Aegean Dendrochronology Project December 1998 Progress Report

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RUDELY-TRUNCATED SUMMER 1998 TRAVELS BEGINNING WITH A VISIT TO THE *QUESTURA DI ROMA*:

Stolen!

In Rome on the Feast-Day of SS. Pietro & Paolo on Day 3 of a 60-day field trip, Mary Jaye Bruce woke up to a familiar sound, something rather like the motor of our Volkswagen Minibus turning over. Since 5 A.M. is an uncivilized hour of the day anywhere, she figured it couldn't possibly be so, turned over, and resumed snoring. Jane Terrell, a heavier sleeper, never woke up at all (nor did the writer of this missive). At breakfast Mary Jaye, who is a suspicious soul at heart, went down to the street to reassure herself that all was well, but it wasn't. Some sticky-fingered Roman ragazzi had absconded with our bus and most of our equipment even though it was a 1989 model with 128,000 kms. on the odometer, a couple of dings in the fender, and was plastered with Cornell stickers. By now the bus is no doubt somewhere in Poland, the Czech Republic, Albania, or even further east and has probably been painted purple or some equally obnoxious color. Fig. 1 shows you our lost chariot. If you see ANYTHING remotely resembling it, regardless of the current color, with Cornell stickers fore and aft or traces of where the stickers used to be, please notify the local police at once!

After reporting to both the Rome police and the American Embassy where the duty officer sighed and said "This is not the first such call I have had this morning," we rented a car and did a 3,000 km. round-trip through Italy, collecting wood and charcoal from seven sites. Before leaving Rome we had our first look ever at bags of charcoal samples from the Bronze Age site of Ebla in north Syria excavated by Prof. Paolo Matthiae and selected five samples for measurement.

Our first stop outside Rome was Pompeii/Herculaneum where we were joined by Christine Groneman who had just flown in from England where she had helped Cornell and Penn defeat Oxford and Cambridge in a series of track-meets. Christine was quite calm about having had all her unmentionables stolen, replacements for which were to be found in the Pompeii supermercato. I had, therefore, a chance

to acquire a whole new Italian vocabulary (I barely know what these things are called in English).

Any ride we could get....

Our Italian colleagues in their enormous trench south of the Villa of the Papyri have continued exposing first-century buildings (newsletter of 1996). Their preferred mode of transportation, a front-end loader Fig. 2, was perhaps not as classy as our bus, but it came with its own chauffeur and sufficed to get us through the puddles. We collected 20 new samples there, again mostly fir. If patterns from previous years hold, we expect that a number of these will be Alpine.

Carrying on south to Calabria (temp.= 45° C or 115° F), we spent a day at the Roman site of Oppido Mamertum, but although the site is extensive, the burned destruction layer of which we had been told had only thousands of charcoal flecks. So, goodbye to them and onward to Roca di Puglia, between Brindisi and Otranto, a fascinating fortified peninsula being excavated by a group from the University of Lecce under the direction of Prof. Cosimo Pagliara. Here there was a destruction, indeed. An entranceway through the 25m. thick circuit wall was lined with oak, all of which burned violently when the site was destroyed during the pottery period known as Late Helladic IIA, but accompanied by sufficient wall-collapse so that fist-sized chunks of carbonized oak were preserved. We came home with 35 samples, and Christine has written Prof. Pagliara asking for more. One of the attackers(?), carrying a Mycenaean short sword with an ivory pommel decorated with lions, died along with the inhabitants. We are looking forward to Prof. Pagliara's excavation report, the publication of which is imminent.

Sawing 6th-century B.C. wood in the basement of the Ferrara Museum with assistance from Dottssa. Paola DeSantis.

Then we drove northward along the east coast to Ferrara where we had such good luck years ago with the boxwood from the Comacchio ship (1991 newsletter and the *Bollettino di Archeologia* 1992). This time our colleague Prof. Fede Berti produced oak planks from the old excavations (1922-1935) at Spina, the superb Attic red- and black-figured pottery from which is on display in their new gallery and published in the new Spina catalogue. The Spina graves were typically laid out within a rectangle of large planks with neither top nor bottom. If the hundreds of planks which appear in the Spina publications had been saved, we would probably still be there sawing, but that was three generations of excavators ago, long before the discovery of radiocarbon, and the focus then was on the pots. After the obligatory ooh-ing and aah-ing at the pots, we dived down into the basement where we spent the next several hours with a bucksaw sawing

sections from the planking which surrounded the graves. The planking was in a waist-deep pile, and about half the timbers had their original tickets/grave numbers still attached. We sawed 13 sections, one of which had 170 rings. The skeletons watched us as we worked, a new experience for Christine and Jane who had never been thus ogled before. We were told that the ring-sequence might date from the 6th-3rd centuries B.C., one of our less well-represented periods in the Mediterranean tree-ring record. So far no convincing date has been found. Patience.

Then, in the worst hailstorm any of us have ever been in, we drove to Venice, where with the help of Prof. Albert Ammerman we collected wood from San Francesco del Deserto and the Lazaretto Vecchio. The former site ought to be useful since some of the planks and posts come from attempts to define the channel near the island (post-and- plank revetments) and on archaeological grounds alone could be from as early as the 3rd century A.D. Our mode of transportation here was the impressively-named 'Colgate University Research Vessel.' We do wonder what the curious tourists on the Grand Canal who took our pictures labelled us as being: Venetian artisans returning from a hard day's work? a scruffy bunch of hippies? certainly not dendrochronologists.

After all of this we drove back to Switzerland, packed up our 99 samples and such gear as we had left and flew home,...the first summer I have ever spent in Ithaca. We then wrote to the insurance company and to all the people we had planned to visit, explaining why we were unable to come, and many of them have very kindly sent along boxes of whatever they have been able to find: some 150 samples so far, including today a box from Troy.

NEW PUBLICATION ANNOUNCEMENT:

Well, not really announced, as it is delivered in the same envelope as this letter to all our current Patrons of the Project. There is an interesting angle to the wiggle-matched oak chronology from Kiten near Sozopol near Bourgas in Bulgaria mentioned in the 1994 newsletter, in *Acta Archaeologica* (1996), and now formally here in print: namely something catastrophic which happened some time after 2715 +/-10 B.C., the date of the last pilings at the site. Prof. Mehmet Özdogan at Istanbul University has had a theory for many years that the Black Sea was once a freshwater lake, connected to both the Caspian and Aral Seas, with an outlet south through what is now the delta of the Sakarya River and then west through Sapanca Lake and the Gulf of Izmit. Cores drilled from the Black Sea floor show saltwater mollusks on top and freshwater mollusks below, also plant roots from plants which once grew on dry land.

There is also a conspicuous lack of Bronze Age settlements anywhere near the Bosphorus--indeed not even a single EBA potsherd. There are, however, submerged Early Bronze Age settlements extending north on the western shelf of the Black Sea, and now we have dated one of them, i.e., Kiten, to within ten years of 2715 B.C. Mehmet's argument is that since the shores of the Bosphorus are so steep, it is a relatively new cut. Some time around the Early Bronze Age rising sea levels world-wide, possibly combined with an earthquake, caused the Sea of Marmara to break through the Bosphorus and to turn the Black Sea into the brackish sea that it now is rather than a freshwater lake.

Work done recently by Profs. Bill Ryan and Walter Pitman at the Lamont-Doherty Earth Observatory at Columbia seems to bear at least part of this out. They note a steep slip- strike fault below the present Bosphorus channel, deepening as it goes northward (as one would expect if vast volumes of water (~50 cubic kms. a day) were rushing through the gorge into what is now the Black Sea). Their radiocarbon dating of the death of the freshwater molluscs and therefore the ingression of the saltwater from the Marmara is around 5600 B.C. The Ryan-Pitman scenario does not explain why there are no EBA settlements along the Bosphorus, nor does it explain in full why it took so long for Kiten to be submerged. Our wiggle-matched Kiten date, however, suggests that the Black Sea did not assume its present form immediately after their proposed 5600 B.C. breakthrough. As late as the end of the third millennium B.C. people were able to live in settlements such as Kiten and Sozopol and Ropotamo along the western Black Sea coast, all of which are now about 8-10 meters under water.

MISCELLANEOUS SITES MENTIONED LAST YEAR WHICH HAVE NOW BEEN DATED:

Speaking of wet things, we now have a wiggle-match thanks to Dr. Bernd Kromer at Heidelberg Fig. 6 for the lakeside pile-dwellings of Dispilio-Kastoria (Prof. George Hourmouziades, Aristotelian University, Thessaloniki), a hop and a skip from the Albanian border. This is the first wiggle-match ever of a Neolithic site in Greece, and we look forward to Prof. Hourmouziades's further work. He had some 30-odd pilings coming out of the mud the last time we visited. A well-preserved juniper post, painted blue and with modern door hinges, was recovered from a modern village house simply because it looked suspiciously old. The sample we were given did not fit anything in our Neolithic inventory, so we sent a piece of it to Heidelberg to see what radiocarbon analysis would reveal. The date is 2117 B.C. +/-110 years, which means it is from some Early Bronze Age occupation near the lake at Kastoria.

The piece of charcoal from the basal level at Neolithic Asikli Höyük (Prof. Ufuk Esin, Istanbul University), underneath seven levels of aceramic settlement, also mentioned last year, turned out to be 7955 B.C.+/-75. All the Asikli Höyük radiocarbon dates cluster in the next 500 years, so Prof. Esin's total sequence spans something like 8000-7500 B.C.

The slice of wood from a 'possibly prehistoric' dugout monocoque canoe from the Black Sea near Sile (Capt. Muhlis Ergin, Naval Museum, Istanbul) turned out to be nothing of the sort. The date is A.D. 1565 +/-85 years. It seems as if Black Sea fishermen were hollowing out logs a lot more recently than anybody had realized.

NEW CROSSDATES TO THE EAST AND WEST:

In 1997 a week's visit to the Republic of Georgia and in particular the Taxus baccata or yew forest at Batsara in Kakhetia produced a 455-ring sequence from 1526-1980. There is excellent crossdating with Turkish and Greek pines and junipers as far westward as Grevena, Salatoura Papagianni (*Pinus leukodermis* sp.) in the Pindus Mountains of Greece, 2350 km. from Batsara, and as far eastward as Kyrgyzstan, Sary-Chelek Reserve (*Juniperus semiglobosa* and *zeravshanica* sp.) (information thanks to Malcolm Hughes, University of Arizona), 2070 km. from Batsara. That is an area 4420 km. east-west, or, if you are not comfortable with kilometers, 2763 miles (Fig. 7). Not so bad!

Bronze Age timbers from Martkopi and Trialeti in Georgia, kindly brought by Dr. Tamaz Kiguradze, are waiting for us in Ankara. Since the modern wood crossdates so well, the early Georgian material ought to crossdate, too.

THE MIDDLE AGES:

During a replacement of the semahane or dance-hall in the Türbe of Celâlettin Rumi Türbe (Mausoleum of Mevlana) in Konya (Fig. 8), one of the holiest places in all of Islam, wood cribbing from a supporting grid system underneath the elephant-foot pier on the west side of the room where the dervishes used to whirl was recovered: pine on top and oak below, an unusual phenomenon for us, since Anatolian carpenters do not usually mix species. The samples were thought by Mr. Naci Bakirci, the Assistant Director, to be from the 16th century. There were also, he said, renovations in 1816 under Sultan Mahmut II, and later in 1954 and again 1983. What we found was somewhat different from his expectations: the pine timber on top was cut in 1732 or very shortly thereafter during the time of Sultan Mahmut I, and the oak below it, with the bark still preserved, was cut in 1570 during the time of Sultan Murat III. Carol Griggs and Laura Steele get major credit for sorting out this last problem, because the oaks had been burned or at least badly scorched every 25 to 35 years or so before they were cut down, and the fire scars made measurement difficult and cross dating almost impossible.

THE AEGEAN-EAST MEDITERRANEAN RADIOCARBON CALIBRATION PROJECT:

This exercise, mentioned last year as the brainchild of our collaborator Dr. Sturt Manning, University of Reading, has now produced its first significant results. Dr. Bernd Kromer's graph of contemporary decadal samples of German oak and Turkish pine just came in via e-mail. There appears to be very little difference in the way trees are picking up radioactivity in either place over some 250 years. We are looking at such differences as there are,...up to some 30 or 40 years on occasion for a given decade,...to see if we can explain why.

DENDROCHEMISTRY:

Dr. John Chiment of Cornell's Department of Geological Sciences thinks he has found, using various kinds of trace-element analysis of individual, precisely-dated tree-rings with which we have supplied him, evidence of uptake of rare heavy minerals during years of known volcanic activity. He has found a spike for gold in Greek oak in the year 1815-1816 after the eruption of Tambora. The same spike appears in the same year in Turkish pine. If he can replicate this for other years of known eruptions, we will have a marker signal which we will use to scan the prehistoric period to see what was going on.

BACK IN THE DENDRO LAB IN B-48 GOLDWIN SMITH HALL:

Isabel Tovar and Carol Griggs, who has returned from an extended maternity leave, have been supervising the activities of some ten to fifteen people per semester. Together they finished off work on over 20 sites. Mary Jaye Bruce continues to produce readable text, keep accounts (easier than usual this year because of our Roman misadventure?), copy-edit prose, and maintain our World-Wide Web site at: http://www.arts.cornell.edu/dendro/. Muhammad Arif is our systems analyst/programmer and trouble-shooter. Laura Steele has gone to Berkeley to begin PhD work. Maryanne Newton is our Old-Old-Timer-in-Residence and will take her PhD qualifying exams later this year.

A MUSICAL END NOTE:

Isabel Tovar measures the center boards of an 18th century violin.

Last month, graduate student Brian Brooks from the Music Department marched in with a violin that someone was trying to sell him for far too much money. The violin according to a London expert was an 18th-century instrument, made in the Bolognese style, and perhaps attributable to a certain Facini who flourished in the 1730s and whose last known piece is dated 1742. It took Isabel an hour to measure and date the two spruce boards which form the belly of the violin and which were cut from the same tree, Fig. 9a&b. She then tried to match them against the spruce chronology from the Oetztal in western Austria, just south of Innsbruck. The fit at 1751 was superb. One must then add an allowance for any rings cut off by the maker plus time for drying-out. That it is north Italian or western Austrian spruce and that it is 18th century is unquestionable. One imagines that the spruce could have been floated down one of the tributaries to the Po River from which it would have been easily carted to Bologna either as a log or as split boards. That the violin is the work of Facini is unlikely. Our music student said thanks and decided not to buy the instrument, at least not for the asking price, and, while Isabel was still crossdating, he *played* for us, a much pleasanter sound than the sour note on which we began our summer.

Brian Brooks and his (almost) violin.

P.S. We have begun collecting cedar from Egyptian collections in North American Museums, most notably from the Boston Museum of Fine Arts last month. We expect to visit more museums this next semester, and will tell you about it next year.

Peter Ian Kuniholm

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