

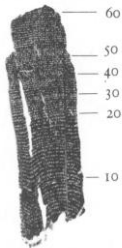
METHODS FOR COLLECTING ARCHAEOLOGICAL WOOD FOR DENDROCHRONOLOGICAL ANALYSIS

Our laboratory at the University of Arizona analyzes wood and charcoal from archaeological sites throughout the Aegean, the Balkans, the Eastern Mediterranean, and the Levant. This geographical limitation reflects our current ability to apply the dendrochronological method to well-preserved wood and charcoal throughout this area. Whether we can continue to apply it eastwards into Mesopotamia or north into the Crimea and Caucasus we do not yet know.

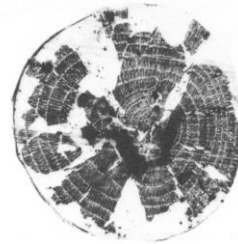
We have samples representing most periods of history and the prehistoric era as far back as the Neolithic in Turkey. Our chronologies as of 2014 total over 7500 years (see schematic graphs below).

WHAT IS A GOOD SAMPLE?

Generally any sample of oak, pine, fir, spruce, juniper, or cedar with 50 or more rings can be crossdated if a secure chronology exists for that period. Ideally, the best samples have 100 or more rings. It is not the size of the sample that is important, but rather the ring-count. For example, we have from Middle Bronze Age sites in Turkey (Kültepe and Acemhöyük) burned foundation logs 40cm in diameter with 250 to 430 rings; from the same sites we have additional samples that crossdate even though they are only 4cm in diameter and have only 150 rings. If you as the excavator or collector cannot make a judgment of the ring-count at the time of excavation, preserve the wood as explained below, and we will make the count either at your site or in the laboratory. Both unburned and carbonized wood can be measured. (The advantage of burned wood is that it does not rot.) Remember that for the best results a large sampling is better than only one or two pieces. Of course, not every site has well-preserved wood, so when we are fortunate enough to find wood or charcoal, we try to take a sample of every log available.



*Actual
size*



Demircihöyük sample with 63 rings
(reasonable chance for crossdating).

Demircihöyük sample with 12 rings
(hopeless for crossdating).

HOW TO TAKE A SAMPLE:

1. For unburned logs in good condition, wrap string several times around the circumference of the log at the time of excavation, and cut off a section. Reinforce the string by wrapping it again with architects' masking tape or with cloth. Clearly label each sample with regard to position and provenience as you would any normal archaeological artifact. For a log in good condition the string should be sufficient; for a worm-eaten or otherwise eroded sample, extra string and tape should be used to keep the sample intact, especially after the section has been removed from the earth. Remember that every time a ring is lost a year is lost!
2. For carbonized or partially-carbonized samples, string is the best stabilizing material. Each piece of charcoal found should be wrapped in string to form a protective "shell" around the sample. Otherwise the sample may flake and thereby lose a number of rings. The sample should then be bagged and clearly labeled. (EXTRA PADDING OR COTTON CAN BE USED TO ENSURE THE SAFETY OF THE SAMPLE, ESPECIALLY IF POSTING IT TO THE ARIZONA LABORATORY.) Many times, whole carbonized logs are preserved in the foundations of buildings. In this case, expose the butt end of the log, wrap its circumference with string, and pull, cut, or break off a section (if fully carbonized, this will be easy). One person should hold the newly removed section, and another should wrap the whole sample in string. Place it immediately in a plastic bag and seal it. Keep it out of the sun!
3. For waterlogged samples it is most important that the wood not be removed from the water and allowed to dry out. After cutting a section of such a log, place it immediately in a plastic bag (preferably airtight), label it with an indelible marker, and if possible keep it in a cool, dark place. Also wrap the sample with string or tape to help hold it together.

