

## The Mycenae Bowl: A Dendrochronological Farce

*This note concerns a claim by the Aegean Dendrochronology Project (ADP), based at Cornell University, to have dated the tree-rings in a Bronze Age bowl from Mycenae. Superscript numbers next to dates refer to the publication dates of calibrations for the Gordion Master Sequence (GMS), the yardstick of Anatolian dendrochronology which has been periodically adjusted both upwards and downwards in time as the ADP have attempted to refine the dating of the Sequence (see James 2012: 144).*

Surprisingly enough *only one* dendrochronological result from Late Bronze Age Greece has been announced by the Aegean Dendrochronology Project – from a wooden bowl found in the Shaft Graves at Mycenae.

These magnificent tombs – and their correct dating – play a key role in our understanding of prehistory. Following leads from the ancient geographer Pausanias (*Description of Greece* 2.16.6), the adventurer Heinrich Schliemann opened up the Shaft Graves in 1876 and, raising the gold death-mask from one of the interred bodies, famously remarked: “I have gazed upon the face of Agamemnon”. More serious archaeology soon showed that Schliemann’s claim was impossible, as the burial belonged to a much earlier period than the consensus archaeological setting of the Trojan War at the end of the Late Bronze Age. The tombs are now dated, conventionally, to the second half the 17th century BC. In the opinion of one scholar:

The Mycenaean civilization appeared rather suddenly with the construction of the spectacular royal Shaft Graves at Mycenae, dated about 1650 BCE, about the same time as the rise of the Hittite empire in Anatolia. The Shaft Graves, with their golden death masks, swords, spears, and images of men in chariots, signified the elevation of a new Greek-speaking dynasty of unprecedented wealth whose economic power depended on long-distance sea trade. (Austin 2007: 47)

Hence a scientific date for one of the graves would be a welcome addition to our knowledge. The object in question came from Shaft Grave V, Grave Circle A. Now in the National Archaeological Museum of Athens, it is described in detail and illustrated in the catalogue of Shaft Grave finds by Georg Karo (1933/34: 153; 1930: Tafel CXLVII) – see the photograph below (**ATTACHMENT 1**). Made of cypress wood (as confirmed by botanist Prof. George Karsten) and originally misidentified as a shield, it is a large bowl 36.5 cm in diameter. It appears to have had four small legs and was presumably table-ware.

The bowl was examined by Peter Kuniholm, director of the ADP and the tree-rings compared to those from the Master Sequence at Gordion in central Anatolia. A date of 1619 $\pm$ 37 BC (GMS<sup>1990</sup>) for the last preserved ring was listed in the annual report of the Aegean Dendrochronology Project for 1990 (Kuniholm 1990: 4). Equivalent to GMS ring 902, it was reported again in 1993 with more detail, and caveat, as:

1619 $\pm$ 37 B.C.E. The last ring on a wooden bowl (Athens, National Museum, Inventory 890, Karo 891) from Shaft Grave V at Mycenae. Since this is a carved object, an unknown number of rings are missing. This is also a *single piece* of wood and caution must be

observed in its interpretation. We also do not know how long the bowl had been around when it was placed in the grave. One of our immediate goals this year or next is to measure additional unworked Shaft Grave wood preserved in the National Museum in Athens. (Kuniholm 1993: 372).

A few years later Sturt Manning (1999: 314, n. 1436) added this footnote to his discussion of how the GMS had been allegedly calibrated by comparison of two “anomalies” similarly spaced apart in Mike Baillie’s Irish dendro sequence (Belfast):

One final note of explanation and clarification is desirable. Kuniholm (1993) referred to a date for tree-rings from a bowl from Shaft Grave V at Mycenae. This was a mistake and should be expunged from the literature, and no longer referred to. Kuniholm was not able to measure properly the tree-rings in the bowl in question (in fact not able to measure them at all following accepted dendrochronological practice), and they should never have been included in the datelist (Peter Ian Kuniholm, pers. comm.)

Reference to this “result” was indeed expunged from the literature. The 1990 issue of the ADP annual reports – once posted as a circular to interested parties, mainly to attract funding – was redacted to remove mention of it when it was reposted on the website of the ADP ([Kuniholm 1990](#)). The Shaft Grave “result” had been mentioned on page 4 but, presumably because it was an embarrassment, the entire graph was removed, which is a loss as it contained the entire 1503 GMS sequence. The introductory paragraph is left hanging, somewhat comically: “This graph shows ...”, and so on – with no graph! A scan of the missing page from the paper copy, posted to me by Peter Kuniholm (12th December 1991), is supplied at the end of this note (**ATTACHMENT 2**).

Despite its official rejection Kuniholm raised the subject of the bowl in 2005, in a revealing statement in a co-authored paper reporting “a complete, robust, and continuous tree-ring chronology for the second millennium BC +4/-7 years”:

Finally, also in the west, specifically from Shaft Grave V at Mycenae, there is a wooden bowl which was measured years ago under less than optimum circumstances. It was measured after a long transatlantic airplane flight with the measurements taken off the surface of the bowl and one would have to go back to the National Museum in Athens in order to remeasure it. It is a single piece of wood, and who knows how long it had been around when it was placed in the grave. (Kuniholm *et al.* 2005: 46)

There, one would have thought, the matter would have rested, especially as Kuniholm continued by stating that: “We have played down this piece for some years as nothing more than a curiosity...”. Yet, despite this, and the utter repudiation of the date he had earlier communicated to Manning (above), Kuniholm completed the sentence by declaring: “... but we are happy with a last preserved ring at 1602+4/7 cal BC.” (GMS<sup>2001</sup>)!!!

Amazingly this confidence came about without any remeasurement, with no mention of what procedure was used to translate the measurements of tree-rings from the *curved* inside of a bowl into a form where they can be statistically compared (in terms of thick rings and thin rings) to a dendrochronological sequence derived from whole timbers. And how can a piece of unsatisfactory work, excused by jet-lag, and then categorically rejected as “a mistake” that “should be expunged from the literature” or “played down ... as a curiosity”, transmogrify over the passage of 15 years into a result about which the researcher was then “happy”? Caffè corretto?

The whole case represents the worst kind of cavalier scholarship. It is not scholarship by any stretch of the imagination. Many (if not most) archaeologists and historians may simply not have the time to follow all the ins and outs of such claims and the relevant publications. But because they carry the air of being “scientific” – as they involve a science-based method of potential value – loose claims such as those made about the Mycenae bowl and that about the Uluburun shipwreck (James 2006) all too readily enter the marketplace of ideas and influence judgments made about chronology. In an article on the Shaft Graves published in the *Annual of the British School at Athens*, Musgrave, Neave and Prag (1995: 108, n. 2) mention Kuniholm’s 1993 study with “warm thanks to Prof. Kuniholm for this reference” – as if it was something to be taken seriously. Their article was uploaded to the internet by Cambridge University Press in September 2013.

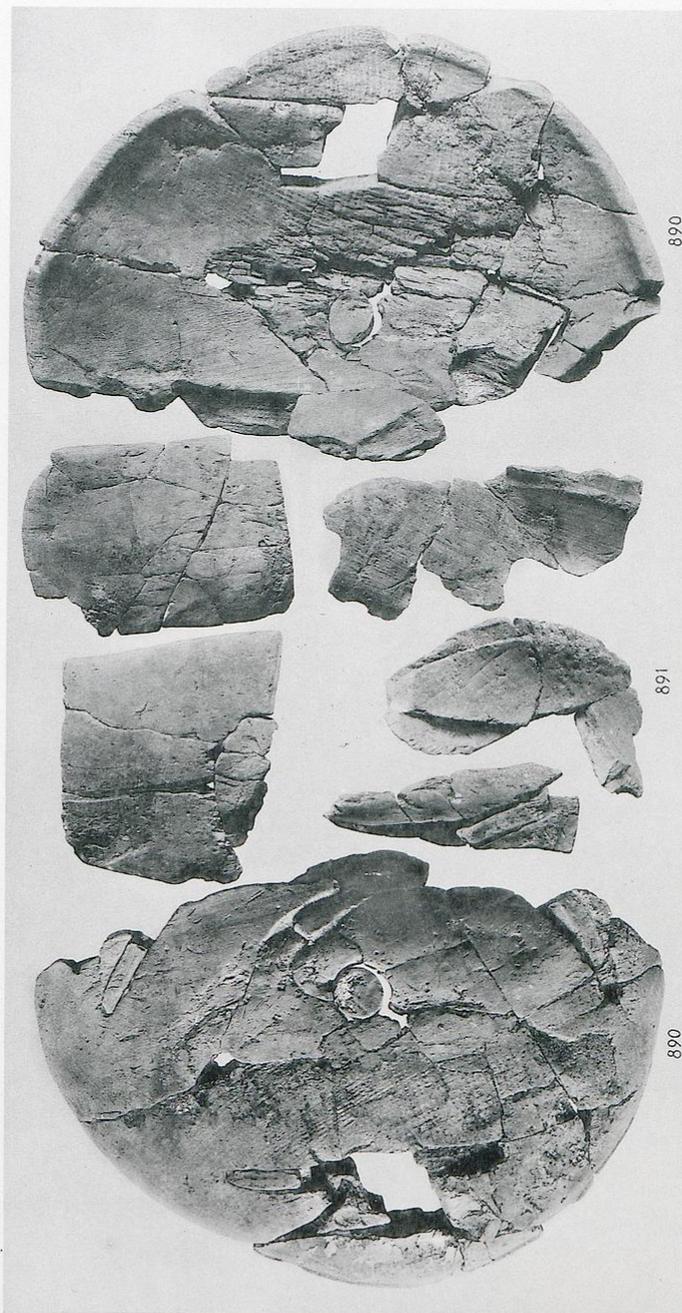
The Mycenae bowl and the discredited result from the Uluburun shipwreck are the only fruits from the “Aegean Dendrochronology Project” for the whole of the Aegean Late Bronze Age. “Flim-flam” is a term popularised by the late great James Randi, a master of sleight of hand, in his exposés of pseudo-scientific claims. It should not be ground-breaking news that there is archaeological flim-flam.

## References

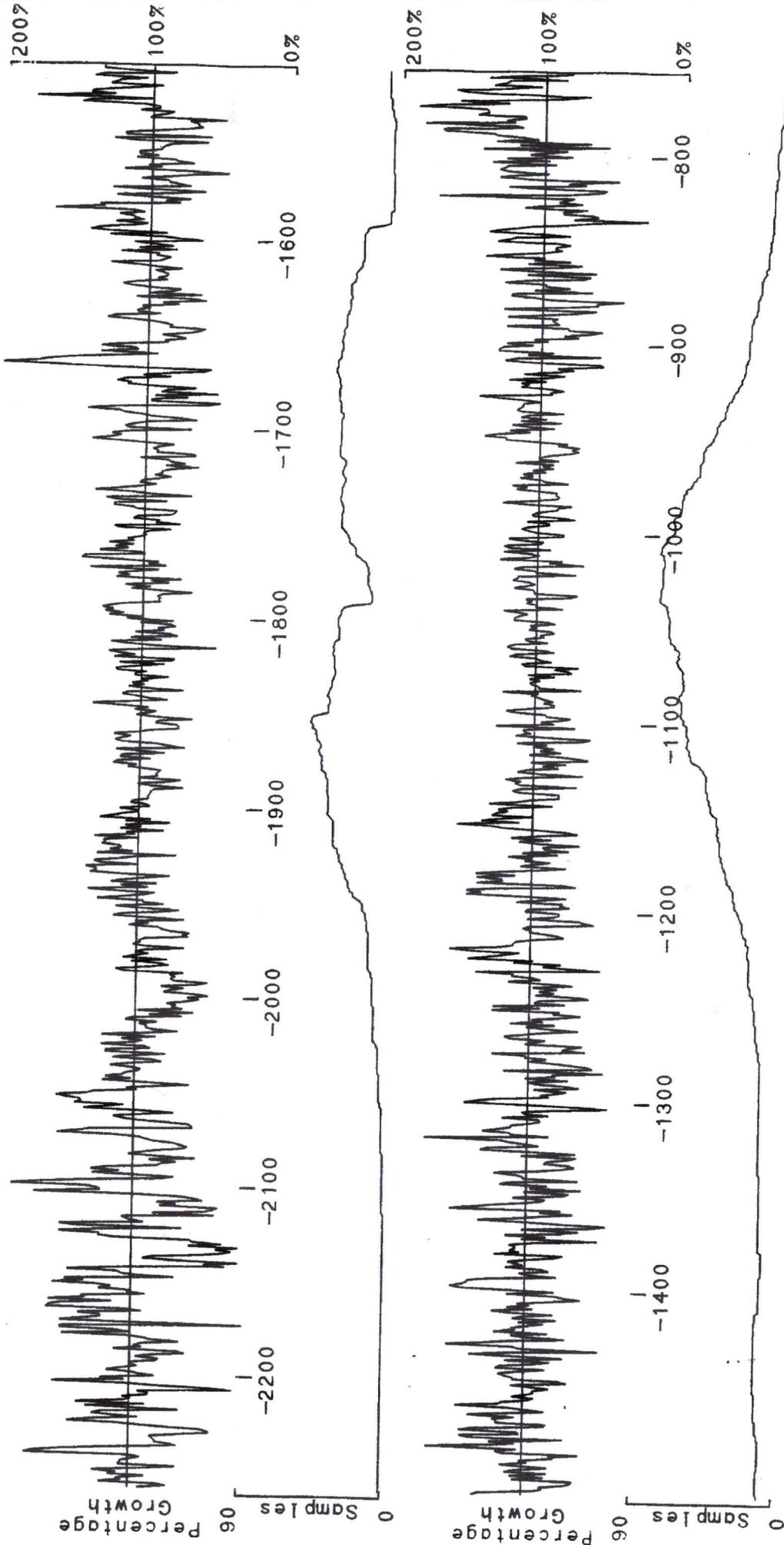
- Austin, D. W., 2007. *The Horse, the Wheel, and Language: How Bronze-Age Riders from the Eurasian Steppes Shaped the Modern World* (Princeton University Press).
- James, P., 2006. “[The Uluburun Shipwreck – a Dendrochronological Scandal](#)”, *Centuries of Darkness Internet Notes and Papers A*.
- 2012. “[Review Article: Tree-Rings, Kings and Old World Archaeology and Environment](#)”, *Palestine Exploration Quarterly* 144:2, 144-150.
- Karo, G., 1930/1933. *Die Schachtgräber von Mykenai (Band 1): Text* (München: Bruckmann).
- 1930. *Die Schachtgräber von Mykenai (Band 2): Tafeln* (München: Bruckmann).
- Kuniholm, P. I., 1990. “[Aegean Dendrochronology Project December 1990 Progress Report](#)”, Department of the History of Art, Cornell University, Ithaca, N.Y.– last revised 1996.
- 1993. “[A Date-list for Bronze Age and Iron Age Monuments Based on Combined Dendrochronological and Radiocarbon Evidence](#)”, in M. J. Mellink, E. Porada & T. Özgüç (eds): *Aspects of Art and Iconography: Anatolia and its Neighbours: Studies in Honor of Nimet Özgüç* (Ankara: Türk Tarih Kurumu Basimevi), 371-373.
- Kuniholm, P. I., Newton, M. W., Griggs, C. B. & Sullivan, P. J., 2005. “[Dendrochronological Dating in Anatolia: The Second Millennium BC](#)”, *Der Anschnitt, Anatolian Metal III*, Beiheft 18 (Deutsches Bergbau-Museum), 41-47.
- Manning, S., 1999. *A Test of Time* (Oxford: Oxbow Books).
- Manning, S. W., Kromer, B., P. I. Kuniholm & Newton, M. W., 2001. “[Anatolian Tree Rings and a New Chronology for the East Mediterranean Bronze-Iron Ages](#)”, *Science* 294, 2532-2535.

Musgrave, J. H., Neave, R. A. H. & Prag, A. J. N. W., 1995. "[Seven Faces from Grave Circle B at Mycenae](#)", *Annual of the British School at Athens* 90, 107-136.

CXLVII



Holzschüssel und Bruchstücke. Grab V



Our newly-constructed 1503 year chronology covers the entire period from the mid-23rd century B.C. to the mid-8th century B.C. See wiggle-matching graph and explanation on the last page of this letter. The dates printed below have an error-margin of  $\pm 37$  years. Dips in the sample histogram indicate significant cutting activity, with over 20 logs from a given building cut in a single year. Thus at 1849 $\pm$ 37 B.C. (bark present) the Warşama Sarayı at Kültepe is built. In 1791 $\pm$ 37 B.C. (bark present) both the Sarıkaya Palace and the Hatipler Tepesi Sarayı at Acemhüyük are built. In 1621 $\pm$ 37 B.C. (bark present) is the first phase of the postern at Porsuk/Ulukışla, followed 31 years later by the second (outer) phase of the postern. In 1619 $\pm$ 37 B.C. is the last preserved ring of a wooden bowl in Shaft Grave V, Grave Circle A, Mycenae (no bark present, of course). 1392 $\pm$ 37 B.C. = last preserved ring at Maşat (no bark preserved). Pottery is L.H.IIIB. In 757 $\pm$ 37 B.C. the Midas Mound Tumulus at Gordion is built. More than twenty other architectural units at Gordion, the big tumulus at Ankara, and wooden bed-legs from the Athenian Agora fit within this dendrochronological framework. We expect to add more information to this list in the near future.