

Dec 1996- Çatal Höyük Archaeobotanical Report. Julie Near and Christine Hastorf

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The 1996 field season at Çatal Höyük marked the second season of flotation at the project. During this season the Palaeoethnobotany team, directed by Christine Hastorf and assisted by Julie Near of the University of California at Berkeley, processed soil samples from both the North and Mellaart areas of the excavation. Two flotation machines were used concurrently in order to flot the 15,577 liters of sampled soil from these two areas. Maria Mangafa from the University of Thessaloniki, Greece also processed soil samples during in the second month of the season. The first machine was built in 1995 by Ann Butler of the Institute of Archaeology, London and was based on the Ankara system design using a 55 gallon oil drum as the flotation tank, while the second was built in 1996 and was based on the SMAP design with a 75 cm diameter flotation tank (compared to a 56 cm diameter oil drum). Both of the machines used a .5mm aperture mesh to recover the heavy residue and a .17 mm aperture cloth for the light fraction. The systems used recycled water from their individual two tank settling system. Due to the particularly silty nature of the samples, the tanks required complete cleaning (of both the settling tanks and flotation tank) one to two times a week in addition to partial cleaning at the end of each day.

Samples were selected for each machine based on the size of the sample, with smaller samples going to the Ankara machine (called the small machine) and larger samples going to the SMAP machine (big machine). A total of 412 samples were processed with the small machine and the average volume was 15.6 liters. The large machine processed 275 samples with an average volume of 33.3 liters. Although it was our feeling that the machines were comparable in effectiveness, we conducted an experiment in order to test the recovery rates of the two machines. The results have not yet been compiled but will be written up in a paper at the beginning of the 1997 season.

The sampling strategy for the 1996 season was as follows: All units were to be sampled using bulk soil collection. In units containing midden or other secondary, mixed soil matrices, a scatter sample was requested in addition to the bulk sample. In certain excavation units from the North area (primarily floor contexts) several samples from the same unit were taken for flotation. These were taken at one meter intervals across the unit. The suggested target volume of soil per sample was 40 liters at the beginning of the season based on preliminary density data from 35 flot samples in the North area. In the middle of the season this target volume was changed to 20 liters in order to accommodate the time constraints of the excavation, but after several weeks it was again put back to 40 liters. Many of the units were not large enough to provide the target volume, thus the range of sample sizes was from .5 liters to 67 liters.

Of the 688 samples processed in 1996 205 have been considered priority samples based on the contexts from which they were excavated. 40 of the flots from these samples have thus far been analyzed for their content. Species identifications remain to be made in many cases as comparative collections must be first consulted. The data compiled to date includes density analyses and presence/absence analyses of the following categories of remains: wood, cereals, chaff, pulses, parenchyma, nut, hackberry, weed seeds, indeterminate botanical material and charred mouse droppings.

Heavy residue was collected from the flotation samples and sorted by a team of workers throughout the 1996 season. Residues from 1995 samples as well as 1996

samples numbered over 800 and even with the team of sorters it was impossible to process all of them. Therefore, heavy residues were sorted based on priority rankings similar, but not identical to the flot sample rankings. As a result, all of the flotation samples do not yet have their associated heavy fractions. Charred botanical remains are common in the residues and are typically of a range of the more dense materials (charred wood, pulses, chaff and mineralized remains). At this stage the heavy residue botanical remains are examined, but their contents are not included in the results to maintain comparability between samples.

**Density Analysis:** Of the 40 1996 priority samples, 10 are from the Mellaart area and the remaining 30 are from the North. The average density for all of the samples is .720 grams per liter. The range for the North area is .01 g/L to 5.48 g/L with an average density of .751 g/L. The range for the Mellaart area is .09 g/L to 1.22 g/L with an average of .689 g/L. No context related density information is yet available but the range of variation promises to provide interesting information relating to activity areas in within the excavated structures. In addition, it is hoped that the variations between the North and Mellaart areas will become clearer as more samples are studied and interpreted.

**Presence/Absence Analysis:** In this analysis the percentage of samples that contain any amount of the above mentioned botanical remains was calculated. The results are as follows:

Wood:	100% (40 of 40 samples)
Cereal:	100% (40 of 40 samples)
Chaff:	100% (40 of 40 samples)
Pulse:	80% (32 of 40 samples)
parenchyma:	72.5% (29 of 40 samples)
nut:	40% (16 of 40 samples)
hackberry:	12.5% ( 5 of 40 samples)
weed seeds:	100% (40 of 40 samples)
other botanicals:	70% (28 of 40 samples)
charred mouse droppings:	5% (2 of 40 samples)

**Taxa List:** The following is a list of identified botanical remains present in at least one of the 40 samples examined thus far. Approximately 35 seed varieties are currently categorized as unknowns. In addition, numerous fragments of parenchyma, nut material, and other botanical remains are yet to be identified.

<u>Category</u>	<u>Taxa</u>	<u>Common Name</u>
Cereals:	<i>Hordeum vulgare</i> L.	barley
	<i>Triticum monococcum</i> L.	einkorn wheat
	<i>Triticum dicoccum</i> Schubl.	emmer wheat
	<i>Triticum aestivum</i> L.	bread wheat
	Poaceae (small, wild types)	"wild" grasses
Pulses:	<i>Cicer</i> L. sp.	chickpea
	<i>Lathyrus</i> L. sp.	vetchlings

<i>Lens culinaris</i> Medik.	lentil
<i>Pisum sativum</i> L.	pea
Trifolieae	"wild" legumes
<i>Vicia</i> L. sp.	vetch

Other seeds: Chenopodeaceae

Caryophyllaceae	
<i>Celtis</i> L. sp.	hackberry
<i>Galium</i> L. sp.	bedstraw
<i>Lepidium</i> L. sp.	pepperwort
<i>Lithospermum</i> L. sp.	
<i>Polygonum</i> L. sp.	
<i>Quercus</i> L. sp.	acorn (oak)
<i>Scirpus</i> L. sp.	bulrush
<i>Sisymbrium</i> L. sp.	

As more samples are analyzed and identifications are made this information will be combined with spatial and temporal data in order to interpret the distributions of botanical remains at Çatal Höyük. This very preliminary data give us a small, but exciting glimpse into the wealth of information that these data will provide.