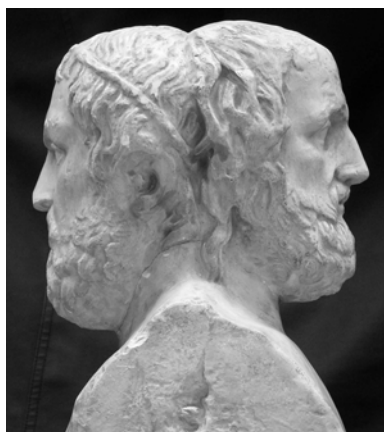


## AEGEAN DENDROCHRONOLOGY PROJECT DECEMBER 2005 PROGRESS REPORT

**JANUS:** Way back (and for some of us Way Way Back) when we were first learning the months of the year, we were introduced to Janus, the Roman god of gates and doors, endings and beginnings, as shown on this Roman coin, left (Source: *Dr. Vollmer's Wörterbuch der Mythologie aller Völker*. Stuttgart, 1874). So in January, as does Janus, we look both backward to the Old Year and forward to the New Year.



Encyclopedia Mythica  
<http://www.pantheon.org/>



The notion of Janiform heads seems to have been popular throughout classical antiquity as we see on these paired busts of the playwrights Sophocles left and Euripides right from the plaster cast of a double herm in Bonn (H. W. Sage Collection, Inv. 233), and again on this large brass coin (Cornell Inv. 1155) from Nemausus (Nîmes), depicting the Emperor Augustus on the left and Marcus Vipsanius Agrippa, his close friend from boyhood, on the right. DIVI means Divine (thus that Augustus is dead). PP means Pater Patriae (that he was Father of his Country). Agrippa had been destined by Augustus to succeed him, but predeceased him in 12 BC, a detail of no small significance in our consideration of the Comacchio ship which we think sank in or after 6 BC (see below).

**NOW**, after that long-winded preamble, the reader might well ask: just what is going on here?



Between this January and June we will shift gears in the Dendro Lab, as follows. The bearded, sour-looking type in wrinkled shirt on the left will phase out after 30 years at Cornell (not quite yet DIVI, however!) and the young, sprightly type with the starched shirt and smile (but clearly in need of a haircut) on the right will phase in.

Thus, the new director of the Lab will be Prof. Sturt W. Manning, currently holder of the J. Walter Graham and Homer Thompson Chair in Aegean Prehistory at the University of Toronto, who will also become Professor of Classics at Cornell in addition to his responsibilities in the Lab.

**MANNING'S BOOKS, for those of you who do not know him well, are:**

Manning, S.W., et al. 2002. *The Late Roman Church at Maroni Petrera: Survey and rescue excavations 1990-1997, and other traces of Roman remains in the lower Maroni Valley, Cyprus*. Nicosia: The A.G. Leventis Foundation. This reports on his excavations and surveys at Maroni Tsaroukkas which he is now winding up.

Manning, S.W. 1999. *A Test of Time: the volcano of Thera and the chronology and history of the Aegean and east Mediterranean in the mid-second millennium BC*. Oxford: Oxbow Books. This has become a standard reference to the second millennium, and a second edition is contemplated.

Manning, S.W. 1995. *The Absolute Chronology of the Aegean Early Bronze Age: archaeology, history and radiocarbon*. Monographs in Mediterranean Archaeology 1. (Subsequently reprinted.) Sheffield: Sheffield Academic Press. This was his dissertation, notable for his complete reworking of it (when it was already in page-proof) after the appearance of the new radiocarbon curve which necessitated a re-thinking of a large part of his findings on the earliest part of the EBA. See my review in *AJA* 100 (1996), 784-785, and do have a look at his Table 1 which shows the Early Bronze Age in the Aegean beginning anywhere from 4000 BC to 2300 BC (!) depending on which scholar you read.

In addition Manning has published several dozen papers, seven or eight of which we have co-authored, including papers in *Nature*, *Science*, *Radiocarbon*, and *Antiquity*. More are in the works, including a contribution to DeVries et al. *The Chronology of Early Phrygian Gordion* (or something like that) to be published by the University of Pennsylvania Museum Press. One of Manning's brainchildren is the EMRCP or East Mediterranean Radiocarbon Intercomparison Project to which we have contributed dendrochronologically-dated Aegean wood for Bernd Kromer to radiocarbon-date at Heidelberg. We have also been in the field together in Turkey, Thera, and Crete. Manning is already building links to various parts of the scientific community at Cornell, including CHESS, the Cornell High Energy Synchrotron Source, as he investigates the prospects of exploiting the wood collection stored away in Goldwin Smith Hall. There is much new work ahead. We wish him well as he picks up where I leave off. I am not going away completely, however. There is still a lot of publishing to be done on the samples collected from 1973 to present, and I expect to be around to provide as much or as little advice/commentary as Manning wants.

**THE BIG NEWS OF THE YEAR** is that Carol Bliss Griggs defended her dissertation successfully last week! The next day she started working for us 3/4-time as a Research Associate. The other 1/4 she spends pulling together sets of tree-ring sequences for New York State that go back more than 14,000 years. She is currently beaver away on four articles for publication this coming January. She will also present a paper at the Annual Meeting of the American Geophysical Union in San Francisco this December.



Carol Bliss Griggs has been scrambling about with us (1) ever since her senior year at Cornell. She has excavated at Alambra in Cyprus and drilled cores in the Troodos Mountains, also in Cyprus (2), drilled tie-beams in churches and mosques throughout North Greece, drilled and measured cedars in Turkey, and collected wood from all over New York (3).



One of Carol's poster presentations is enclosed with this newsletter. It is a climate reconstruction for the North Aegean back to 1169 based on 517 oak tree-ring sequences from 46 sites in Greece and Turkey. Once she is done with her current publishing responsibilities, she is going to work her way back with early historic and eventually prehistoric Aegean climatic reconstructions for as far back as we have tree-ring data for her to play with, currently to around 7000 BC.



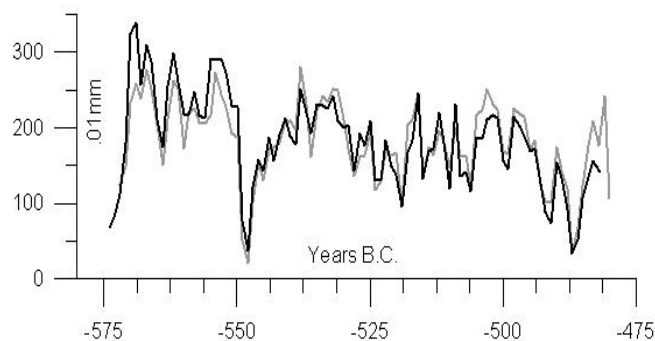
*Carol's 19th-century (1833) oak section (4) is from Seneca Lake. The excavation of the Chemung Mastodon (5) and its accompanying wood from some 14,000 years ago was a race against winter freeze-up among other things, thus the abnormally large trowel.*

**SUMMER 2005:** Last summer Research Support Specialists Jennifer Watkins and Alison Petrucci (and for a couple of weeks Ellie Kuniholm) and I had a short field season with the following results:

- A. We brought up to date every forest oak chronology that Carol had used in her climatic reconstruction. Many of the data sets had ended in the late 1970s or mid-1980s. Now they all run through 2004, thereby giving Carol another 20 or more years with which to compare the trees against the instrumental data. If her model "predicted" what actually was observed meteorologically from 1980-2004, that will really be a triumph. See her enclosed poster.
- B. We were also presented with two large boxes of oak samples (some of them Byzantine) from the salvage excavations at Yenikapı outside of İstanbul where the new Metro excavations have begun. More material is expected to arrive in the lab any day now, also timbers from several Byzantine ships in the Yenikapı harbor, currently being excavated by Cemal Pulak of Texas A&M.
- C. In Bologna we collected gorgeous oak boards from tombs excavated this year near the Academy of Fine Arts. They are expected to date from the late 8th century/early 7th century BC.
- D. In Thessaloniki we were given charcoal from Petsas' House at Mycenae on which Maryanne Newton will be working in the weeks to come.
- E. From Athens Christina Pinatsi brought us wood from the "oldest house in the Plaka" at Hadrianou 96, the house of St. Philothei, who, as the only Athenian saint, deserves to have a dated house.
- F. Excavations by the staff of the Çanakkale Museum at Parion near Biga brought us an unexpected box of Roman charcoal which we think dates from AD 208 (Grave J-9). More on this below.
- G. Medieval charcoal (estimated date late 12th/early 13th century) from Isabella Caneva's renewed excavations at Mersin/Yumuktepe dates to 1198, albeit with a short overlap.
- H. Our long-time colleague, Aleksandar Durman, University of Zagreb, met us in Trieste bringing with him several boxes of wood from Croatia from various periods. That will be a job for springtime 2006.

**TATARLI/MUNICH:** Over the years colleagues have reported the existence of painted timbers in the Archaeologische Staatssammlung in Munich. In June 2005, with the kind help of the Keeper, Frau Dr. Gisela Zahlhaas, and thanks to arrangements made by Dr. Lâtife Summerer, who has done a

splendid study of the imagery thereon, we were permitted access to four timbers, two with a funeral procession and two with an Achaemenid combat scene, the publication of which will be sent to ADP Patrons as soon as it appears. Each timber, stored carefully in a wooden box with cloth padding and acid-free paper, fitted the physical dimensions and descriptions of the Tatarlı tumulus timbers (found robbed many years ago and now in the Afyon Museum in Turkey), i.e., smoothed on one face that was subsequently painted. After we sanded radii from pith to the terminal ring, and then measured each ring to the nearest 1/100mm, we found that the Munich wood matched specific ring-sequences in Afyon so spectacularly that we can state with complete assurance that certain timbers in Munich are from the same original tree as ones in Afyon. The pith and bark years are the same for the timbers in both museums.



*Alison Petrucci measures, and Jennifer Watkins records, the ring-measurements of a painted cedar log from the early 5th century BC in Munich. On the right is a graphic comparison of the ring-growth of Munich-1 (grey line) and Afyon-37 (black line), obviously from the same tree.*

What is clear is that somebody must have preceded the visit of the Afyon Museum authorities to the Tatarlı tumulus site, selected the two best-painted sections, sawed each of them into two suitcase-sized lengths (roughly a meter each), and then removed them to Germany. We owe the Staatssammlung staff a vote of thanks for preserving their four painted timbers so carefully. The Afyon Museum will need help in conserving the paintings, once they are reunited, and providing a temperature and humidity-controlled environment for the exhibition and long-term preservation of this important tomb. We are at work trying to find foundation support for this effort.



### **THE FIRST WIGGLE-MATCH OF CEDAR-WOOD FROM AN EGYPTIAN COFFIN**

In the Oriental Institute in Chicago is the unpublished cedar sarcophagus of the army clerk, Ipy-ha-Ishutef, attributed to DYN. IX/X, which in the *Cambridge Ancient History's* Middle Chronology ought to place it between 2160-2040 BC. We have cores from 11 planks which make a 151-year tree-ring

chronology. We cut eleven ten-year slices at ten-year intervals from one of the cores and sent them to the AMS Radiocarbon Facility at Oxford University in Spring 2005. The radiocarbon wiggle-match dates the last preserved ring for the sarcophagus to 2076  $\pm$  8 BC at 2 $\sigma$ , right about where the

date should be. So, aberrant radiocarbon dates from Egypt seem to be more a product of inappropriate sampling method rather than an indication of problems with the radiocarbon curve itself. A formal report on this will be sent to the printer before the end of this year.

**LAB STAFF:** Nicole Riches left the lab to work on a graduate degree in biological anthropology at George Washington University. She was succeeded by Jennifer Watkins, ABD in Medieval Studies, and Alison Petrucci, BA in Classical Civilization, both from Cornell. Our computer support team now includes Karl Gesslein for systems administration and Lucas Madar for programming. Maryanne Newton is a Research Associate, and Mary Jaye Bruce does everything else. Old-timers in the lab were Brita Lorentzen, John Choi, and Jessica Herlich.



**TENTATIVE (MOSTLY OAK) CHRONOLOGY FROM AD 2004 BACK TO 518 BC (see bar graph):** This was put together as part of our Roman Gap Project for NSF. It spans 26 centuries and combines timbers from 46 sites. See enclosed bar graph. Several of the dates, as noted below, await non-dendrochronological confirmation. Pictures of many of these sites have appeared over the years in these reports and are therefore not reprinted in this newsletter. The existence of corroborating radiocarbon dates is indicated by asterisks like this \*\*\*. Not listed here are historical circumstances, architectural details, and the like. That will have to wait for a formal publication.

1. Zonguldak, Yenice, Karakaya Forest 1762-2004 Bark
2. Zonguldak, Karabük Forest 1699-1985 Bark
3. Samsun, Kavak, Bekdemir Mosque 1089-1876+Bark
4. Kossovo, Priština, Gračanica Monastery 1073-1297...
5. Pherrai, Kosmosoteira. 1004-1121... \*\*\*
6. Istanbul, Pantocrator 984-1079...
7. Enez, Hg. Sophia 814-1050... \*\*\*
8. Thessaloniki, Panagia Chalkeon Chestnut 948-1027+Bark
9. Thessaloniki, Chortiates 854-1022... \*\*\*
10. Trabzon, Kuştu, St. George Peristereota 803-1016... waiting
11. Istanbul, Hg. Sophia-69A, 849-987...
12. Trabzon, Sumela Monastery. Chestnut 902-983... waiting
13. Prespa, Hg. Achilleos 825-968... \*\*\*
14. Stiris, Phokis, Hosios Loukas, Katholikon 857-956...
15. Istanbul, Hg. Sophia, Secondary (SOF-2 and 3) 753-910... \*\*\*
16. Kütahya, Castle 598-870+Bark \*\*\*
17. Bozburun Ship 599-830... \*\*\*
18. Istanbul, Hg. Eirene, secondary 643-799... \*\*\*
19. Trilye, Fatih Cami 655-793...
20. Çanakkale, Pınarbaşı, log from Scamander Riverbed 595-781... waiting
21. Castel Seprio 670-744...
22. Zadar, Sv. Donat 583-743...
23. Verroia, Old Metropolitan 621-729... waiting
24. Nin, 'Croatian' boats in the harbor 571-695...
25. Spina, unnumbered plank (SPI-3) from the cemetery 502-671... \*\*\*
26. Istanbul, Hg. Sophia, SW Vestibule Room. Ash 547-658...
27. Ohrid, Sv. Sofija, "White" Chronology 475-618... waiting
28. Istanbul, Pantocrator-10A, 407-594... waiting
29. Ohrid, Sv. Sofija, "Orange" Chronology 381-538... waiting
30. Istanbul, Hg. Eirene-4ABC, primary. 396-506... \*\*\*
31. Istanbul, Hg. Sophia, Primary (SOF-14, 52, and 53) 386-503...
32. Thessaloniki, Frourio Vardari, Barrel, 287-439... waiting
33. Ephesos, Harbor, 230-348...
34. Venice, San Francesco del Deserto, channel revetment (SFD-11) 243-332... \*\*\*
35. Garigliano River B, 171-321... \*\*\*

<< Parion Grave J-9 fits here.

36. Perinthos, Değirmendere 58-222...\*\*\*
37. Sisak (Siscia), Roman 110 BC-AD 146...\*\*\*
38. Ephesos, Hanghaus 48-131...
39. Fotada River bed 11 BC-AD 119...\*\*\*
40. Pergamon, Trajaneum substructure 2 BC-AD 80
41. Comacchio ship, Boxwood 518 BC-6 BC+Bark waiting.
42. Garigliano River A 286 BC-50 BC...\*\*\*
43. Kastamonu, Ilgarini Cave 457 BC-132 BC... waiting
44. Florina 8AB & 9ABCDE 281 BC-177 BC...
45. Arapis River 380 BC-211 BC...\*\*\*
46. Zadar, Zaton shipreck 307 BC-217 BC...\*\*\*

<<This is only 6 years after Agrippa's death.  
There are two and a half tons of lead ingots  
on board stamped with his name.

**SUMMARY:** If this long chronology holds together, and we expect that it should, we will have an 'Iron Age Gap' rather than a 'Roman Gap,' and our task will be to try to link this 26-century oak sequence with our 2009-year conifer sequence somewhere in the middle of the second millennium BC. We also have 40-odd conifer chronologies with which we will try to replicate the 6th century BC-to-present oak chronology this coming semester. You will get a report on all of this at the end of 2006 or whenever we make the breakthrough, whichever is sooner.

The last 30 years In Ithaca and in the Aegean have been serious fun, and I am grateful for a steady stream of hard-working Cornell students, for some crackerjack assistants, for colleagues from many countries who shared both their material and their ideas and who welcomed us to their excavation houses or museums year after year. And then there were the Foundations and Loyal Patrons of the Project who made it all possible. And for this we . . .



*The letter "O" in this snowy THANK YOU! is none other than our very own Jennifer Watkins and her scarf.*

**Peter Ian Kuniholm**  
**CORNELL UNIVERSITY**