



### FROM THE EDITOR

**DR. ANNALISA C CHRISTIE**, University of the Highlands and Islands

First, I would like to thank the outgoing coordinator of the Archaeo+Malacology newsletter, Janet Ridout-Sharpe for her fantastic work putting together this newsletter over the years. In taking over as editor of the newsletter, I know I have some big shoes to fill. Second, the newsletter could not survive without the continued support and contributions from our readers. We welcome short articles, reports of work in progress, requests for information, abstracts, reviews, notes – in fact anything archaeo-malacological in its widest sense: dietary studies, palaeoenvironmental reconstructions, ancient trade routes, ornaments, tools, symbolism and more. Please continue to support it! If you have any news or research you'd like to be included in the next newsletter, please send it to [annalisa.christie@gmail.com](mailto:annalisa.christie@gmail.com).

My interest in archaeomalacology developed during my doctoral research where I looked the social context of maritime exploitation in the Mafia Archipelago in Tanzania. I am currently co-coordinator of the Archaeomalacology Working Group with my colleague Dr Zhanna Antipushina and we hope the group will continue to be a great success, promoting and sharing archaeomalacological research.

All opinions expressed in the newsletter are those of the authors and not necessarily those of the editor or online hosts. Current and previous issues of the newsletter are available at <http://archaeomalacology.com> and <http://home.earthlink.net/~aydinslibrary/AMGnews.htm>.

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### IN THIS ISSUE

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### STRAY FINDS AT ARCHAEOLOGICAL SITES IN ISRAEL, 4-5<sup>1</sup>

**HENK K. MIENIS**, Tel Aviv University<sup>2</sup>

#### 4. A COWRY BEAD FROM TEL GEZER

During a very recent touristic visit to Tel Gezer in the Southern Plain of Israel a Cowry bead was found at the base of a wall in a 10<sup>th</sup> BCE building. The shell had a length of 19 mm and a width of 12.3 mm. The shell was identified as belonging to the Gold-ringer cowry *Monetaria annulus* (Linnaeus, 1758) according to the general form of the shell, its purple interior and the number of teeth on the palatal lip and the columella. The shell had been transformed into a bead by removing the dorsum. This Cowry species is a common Indo-Pacific species which occurs also in the Red Sea however in the Gulf of Aqaba it has considered a very rare species (Mienis, 1971; Heiman, 2002).

Close to that Cowry bead a single valve of *Glycymeris insubrica* (Brocchi, 1814) was found which did not show a single trace of manipulation. That bivalve is of Mediterranean origin.

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<sup>1</sup> Finds 1-4 are presented in the Archaeo + Malacology Group Newsletter No. 19 (2011: 15-16)

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## 5. A COWRY BEAD FROM SIDNI ALI

On 21 February 2012 a brief visit was made to the area surrounding the mosque of Sidni Ali, north of Herzliyya. This mosque dates to the 11<sup>th</sup> Century AD and contains the tomb of the Sacred Sultan Ali ibn Ali. The purpose of this visit was to look for the possible presence of specimens of the invasive land snail *Rumina saharica* (Pallary, 1901). This species had reached the area of the mosque most probable with the transfer of building material from the nearby ruins of Apollonia (Tel Arshaf). Only a single empty shell was found by my colleague Oz Rittner. However to my surprise I found a Cowry bead made of the shell of a Money cowry *Monetaria moneta* (Linnaeus, 1758). It was a rather small specimen with a length of 16 mm and a width of 12 mm. Also in this specimen the dorsum had been artificially removed in order to turn it into a bead.

The Money cowry is a common Indo-Pacific species occurring in the Red Sea, but rarely found in the Gulf of Aqaba (Mienis, 1971).

The age of this Cowry bead is unknown. Throughout the Arab history in the Levant this and other small Cowry species has been intensively exploited as fertility symbols and were often attached to the cloth of new born baby girls.

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## FRESHWATER MOLLUSCS FROM THE EXCAVATION OF THE "SEVEN MILLS" ON THE SOUTH BANK OF THE YARQON RIVER NEAR TEL AVIV, ISRAEL

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## INTRODUCTION

The "Seven Mills" on the south bank of the Yarqon River near Tel Aviv, Israel, is the name of a site where flour mills driven by the water of the Yarqon River were operating until 1936. The last remaining mills dated back to the 19<sup>th</sup> Century, however similar grinding mills had existed already at the site not only since the Ottoman Period but most probably even from the Roman Period. In fact at one time eleven mills were operated by the force of the water which at that point was raised by an artificial dam in the river.

In 2001 the remains of the "Seven Mills" were excavated by Dr. Eytan Ayalon. Among others the accumulated debris present in the old water reservoir was completely removed. This opened a unique opportunity to sample some of the shell accumulations present at certain points in that basin on 4 September 2001. Relatively few complete mollusc specimens were collected because of the bad preservation of the shells.

## RESULTS

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The presence of at least the following twelve species of freshwater molluscs could be ascertained:

<i>Theodoxus (Neritaea) karasuna</i> (Mousson, 1874)	<i>Heleobia (Semisalsa)</i> species
<i>Bithynia phialensis</i> (Conrad, 1852)	<i>Melanoides tuberculata</i> (Müller, 1774)
<i>Melanopsis buccinoidea</i> (Olivier, 1801)	<i>Melanopsis lampra</i> Bourguignat, 1884
<i>Valvata (Cincinna) saulcyi</i> Bourguignat, 1853	<i>Ferrissia clessiniana</i> (Jickeli, 1882)
<i>Leguminaia saulcyi</i> (Bourguignat, 1852)	<i>Potomida littoralis delesserti</i> (Bourguignat, 1852)
<i>Unio mancus eucirrus</i> Bourguignat, 1857	<i>Pisidium (Odhneripisidium) annadalei</i> Prashad, 1925

#### REMARKS CONCERNING SOME OF THE SPECIES



The most exciting find consisted of complete specimens of the freshwater mussel *Leguminaia saulcyi* (Figure 1). Although this species had been originally described from "circa Joppitarum urbem" (Bourguignat, 1852) or "habite les ruisseaux des environs de Jaffa" (Bourguignat, 1853) i.e. either from the Yarqon River north of Yafo or the Soreq River south of Yafo, this mussel species had never been collected in Israel in the 20<sup>th</sup> and 21<sup>st</sup> Century (Mienis, 2002) and was so far missing in the National Mollusc Collections of the Tel Aviv University and Hebrew University of Jerusalem. This mussel species

is considered extinct in Israel (Mienis, 2012).

FIGURE 1: *Leguminaia saulcyi* (Bourguignat, 1852) from the "Seven Mills" excavation, Tel Aviv, Israel (Photo: ©Oz Rittner)

The *Heleobia* specimens extracted from the sediments might belong to two different species: one with flat whorls and very shallow sutures and the other with rather globose whorls and rather deep sutures. Only a complete revision of all the *Heleobia* material collected in Israel might shed some light on the identity of this subfossil material.

The specimens of *Melanopsis lampra* encountered in the reservoir turned out to be of an exceptional large size. Some reached a height of 32 mm and were twice as large of the accompanying specimens of *Melanopsis buccinoidea*.

Noteworthy is still the fact that only a single Basommatophoran gastropod species: *Ferrissia clessiniana*, was found among the subfossil material of the "Seven Mills". Today such "pulmonates" among the aquatic molluscs form the dominant elements in the Yarqon River. However the find of *Ferrissia clessiniana*, a species of Nilotic origin, in sediments of the Yarqon River might be an indication that this species is not a recent invader but a long time overlooked local species (Milstein et al, 2012).

#### CONCLUSION

In summarizing the finds we can state that the excavation of the historic water reservoir of the "Seven Mills" has provided important information concerning the former mollusc fauna of the Yarqon River.

## ACKNOWLEDGEMENTS

We would like to thank Dr. Eitan Ayalon (Museum Eretz Israel, Tel Aviv) for giving us permission to sample the excavated site for the presence of freshwater molluscs.

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## A NOTE ON SOME FRESHWATER MUSSELS FROM THE EXCAVATIONS OF TELL ED-DĒR, IRAQ

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### INTRODUCTION

Between 1970 and 1979 archaeological excavations were carried out by H. Gasche at Tell ed-Dēr in Iraq. The molluscs retrieved during these excavations were briefly discussed in two reports by A. Gautier (1978 & 1989). Among these molluscs he mentioned numerous valves of *Unio terminalis* Bourguignat, 1852. That species was originally described and figured from the Lake of Tiberias = Sea of Galilee in Israel (Bourguignat, 1852 & 1853).

Tell ed-Dēr is however situated near the river Euphrates in Iraq. From that area in Mesopotamia Bourguignat (1852 & 1853) had described and figured a closely related mussel species as *Unio tigridis* with type locality the river Tigris. Since the rivers Tigris and Euphrates are joining each other in the south-eastern part of Iraq the question arises whether the specimens from Tell ed-Dēr were identified correctly by Gauthier as *Unio terminalis* or was he dealing with *Unio tigridis*.

On 4 January 1994 Prof. Gautier was so kind to send me a right and a left valve respectively from DP 2696 and PR 5545 at Tell ed-Dēr. Only the valve from PR5545 was dated as coming from layers from the 21<sup>st</sup> Century B.C., the other sample was not mentioned in his reports. Both valves turned out to belong to one and the same species and they fit in all details the photograph of a valve of *Unio tigridis* from an excavation near Isin in the vicinity of Diwanīyāh in the south of Iraq as published by Falkner (1994: 154, fig. 25).

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Although *Unio tigridis* and *Unio terminalis* seem to be rather related I agree with Falkner (1994) and consider them for the meantime as two different species inhabiting quite different river systems.

It may be pointed out that the *Unio* specimens were found together with a single freshwater snail which had been correctly identified by Gautier (1989) as belonging to *Melanopsis nodosa* Férussac, 1823. That species is like *Unio tigridis* confined in its distribution to Mesopotamia.

#### ACKNOWLEDGEMENTS

I would like to thank Prof. Achilles Gautier (University of Ghent, Belgium) for donating the discussed *Unio* specimens for an additional study.

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### **ARCHAEO+MALACOLOGY= ARCHAEOLOGY AND MALACOLOGY, INCLUDING TAXONOMY AND BIOGEOGRAPHY**

**LEO J. VAN GEMERT<sup>6</sup>**

#### INTRODUCTION

After my retirement in 2003 I could spend more time to malacology. And specifically to shells from the Red Sea. As literature is very important in this respect, I started to collect information about publications on Red Sea shells. This resulted in a survey with 2,100 references (Van Gemert, 2011). Not only typical malacological papers and books, but also publications coming from other fields, including archaeology. Since then more have been gathered, among which a recent publication by Mumford (2012) on trade in Red Sea shells during the Old Kingdom.

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## DISCUSSION OF THE MALACOLOGICAL TAXA IN “RAS BUDRAN AND THE OLD KINGDOM TRADE IN RED SEA SHELLS AND OTHER EXOTICA” BY MUMFORD (2012)

It is explicitly stated by Mumford (2012, p. 108) that “this study provides a preliminary assessment of the marine products from Ras Budran”. This a very wise statement. Three types of comments can be made on the malacological taxa in this preliminary assessment.

### 1. TYPING ERRORS

Typing errors are, at least in my experience, hardly unavoidable. Minor errors are: *Pectin* (p. 110 & 133) instead of *Pecten*; *Petunculus* (p. 110) instead of *Pectunculus*; Cerithidae (p. 121) instead of Cerithiidae; Fasciolaridae instead of Fasciolariidae and *Barbatia foiliata* (p. 122) instead of *Barbatia foliata*. And there is no need to write family names in italics (pp. 121, 122). Perhaps more than typing errors are the incorrect names of classes, Gastropod (p. 121) instead of Gastropoda and Bivalve (p. 122) instead of Bivalvia.

### 2. HOMONYMS, SYNONYMS, DISTRIBUTIONS AND OTHER ERRORS

Mumford (2012) cites several archaeological publications from the first half of the 20<sup>th</sup> century. He mentions genera like *Nassa* and *Ancillaria*. The genus *Nassa* Lamarck, 1799 appeared to be a junior homonym of *Nassa* Röding, 1798. The first available synonym was *Nassarius* Duméril, 1805 (Bouchet & Gofas, 2013). The replacement of several Lamarck's names by Röding's names, published in a sales' catalogue and therefore a long time overlooked, started in the beginning of the 20<sup>th</sup> century. Mumford is right into putting 'his' genus *Nassa* into Nassariidae; the genus *Nassa* Röding, 1798 belongs to the Muricidae. The genus *Ancillaria* is replaced by *Ancilla* (Rosenberg, 2013), and *Ancillaria* does not belong to the Turbinellidae (p. 110 & 122), but to the Olividae. This error is probably caused by overlooking the caption “Family Olividae” on p. 112 of Rusmore-Villaume (2008). The families Dentaliidae and Gadiliniidae (p. 122) do not belong to the class Gastropoda but to the class Scaphopoda.

Mumford also mentions *Murex ternispina*, based on Petrie (1914), without any comment. According to Ponder & Vokes (1988) this species has a distribution from Sri Lanka eastward to Japan and to Papua New Guinea. Does this not mean that Mumford implicitly asserts that there were trade connections between Egypt and Sri Lanka during the period of the Old Kingdom? Vokes (1978) mentions specifically the incorrect name *Murex ternispina* for one of the *Murex* species living in the Red Sea. The picture in Petrie (1914, pl. 15, fig. 117) shows a badly damaged shell which is more likely to be *Murex forskoehlii* Röding, 1798 than *Murex ternispina* Lamarck, 1822.

The most intriguing taxon mentioned is *Nerita marina* (p. 109 & 110) with Reisner (1932, p. 157) as source. I could only find *Nerita marina* Delle Chiaje, 1830 (Eldredge, 1987). But this taxon is neither listed in WoRMS (WoRLD Register of Marine Species:

<http://www.marinespecies.org/aphia.php?p=search>) nor in CLEMAM (CheckList of European Marine Mollusca, <http://www.somali.asso.fr/clemam/index.clemam.html>). This might indicate a taxonomical problem. To solve this is beyond the scope of this paper. But it is certainly not very informative to use the name *Nerita marina* without any comment.

Mumford also mentions *Chicoreus erythraeus* (p. 111). Rusmore-Villaume (2008) considers this a valid species. However, in WoRMS it is considered a synonym of *Chicoreus virgineus* (Röding, 1798). More information is needed to establish whether or not *Chicoreus erythraeus* (Fischer, 1870) and *Chicoreus virgineus* (Röding, 1798) are conspecific.

There are nowadays many developments and changes in nomenclature in malacology. For instance, a long list of corrections etc. has been published by Dekker & Van Gemert (2008) on the Red Sea shells pictured in the book by Sharabati (1984). And the same applies, but not such a long list, to the book “Seashells of the Egyptian Red Sea” by Rusmore-Villaume (2008); see Van Gemert (2008). Two years later Huber (2010a) published his book on Bivalvia, based on 30 years of work, with several changed names for bivalves from the Red Sea. However, as he did not follow the nomenclatural rules for a *nomen novum*, he had to publish an article (Huber, 2010b) in which the requirements of the ICZN (=International Code of Zoological Nomenclature) were met.

### 3. MISIDENTIFICATIONS

In the list below (**TABLE 1**) a survey is given of the corrections concerning the misidentifications of the Red Sea shells in the figures by Mumford. The corrections are thus only based on the pictures in the paper. Of course, identification based on examination of the shells itself, will probably result in more and more precise corrections.

MUMFORD (2012)	CORRECTION
<b>Fig. 3:</b> <i>Nerita sanguinolenta</i>	<i>Chama</i> sp.
<b>Fig. 6:</b> <i>Barbatia foiliata</i> [sic]	<i>Barbatia</i> sp. and others
<b>Fig. 8:</b> <i>Diplodonta</i> sp. 2(?)	<i>Chama</i> sp.
<b>Fig. 10:</b> <i>Chama limbula</i> (?)	<i>Chama</i> sp.
<b>Fig. 13:</b> <i>Tridacna maxima</i>	<i>Tridacna</i> sp. (see: Huber & Eschner, 2011)
<b>Fig. 14:</b> <i>Erosaria turdus</i>	<i>Mauritia grayana</i> F.A. Schilder, 1930
<b>Fig. 16:</b> <i>Phasianella solida</i> (?)	<i>Planaxis savignyi</i> Deshayes, 1844, most right
<b>Fig. 17:</b> <i>Conomurex fasciata</i>	<i>Dolomena plicata plicata</i> (Röding, 1798)
<b>Fig. 19:</b> <i>Nassarius obvelatus</i> (?)	<i>Nassarius coronatus</i> (Bruguière, 1789)
<b>Fig. 20:</b> <i>Cellana rota</i>	<i>Diodora ruppellii</i> (Sowerby, 1834, left & middle; <i>Hemitoma panhi</i> (Quoy & Gaimard, 1834), right
<b>Fig. 23:</b> <i>Plicatula plicata</i>	also Ostreidae?
<b>Fig. 27:</b> <i>Polinices peselephanti</i>	<i>Eunaticina papilla</i> (Gmelin, 1791)?; no picture with ventral view
<b>Fig. 25:</b> <i>Clanculus pharaonius</i>	<i>Trochus erithreus</i> Brocchi, 1821
<b>Fig. 31:</b> <i>Turbo radiates</i> [sic]	<i>Rubritrochus declivis</i> (Forsskål in Niebuhr, 1775)

**TABLE 1: CORRECTIONS TO MUMFORD (2012)**

*Episiphon subtorquatium* is also listed by Mumford, but without information on finds at Ras Budran and no picture. The shell of this species is small and, more important, so fragile, that it is not likely to be recognizable after being buried for more than 4,000 years.

## FINAL REMARKS

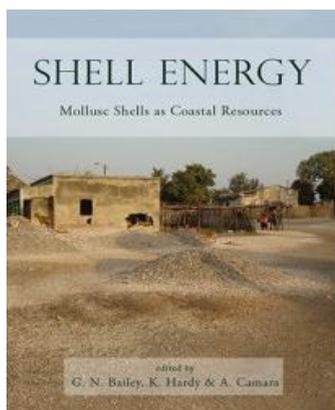
One of the main subjects of the scientific paper by Mumford is Red Sea shells as indicated in the title. Why than not use proper scientific names for shells, i.e. with authors and years? And list the families in a systematic order and not alphabetically per class as has been done now in the table.

The publication discussed here is certainly not the only one with serious malacological errors. Recent articles and books published in other fields, including malacology, also contain significant mistakes.

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## RECENT PUBLICATIONS



**BAILEY, G.N., HARDY, K., AND CAMARA, A., 2013.** Shell Energy : Mollusc Shells as Coastal Resources ; Oxbow Books. ISBN 9781842177655

The proceedings of the Shell Energy Conference, held in Dakar, Senegal in 2008 are now available to preorder. In addition to papers from speakers who attended the meeting, the book also includes contributions from other specialists, extending its global and methodological scope. This book is a must have for those interested in archaeomalacology.

**Pre-order for just £38 (reduced from £50) from:**  
<http://www.oxbowbooks.com/oxbow/shell-energy.html>

### PUBLISHERS DESCRIPTION

Shell middens are ubiquitous archaeological features on coastlines throughout the world that have been variously analysed and interpreted as mounds of food, burial places, or simply as convenient receptacles for the preservation of stratified remains. This volume brings together information about little known, or recently discovered, concentrations of shell mounds in areas including Africa, the near East, South-east Asia and the Americas as well as new work on mounds in the classic areas including Denmark, the Pacific NW coast and Japan. Discussions are presented on new approaches to interpretation involving the use of ethnographic studies, analysis of molluscs, the use of shell as a raw material for making artefacts and in construction, and the variable formation processes associated with mound formation.

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**LOMBARDO, U., SZABO, K., CAPRILES, J.M., MAY, J., AMELUNG, W., HUTTERER, R., LEHNDORFF, E., PLOZKI, A., VIET, H., 2013.** Early and Middle Holocene hunter-gatherer occupations in Western Amazonia: The hidden shell middens. PLOS ONE, DOI. 0.1371/journal.pone.0072746

### ABSTRACT

We report on previously unknown early archaeological sites in the Bolivian lowlands, demonstrating for the first time early and middle Holocene human presence in western Amazonia. Multidisciplinary research in forest islands situated in seasonally-inundated savannahs has revealed stratified shell middens produced by human foragers as early as 10,000 years ago, making them the oldest archaeological sites in the region. The absence of stone resources and partial burial by recent alluvial sediments has meant that these kinds of deposits have, until now, remained unidentified. We conducted core sampling, archaeological excavations and an interdisciplinary study of the stratigraphy and recovered materials from three shell midden mounds. Based on multiple lines of evidence, including radiocarbon dating, sedimentary proxies (elements, steroids and black carbon), micromorphology and faunal analysis, we demonstrate the anthropogenic origin and antiquity of these sites. In a tropical and geomorphologically active landscape often considered challenging both for early human occupation and for the preservation of hunter-gatherer sites, the newly discovered shell middens provide evidence for early to middle Holocene occupation and illustrate the potential for identifying and interpreting early open-air archaeological sites in western Amazonia. The existence of early hunter-gatherer sites in the Bolivian lowlands sheds new light on the region's past and offers a new context within which the late Holocene "Earthmovers" of the Llanos de Moxos could have emerged.

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**KLEIN, R.G., STEELE, T.E., 2013.** Archaeological shellfish size and later human evolution in Africa. *Proceedings of the National Academy of Science*. DOI 10.1073/pnas.1304750110.

#### **ABSTRACT**

Approximately 50 ka, one or more subgroups of modern humans expanded from Africa to populate the rest of the world. Significant behavioral change accompanied this expansion, and archaeologists commonly seek its roots in the African Middle Stone Age (MSA; ~200 to ~50 ka). Easily recognizable art objects and “jewelry” become common only in sites that postdate the MSA in Africa and Eurasia, but some MSA sites contain possible precursors, especially including abstractly incised fragments of ocher and perforated shells interpreted as beads. These proposed art objects have convinced most specialists that MSA people were behaviorally (cognitively) modern, and many argue that population growth explains the appearance of art in the MSA and its post-MSA florescence. The average size of rocky intertidal gastropod species in MSA and later coastal middens allows a test of this idea, because smaller size implies more intense collection, and more intense collection is most readily attributed to growth in the number of human collectors. Here we demonstrate that economically important Cape turban shells and limpets from MSA layers along the south and west coasts of South Africa are consistently and significantly larger than turban shells and limpets in succeeding Later Stone Age (LSA) layers that formed under equivalent environmental conditions. We conclude that whatever cognitive capacity precocious MSA artifacts imply, it was not associated with human population growth. MSA populations remained consistently small by LSA standards, and a substantial increase in population size is obvious only near the MSA/LSA transition, when it is dramatically reflected in the Out-of-Africa expansion.

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**LI FENGJIANG, WU NAIQIN, LU HOUYUAN, ZHANG JIANPING, WANG WEILIN, MA MINGZHI, ZHANG XIAOHU, YANG XIAOYAN. 2013** Mid-Neolithic exploitation of mollusks in the Guanzhong Basin of Northwestern China: Preliminary results. *PLOS ONE*, DOI: 10.1371/journal.pone.0058999

#### **ABSTRACT**

Mollusk remains are abundant in archaeological sites in the Guanzhong Basin of Northwestern China, providing good opportunities for investigations into the use of mollusks by prehistoric humans. Here we report on freshwater gastropod and bivalve mollusks covering the time interval from about 5600 to 4500 cal. yrs BP from sites of Mid-Late Neolithic age. They are identified as *Cipangopaludina chinensis* and *Unio douglasiae*, both of which are currently food for humans. The shells are well preserved and have no signs of abrasion. They are all freshwater gastropods and bivalves found in pits without water-reworked deposits and have modern representatives which can be observed in rivers, reservoirs, and paddy fields in the studied region. Mollusk shells were frequently recovered in association with mammal bones, lithic artifacts, and pottery. These lines of evidence indicate that the mollusks are the remains of prehistoric meals. The mollusk shells were likely discarded into the pits by prehistoric humans after the flesh was eaten. However, these mollusk remains may not have been staple food since they are not found in large quantities. Mollusk shell tools and ornaments are also observed. Shell tools include shell knives, shell reaphooks and arrowheads, whereas shell ornaments are composed of pendants and loops. All the shell tools and ornaments are made of bivalve mollusks and do not occur in large numbers. The finding of these freshwater mollusk remains supports the view that the middle Holocene climate in the Guanzhong Basin may have been warm and moist, which was probably favorable to freshwater mollusks growing and developing in the region.

**JEW, N.P., ERLANDSON, J.M., RICK, T.C., REEDER-MYERS, L., (2013)** Oxygen Isotope Analysis of California Mussel shells: Seasonality and human sedentism at an 8,200-year-old shell midden on Santa Rosa Island, California. *Archaeological and Anthropological Sciences*. DOI 10.1007/s12520-013-0156-1

#### **ABSTRACT**

To evaluate coastal settlement and land use strategies among maritime hunter-gatherers, we analyzed oxygen isotope ( $\delta^{18}\text{O}$ ) data from 131 marine carbonate samples from 21 California mussel (*Mytilus californianus*) shells obtained from a large ~8,200-year-old shell midden (CA-SRI-666) on California's Santa Rosa Island. Seasonal distributions of the isotopic data were assigned using a paleo-sea surface temperature model created by comparing modern sea surface temperatures (SST) to a fully profiled ~8,200-year-old shell. For 20 additional shells, we used two sampling strategies to compare season-of-harvest inferences and explore whether the Early Holocene site occupants were sedentary. Estimated season-of-harvest differed by 35 % between the two sampling methods, corroborating recent isotope analysis of an 8,800-year-old shell midden on San Miguel Island. Shellfish appear to have been collected year-round at CA-SRI-666 from intertidal or subtidal water temperatures similar to modern SST in the vicinity of eastern Santa Rosa Island. The isotope results are consistent with other evidence from CA-SRI-666 that suggest that the site served as a residential base for relatively sedentary maritime people.

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**CAMPBELL, G.E., 2013.** Size Prediction in archaeomalacology: the Common Mussel, *Mytilus edulis* L., as an example. *Archaeological and Anthropological Sciences*. DOI. 10.1007/s12520-013-0155-2

#### **ABSTRACT**

There are numerous size prediction formulae in archaeomalacology but (like almost all zooarchaeological formulae) only a few account for allometric growth (shape change with size change, which is almost universal in complex animals) and employ the standard methods developed by statisticians to ensure reliable predictions. A general technique for generating formulae that predict organism size from dimensions of their archaeological remains is presented, using an organism that is badly preserved archaeologically (the Common Mussel *Mytilus edulis*). Allometric growth is fully accommodated, and standard statistical methods and software are used. Several dimensions can be used for prediction, and poor predictors are identified and discarded. Predictions can be tested for consistency between heterogeneous conditions, for statistical soundness, and whether prediction errors are within tolerable limits.

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**MIENIS, H.K., 2012.** Shells from Areas B and D. In: Ben-Shlomo, D. (ed.), *The Azor Cemetery: Moshe Dothan's excavations, 1958 and 1960. Israel Antiquities Authority Reports*, 50: 199-202.

#### **ABSTRACT**

Twenty-four shells collected from the multi-period burial site at Azor in Israel comprised five species of marine gastropods and three (two marine and one freshwater) species of bivalves. No land snails had been retained. These molluscs represent four different sources: the Mediterranean Sea (*Erosaria spurca* [n=4], *Hexaplex trunculus* [2], *Nassarius mutabilis* [1], *Glycymeris insubrica* [3] and *Acanthocardia tuberculata* [5]); the Gulf of Aqaba (*Cypraea pantherina rarnasraniensis* [1]); the Red Sea or Indian Ocean (*Monetaria annulus* [6]); and the River Nile (*Chambardia rubens arcuata* [2]). All of the cowry shells had had the dorsum removed to convert them into ornaments. The resulting holes had smooth edges in all the *Monetaria* shells, suggesting that these were imported as finished products, whereas in

all the others the holes were irregular, perhaps suggesting the local manufacture of cowry beads. In addition, one *Glycymeris* valve and one of *Acanthocardia* had been artificially perforated at the umbo. Unfortunately the contexts and hence the date of the *Erosaria* and *Monetaria* cowries are uncertain. The *Cypraea* and *Acanthocardia* shells could be assigned to the Iron Age, the *Glycymeris* shells to the Early Bronze and Iron Ages, and the *Chambardia* shells to the Early Bronze Age. (JRS)

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MIENIS, H.K., 2012. Malacological remains. pp.251-254. In: Avrutis, V.W. (ed.), *Late Chalcolithic and Early Bronze I remains at Nesher-Ramla Quarry*. Haifa, Zinman Institute of Archaeology.

#### ABSTRACT

Nineteen shells and shell fragments representing four species of gastropods, one scaphopod and two bivalves, were recovered from burial caves at this site. All of the shells, except for the Nilotic freshwater mussel *Chambardia rubens arcuata* (9 fragments) and a short section of a Mediterranean *Antalis* sp. which formed a natural 'dentalium' bead, had been perforated for use as ornaments. These comprised the cowries *Erosaria spurca* (1) and *Zonaria pyrum* (2), the muricid *Bolinus brandaris* (1) and the bivalve *Glycymeris insubrica* (4) from the Mediterranean Sea (21 km distant from the site), and the nerite *Nerita sanguinolenta* (1) from the Gulf of Aqaba (about 280 km distant from the site). The latter had been perforated by grinding; the other shells had been pierced in various ways and some showed signs of having been worn. Most (11) of the specimens and six of the seven species were recovered from an Early Bronze I burial cave (F-565). *Bolinus brandaris* was found only in a Late Chalcolithic context (burial cave F-477) that also yielded six of the nine fragments of *Chambardia rubens arcuata*; another fragment of this species was found in a second Late Chalcolithic burial cave (F-355). (JRS)

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### FORTHCOMING CONFERENCES

#### THE MALACOLOGICAL SOCIETY OF LONDON – MOLLUSCAN FORUM

NATURAL HISTORY MUSEUM, LONDON

28<sup>TH</sup> NOVEMBER 2013

The meeting is designed to bring together people starting their research on molluscs, to give them the opportunity to present and discuss their work and to compare notes on methods and problems. In addition to talks and posters there may be opportunities to acquire books and other items contributed by members of the Society. Lunch will be provided and The Forum will end with a wine reception, both sponsored by The Malacological Society of London.

#### CONTACT

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<http://www.malacsoc.org.uk/MolluscanForum.htm>

#### MOLLUSCA 2014 – THE FIRST ALL-AMERICA MALACOLOGICAL CONFERENCE

UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO, MEXICO CITY

23<sup>RD</sup> – 28<sup>TH</sup> JUNE 2014

Mollusca 2013 will bring you outstanding conferences, posters, access to collections and field trips and will be organized in Mexico City, an exciting metropolis. The organisers will be announcing a call for sessions, symposia and activities in January 2014.

#### CONTACT

Edna Naranjo-Garcia or Paul Valentich-Scott at: [Mollusca2014@gmail.com](mailto:Mollusca2014@gmail.com)

[http://sbnature.org/content/805/file/Mollusca2014\\_FirstCircular\\_hres\\_en.pdf](http://sbnature.org/content/805/file/Mollusca2014_FirstCircular_hres_en.pdf)

## INTERNATIONAL COUNCIL OF ARCHAEOZOOLOGY (ICAZ) 12<sup>TH</sup> ANNUAL CONFERENCE

SAN RAFAEL, MENDOZA, ARGENTINA

22<sup>ND</sup> – 27<sup>TH</sup> SEPTEMBER 2014

Two archaeomalacological sessions will run at the forthcoming ICAZ conference. For more information visit <https://sites.google.com/site/icazarchaeomalacology/home>

### SESSION ONE: EXPLOITATION OF ANIMAL BASED RAW MATERIALS: TECHNOLOGICAL AND SOCIO-CULTURAL ISSUES:

*Organisers: Natacha Buc, Annalisa Christie, Alice Choyke, Vivian Scheinsohn*

Contact: [ica092014@gmail.com](mailto:ica092014@gmail.com)

Animals are exploited by humans in a variety of ways. Archaeozoological studies often stress food consumption and production although animals were also important sources of raw materials (leather, bone, antler, tooth, shell, etc). In this session, we are looking for universal patterning in the way animals are used as sources for raw materials, stressing comparative aspects. We are looking for papers focusing on choice of taxa, biomechanics, subsistence, ethno-archaeology, ethnography, availability, and raw material selection, technical style and social identities, as well as symbolic and ritual aspects.

The symposium will be presented in two parts

#### Part I - Technological Issues

Topics may range from the earliest times to the present. Methodological and theoretical contributions such as morphological variability, tool use, manufacturing processes, experimental programs, microscopic analysis, and taphonomic studies as these relate to raw material studies would also be welcome additions.

#### Part II - Socio-cultural Issues

This section focuses on what animal remains can tell us about the societies exploiting them. Themes that could be discussed could include: How and by whom these resources were exploited, how this exploitation was organized within society, what the resources were used for (ornamentation, subsistence, economic purposes) and how these secondary stages of exploitation were completed.

### SESSION TWO: SHELLFISH AS A RECORD OF HUMAN-ENVIRONMENT RELATIONSHIPS

*Organisers: Christina Giovias, Zhanna Antipushina, Catherine West*

Contact: [cmgiovias@uw.edu](mailto:cmgiovias@uw.edu), [amwg.ica092014@gmail.com](mailto:amwg.ica092014@gmail.com), or [cwest@bu.edu](mailto:cwest@bu.edu)

This session is not currently accepting abstracts. Please contact the organisers if you have any queries.

Analyses of mollusc remains from archaeological sites, shell middens, and natural deposits provide a window onto paleo-environments and past human interactions with those environments. Molluscs have been used to assess temperature and climate, as indicators of declining foraging efficiency and anthropogenic environmental impacts, and as evidence for the management of marine/freshwater resources and incipient aquaculture. Various approaches and theoretical models have been employed to tackle these subjects and have advanced considerably since the publication of Claassen's authoritative manual on archaeomalacology fifteen years ago. A holistic discussion of these methods, their relative strengths, and novel applications, is now timely.

This session examines how mollusc remains serve as environmental proxies, and will reflect the complex relationship between humans, aquatic resources, and the environment. The goal of this session is to bring together international scholars to provide a synthetic treatment of these issues, integrating and extending the methodology and theory employed by researchers to address topics at the intersection of human paleoecology, archaeomalacology, and the environment.