

THE ARCHAEO+MALACOLOGY GROUP NEWSLETTER

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Editorial

This issue of the AMG Newsletter includes articles on the molluscs from Pompeii, the extra-territorial distribution of *Papillifera papillaris*, and the distribution of *Elia moesta moesta* in Israel. These two clausiliid species appear to have extended their range through human agency: perhaps we could continue this theme with further articles in the newsletter. This issue also includes a summary of some recent work carried out on the molluscs from some prehistoric wells and ditches on the west coast of Cyprus, abstracts of papers, and some notes about forthcoming conferences.

I would like to thank all the contributors to this newsletter for their support, and to encourage everyone to keep those contributions coming in: short articles, reports, queries, news, items for abstracting – anything archaeomalacological.

Thanks are due, as before, to Kath Szabo of the ICAZ Archaeomalacology Working Group and to Aydın Örstan for posting this newsletter on their websites: <http://triton.anu.edu.au/> and <http://home.earthlink.net/~aydinslibrary/AMGnews.htm>, respectively. These websites also host back issues of the AMG Newsletter. The next issue will hopefully appear later this year, once I have received sufficient copy. (JRS)

Molluscs from *Regio V, Insula 1* at Pompeii: a preliminary report

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Since 2000, the Swedish Institute of Classical Studies at Rome in collaboration with Stockholm University has investigated a series of Roman houses and shops located within the northern half of *Insula 1* in *Regio V* at Pompeii. The cleaning and close examination of the different rooms in the houses and stores (excluding the peristyle garden of V1.18) produced, as of October 2006, a total of 105 mollusc remains. Here, the origin and possible usage of these invertebrates is analysed in order to gain a better understanding of Roman everyday life in ancient Pompeii.

Today, the ancient city of Pompeii is located about two kilometres from the Mediterranean coast. However, the topography which surrounds the ruins of Pompeii is, at least in two significant aspects, completely different from the original Roman landscape. Firstly, the coast of the Mediterranean Sea could have been much closer to the town of Pompeii. Recent investigations outside the city walls evidence the possible existence of a harbour in the Roman period (Hernandez, 2005: 371). It is possible to define Pompeii as a seaboard town whose inhabitants had daily contact with the sea. Also, there is another change in the landscape shown by the current location of the Sarno River, which flows today approximately one kilometre to the south of Pompeii. It seems that the ancient course of the river could have been located close to the south-eastern limit of the ancient city, with its estuary located near the Stabian Gate (cf. Strabo, 5.4.8). The current location of the river is the result of a major displacement produced by the volcanic masses during the eruption of AD 79. Thus, in order to better understand the ancient

topography surrounding the Roman city it is necessary to imagine a seaboard town with its port located to the south-west, while towards the south we would find the mouth of the Sarno River which ran from the *ager Campanus* and flowed parallel to the necropolis located *extra muros* to the south-east of the city (cf. Varro, *De re rustica*, 1.6.).

The oldest reports that mention shells from Pompeii date to the second half of the 19th century (Damon, 1867; Monterosato, 1872, 1879; Tiberi, 1879a, 1879b). Later, a few specimens also found in Pompeii were mentioned in the studies on the gardens of Pompeii and Herculaneum by W.F. Jashemski (Jashemski, 1979, 1993). However, it was not until recent years that an important advance in the study of the Pompeian molluscs was made by D.S. Reese in 1987, although his investigations on the shell collections from Pompeii present in the deposits of the Soprintendenza Archeologica of Pompeii and at the National Archaeological Museum in Naples were not published until 2002 (Reese, 2002). Recent excavations within Pompeii have provided us with further mollusc remains and valuable comparative material (Kokabi, 1982; Robinson, 1999; Genovese, *et al.*, 2001).

The archaeological investigations by the Swedish Pompeii Project in *Insula 1* of *Regio V* between 2000 and 2006 produced a collection of 105 molluscs of which 27 are marine gastropods, 77 are marine bivalves, and one is a freshwater gastropod (Table 1).

Species	House / Shop						Total
	V1.13	V1.15	V1.18	V1.20-21	V1.23	V1.26	
Marine gastropods							
<i>Patella caerulea</i>	4	--	5	1	--	1	11
<i>Bolinus brandaris</i>	--	2	6	--	--	--	8
<i>Hexaplex trunculus</i>	--	--	4	--	1	--	5
<i>Buccinum humphreysianum</i>	1	--	--	--	--	--	1
<i>Stramonita haemastoma</i>	--	1	--	--	--	--	1
<i>Pisania striata</i>	--	--	1	--	--	--	1
Marine bivalves							
<i>Donax trunculus</i>	16	3	9	3	4	--	35
<i>Cerastoderma glaucum</i>	--	3	7	--	4	4	18
<i>Glycymeris violacescens</i>	--	2	1	--	2	1	6
<i>Glycymeris glycymeris</i>	1	--	4	--	1	--	6
<i>Spondylus gaederopus</i>	--	--	3	--	2	1	6
<i>Chamelea gallina</i>	1	--	1	--	--	--	2
<i>Mytilus galloprovincialis</i>	--	--	1	1	--	--	2
<i>Ostrea edulis</i>	--	--	--	--	2	--	2
<i>Arca noae</i>	1	--	1	--	--	--	2
<i>Pecten jacobeus</i>	--	--	1	--	--	--	1
<i>Aequipecten opercularis</i>	--	1	--	--	--	--	1
Freshwater gastropods							
<i>Lymnaea stagnalis</i>	--	--	1	--	--	--	1
Total	25	12	40	5	16	7	105

Table 1: Molluscs from *Regio V Insula 1* at Pompeii (Swedish Pompeii Project 2000-2006) [Nomenclature according to CLEMAM: <http://www.somali.asso.fr/clemam/index.clemam.html>]

All the marine shells in our collection seem to originate from the Gulf of Naples (cf. Robinson, 1999: 102) and are edible species. As ancient sources tell us, the Romans consumed a variety of marine molluscs, some of which were so popular that they were cultivated; an example is the

oyster farms in the Gulf of Naples (Pliny the Elder, *Naturalis Historia*, VIII.223; Varro, *De re rustica*, 3.17; Columella, *De re rustica*, 8.16.7). The source of the freshwater mollusc is probably the Sarno River.

Taking a closer look at the distribution of the mollusc remains within *Insula* 1, we are able to observe that the *caupona* [tavern] at V1.13 produced a total of 25 marine mollusc remains (six species). The so-called 'bakery' at V1.15 produced the remains of 12 marine molluscs (six species). The House of the Greek Epigrams, at V1.18, produced the remains of 39 marine molluscs (13 species), as well as the freshwater snail. The shop at V1.20-21 produced the remains of five marine molluscs (three species), all concentrated in room 'd' of the shop. The house at V1.23 produced the remains of 16 marine molluscs (seven species). Of these remains, 12 present traces of mortar which could indicate their use in construction as decorative elements. Also, seven bivalves are water-worn and seem to have been collected dead on the beach. Finally, the House of Cecilius Iucundus, at V1.26, produced the remains of seven marine molluscs (four species), which seem to be exclusively food remains.

The mollusc remains and their possible uses can broaden our knowledge of life in ancient Pompeii. In 1879, N. Tiberi stressed that all the species of Pompeian molluscs that he studied were edible (Tiberi, 1879a: 96), which fact can also be applied to the collection of molluscs found in the northern half of the *insula* at Pompeii V1. A visual analysis of the shells has shown that over 90% of the remains were not exposed to water wear; thus, they had been fished for consumption and were not collected dead on the beach. It is possible to suggest that some of the shells in the collection could have been used for decoration (cf. Claassen, 1998: 81 and table 6) since most of them have a very attractive visual appearance. Moreover, we have two *Cerastoderma edule* [=glaucum] that present traces of having been attached with cement to an architectural feature (cf. Ovid, *Metamorph.*, 8.563-564 and Tiberi, 1879a: 97), such as, for example, a *nymphaeum*. However, it is difficult to confirm whether these mollusc remains had a decorative use or whether they represent only material that fortuitously was included in the mortars used in construction.

A more complete and comprehensive study of the mollusc remains from this *insula* at Pompeii V1 will be published by the Swedish Institute of Classical Studies at Rome in collaboration with Stockholm University in 2008. It will include the invertebrate remains of the peristyle garden of V1.18, an excavation conducted in collaboration with Oxford University.

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More notes on the extra-territorial distribution of *Papillifera papillaris*, a species often associated with archaeological sites

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Recently two articles have been devoted to the presence of *Papillifera papillaris* (Müller, 1774), family Clausiliidae, in Istanbul, Turkey (Örstan, 2006; Gümüs, 2006). This clausiliid has to be considered an exotic species in Turkey; however, many questions about the way and time of its arrival in Istanbul and elsewhere in Turkey have remained unanswered. Gümüs (2006) finished her article with seven questions, to which we would like to add another two: one dealing with the nomenclature of this interesting species and another concerning additional localities of *Papillifera* in Turkey.

A study of samples of *Papillifera* in the National Mollusc Collection of the Hebrew University of Jerusalem (HUJ) and a follow-up review of the literature has allowed us to answer some of these questions.

1. *Papillifera papillaris* (Müller, 1774) or *Papillifera bidens* (Linnaeus, 1758)?

There exists some confusion concerning the correct name of this clausiliid species. Örstan (2006) and Gümüs (2006) use *Papillifera papillaris*. This name was also used in a previous review of the Clausiliidae (excluding *Albinaria*) from Turkey (Bank and Menkhorst, 1994), and was used by Giusti, *et al.* (1995) while dealing with material from Malta. On the other hand, Falkner, *et al.* (2001), Nordsieck (2002) and Falkner, *et al.* (2002) have advocated the use of the name introduced by Linnaeus as *Turbo bidens*, now *Papillifera bidens*, for the same species. Falkner, *et al.* (2002) even selected a neotype for *Turbo bidens*, in order to stabilise the nomenclature of this species. The latter act has received some comments, and Giusti and Manganelli (2005) applied to the International Commission on Zoological Nomenclature (ICZN) to conserve Müller's name. This proposal has received some additional comments (Welter-Schultes, 2006; Kadolsky, 2006; Giusti and Manganelli, 2006), but so far the ICZN has not published an Opinion on this Case. Since the name of Linnaeus is in use by the well known CLECOM-project (the European non-marine Mollusca checklist) we accept that name, *Papillifera bidens*, for this species until this nomenclatorial problem has been resolved by the ICZN.

2. Additional records of *Papillifera bidens bidens* from Turkey.

All samples of *Papillifera* so far collected in Turkey belong to the nominal subspecies *Papillifera bidens bidens*. The following additional samples from Turkey are present in the HUJ collection:

TURKEY: Istanbul, ex Boucard/Tomlin/Peile/Blok (HUI 50962/4); Istanbul, Eyup, leg. J. Wahrman, 21 August 1951 (HUI 31307/44); Istanbul, Rümeli Hisar, leg. J. Wahrman, 14 July 1963 (HUI 30999/2); Gallipoli (=Gelibolu Yanmadasi), ex Monterosato (HUI 50965/2).

Gelibolu Yanmadasi might be a new locality for this species. Eyup and Rümeli Hisar have been mentioned already by Bank and Menkhorst (1994). More samples of this species from Turkey collected by the late Prof. J. Wahrman and the late Dr H. Zinner were once in the HUI collection, but some 20 years ago they were lost in the mail when sent for identification to Germany.

3. Are there any records of *Papillifera bidens bidens* from Greece and Bulgaria?

The HUI collection contains three samples of the nominal subspecies *Papillifera bidens bidens* from localities in Greece:

GREECE: Corfu, ex Tomlin/Peile/Blok (HUI 50963/8); Corinth, Acrocorinthus, ex Tomlin/Peile/Blok (HUI 50964/2); ancient Corinth, ex Carmichael/Blok 1058b (HUI 50960/5).

These records form a partial affirmative answer to the question posed by Gümüs (2006) as to whether this clausiliid also occurs in Greece and Bulgaria. The presence of it in Greece has been noted previously from at least the following localities: the islands of Corfu/Kerkira (in the town by that name) and Levkas (in the town by that name, Nehrung, Frini and Kaligoni) and in Epirus (Prevesa and Arta) (all Klemm, 1962); on the islands of Kephallinia (three localities near Argostolion) and Zakynthos (Citadel of Zakynthos) (all Rähle, 1980); in continental Greece, ca. 15 km from Ioánina, Peleponnes (vicinity of Pilos) and the island Zakynthos (in the town by that name) (all Frank, 1987, 1988).

We have failed to find any record so far of *Papillifera bidens bidens* from Bulgaria.

4. Are there any records of *Papillifera bidens* from the Western Mediterranean?

The following samples of *Papillifera bidens* s.l. from Spain are present in the HUI collection. They turned out to belong to the subspecies *Papillifera bidens affinis* (Philippi, 1836):

SPAIN (mainland): Barcelona (Citadel), ex Del Prete/Monterosato/Coen 8915 (HUI 50985/1, identified as *Clausilia catalonica* Fagot); Tarragona, ex Champ/Blok 3109a (HUI 50984/6).

SPAIN (Balears): Menorca, ex Suggitt/Blok 1535 (HUI 50978/5); idem, Mahon, ex Peile/Blok (HUI 50979/16); Mallorca, leg. Miss J. Robertson, ex Peile/ Blok (HUI 50980/5); idem, ex Champ/Blok 3109 (HUI 50981/5); idem, Porta Christo, ex Wintle/Blok (HUI 50982/6); idem, Belver, ex Peile/Blok (HUI 50983/11).

These records confirm those existing in the literature from Catalonia (Haas, 1929; Vilella, 1967; Bech, 1990), Mallorca (Jaekel and Plate, 1964, 1965) and Menorca (Altimira, 1972).

5. What was the original range of distribution of *Papillifera bidens* s.l.?

According to the literature, the original range of *Papillifera bidens* s.l. included a large part of the mainland of Italy, the two major Italian islands of Sardinia and Sicily, and the French island of Corsica (Alzona, 1971). In addition it has turned out to be a common species on the Maltese islands: Malta and Gozo, from where also Pleistocene specimens have been reported (Giusti, *et al.*, 1995 and additional references therein).

All the records of *Papillifera bidens* s.l. from France (mainland), Spain, North Africa, Greece and Turkey are the result of anthropogenic introductions, i.e. these clausiliids were dispersed by

man (Giusti, *et al.*, 1995; Nordsieck, 2002; Falkner, *et al.*, 2002). Most of these localities are well known as ancient sites where especially the Romans left traces of their occupation. When and how this clausiliid species reached these sites can only be traced by studying the mollusc material from carefully executed archaeological excavations.

6. What about the status of *Papillifera bidens* along the east coast of the Adriatic?

The origin of *Papillifera bidens* s.l. in the countries bordering the eastern Adriatic Sea is still unsettled. Most records seem to be associated with archaeological sites. If this is indeed the case, then we are most probably also dealing with an anthropogenic species in these countries.

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The Basommatophora of Turkey

Burçin Aşkim Gümüş has recently co-authored another paper on the non-marine molluscan fauna of Turkey, which may be useful to archaeomalacologists working in this area:

Yıldırım, M.Z., Gümüş, B.A., Kebapçı, Ü. and Koca, S.B., 2006. The basommatophoran pulmonate species (Mollusca: Gastropoda) of Turkey. *Turkish Journal of Zoology*, 30 (4): 445-458.

ABSTRACT: To date, based on the studies of foreign and Turkish malacologists, 28 basommatophoran snail species belonging to 16 genera from five families (Physidae, Lymnaeidae, Planorbidae, Ancyliidae and Acroloxidae) have been identified in the freshwaters of Turkey. The genera *Acroloxus* (one species), *Galba* (one), *Stagnicola* (one), *Radix* (two), *Lymnaea* (one), *Physa* (one), *Physella* (one), *Planorbarius* (one), *Ferrissia* (one), *Planorbis* (two), *Anisus* (four), *Bathyomphalus* (one), *Gyraulus* (eight), *Hippeutis* (one), *Ancylus* (one) and *Bulinus* (one) are recognised. In addition, 16 species (including eight recent) and five subspecies are known from Quaternary fossil deposits. The taxonomic position and geographical distribution of the 28 species are discussed.

Data concerning the distribution of *Elia moesta moesta* (Rossmässler, 1839) (Gastropoda: Clausiliidae), an exotic species in Israel

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The clausiliid species *Elia moesta* s.l. is represented in Israel by two subspecies: *Elia moesta moesta* (Rossmässler, 1839) and *Elia moesta georgi* Forcart, 1975. The latter occurs under natural conditions in the hills of Western Galilee and on Mount Carmel near Haifa (Forcart, 1975). The nominal subspecies, *Elia moesta moesta*, has to be considered an exotic mollusc in Israel, which was introduced in the past, once or several times, from somewhere in its natural range: the coastal areas of either Lebanon, Syria (Latakia), Turkey (Hatay) or Cyprus (Bank and Menkhorst, 1994; Schütt, 1996). The two subspecies occurring in Israel can be differentiated with the help of the following morphological characters of the shell (after Forcart, 1975):

Axial ribs on whorls following the protoconch arranged more distantly than those on the penultimate whorl *Elia moesta moesta*
Axial ribs on whorls following the protoconch arranged closer than those on the penultimate whorl *Elia moesta georgi*

Distribution of *Elia moesta moesta* in Israel

Unlike the local subspecies, *Elia moesta georgi*, of which the numerous localities are concentrated in two geographical areas, Western Galilee and Mount Carmel, separated by the valley of the Qishon river, the known localities of *Elia moesta moesta* are widely scattered. Here follows a selection of localities based on material preserved in the National Mollusc Collections of the Tel Aviv University (TAU) and the Hebrew University of Jerusalem (HUJ). The localities are arranged from north to south and from west to east:

TEL SHIQMONA: south of Haifa, leg. H.K. Mienis, December 1996 (TAU 42858);
CAESAREA: between the ancient city and the amphitheatre, leg. H.K. Mienis, 21 February 1985 (HUJ 1158); idem, south of the parking lot, leg. H.K. Mienis, 21 February 1985 (HUJ 12449); idem, south of the ancient site, leg. H.K. Mienis, July 1984 (TAU 42857);
HADERA: in garden, Levi Eshkol Street, leg. P.S. Tsuriel (HUJ 39044);
NETANYA: in orchard, leg. A. Gibkhim, 1997 (HUJ 6813);
RAMAT AVIV: Tel Aviv University, Botanical Garden, hothouse, leg. H.K. Mienis, 26 May 2005 (TAU 51632);
TEL AVIV: near Reading Power Station, in drift of the Yarqon River, leg. H.K. Mienis, 19 October 1988 (HUJ 1636);
RAMAT GAN, near the Seven Mills dam, leg. H.K. Mienis, 2 November 1988 (HUJ 1637);
MIGDAL AFEQ (= MIGDAL ZEDEQ): leg. A. Barash, March 1977 (TAU 16582);
TEL AVIV-YAFO: Abu Kabir, botanical garden, former Zoological Department of the Tel Aviv University, leg. G. Haas, December 1951 (HUJ 31546); idem, leg. A. Barash, 30 March 1969 (TAU 30284); idem, leg. H.K. Mienis, Spring 1977 (HUJ 10520); idem, Givat Herzl, leg. H.K. Mienis, 30 November 1978 (HUJ 10516); idem, near Coptic church, leg. H.K. Mienis, 17 January 1975 (HUJ 31719);
YAFO: in citrus plantation, leg. H. Bytinski-Salz, January 1951 (HUJ 11596);
AZOR: among the ruins, leg. H.K. Mienis, 16 March 1980 (HUJ 11410); idem, leg. K.I. Hertz, August 2002 (TAU 56761).

In addition there are some old literature records of *Elia moesta moesta* from Jerusalem (Bourguignat, 1853 – as *Clausilia saulcyi*; Bourguignat, 1868 – as *Clausilia hierosolymitana*; Pallary, 1939), but we (the late Prof. G. Haas, Prof. J. Heller and the author) have failed to locate this species there during the last 70 years.

All the specimens mentioned above were exclusively encountered under stones, tree trunks or pieces of wood.

The archaeological connection

Among the geographical places mentioned above as localities for *Elia moesta moesta* are at least four archaeological sites: Tel Shiqmona, Caesarea, Migdal Afeq/Zedeq and Azor. The localities along the river Yarqon (Ramat Gan and Tel Aviv) are most probably also closely connected with archaeological or at least historical sites (Tel Qasila, Givat Napoleon, Seven Mills, Ten Mills, etc.). A connection may also exist between the presence of this ground-dwelling clausiliid at Tel Aviv-Yafo (Abu Kabir and Coptic church) and Yafo (citrus plantation) and the presence of numerous historic religious institutes (churches, monasteries, etc.) in that area, while old Yafo is also important from an archaeological point of view. Moreover, Yafo functioned during historic times as the harbour of Jerusalem, and important roads and many so-called caravanserais were also present in the area.

The presence of *Elia moesta moesta* in the Botanical Garden of the Tel Aviv University in Ramat Aviv can be explained by the transfer of plants from the old botanical garden at the former premises of the Department of Zoology of the Tel Aviv University at Abu Kabir, Tel Aviv-Yafo, to the current premises. However, no explanation has been found so far for its presence in Hadera (garden) and Netanya (orchard).

Exactly how and when *Elia moesta moesta* was introduced into what is now Israeli territory is still unknown.

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The Mollusca from some prehistoric wells and ditches on the west coast of Cyprus

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Summary

The rescue excavation of some Neolithic (Cypro-PPNB, c.7200-6800 cal BC) wells and Early Chalcolithic (c.3600 cal BC) ditches at the site of Kissonerga-Mylouthkia, 6 km north of Paphos, Cyprus, produced a large number of mostly tiny shells as the result of the flotation processing of fill sediments.

The wells and ditches yielded 27 and 15 species of Mollusca, respectively. In both cases land snails predominated, both in number of species and number of individuals. Some of the 74 samples contained large quantities of tiny juveniles: eight of them contained over 10,000 shells each. In contrast, marine, brackish and freshwater species were mostly represented in the samples by single shells.

Overall, the 18 species of land snails (dominated by *Cecilioides* spp. and Hygromiidae) are indicative of a rather dry, open environment. The shells provide little evidence for environmental change over the time period represented, and individual variation in the molluscan assemblages in the different wells and ditches is probably attributable to microhabitat differences, such as the degree of shade or shelter. Large numbers of juveniles of almost all the land snail species suggest that the infilling wells provided ideal breeding grounds. Some species (*Lauria*, *Vitrea*, *Oxychilus* and *Daudebardia*) are indicative of damper conditions or at least more shelter, perhaps in the form of ground cover.

The non-land snail fauna, although numerically insignificant (44 individuals *in toto* compared with more than 100,000 land snails), offers more environmental clues and also an insight into cultural activities. Whereas all the land snails would have naturally occurred in the wells and ditches, the non-land snails must have entered these contexts indirectly through human agency, probably by way of general occupation debris. The freshwater snails suggest the presence of both a permanent, well-oxygenated water source (*Melanopsis praemorsa*, in the wells only) and a

more temporary or marshy wet area (*Galba truncatula*) in the vicinity. Both species may have found their way onto the site through the collection of drinking water, although the latter was more probably introduced on wetland vegetation. The two brackish water species (*Truncatella subcylindrica* and *Leucophytia bidentata*) are indicative of upper shore, estuarine or salt marsh conditions, and their presence again may be correlated with the gathering of vegetation, possibly for thatching. Two of the marine species (*Bittium reticulatum* and *Rissoa lineolata*) are small shore-dwelling gastropods that may have been introduced with seaweed, which is known to have been used in building construction, or with mud or sand. Limpets and topshells (*Patella caerulea* and *Osilinus* spp., respectively) were common food items at Kissonerga-Mylouthkia, but they occurred infrequently in the wells and were absent in the ditches. The only species which directly shows the hand of man is the little dove shell, *Columbella rustica*, the two specimens of which had been carefully pierced to make beads; these were found in separate wells. The low number of marine shells suggests that the wells were all fairly remote from midden deposits and living and working areas.

Despite representing different time periods, the Mollusca from the wells and ditches at Kissonerga-Mylouthkia tell a similar story, in terms of environment and human activity.

Acknowledgement

My thanks are due to Prof. Edgar Peltenburg of the Department of Archaeology, University of Edinburgh and Director of the Lemba Archaeological Research Centre in Cyprus, for giving me the opportunity to examine the shells and allowing me to publish a summary of the work in this newsletter before its full publication elsewhere.

More archaeomalacology from Greece and Cyprus

With thanks to David Reese for the following two papers:

Reese, D.S., 2006. Appendix 2. The LH IIIC marine invertebrates from Lefkandi. In: Evely, D. (ed.), *Lefkandi IV, the Bronze Age: the Late Helladic IIIC settlement at Xeropolis. Supplementary volume, No. 39.* London, The British School at Athens. pp. CD 20-29.

ABSTRACT: The 1964-66 and 1969 excavations at Lefkandi in Euboea, Greece, produced over 250 marine shells from Late Helladic IIIC deposits. The shells recovered from tombs, and about 25 *Conus mediterraneus* found together in an askos in the East House, have been previously published; this paper catalogues 239 shells from about 30 different units, mostly corresponding to building fill and debris. Nineteen species are represented, comprising seven species of gastropods and 12 species of bivalves. *Hexaplex trunculus* (n=26) was the most frequent gastropod, at least 22 individuals of which are considered to be food remains. The majority of individuals of the remaining gastropods are also considered to represent food: *Cerithium vulgatum* (13), *Patella caerulea* (12), *Monodonta* [= *Osilinus*] spp. (4), *Bolinus brandaris* (3), *Haliotis tuberculata lamellosa* (1). However, a few of these were water-worn, including one *Cerithium vulgatum* that had been holed for suspension. *Conus mediterraneus* (6) was represented by worn specimens, including three apices of which one was a conus-top bead. Most of the bivalves are also considered to represent food debris, although most species also included a few water-worn shells: *Chamelea gallina* (32 valves), *Arca noae* (21), *Ostrea edulis* (19), *Pinna nobilis* (16), *Cerastoderma glaucum* (7), *Acanthocardia tuberculata* (4), *Tapes* [= *Ruditapes*] *decussatus* (3), *Venus verrucosa* (2), *Mytilus galloprovincialis* (1), *Callista chione* (1). One *Pinna nobilis* may have been utilised as a tool. The most frequent bivalve was *Spondylus gaederopus* (52) which was represented by at least 33 fresh individuals; one shell

appears to have been ground down to form a spoon. All the *Glycymeris violascens* [=*G. violacescens*, *G. insubrica*] (16) were worn and one was used as a container for some 'purple material'. Further discussion of the *Conus mediterraneus* from the askos, some of which had been ground down and holed on the labial side, includes a description of similar shells from other Greek, Cypriot and Israeli sites. In some cases these worked cones had been filled with lead; their purpose is still unclear.

Reese, D.S., 2006. Marine invertebrate exploitation at Akrotiri-Aetokremnos. Report of the Department of Antiquities, Cyprus, 2006: 23-37.

ABSTRACT: This early (9th millennium BC) site near the south coast of Cyprus produced the largest marine shell assemblage ever excavated on the island. The vast majority of the 73,445 fragments, representing 21,607 individuals (of which 4377 were burnt) are food debris, mainly topshells (*Monodonta* [=*Osilinus*] spp.) with 20,760 individuals representing 96.1% of the entire assemblage, and limpets (*Patella* spp.) with 642 individuals representing 3% of the assemblage. These edible species are supplemented by fresh-collected shells of *Cerithium vulgatum* (2), *Turritella communis* (1), *Arca noae* (1) and *Venus verrucosa* (1), together with the remains of a cuttlefish (*Sepia* sp.), three crabs and a sea urchin. About 21% of the topshells and 40% of the limpets are burnt, suggesting that these molluscs were eaten either raw or roasted over an open fire. After topshells and limpets, the next most frequent species are *Columbella rustica* (89 shells), *Dentalium* [=*Antalis*] spp. (49) and *Conus mediterraneus* (25). These are considered to be non-food ornamental species, and include a number of worked or naturally perforated 'beads'. Altogether 154 shells could have been used as beads or pendants: 75 *Columbella rustica*, 49 *Dentalium* (of which two have clean-cut edges showing that they were made from larger shells), 23 *Conus mediterraneus* (most of which are small and similar in size to *Columbella rustica*), five (of eight) *Cerithium vulgatum*, one *Euthria cornea* and one (of six) *Glycymeris* sp. The ornamental shells are the earliest recorded from Cyprus. A catalogue of the marine invertebrate assemblage according to stratum and feature is presented.

Conference news

World Congress of Malacology, Antwerp, July 2007

The 16th World Congress of Malacology will be held at the University of Antwerp, Belgium, from 15-20 July 2007. The congress is being organised by Unitas Malacologica and will host the 73rd Annual Meeting of the American Malacological Society. Thirteen thematic symposia are planned: Sexual selection in molluscs; Inventorying the molluscan fauna of the world: frontiers and perspectives; Micromolluscs: methodological challenges, exciting results; Molluscs as models in evolutionary biology: from local speciation to global radiation; Molluscs in ecotoxicological research; Molluscs and pest control; Molluscan models: advancing our understanding of the eye; Zoogeography of the non-marine molluscs of the Eastern Mediterranean; Biodiversity at crossroads: freshwater bivalves from mass extinction to global invasion; Neogastropod origins, phylogeny, evolutionary pathways and mechanisms; Heart and circulation in molluscs; Quaternary malacology; Diversity and ecological adaptations in intertidal molluscs.

Of particular interest to readers of this newsletter, the symposium on the **Zoogeography of the non-marine molluscs of the Eastern Mediterranean** aims to provide an overview of the distribution of land and freshwater molluscs throughout this area, and hopes to achieve a better understanding of past events, palaeogeography and speciation. The area of coverage includes Greece, Turkey, the lower Balkan countries, Georgia, Armenia, Iran, the Middle Eastern

countries and Egypt. The contact for this symposium is **Aydm Örstan**, Section of Mollusks, Carnegie Museum of Natural History, Pittsburgh, PA, USA, email: zoogeography@earthlink.net.

The symposium on **Quaternary malacology** will include contributions on both marine and non-marine molluscs and will cover a broad geographical area encompassing the North Atlantic and the whole of the Palaearctic region, from the Plio-Pleistocene to the Holocene. Themes will include historical biogeography, environmental archaeology, palaeoecology and stratigraphy. The contact is **Tom Meijer**, Nationaal Natuurhistorisch Museum, Leiden, The Netherlands, email: meijert@naturalis.nl.

More information is available at <http://www.naturalsciences.be/wcm2007>.

European Association of Archaeologists, Zadar, September 2007

The 13th Annual Meeting of the European Association of Archaeologists, to be held at the University of Zadar, Croatia, from 18-23 September 2007, will include a symposium entitled '**A *Spondylus* session: new data, new methodological and theoretical approaches**'.

The aim of this session is to examine the presence of *Spondylus* in European and particularly Balkan and Aegean prehistoric contexts. Themes may include: New data from on-going excavations or from new studies and publications; New laboratory studies relating to the source of raw material; Inter- and intra-site distribution; *Spondylus* annulets; The biographical approach: procuring, making, using, reusing, repairing, altering, destroying and hoarding *Spondylus* artefacts; V-Klappe, V-notched, bi-winged or entaillés *Spondylus* artefacts; Experimental reproductions and use of ethnographic resources; *Spondylus* ornaments in relation to other adornment types and materials; *Spondylus* mythologies in a world-wide context.

The organiser of this session is **Fotis Ifantidis**, Aristotle University of Thessaloniki, Greece, email: fotisif@hotmail.com. Please refer to his 2006 article, 'Enigmatic' notched *Spondylus* ornaments from the Neolithic: new evidence from the Aegean', *Archaeo+Malacology Group Newsletter*, No. 9: 3-5.

ICAZ Archaeomalacology Working Group, Santander, February 2008

The 2nd Meeting of the Archaeomalacology Working Group will be held at the University of Cantabria, Santander, Spain, from 19-22 February 2008. The theme of the meeting will be 'Not only food: marine, terrestrial and freshwater molluscs in archaeological sites'. Different species of molluscs are encountered in archaeological sites; most of the time, these were intentionally collected by humans in coastal marine substrates, wetlands and river channels, and taken to the sites to be used for food. Often their remains form large accumulations. Evidence for shells that were not used for food, but rather as raw materials for making artefacts such as ornaments and tools is also abundant. Studies of molluscan remains typically concentrate on diet, but also consider other aspects of human existence, such as palaeoenvironmental context, trade and exchange, and artefact production. The purpose of this workshop is to present world-wide research on the many aspects of mollusc use by human societies.

The organizers of this meeting are **Esteban Álvarez-Fernández**, Universidad de Cantabria, Santander, Spain, email: esteban.alvarez@unican.es, estebanalfer@hotmail.com and **Diana Rocio Carvajal-Contreras**, University of Calgary, Calgary, Alberta, Canada, email: drcarvaj@ucalgary.ca, diacarco@hotmail.com. The final date for submission of abstracts for papers and posters is 30 September 2007.

For further information, see http://triton.anu.edu.au/santander_meeting.htm.