

ENHG Al Ain papers

(Collection Number Two)

1. Ethnobotany

“In this study, we looked for insights on how human populations inhabiting the Monte, interact with arid environments and how they use ecological knowledge on wild plants for their subsistence. Rural communities living in the Monte region have been undergoing extreme changes in both social and ecological scenarios.”

2. Herbarium list 2008 Dec

“List of identified plant species in the EAD Herbarium. Plants are listed according to family, genus and species.”

3. Hili Tomb N

“Ever since the early 3rd millennium BC the date palm (*Phoenix dactylifera*) has played an important role in eastern Arabia where its remains, in the form of seeds, fruits and stem fragments, are preserved on numerous archaeological sites. The recent discovery of a carbonised mass of pitted dates in a collective burial pit from the end of the Umm an-Nar period (ca. 2200–2000 BC) at Hili (United Arab Emirates) constitutes the earliest example of a food preparation involving this species. The present paper describes the discovery and identification of this unique offering before addressing the question of its significance in a funeral context in Bronze Age Arabia.”

4. Hydrology of coastal sabkhas

“Water fluxes were estimated and a water budget developed for the land surface and a surficial 10-m-deep section of the coastal sabkhas that extend from the city of Abu Dhabi, United Arab Emirates, west to the border with Saudi Arabia. The fluxes were estimated on the basis of water levels and hydraulic conductivities measured in wells and evaporation rates measured with a humidity chamber.”

5. Interior Oman Geological Record

A discussion [July 1986] of the changes that have taken place in the interior of Oman following the development that took place in the 1970s and 1980s given the geology that for centuries had separated the interior from the coast.

6. Jebal Ghawil 5Apr08

Brian Burgess' report of the ENHG field trip to the summit of Jebel Ghawil (Swiss Mountains) in April 2008.

7. Jebel Faya Palaeo Armitage et al [Science mag]

The Science magazine article on the findings at Jebel Faya by the team led by Hans-Peter Uerpmann. The discovery of tools suggested that human migration out of Africa

across what is now the Arabian peninsula occurred much earlier than previously speculated.

8. Jebel Hafit geology

“A gravity survey was conducted over and around Jabal Hafit, located on the border between the United Arab Emirates (UAE) and Oman on the western edge of the northern Oman Mountains, as part of a study to investigate the subsurface structures and sedimentary sequences of the area. This new data, together with outcrop geology, well data and measurements of physical properties of rock samples, was integrated with a new interpretation of reprocessed commercial seismic reflection profiles recorded across the Jabal Hafit anticline.”

9. Laurence's paper on camel brains

“In this study we examined the superior colliculus of the midbrain of the one-humped (dromedary) camel, *Camelus dromedaries*, using Nissl staining and anti-neuronal-specific nuclear protein (NeuN) immunohistochemistry for total neuronal population as well as for the enkephalins, somatostatin (SOM) and substance P (SP).”

10. Mammals reptiles and amphibians of The UAE

The comprehensive 2003 report by Chris Drew for the Environmental Research and Wildlife Development Agency (ERWDA) listing the known species and their status in the UAE. (ERWDA is now Environment Agency Abu Dhabi [EAD])

11. March 11 2002 Masafi Earthquake

A study by geologist from institutions around the world, including one from the geology department of UAE University, on the March 2002 earthquake near Masafi, UAE.

12. Master Planning for Heritage Conservation Al Ain Oasis

The final report by the Abu Dhabi Authority for Culture and Heritage (ADACH) on recommendations for the protection and preservation of Al Ain Oasis.

13. Middle Asia Takes Center Stage (Science magazine)

The August 2007 Science magazine article on the new attitude towards the history of Middle Asia. “It is a radical retelling of the traditional story, which holds that civilization sprouted in Mesopotamia along the banks of the Euphrates, then on the Nile, and finally on the Indus during the 3rd millennium B.C.E., each culture largely isolated by harsh terrain and immense distances. At a meeting . . . last month, archaeologists began to assemble a far more complex picture in which dozens of urban centers thrived between Mesopotamia and the Indus, trading commodities and, possibly, adopting each other’s technologies, architectures, and ideas. Advocates admit they are only beginning to piece together how the urban boom unfolded across what they call Middle Asia.”

14. Mid-Holocene campsite [Yemen] Crassard 2009

The report on a mid-Holocene site in Yemen where lithics discovered add new dimensions to the ancient history of the region. Is an especially interesting piece in light of the findings at Jebel Faya in the UAE.

15. More than Samad in Oman

“The publication of field work in central Oman has lagged behind the excavations themselves. Whereas the pioneer archaeologists in Oman could identify sites and finds only as “Iron Age”, the work of the past 10 years has enabled a clear conceptual distinction to be made between the Early and Late Iron Age assemblages, as well as their regional characters.”

16. Order Diptera, family Mydidae dikow_2010

“The Mydidae of the United Arab Emirates have been recently reviewed by Deeming (2007) in the first volume of this same book series and a single species, *Rhopalia gyps* Bowden, 1987, had been recorded. Several specimens of then undetermined species had been mentioned in the literature (Howarth, 2006; Deeming, 2007) and new specimens have been collected since that have now been studied and identified by the author.”

17. Prosopis Monograph Complete

The Department for International Development's paper on the *Prosopis juliflora* – *Prosopis pallida* complex and the function and impact of these trees in cultures and countries around the world.

18. Recycling date palms

“The UAE's ubiquitous date palm has become a symbol of the country. But the last few decades have seen it suffering horribly from a plague of pests. One entrepreneur, however, has come up with an ingenious and fascinating organic win-win solution.” A magazine article profiling Michael Geraghty and his company's initiative to recycle date palms.

19. Red palm weevil presentation

The PDF version of a PowerPoint presentation on the red palm weevil (*Rhyncophorus ferrugineus*) and its impact on date palm around the world.

20. Red Tide

A 2009 article on the impact of the 'red tide' in the region. “The catastrophic 2008–2009 red tide in the Arabian gulf region, with observations on the identification and phylogeny of the fish-killing dinoflagellate *Cochlodinium polykrikoides*.”

21. Ring-necked parakeet in Oman

The 2009 report on the ring-necked parakeet (*Psittacula krameri*) in Oman and the impact of the bird population on agriculture. The bird is sometimes considered the most serious “avian pest” farmers and authorities deal with.

22. Sasanian and Islamic pottery [RAK] Kennet-2002

Derek Kennet's landmark report on pottery from various sites in Ras al Khaimah, including the Kush site and Julfar-period sites.

23. Science magazine article Bat and corridor
“As the world’s first civilizations emerged in the 3rd millennium B.C.E., an obscure region in eastern Arabia served as a crucial trade link while developing a surprisingly sophisticated independent culture of its own.” A Science magazine article on the discoveries at Bat, Oman, and the connection with other cultures in the Oman peninsula.
24. Seismic risk in the UAE
“We estimate the losses due to 10 scenario earthquakes in 150 settlements of the United Arab Emirates (UAE). For southern Iran, we use four source zones and the maximum magnitudes in them as determined by GSHAP ($7.2 \leq M \leq 8.1$). For six local scenario earthquakes, we use the range $5.5 \leq M \leq 6.5$, place the sources mainly on mapped faults and vary the distance to major cities from 10 to 60 km. In the test case of the Masafi earthquake (M5, 11 March 2002), the method and data bank we use yield the correct results, suggesting that our approach to the problem is valid for the UAE.”
25. Settlement history in the eastern Rub al-Khali Casana et al 2009
Results of surveys conducted in 2006 and 2007 as reported in 2009. “Regional archaeological survey in desert areas of Dubai, U.A.E., has identified numerous archaeological sites in this rapidly changing landscape. Subsurface geophysical surveys have been undertaken in concert with surface collection and test excavation to document the extent and chronology of each site. Contrary to expectations that deserts were permanently abandoned following the end of the mid-Holocene pluvial phase around 4000 BC, two sites, Al-Ashoosh and Saruq al-Hadid, show evidence of substantial occupation during the late third and early first millennia respectively. These findings suggest that the Rub al-Khali supported human settlement much later than is generally thought, challenging traditional understandings of the region’s cultural and environmental histories.”
26. Sharjah Museums
A two-page PDF file listing all of the museums in Sharjah with a map showing locations.
27. Sharks teeth on weapons, tools Charpentier et al 2009 [French]
“During the Neolithic and Early Bronze Age, many teeth of large sharks (***Carcharhinus leucas***) and stingray spines were transformed into projectile points in south-eastern Arabia. These points were probably used for fishing. Deriving from dangerous and/ or toxic animals, shark teeth and stingray spines were certainly markers of prestige.”
28. Shorebirds of Arabian peninsula
The 135-page report listing the known shorebirds of the Arabian peninsula as compiled at the 10th Conservation Workshop for the Fauna of Arabia in 2008. Published by the Breeding Center for Endangered Wildlife in Sharjah, UAE.
29. Source parameters of Masafi Earthquakes
“On March 10 and September 13, 2007 two earthquakes with moment magnitudes 3.66 and 3.94, respectively, occurred in the eastern part of the United Arab Emirates (UAE). The two events were widely felt in the northern Emirates and Oman and were accompanied by a few aftershocks. Ground motions from these events were well recorded by the broadband stations of Dubai (UAE) and Oman seismological networks

and provide an excellent opportunity to study the tectonic process and present day stress field acting in this area. In this study, we report the focal mechanisms of the two main shocks by two methods: first motion polarities and regional waveform moment tensor inversion.”

30. Sources of dissolved solids and water in Wadi Al Bih

“Regional brines that underlie the potable groundwater appear to be responsible for the increase in dissolved solids in the Wadi Al Bih aquifer in the Ras Al Khaimah Emirate, United Arab Emirates. In this karstic carbonate aquifer, groundwater extraction exceeds recharge and the reduced heads can induce transport of underlying brines into the potable water aquifer. Increasing dissolved solids with time threatens the continued use of groundwater for agricultural and domestic uses. The potential of intrusion of seawater, dissolution of minerals, or intrusion of regional brines as a source of these solutes were evaluated based on groundwater samples collected in April and September 1996 from the Wadi Al Bih well field and isotope data from previously collected samples.”

31. Star time-keeping Oman

A report, including names of stars, on the practice of using the stars to keep track of time in oases in Oman to regulate the sharing of water resources among farmers.

32. Steve Ehrenberg's petroleum article

An article from the AAPG Bulletin by former ENHG Al Ain member Steve Ehrenberg and colleagues on “Petroleum reservoir porosity versus depth: Influence of geological age”.

33. Structural evolution, metamorphism and restoration of the Arabian continental margin

A “comment” on an earlier article on the Arabian continental margin. “Searle et al. (2004) in their recent paper reviewing the structure, stratigraphic, metamorphic and geochronologic data in Saih Hatat, NE Oman attempt to present a revised geometry of this part of the Oman margin in the Late Cretaceous, and at the same time highlight the geodynamic model proposed by Searle involving one subduction zone with subduction away from the margin (e.g. Searle et al., 1994, 2004; Searle and Cox, 1999). As part of this review they have attempted to highlight what they consider to be ‘differences’ between the mapping of Gregory, Gray and Miller as shown in Miller et al. (2002) and their mapping, but at the same time they have misrepresented and misquoted our work. The misrepresentation of our work needs to be addressed.”

34. Sufouh camel site

“This paper presents results obtained from a huge assemblage of camel bones unearthed during archaeological excavations at Al Sufouh 2, Dubai, UAE. Based on the geological investigations carried out around the ancient site, the radiocarbon dates obtained, and the morphology, age structure and size of the camel bones, the site represents a hunting and butchering site for wild dromedaries which was in use during the Umm an Nar and Wadi Suq periods (second half of the 3rd Millennium to the first half of the 2nd millennium BC). The material offers the largest number of measurable bones of wild dromedary known until now.”

35. Tales from the old guards Bithnah Fort, Fujairah

“This article examines the historical site of Bithnah fort, United Arab Emirates. Relevant historical sources were investigated, which highlighted the strategic importance of

Bithnah's location in the Wadi Ham. A theoretical date was proposed for the site based on these historical references. The architectural features and material culture were combined with ethnographic information. This combination of sources allowed for a much clearer understanding of the fort's layout and interior use of space. It also provided a context for the village and agricultural space that surround the fortification of Bithnah."

36. Taxonomy Spiny-tailed lizards

"Currently six species of the genus *Uromastyx* (Reptilia: Agamidae: Leiolepidinae), representing three phylogenetic lineages, are known to occur in Arabia: *Uromastyx aegyptia*, *U. benti*, *U. leptieni*, *U. ornata*, *U. thomasi* and *U. yemenensis*. The present paper gives an overview of the taxonomy of these lizards and presents new data on the morphology and ecology of *Uromastyx leptieni*."

37. Termination of the Arabian shelf sea

"In the Janabrah region of southeastern Oman, Oligocene/Miocene limestones of the Shuwayr, Warak and Ghubbarrah formations are widely exposed. They were deposited on an extensive shallow carbonate platform that was part of the Arabian Shelf and located on the Gulf of Aden's northeastern rift shoulder, which emerged during the Early Miocene. The uppermost part of the studied sedimentary succession developed immediately before the permanently subaerial exposure of the carbonate platform. Cyclic changes of intertidal and subtidal facies document a fluctuating relative sea level at different frequencies and a continuous decline of accommodation. Single erosive surfaces with palaeokarst cavities and caliche crusts separate larger depositional cycles. These disconformities imply relatively long episodes of subaerial exposure and are interpreted to have been formed during lowstands of third-order sea level cycles that denuded the platform. Taxonomic studies of the accompanying mollusc faunas and certain benthic foraminifers allow a correlation of the recognised subaerial disconformities with the Ru4/Ch1 to Ch4/Aq1 sequence boundaries of Hardenbol et al. . . . This demonstrates that the termination of the Arabian shelf sea must be back-dated from the middle Burdigalian to the early Aquitanian."

38. The Appearance of the Domestic Camel

From Volume 12 of the Journal of Oman Studies, this paper on a much-discussed topic: when was the camel domesticated. "The first bone finds of domestic camels appear among the faunal remains of the Iron Age II layers of Tell Abraq (Emirates of Sharjah and Umm al Qaiwain) at about 800 – 900 BC. The earlier camel remains from the Bronze Age layers of the same site and from Umm an Nar are from large animals, which are identified as wild dromedaries. At Umm an Nar and other coastal sites the wild dromedary was an important game animal in the Early Bronze Age. The sequence of Tell Abraq indicates that this resource was over-exploited, leading to the disappearance of camel finds from the faunal remains of this site towards the end of the Bronze Age. Nevertheless, the wild dromedary still existed in the general area during the 2nd phase of the Iron Age. Its remains can be distinguished from those of the smaller domestic camels at the site of Muwaylah (Emirate of Sharjah). South-east Arabia does not seem to be the primary centre of camel domestication. Further research in other parts of Arabia is necessary in order to identify the area where the camel was first brought under human control."

39. The Buraimi Oasis Dispute
The widely read and cited report by J.B. Kelly originally published in the journal International Affairs discussing the “Buraimi Dispute” “seen in some quarters as a crucial test for the future of British influence and prestige not only in the Persian Gulf region but along the whole littoral of Arabia.”
40. Tourism
The tourism and leisure section of the Abu Dhabi government’s widely circulated “2015 Plan” as released in April 2005. Includes maps and lists of existing and proposed tourism and leisure facilities. Includes reference to a cableway for Jebel Hafit, golf courses etc.
41. Traditional Method of production of Omani Sarooj
A 1999 paper documenting the traditional methods of manufacturing sarooj and its uses in falaj systems and buildings.
42. UAE evolution [Hamdan Aldarei]
PDF version of a PowerPoint presentation on the history of the UAE.
43. UAE history [UAE Interact]
PDF version of the history of the UAE as published in UAE Yearbooks and on the UAE Interact site.
44. Urbanisation in the United Arab Emirates: The challenges for ecological mitigation in a rapidly developing country
The 2009 paper by Drew Gardner and Brigitte Howarth on the impact of development in the UAE on local ecology.
45. UK Troops Fighting Rebels in Oman
A one-page PDF document with a photocopy of an article from the January 8 1972 issue of the Manchester Guardian (weekly), the article entitled “UK troops fighting rebels in Oman.”
46. A General Survey and Plan for the Preservation and Protection of Sites and Monuments [1976]
The 1976 report by UNESCO’s Paris office on sites in the UAE which UNESCO considered worthy of preservation and protection.
47. Variations in Arabian plate lithospheric structure
“The Arabian plate has been converging with Eurasia for 20-30 Ma, currently at 2-3 cm/year. Convergence is manifested differently along strike, with collision and tectonic escape in the west (Anatolia) and subduction of Arabia beneath Eurasia in the east (Iran). The reason for these differences may reflect the greater density of the Arabian lithosphere in the east relative to that in the west.”

48. Water Issues in the UAE Christophe Tourenq

The PDF version of Christophe Tourenq's (WWF-EWS) presentation on water issues in the UAE.

49. Water management in Abu Dhabi Emirate

A 2006 report (published online in 2007) on the state of water management in the UAE by E.S. Al Katheeri of Abu Dhabi Water and Electricity Authority (ADWEA).

50. Water-resource facilities and management in Oman

“Catastrophic floods and prolonged periods of drought are the main ‘water’ challenges facing Oman. So the inhabitants have had to resort to ingenious ways of utilising the available water resources, such as through building falaj systems and the optimal selection of suitable crops, but nevertheless when exposed to extremely dry weather conditions, temporary and even permanent migration is still the only option left to some of those adversely affected. The water problem has been compounded as a result of the rapid economic development of Oman since the beginning (in 1967) of the extraction there of crude oil in commercial quantities. During this period, the general health of the population has improved, the average family size has grown, and the mean life expectancy has increased. Also, as the economy has prospered, the number of immigrant workers has risen to become today approximately 25% of the total population. Thus the requirement for more reliable supplies of potable water has increased substantially and is still growing.”

51. Wild plants and grasses of Oman

Two papers on wild plants and grasses in Oman.

52. Wildlife ME Dec 2007

A PDF version of the December 2007 issue of Wildlife Middle East magazine.