An archaeobotanical study of Alepotrypa Cave[1]

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Ως αντίδωρο του 'υδρολιχνίσματος'

ABSTRACT

This presentation is centred in the study of the few samples of archaeobotanical material which have been studied from the Neolithic Cave site of Alepotrypa in 1980. There is a need to incorporate this material in the up-to-date archaeobotanical debate, which has come to light in Alepotrypa itself, as seen in the recent monograph (Margaritis 2018), but, further, a dialogue which would include the Peloponnese but also beyond it.

Alepotrypa Cave, in the Gulf of Diros in southern Peloponnese, served a rich and sizeable community that lasted for at least 2000 years, during the LN and FN periods (5300-3200 BCE) (Papathanassopoulos 1996).[2] An earthquake dated to the end of the FN (3200 BCE) sealed its entrance and those inhabitants who had survived in the cave, died of starvation. The cave was never seen again until its discovery by Anna and Nikos Petrocheilos in 1958.

The main 'treasure' of Alepotrypa was the existence of drinking water (a lake of fresh water was present in the largest chamber) inside the cave, and its stable temperature of 18° C, as the area close by has neither rivers nor springs. However, an area of c. 1000 stremmata (100 ha) was available, in its larger catchment area, where a landscape would have been perfect for dry-farming agriculture.[3] The cave lies about 50 m away from the coast and 16 m above sea

1 I would like to thank the director of the excavation Dr G. Papathanassopoulos for the invitation to study the archaeobotanical material from Alepotrypa Cave in the summer of 1980 and for his poetic proposition for naming water flotation as 'υδρολίχνισμα', which is literally translated as winnowing with water. Moreover, many thanks are also given to Angeliki Papathanassopoulou for the photos and George Landers for re-touching the English. This material was collected and processed in 1981.

2 New C14 dates push the dating of the cave back to the Middle Neolithic (see Papathanasiou –lecture delivered at the Swedish Institute on the 21st March, 2014). See also Papathanasiou *et al*. (2018) where finds are dated from 6,000 to 3,200 BCE and thus very early.

3 When Mr and Mrs Petrocheilou found the cave in 1958, the landscape was full of terraces, which are named 'λούρες' in this part of the Mani, as the area was cultivated into the 1960s. Unfortunately, this terraced landscape was, immediately, heavily destroyed in the vicinity of the cave in the 1960s, in order to enlarge Alepotrypa's entrance, (Fig. 1) and destroyed much evidence related to the sealing of the cave but, also, of whatever contexts and habitation existed at its mouth.

Fig. 1. Landscape of entrance of cave after the destruction of the terraces, where feral almond trees still grew in 1980.

level[4] (Papathanassopoulos 2011, 47). Results of a geological survey (Mariolakos *et al*. 1989), conducted in the area, indicated that there were three shoreline displacements since the Pleistocene and the last of these shows that the sea-level was 5-15 m below the present. In addition, ancient buildings were identified, but these have not yet been investigated.

HABITATION AT ALEPOTRYPA

Papathanassopoulos (2011, 47-8) has recently re-addressed the issue of the permanent usage of Alepotrypa and suggests a pattern of 'periodic' habitations. The co-existence of burials with a habitation area, however, are not commonly seen in Neolithic 'behaviour', and the interpretations put forward seem rather incongruous (see also Tomkins 2009). The cave would have been a dark and damp place, especially as the mouth of the cave was small and would have made the application of crafts quite difficult to perform, due to the dim light. Therefore, the idea that Alepotrypa might have been a 'special' cave which fulfilled certain repetitive functions pervades more recent research (Tomkins 2009). If permanent habitation in the area did not take place in the cave but, somewhere else, such as, perhaps, inland, it does justify Tomkins' (2009) thesis that Neolithic cave sites, amongst them Alepotrypa, were special areas and not strictly habitation sites, in which case further investigation is needed across the broader area of Alepotrypa in order to establish habitation patterns. This same pattern of caves used for special purposes has been found even to extend to the Ionian islands, such as at Drakaina Cave, Kephalonia (Stratouli *et al*. 2014). We cannot, yet, be sure that the reasons for the periodic visitations were

4 Although Mariolakos *et al*. (1989) mention that it is 20 m above sea-level.

Fig. 2. Large deep, wide-mouthed storage pits lined with clay.

of the same nature as for Alepotrypa, though the presence of burials seems to indicate a place for worship and negotiating ancestral rights, amongst other reasons, for its '*raison d'être*'.[5]

Prior research had claimed that domestic activities and specialised crafts were conducted inside the cave, such as weaving,[6] sewing, basketry and tool manufacture (Papathanasopoulos 1996, 83), whereas outside of the cave were claimed to be the potters. Inside were large, deep, wide-mouthed storage pits lined with clay and encircled by stones (Fig. 2). However, from the middle of the LN and throughout the FN there seems to have been an economic and social elite (Papathanassopoulos 1996, 84) which denotes its presence through the objects of prestige, such as jewellery of silver, bracelets of *Spondylus gaederopus* shells and, non-utilitarian painted pottery.

No matter what the habitation pattern of the cave, those that were ultimately buried there seem to have been subsisting mainly on C_3 plants with little evidence for marine food included in the diet, according to the stable isotope study (Papathanasiou 2003). The usage of inland sites as the permanent habitation places of those that used the cave may partly justify this observation.

5 For a thorough discussion of the dates see Papathanasiou 2018.

6 No loom weight has been identified but just spindle whorls (Papathanassopoulos 2011, 45) and needles and this, in itself, is perhaps important to define the type of habitation. To my mind, it might not denote a permanent site, as evidence shows that weaving would have been conducted elsewhere (weave impressions on the base of pottery) and spinning could be done on the move, whereas weaving needs a permanent 'space'. At Alepotrypa we might be seeing the products of these crafts but not the actual process of production which, logically, would have been practised at their permanent site, probably in the vicinity. Even the pithoi were decorated and this indicates special care even for daily chores, which might denote some ritual use. Together with the very good quality of the pottery and the jars related to liquids, they suggest special feasts and again rituals. Had they been used for daily storage and consumption, one would have expected more plain and undecorated pottery.

Fig. 3. Photograph of the water flotation tank used at Alepotrypa for the samples used in this article.

Archaeobotanical remains were collected as alternative lines of evidence to further investigate the issue of the usage and habitation pattern of the cave. Water flotation[7] was applied by the author in the summer of 1981, using a water tank (Fig. 3) in which a mesh size of 1 mm was adjusted, in square movable sieves, to retain the residue, whereas two standard geological sieves of 1 mm and 250 μm were used for the collection of the flot.

THE ARCHAEOBOTANY OF ALEPOTRYPA (FIG. 5)

Sixteen (16) small[8] soil samples (Fig. 4) were water-sieved but only 13 produced archaeobotanical (seed) remains. This is a rather poor assemblage and does not allow us to generalize about agricultural systems and dietary habits. However, it can provide a record of some of the species which were cultivated in the area and be used as a basis upon which future studies can develop.

Two species of cereals were retrieved; hulled barley, *Hordeum vulgare* and einkorn wheat, *Triticum monococcum*. This agrees well with Papathanasiou's (2003) study of the stable isotopes of populations, amongst others of Alepotrypa, where a consumption of C3 plants seems to

7 Diamant (1979, n. 4) refers to 'a form of water-sieving' employed by N. Lambert at Kitsos and Alepotrypa. The water sieving was shown by Lambert (1972, 859 fig. 21), and was used at first at Alepotrypa and seemed to be a sort of wet sieving which, obviously, was not designed to collect fine bioarchaeological remains, as Dr Papathanassopoulos never mentioned, at the time, any seeds collected by this method. The machine used by the author was a water flotation (not water sieving) which was different from the published example though (Fig. 3).

8 No notes were retrieved but they were of the order of a few litres each (c. up to 2-3 litres)

Ομάδα	Αίθουσα	περιοχή	στρώμα	αριθμός	
226	B	Τάφρος 1 - Βόθρος	B		
227	B	Τάφρος 1 - Βόθρος	A	3	
227	B	Τάφρος 1 - Βόθρος	A	4	
227	B	Τάφρος 1 - Βόθρος	A	4	
227	B	Τάφρος 1 - Βόθρος	A	5	
229	B	Μέτωπο τομής Πετροχείλου	1	6	
230	B	Μέτωπο τομής Πετροχείλου	2	8	
230	B	Μέτωπο τομής Πετροχείλου	2	8	
232	B	Μέτωπο τομής Πετροχείλου	5	11	
232	B	Μέτωπο τομής Πετροχείλου	5	11	
233	B	Μέτωπο τομής Πετροχείλου	3	13	
233	B	Μέτωπο τομής Πετροχείλου	3	13	most seeds
234	B	Μέτωπο τομής Πετροχείλου	7	15	
234	B	Μέτωπο τομής Πετροχείλου	7	16	most seeds
235	B	Μέτωπο τομής Πετροχείλου	6	18	
235	B	Μέτωπο τομής Πετροχείλου	6	19	
236	B	Μέτωπο τομής Πετροχείλου	5	21	
237	B	Μέτωπο τομής Πετροχείλου	1A	22α	
238		Πυρά Β-τομέα ΒΑ -Τεταρτημόριο - 4.8.1981		24	
239		Πυρά Β-τομέα ΝΔ-τεταρτημόριο - 4.8.81		27	

Fig. 4. List of archaeobotanical samples and their contexts.

have been in their diet. Certainly, this does not exclude the presence of other cereals but, due to bad preservation other *Cerealia* could not even be identified to genus level.

Pulses, similarly, were not well preserved and were also fragmented. In addition, there is no definite indication whether these had been fragmented in antiquity in such a way as to reduce them to a sort of 'fava' or whether they had been broken during excavation and/or water flotation. As a result, only one species can be definitely identified and this is lentil (*Lens culinaris*). Due to the size of pulses (medium to large), we can assume that several legumes were cultivated, without being able to name them. Moreover, clover types (*Trifolium/Medicago sp*.) were present but due to their very small size, they might not have been domesticated species.

Of interest are also other cultivars that seemed to have formed part of the diet of the people frequenting the cave, such as almond (*Prunus amygdalus*) which has been found only in fragments and never whole. Also, fig (*Ficus carica*) and grape (*Vitis sp*.) were present. Due to the small number of samples, it is impossible to evaluate the relative importance of the various fruits. It is possible that this would have been affected by their storage qualities, their processing methods, or even by the season of their collection and might not necessarily reflect cultivation and dietary habits. Moreover, they are fruit that could have been dried and stored and could have been consumed all year round.

Sample numbers	0	3	4	5	6	8	11	13	15	16	18	19	21	22a	24	27	TOTAL
species																	
Cereals																	
Cerealia				1						5				1			7
Cerealia (cf. Triticum)										1							1
Cerealia frags		7					3		3							6	19
Hordeum sp. (hulled)							1	2	1								4
Triticum sp.										1			1				2
Triticum cf,monococcum								3									3
T.monococcum -glume base								1									1
																	0
Pulses																	0
Lens sp.				1													1
Legume (medium)			1					4									5
Legume (cotyl) (large)									2								2
Legume frags.				2	1		4	7		4		1	2	1			22
Legume frag. (medium)									1							1	2
cf. Legume (Calcified?)						1											1
Trifolium/ Medicago sp.(small)				1				1									2
																	0
Fruit																	0
Vitis frags.								1		1							2
cf. Vitis frags.																	0
cf. Ficus carica (charred)		2															2
cf.Ficus carica (mineralised)																	0
Ficus carica (charred)			2	1				3		5			1				12
Ficus carica (mineralised)								1		3			1			1	6
fruit skin (cf.F.carica)			1				1										2
Prunus amygdalus frags.			2					6	2								10
cf. P.amygdalus frags.								2	1								3
																	0
Weeds																	0
																	0
Lolium sp.									1	1							2
Unknown																	0
																	0
Ignota																	0
featureless (v,small)		4															4
Ignota (v.damaged)		6		2	1					8						5	22
Shell frags.																2	2
Total		19	6	8	2	1	9	31	11	29	0	1	5	2	0	15	

Fig. 5. Samples with archaeobotanical remains from Alepotrypa Cave.

Margaritis' (2018) recent archaeobotanical study of Alepotrypa has, unfortunately, no mention on the number nor the size of samples which were water floated, and therefore, her findings could not be assessed. Einkorn (*Triticum monococcum*) as well as hulled barley (*Hordeum vulgare*) were similarly identified. Two other cereals were also found, emmer (*Triticum dicoccum*) and naked wheat (*Triticum aestivum/turgidum*). However, only spikelet fork from einkorn was preserved, so the identification of both emmer –perhaps even *T.aestivum/turgidum*– (all identified only from a few grains)[9] need to remain tentative. Just like under-identification, over-identification can, also, do damage to research.

Margaritis (2018) found lentil (*Lens sp*.) too and some extra pulses, such as grass pea (*Lathyrus sativus*), and common pea (*Pisum sativum*). Regarding fruits and nuts, she identified the same species, such as almond and fig, although grape has only been identified from the present author's samples. Clover types and Gramineae were, similarly, also present. Nevertheless, the great hope we had invested in the study of Margaritis, in providing more answers regarding diet, agricultural practices and economy, as it is a recent study, compared to the present material, which represents data collected more than 30 years ago, with limited possibilities, has left us with a multitude of unanswered questions.

OTHER ARCHAEOBOTANICAL STUDIES IN THE AREA

Since the study of the archaeobotanical material of the site, research in the field has increased exponentially and now, isotope analysis has joined in to solve archaeobotanical questions. Archaeobotanists have been trying to answer problems related to manuring and irrigation for a long time through the study of weed seeds, but this, of course, demanded the finding of crops with the accompanying population of weeds, which was not often possible in dry climates, often due to bad preservation, and certainly not, at the time that Alepotrypa was excavated. The use of isotope studies of δ15N values in conjunction with δ13C for investigating the presence of manure and irrigation at Middle Neolithic Kouphovouno, Laconia, is exemplary (Bogaard *et al*. 2013) and proves that cereals and pulses,[10] especially wheat (but not barley) were manured. The study by Vaiglova *et al*. (2014a; 2014b) on Kouphovouno is especially interesting as it combines crop and animal isotope studies as well as zooarchaeological Mass Spectrometry species identification in order to reconstruct integrated farming practices and investigates the relationship between crops, animals and humans. This research though remains to date unique. The other archaeobotanical study at Geraki (Crouwel 1998; 2002) is not yet completed and its date is later but the species of cultivated plants are the ones which one would have expected such as grass pea, (*Lathyrus cicera),* followed by *Vicia ervilia, Lens culinaris,* and *Vicia faba*. Other plant foods were *Ficus carica, Amygdalus communis, Vitis vinifera*, and from the cereals, *Hordeum vulgare, Triticum monococcum*, and some *Triticum aestivum/durum.*

CONCLUDING REMARKS

The finds at Alepotrypa could well have been the products of common ritual meals or otherwise, indicate a *Place* of remembrance and social cohesion, a social landscape so to speak. As Souvatzi (2013) indicates, Alepotrypa might have aimed at constructing 'social-cultural affilia-

9 'The majority of the grains of the assemblage are fragmented' (Margaritis 2018, 317).

10 Bogaard does not mention which pulses but if they are *Vicia faba* they are essentially manured whereas, often, others are not (ethnographic information).

tions and a wider sense of cultural uniformity' which would have united communities and regions with each other. The inferences which have been built up for Drakaina Cave, Kephalonia (Stratouli *et al*. 2014) as there, the cereals were processed, that is cracked and, therefore, were brought prepared to be consumed, something which has not, as yet, been noted at Alepotrypa. At least not with the material which has been studied so far.

Although there are many caves in Laconia,[11] only about 20, so far, have revealed habitation in the Neolithic and particularly in its final phase (FN) (Efstathiou-Manolakou 2009, 17). However, the term 'habitation' needs to be re-defined, as there are many ways of inhabiting an area/cave/site, as there could also be varied types of visitations. Parallel to the pragmatic landscape, there must have been another ritual landscape, where populations negotiated cultural, social, political cohesion. A glimpse into such landscapes is provided by the study of sites such as Kouphovouno, Drakaina Cave and Alepotrypa. The finds of archaeobotanical remains do not, necessarily, indicate permanent habitation at Alepotrypa, as was first believed by the excavators. The particularly limited number of samples taken in combination with the low number of plant remains recovered can only allow a glimpse into the resources used by the people frequenting the cave and these seem to be in par with the most common food plant resources consumed in the broader area.

11 Unfortunately, amongst which Kouveleiki cave, Alepochori, dated to the Late Neolithic I and II, and Limnes Cave (L.N.) are still under study and have no archaeobotanical publications.

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