

Tribulus Referees

With this issue, **Tribulus** completes eight years of publication. Over that time, it has published an extensive amount of material, the bulk of which is available nowhere else - its lists of UAE dragonflies, inshore invertebrates and butterflies being recent examples. As a result, it has become of steadily increasing value to the scientific community. At the same time, the journal has continued its editorial policy of seeking to publish original material which is scientifically accurate, but which, at the same time, is comprehensible to the interested general reader. There is no other publication of its kind, and the growing frequency with which papers in **Tribulus** are cited in other journals and publications is evidence of its success, albeit with a small readership.

As part of continuing efforts to upgrade the journal, it has been decided to recruit academic referees to examine and comment on papers and notes submitted for publication. The purpose of this is two fold: to bring greater academic expertise to bear on contributions in the journal and, through the refereeing system, to make the journal more attractive as a publication to those working on scientific studies into the natural history, history and archaeology of the Emirates.

It is a pleasure to announce therefore that four referees have accepted our invitation to join a panel, with their services coming into immediate effect. It is the intention of the journal's editorial panel that more will be added later, when suitable people have been identified, have been approached and have agreed.

The first members of the new **Tribulus Advisory Panel**, are briefly profiled below.

Daniel T. Potts, Edwin Cuthbert Hall Professor in Middle Eastern Archaeology at Australia's University of Sydney, Daniel Potts is also founder and Editor-in-Chief of the journal **Arabian Archaeology and Epigraphy**. He has published extensively on Gulf archaeology, and has also excavated widely in the UAE, including sites at Tell Abraq, Al Sufouh and Awhala, as well as elsewhere in the region.

Jens Eriksen is Associate Professor of Chemistry and Assistant Dean in the College of Science at Sultan Qaboos University, Sultanate of Oman, where he has now lived for over 12 years since leaving his native Denmark. Jens and his wife, Hanne, travel widely to study and photograph wildlife. They are frequent visitors to the UAE and their outstanding work has appeared in many UAE publications, *Natural Emirates* for example.

Jens served as Recorder for the Oman Bird Records Committee from 1989 to 1998, masterminding and entering 160,000 bird records onto a computer database from which a number of publications have resulted. Jens' main interests are natural history, in particular birds, and photography, for which he has won numerous awards.

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Graham Evans is Professor Emeritus in the Department of Oceanography at Britain's University of Southampton, specialising in sedimentology. Formerly Professor of Geology at London University, he conducted the first studies of the *sabkhas* of Abu Dhabi in the early 1960s, commencing more than three decades of involvement with studies of the UAE's geology.

He is currently engaged in studies of the late Pleistocene and Holocene geology of Abu Dhabi's coast and islands in association with the Abu Dhabi Islands Archaeological Survey.

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Dr. Saif Al Ghais, from Ras Al Khaimah, is currently Secretary General of the Environmental Research and Wildlife Development Agency in Abu Dhabi. Immediately prior to this he lectured in biological and environmental sciences at the UAE University, serving as head of the Marine Environment Research Centre. He obtained his first degree from Seattle Pacific University in the US and then his doctorate in marine biology from the University of Liverpool in the UK.

Dr Al Ghais' research interests include mangrove ecosystems, turtle conservation, impacts of pollution and the taxonomy of fishes. He has published many research papers, serves on the Species Survival Commission of IUCN and advises the UAE government on environmental protection and management.

Research in Progress - Archaeology

Ancient Marine Resource Exploitation in the Southern Arabian Gulf: An Archaeo-Zoological Perspective

This research attempts to model ancient marine resource exploitation in the southern Arabian Gulf by using archaeo-zoological methods to study fish bone assemblages recently excavated at sites in the UAE. This will provide for the first time a detailed insight into the status of past fisheries resources in the region as well as enabling the modelling of fishing strategies utilised by the early coastal inhabitants of the southern Arabian Gulf during the course of the past 6,000 years. A special focus is on the use of biometrical techniques to enable size reconstruction of economically important fish groups.

An integral part of this research so far has been the

creation of an osteological comparative collection of modern Arabian Gulf fishes. So far the collection covers a total of 46 families, 72 genera and 104 species. Following completion of the research programme, which is supported, among others, by The British Council, the comparative collection will be deposited with the Environmental Research and Wildlife Development Agency, ERWDA, in Abu Dhabi, where it will provide the nucleus of a national reference collection.

Fish bone assemblages from a total of 22 archaeological sites are currently being analysed. These include material from the following sites (arranged in chronological sequence):

Dalma, Abu Dhabi, site DA11 (5th-4th millennium BC, "Ubaid" settlement, excavated by the Abu Dhabi Islands

Archaeological Survey [ADIAS]).

Umm al-Qaiwain, site UAQ1 (5th-4th millennium BC, "Ubaid" midden/cemetery, excavated by Carl Phillips, Institute of Archaeology, UCL, London).

Kalba, Sharjah, sites K4 and KK1 (3rd-2nd millennium BC, settlement, excavated by Carl Phillips).

Shimal, Ras al-Khaimah, site UAN2 (3rd millennium BC, Umm an-Nar tomb, excavated by Derek Kennet/Christian Velde, National Museum of Ras al-Khaimah).

Shimal, Ras al-Khaimah, site SH602 (2nd millennium BC, tomb, excavated by Derek Kennet, National Museum of Ras al-Khaimah).

Ed-Dur (north), Umm al-Qaiwain, site EDN (1st millennium BC, "Iron Age" enclosure, excavated by Carl Phillips).

Umm al-Qaiwain, site UAQ2 (1st millennium BC, "Iron Age" settlement, excavated by Carl Phillips).

Wadi al-Qawr, Ras al-Khaimah, sites RFQ2.1 and WQ (1st millennium BC, "Iron Age" settlement, excavated by Carl Phillips).

Sir Bani Yas, Abu Dhabi, sites SBY3, SBY4, SBY7 and SBY9 (6-7th century AD, early Christian/pre-Islamic

monastery and associated settlement, excavated by ADIAS.)

Jazirat al-Hulaylah, Ras al-Khaimah, site JHU (5-17th century AD, early-late Islamic settlement, excavated by Prof. Tatsuo Sasaki and Hanae Sasaki, Kanazawa University, Japan).

Kush, Ras al-Khaimah (9-19th century AD, early-late Islamic settlement, excavated by Derek Kennet).

Julfar, Ras al-Khaimah, site JJ (mid 14 - early 16th century AD, Islamic settlement, excavated by Prof. Tatsuo Sasaki and Hanae Sasaki).

Balghelam, Abu Dhabi, site BG12 (16th-19th century AD, Late-Islamic settlement midden, excavated by ADIAS.).

Liffiyah, Abu Dhabi, site LIF (16th-19th century AD, Late-Islamic settlement midden, excavated by ADIAS).

Merawah, Abu Dhabi, sites MR14, MR15 and MR16 (16th-19th century AD, Late-Islamic settlement midden, excavated by ADIAS).

Mark Beech (PhD thesis),

**Departments of Archaeology and Botany,
University of York, UK**

Prehistoric metallurgy in the Oman Peninsula

A previous study of metal objects from the site of Tell Abraaq in the United Arab Emirates (U.A.E.) has revealed significant use of tin-bronze during all periods of occupation, from the third millennium BC onwards. Such an occurrence is unprecedented in the archaeological record of the Oman Peninsula, and the analyses raise a number of questions regarding the production and supply of copper and bronze in the region during the local Bronze and Iron Ages. The current thesis aims to investigate the trade in tin and tin-bronze in the region through Proton-Induced X-Ray Emission (PIXE) analysis and lead isotope analysis (LIA). Samples for PIXE analysis have been obtained from sites across the U.A.E. and from the early second millennium BCE settlement of Saar on Bahrain. The compositional analysis of these samples using PIXE should allow for an examination of the distribution of tin-bronze in the region.

LIA is being undertaken on 80 samples from Tell Abraaq, from third, second, and first millennium BCE contexts. The samples include completed objects of copper and tin-bronze, as well as pieces of waste from metal refining and casting processes carried out at the site. It is hoped that LIA will provide evidence on changes through time in the sources of copper and tin used at the site. The potential exists, additionally, to relate the LIA data from the Tell Abraaq samples to LIA data on ore deposits in the U.A.E. and Oman, in order to assess the use of locally smelted and refined copper. Finally, it is envisaged that the metallurgical evidence from Tell Abraaq and elsewhere in the U.A.E. will be combined with evidence from other facets of the local archaeological record, in order to assess changing patterns of prehistoric trade and contact within the Oman Peninsula and wider Western Asia.

Lloyd Weeks, University of Sydney. (PhD thesis)

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Molluscan evidence for subsistence strategy and seasonality at the Iron Age site of Muweilah, Sharjah

The research project that I have undertaken aims to shed light on the settlement patterns of the prehistoric

people of southeastern Arabia. At the Muweilah study site, where a team is excavating an Iron Age site (c600-800BC), I have developed an expertise in studying subsistence refuse, principally the molluscan fauna.

In an area of the world where environmental changes between the seasons are so strong, human adaptation to these changes are customarily important. Aspects of this information can be revealed through the analysis of growth structure in shellfish that contributed to the prehistoric diet and remain in the archaeological record.

The application of two independent though complementary techniques known as growth line analysis and oxygen isotope analysis allows the season of shellfish procurement to be determined. Before the archaeological samples can be analysed for evidence of prehistoric human behaviour, however, modern shellfish specimens must be analysed in the same way in order to determine the natural behaviour of the shellfish in relation to broad seasonal changes. Once this can be established, useful results should follow.

Emma Thompson, University of Sydney (PhD thesis)

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Islamic sites on the UAE East Coast

The primary aim of the research is to document and examine Islamic period (AD 7th Century to present) sites on the East Coast of the United Arab Emirates. The main focus involves recording and analysing coastal sites in order to contextualise them within an archaeological timeframe. This includes the results of the coastal survey I conducted during the 1997/1998 season in Fujairah and the forthcoming excavation season at the Portuguese fort at Bidiya.

During the 1997/1998 field season, I conducted a survey of the East Coast from Fujairah in the south to Dibba in the north. This included the documentation of visible structures and surface collection of artefacts. A total of 65 sites were recorded, including settlements, towers, cemeteries and mosques. The ceramics collected included locally-produced Julfar and post-Julfar wares, turquoise glazed sherds and Sgraffiato. Imported wares