why can't you accept the obvious explanation that the radiocarbon isotope ratio is subject to variations over the ages?

A: After 1850 A.D. there was an impact on the isotope ratio due to combustion processes and after 1945 due to nuclear tests. However, nothing indicates that for several thousand years there were more than minor fluctuations of the atmospheric radiocarbon. Graphs showing such fluctuations were calculated from the deviation between dendrochronology and uncalibrated ¹⁴C -age, i.e. under the assumption of an accurate dendrochronology. Of course, it is not possible to verify this assumption from the dataset. However, the shape of the Intcal98-curve is more than unlikely.

17.)

Q: What should be wrong with the shape of Intcal98 showing sections with a quite good linearity? This is the way how the 'Wiggles' build up, as a consequence of the radiocarbon variations.

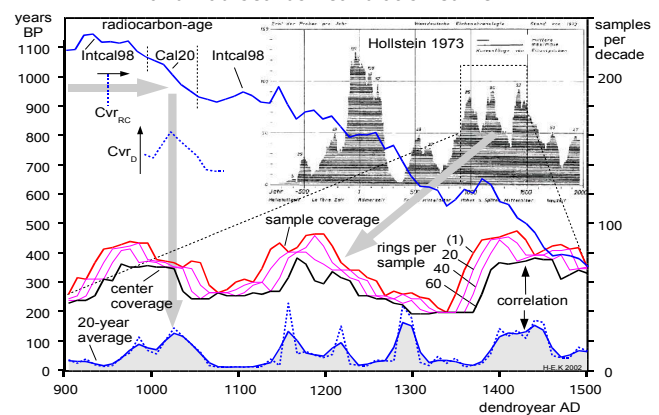
A: If ¹⁴C is increasing or falling for decades with a constant slope, this should be possible only, when the production of fresh ¹⁴C is constant during this period. But if it were constant, then we have to conclude from Intcal98 that the ultimate producer of ¹⁴C, the sun, is alternating between three fixed operation levels. I really cannot believe this!

18.)

Q: What has the scattering of the radiocarbon measurements to do with the reliability of the calibration curve?

A: A careful examination of the Intcal98 curve shows a scattering that is significantly higher, where the slope of the smoothed curve is negative, i.e. where the radiocarbon age increases – quite surprisingly – when we proceed on the dendrochronological time scale. The single year data of the 16th and 17th century show this effect very clearly. This is not intelligible, when the shape of Intcal98 would depend on the ¹⁴C concentration, as pretended. In this case, scattering should increase with slope, because of the increasing tolerances within the sample preparation. If there were, on the other hand, mistakes that occurred during the assembly of dendrochronology, high scattering along the erroneous negative slopes must be expected.

The correlation between Oak sample recovery count and Radiocarbon calibration curve



19.)

Q: Couldn't it be possible that the variations of the oak-tree coverage are due to variations of the population and civilizational changes – in addition to the random fluctuations?

A: This is quite unlikely. The oak-tree coverage published by E. Hollstein shows

Fig. 2: The 60-ring-sample-center coverage curve correlates between 1150 BP and 350 BP with a constant, radiocarbon based, sample coverage reference (Cvr). Coincidence - or a non-linear dendrochronology? Note: The peak at 1300 A.D. remains visible within the 40- and 20-ring curve. (Raw data excerpted from Hollstein, 1980; Stuiver 1993 and 1998)

very strong oscillations. Even in the period between 900 A.D. and 1500 A.D. where a comparatively uniform distribution should be expected, the variance of the wood samples exceeds the standard deviation by a factor of three. Referring to ^{14}C , the data match with the standard deviation.

20.)

Q: But why should there be no correlation between the Intcal98 calibration curve and the oak-tree coverage?

A: This would mean that the probability to find an ancient piece of timber would depend on the radiocarbon therein. Pretty absurd, isn't it?

21.)

Q: Come on: Hollstein's datasets and the conclusions based on them may be outdated due to new investigations. Why should they still be useful?

A: Even if more recent datasets should produce other results, one needs to give an explanation, why the elder data so obviously disprove dendrochronology. In addition, the several decades old datasets were definitively not manipulated in favor of missing centuries.

22.)

Q: Why should there be no correlation between the radiocarbon calibration and the growth rate of oak-trees?

A: There is no plausible physical base for this correlation, presented by E. Hollstein. An increase of 1% of ^{14}C , i.e. a few nuclear decay events per gram and hour, should trigger a decrease in tree growth of 18%? What, if ^{14}C increases by 10%? Unlikely, too, is a small increase of the sun radiation as a common cause.

23.)

Q: The duplication of the growth rate curve within the early middle-ages: Couldn't this not just be accidental?

A: Not really. Within 600 years we see the curve repeating pretty accurately twice the same pattern.

24.)

Q: What about the annual deposition pattern of sediments (varves)? Aren't they confirming the other measurements?

A: They confirm the longterm variation of $^{14}\text{C}/^{12}\text{C}$, but they do not confirm the conventional chronology. Varve-count data from the Lake of clouds, Minnesota, were published by Stuiver. The Intcal98 tree-ring count permanently exceeds the varve count by 300 years.

25.)

Q: You mentioned a stochastic model of the radiocarbon calibration curve. What were the results and what kind of conclusions can be derived?

A: As I could show, all the characteristic features of the Intcal98 curve can be reproduced from a simple model calculation. To do this, a dendrochronology was simulated, combining 2000 tree rings within a 1700 year time frame. In the starting scenario, sections with different slopes were

Correlation between oak growth and $^{14}\text{C}/^{12}\text{C}$

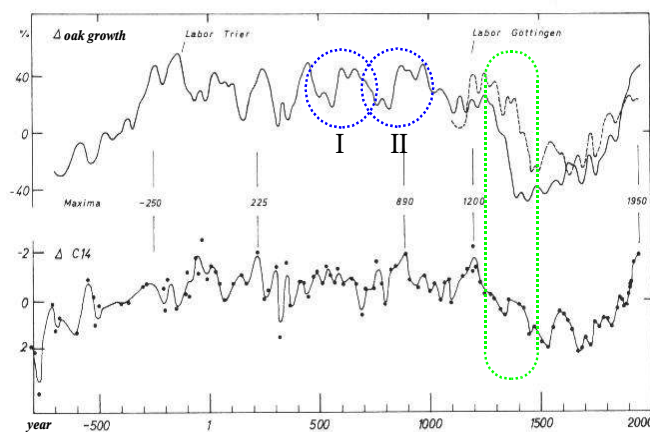


Fig. 3: Correlation between growth of trees (top) and $^{14}\text{C}/^{12}\text{C}$ -ratio (below). Consequence of a non-linear abscissa. The duplicate growth pattern and the steep transition phase may be the consequence of an oversized dendrochronology (Hollstein, 1980, dotted marks: Korth).

distributed evenly. By random, two sections were selected and exchanged, if the resulting curve was closer to the historians expectation. It should be noted that the real dendrochronology is the product of a great many of plausibility checks against history. Our stochastic model stabilized after some 1000 iterations. It then showed the linear dependency within the early centuries, the steep decay in the 14th century and the fold-up of large wiggles thereafter. This means that the shape of Intcal98 can be fully understood, when three medieval centuries are eliminated.

¹⁴C-age deviation for Varve-count and Dendrochronology

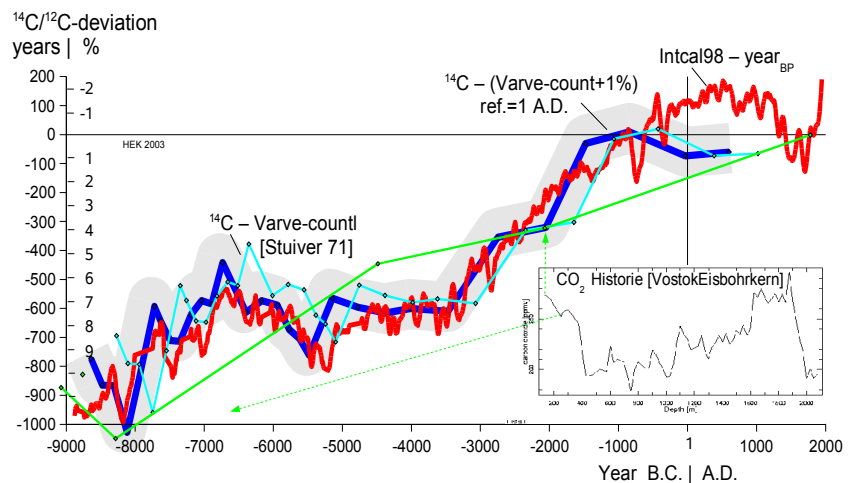


Fig. 4 Difference between counted year sequences and ¹⁴C-age: Varve-count data [Stuiver 1971] indicate a long-term variation of the atmospheric ¹⁴C/¹²C (1 A.D. ~1650 BP). This variation follows the post-glacial CO₂. It will be reproduced by the Intcal98 data from Dendrochronology [Stuiver 1998]. The parallelism between the shifted datasets supports the thesis of some 300 surplus dendro-years within the middle-ages.

26.)

Q: What is your bottom line?

A: On the basis of the facts presented here, it will be difficult, to insist further on the idea of an intact dendrochronology. In contrast, all of my observations confirm the fictionality of three centuries of the early middle-ages. However, this means that historians do not have any reliable scientific data, supporting the conventional chronology.

27.)

Q: Never before there was a comparable discovery like the fictionality of three centuries within the early middle-ages that was postulated first by H. Illig. Are you aware of the fact that no other finding ever questioned our understanding of history in a similar way?

A: Yes, definitely!

Literature:

Chlodnicki, M. et al., 1998: The Pipeline of Archaeological Treasures, Posnan

Hollstein, E., 1980: Mitteleuropäische Eichenchronologie, Mainz

Korth, H.-E., 2002: Anomalie der 14C-Kalibrierkurve beweist Kalendersprung, Zeitemsprünge 14 (2) 49-67

Stuiver, M.S., et al., 1998: INTCAL98 radiocarbon age calibration, 24,000-0 cal BP, Radiocarbon, 40, 1041-1084, - Datasets: //depts.washington.edu/qil/datasets/uwten98_14c.txt and uwsy98_14c.txt '1998 UW 14C

Stuiver, M.S, 1971: Evidence for the variation of atmospheric c14 content in the late quarternary. Turekian, Karl K., editor, 1971. The Late Cenozoic Glacial Ages, (New Haven: Yale University Press, 1971).