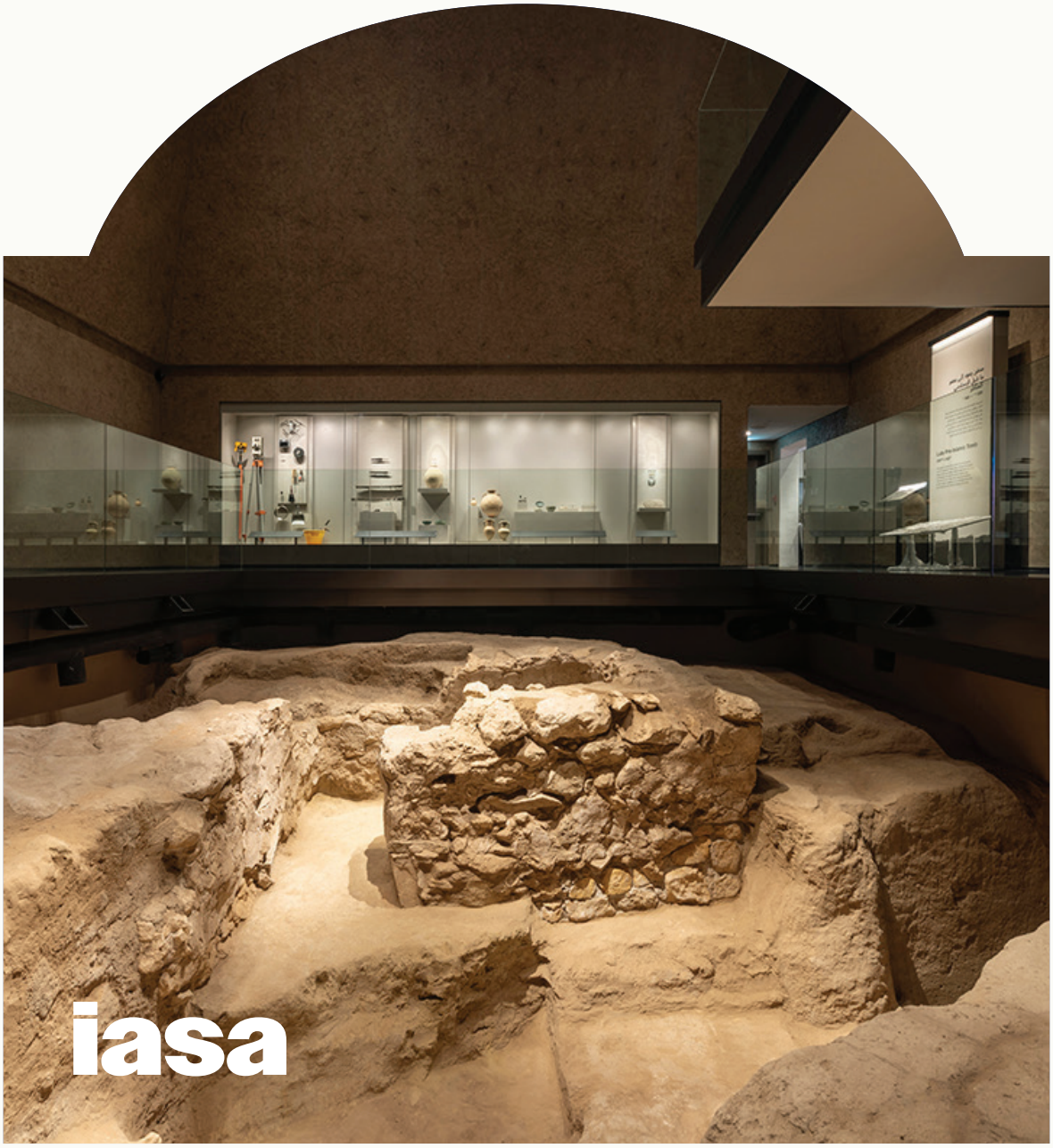
the iasa bulletin.

Spring 2026



the latest news and research in the arabian peninsula.

issue #35

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(Cover image: Al Ain Museum, Abu Dhabi, UAE)

The IASA Bulletin

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Research Editor Dr. Maria Gajewska

The IASA Bulletin is an e-publication for members of the IASA. It is published twice a year, in spring and autumn. Past issues are posted on our website six months after publication.

The Bulletin depends on the good will of IASA members and correspondents to provide contributions. News, items of general interest, details of completed post-graduate research, forthcoming conferences, meetings and special events are welcome. Please email: bulletin@theiasa.com

The opinions expressed in this publication are those of the authors of the articles. They do not purport to reflect the opinions or views of the IASA or its members.

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Membership Secretary Dr William Deadman
Membership details are available in full on the IASA website. In addition to membership benefits such as the e-Bulletin, subscriptions go to support IASA research grants. Email: membership@theiasa.com

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Letter from our Chair: José C. Carvajal-López

New year, new Chair

Welcome to the IASA Spring Bulletin of the year 2026, the first one of the year and the first one in which you find me as the Chair (although I have had the privilege of addressing you all earlier as Vice Chair).

Last year ended with a great achievement: the celebration of the 57th Seminar for Arabian Studies in Zayed National Museum in Abu Dhabi (UAE), the first one held in Arabia. The conference was a remarkable success. Not only the latest and highest quality research on Arabia was presented, but also the sessions were packed with specialists and public alike. Among the attendants, there were many colleagues and public members from Arabia, from the communities whose culture and heritage we are committed to study. This therefore marks a very relevant step for the Seminar, started in 1968 as a meeting of a small group of specialists at University College London, which only as recently as 2018 began to be celebrated beyond the United Kingdom (but always in Europe). This was also a monumental challenge which required altering all the usual calendar and logistics of the Seminar, and which was possible only thanks to the determination and good work of the staff at Zayed National Museum, the members of the Steering Committee of the Seminar and the previous Chair of the IASA and Director of ZNM, Peter Magee.

At the same time, we must take note of the unfortunate developments since February in Arabia, with the start of a war and its consequences. As members of the IASA, it is understandable that we are concerned with the disruption on the research that this has created, with many projects or seasons abruptly interrupted or cancelled. But above all, the war is terrible because it has claimed lives and properties of people all over the region and has wreaked havoc in the routine of



everyone. In these difficult months, I was texting colleagues and friends who were endangered in several countries in the region, and I am sure that my experience is not exceptional in the IASA. Our thoughts are with the people working and living in the region, and with the members of the communities with whom we work and with whom we forge alliances and friendships.

Let us turn the IASA into a force for good and contribute to make Arabia, and the whole world, a better place. To this end, we must continue building on the success of the IASA and the Seminar for Arabian Studies as venues where the research on Arabia and the love for its culture, its heritage and its peoples are promoted. Please participate in our activities, read our research and bulletins (what a pleasurable request, I must say) and spread the word about the IASA by talking to friends and by sharing the content of our social media. And by all means, attend the Seminar, in person or online. The 58th Seminar for Arabian Studies will take place in the University of Bologna, in Italy, between the 30th of July and the 1st of August. The IASA will be delighted to welcome you there!

About this Edition

I'd like to thank all of the contributors to this, the Spring 2026 Edition of the IASA Bulletin. Last Autumn's issue was so big I was worried that there wouldn't be any news left for this one. As it turned out, I needn't have been concerned, and it's another bumper issue.

As you know, the Bulletin is made up of the latest news from The IASA (which this time includes a couple of personnel changes) but the majority of the content is provided by IASA members and others working in the field. It's a great way to get research out quickly, as well as any relevant updates in the region. Traditionally the Bulletin divides submissions into two sections, Country News and Research Notices, but I realise that we have never explained the difference: Country News includes recent updates from the relevant country authorities, as well as reports from the latest field season, whereas Research Notices covers ongoing research relating to the aims of the IASA, for example from material in collections or lab work, and research from disciplines that don't have a specific field season. We also have special features, such as the Last Word, which don't appear in every edition.

In addition to being Bulletin Editor, I also cover Outreach for IASA. This includes social media (we are on X, Facebook, Instagram and LinkedIn - please give us a follow if you don't already), and also supporting the lecture programme. The 2026/7 lecture programme is still being finalised, but we hope it will include talks by Stephanie Döpper on her work in Oman, Jérôme Rohmer on his projects in Saudi Arabia and Mark Jackson on Gertrude Bell to mark the centenary of her death. Details will be sent to IASA members in due course. Past lectures may be viewed on our YouTube channel.



- Al Baleed, locally produced spouted jars (©IAMOB, 2025) See page 25

There are not many perks to being Editor, but one of them is to choose an image to illustrate this page. As I'm partial to some ancient ceramics, I've chosen this photograph of locally produced spouted jars from Al Baleed, Oman. You can read more about them in the article 'Ongoing Research at Al Baleed and the Dhofar Region: New Data from the 2025 Field Season' by Roberta Giunta and Alexia Pavan on page 25.

I'll sign off with more thanks - to Research Editor Dr. Maria Gajewska and proofreader Marylyn Whaymand, the IASA Outreach Committee and you, the contributors and readers. I hope you enjoy the Bulletin.

Carolyn Metkola
Editor

IASA News

A Change of Secretary for IASA

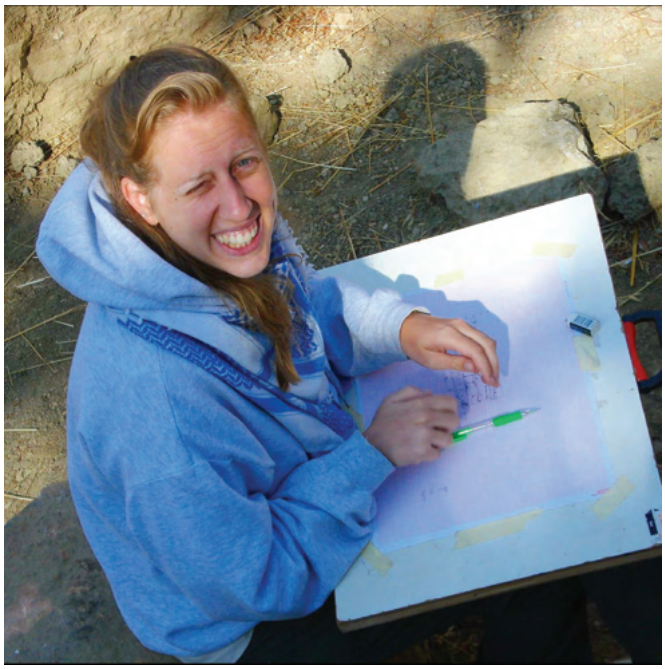
A big welcome to Tracey Cian who takes over from Amy Crossman as Secretary of the IASA.

After obtaining her BA in Heritage Studies at the University of Pisa, and two MAs, one in Archaeology of the Arab and Islamic World and one in Classical and Near Eastern Archaeology, from University College of London in Qatar and Bryn Mawr College respectively, Tracey is currently finishing her PhD in Arabian Archaeology at Bryn Mawr College.

Tracey's research primarily focuses on the socio-cultural interactions within the Arabian Peninsula and in the larger SWANA region during the Bronze Age and Iron Age; however, she is also interested in Late Islamic ceramics from the Gulf and in the trading connections between the Gulf, the SWANA region and the Far East, as well as Ancient South Arabian epigraphy.

Tracey is also working as a freelance archaeologist and finds officer, and has participated in excavations and surveys in Italy, Oman, Greece, Qatar, Lebanon and Saudi Arabia.

Tracey took over from Amy Crossman, of whom IASA Former Chair and Trustee Noel Brehony writes: "I thank Amy Crossman on behalf of the IASA trustees and members for agreeing to become our Honorary Secretary in 2020 at quite short notice not long after I became chair. I had the pleasure of working with Amy at a time of significant change in the IASA. We were adjusting to the current peripatetic form of the annual Seminar, which had previously been held many years at the British Museum. At the time we were also expanding our outreach and adjusting to the transition from being the British Foundation for the Study of Arabia to becoming the IASA with its increasing international membership. We were able to navigate these



Tracey Cian

changes thanks to the contribution made in the background by Amy. She gave us much of her time despite being very busy in her professional role as a conservator and was immensely helpful to the trustees and to me personally.

I am delighted that her career as a conservator is thriving and I am grateful that she always managed to help IASA despite the other calls on her time. On behalf of the IASA I want to thank Amy for all that she has done for IASA and its members and wish her well for the future."

A Change of Secretary for the Seminar for Arabian Studies

We also welcome Guillaume Chung-To who takes over from Kate Ayres-Kennet as Secretary of the Seminar for Arabian Studies.

Guillaume Chung-To is a postdoctoral researcher specialising in the Late Antique period in the Arabian Peninsula. After completing his PhD at University Paris 1 Panthéon-Sorbonne – where he studied the settlement dynamics of the Arabian Peninsula between the 4th and 10th centuries CE under the supervision of Jean-Pierre Van Staëvel and Jérémie Schiettecatte – his current research focuses on the "boom" in mining exploitation during the 1st millennium CE. He is affiliated with the Jaussen & Savignac Research Center and the Laboratory Orient & Méditerranée (UMR8167) in Paris.

He has participated in several archaeological projects in Saudi Arabia (Thāj, 'Asham, and al-Bad') and was involved for four years (2020–2024) in the Khaybar Longue Durée Archaeological Project, where he studied Late Pre-Islamic and Early Islamic contexts. He is currently working on two projects: one in the oasis of al-Bad' (Saudi Arabia) (dir. Charloux, Sahlah, al-Tarib) and another in the oasis of Suhar (Oman) (dir. Kennet, Priestman, MacDonald, al-Jahwari).

Catherine (Kate) Ayres took over as Secretary to the Seminar in early 2022 as preparations for the Berlin Seminar were underway. After Berlin she remained in position through the Aarhus (2023), Paris (2024), and Abu Dhabi (2025) Seminars. During this time Kate did an excellent job of keeping the complicated administration in good order and in keeping everyone happy, through speedy responses to questions and requests. She was the friendly face of registration at all those Seminars and she made herself very popular through her always cheerful, always calm presence. In January 2024 Kate took up



Guillaume Chung-To

a prestigious new, full-time position as Assistant Director of Programs and Education at the Institute for the Study of Ancient Cultures at the University of Chicago. Despite her boundless energy and enthusiasm, Kate has decided that she will not be able to dedicate enough of her time to the Seminar and that it is therefore time to move on.

We owe a large vote of thanks to Kate for her service to the Seminar over the past four years and I am sure that all Seminar attendees would join in wishing her the very best in her new role.

The Seminar for Arabian Studies

The Seminar for Arabian Studies, founded in 1968, is the only international forum that meets annually for the presentation of the latest academic research in the humanities on the Arabian Peninsula from the earliest times to the present day or, in the case of political and social history, to the end of the Ottoman Empire (1922).

Papers read at the Seminar are published in the Proceedings of the Seminar for Arabian Studies (PSAS). The Proceedings contain new research on Arabia and reports of new discoveries in the Peninsula in a wide range of disciplines.

The 58th Seminar for Arabian Studies was held at the Zayed National Museum, Abu Dhabi between 12th and the 14th of December 2025. This is the first time that the Seminar has been held in Arabia, so it was a very exciting time. Obviously, the unusual winter timing was chosen to avoid the summer heat.

Altogether, around 94 papers were presented in ten separate sessions, with three sessions running consecutively for the full three days. Sessions covered: Palaeolithic/Neolithic (x2), Technology and Science, The Iron Age, The Bronze Age (x2), Epigraphy, The Recent Past and Historical periods, and The Late Pre-Islamic and Early Islamic Periods, with a Special Session on Bahrain curated by Dr Salman Al Mahari. There was also an excellent keynote lecture on Dilmun and the Amorites by Dr Steffen Terp-Laursen, a famous Danish archaeologist. Attendance was very strong: we are still waiting for a full breakdown on the figures, but there was clearly a lot of interest from local archaeologists and history enthusiasts, which is very encouraging.

The setting at the Zayed National Museum – newly opened in the week preceding the Seminar - was fantastic, allowing attendees the chance to see its outstanding collections. The setting in the cultural district of Saadiyat Island also allowed Seminar guests to visit the nearby Natural History Museum Abu Dhabi, where the remains of our three-million-year-old African ancestor 'Lucy' (a female Australopithecus afarensis) were on temporary display – a real highlight. Our welcome was warm, the hospitality was perfect, and we owe a great vote of thanks to our hosts at the ZNM, who very generously covered the transport and accommodation costs for the speakers.



Zayed National Museum

The main sessions of the Seminar may be watched on the Live section of the Zayed National Museum YouTube Channel: https://www.youtube.com/@ZNMUAE/streams.

The 59th Seminar for Arabian Studies 2026

The 59th Seminar for Arabian Studies 2026 will take place at - and in collaboration with - the University of Bologna, Thursday 30th July – Saturday 1st August 2026.

The Seminar will take place in Bologna at DAMSLab (Department of Drama, Art and Music Studies, University of Bologna; Piazzetta P.P. Pasolini 5b) and at the nearby University complex in Via Azzo Gardino 23. Detailed information of the venues and mobility access will soon be circulated.

It is expected that around 100 papers will be presented in three parallel sessions over the three days, including those in the Special Sessions. There will be two Special Sessions, each consisting of around 9 or 10 papers:

Of Nomads and Kingdoms: Theoretical and Methodological Advances on a Long-Standing Dichotomy, organized by Dr Silvia Lischi. This session will examine the shifting relationships between mobile and sedentary communities in Arabia from prehistory to the present.

and

New paths between Time and Space?: Pottery production and circulation in Southeast Arabia during the Late Bronze Age and the Early Iron Age: between chronology and regionalism, organized by Michele Degli Esposti (Institute of Mediterranean and Oriental Cultures, Polish Academy of Sciences) and Maria Paola Pellegrino (Sorbonne University Abu Dhabi). This session will focus on clarifying the regional chronology of the LBA and Early Iron Age, with specific attention on the identification of sub-regional patterns that can provide the basis for a more accurate phasing.

There will also be a keynote address on the evening of Friday 31st July at around 17:30 by Dr Vincent Charpentier (title tbc).



- Biblioteca Salaborsa, Bologna

A reception will follow at Biblioteca Salaborsa, Piazza del Nettuno, 3 Bologna.

Seminar attendance will be available in person or online via Zoom. Registration will open soon, via the Seminar website: https://iasarabia.org/the-seminar/

IASA Publications

IASA Monographs

DEREK KENNET AND STJOHN SIMPSON (SERIES EDITORS)

After a period of quiet, the IASA monograph series is picking up again. In 2025, we published our 22nd and 23rd volumes: Umm al-Quwain 2: A Neolithic settlement and graveyard in the United Arab Emirates by Sophie Mery & Kevin Lidour and Two Late Umm an-Nar Tombs at Mowaihat-Ajman, United Arab Emirates: Excavations and Human Bone Remains by Walid Yasin Al Tikriti & Kathleen McSweeney.

Umm al-Quwain 2: A Neolithic settlement and graveyard in the United Arab Emirates

This volume examines the Neolithic period in Eastern Arabia, focusing on the coastal site of UAQ2 in Umm al-Quwain, United Arab Emirates. Based on years of excavations and surveys conducted by the French Archaeological Mission in the UAE, it explores how coastal communities lived and adapted between the 8th and 6th millennia before present. The book highlights the unique features of UAQ2, including its well-preserved stratigraphy, which provides insights into settlement patterns, subsistence strategies, and burial practices. These findings offer a detailed understanding of how these communities sustained themselves through fishing, hunting, and herding. The site contains one of the oldest known graveyards in the Arabian Gulf, revealing evidence of inter-group violence and symbolic practices linked to ancient pearling traditions. In addition to examining local practices, this monograph places UAQ2 within broader regional networks. It explores connections with Mesopotamia, demonstrated by Ubaid pottery, and links with the Sultanate of Oman, reflected in shared material culture and technologies. These interactions underline the UAE's significant place in regional exchange during the Neolithic. The study also considers the impact of environmental changes on human mobility and settlement, including the effects of aridification and shifting coastal landscapes. By integrating archaeological and environmental analyses, this book enhances our understanding of the Neolithic period in Eastern Arabia and its place within the wider prehistoric world.



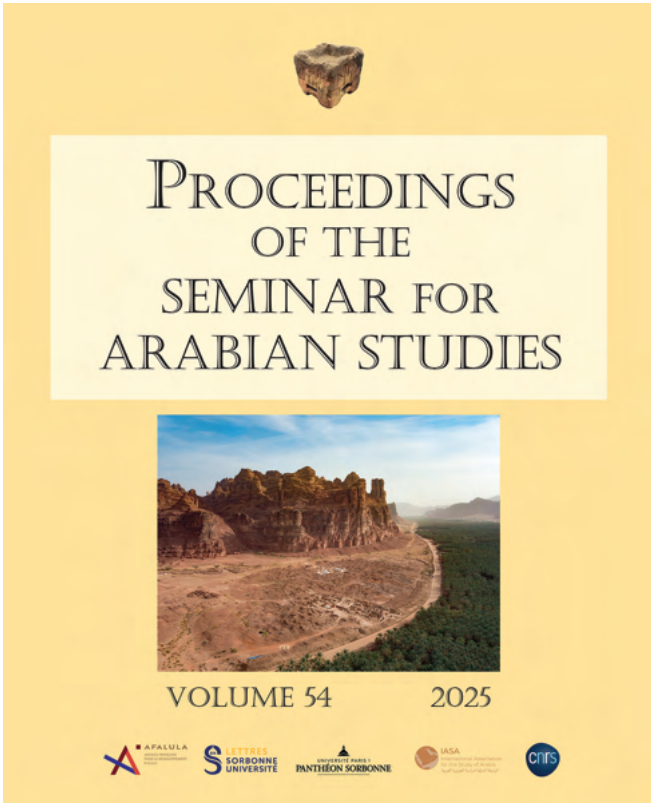
Image from Umm al-Quwain 2: Figure 1.14

Two Late Umm an-Nar Tombs at Mowaihat-Ajman, United Arab Emirates: Excavations and Human Bone Remains

'Two Late Umm a-Nar Tombs at Mowaihat-Ajman, United Arab Emirates' presents information resulting from rescue excavations at two collective tombs (A and B), belonging to the last quarter of the third millennium BC. The excavations at Tomb A, a disturbed above-ground, circular grave, and the diversity of the materials discovered in Tomb B, a rectangular subterranean pit-grave, in the mid-1980s, have confirmed that the sphere of the Umm an-Nar Culture in the United Arab Emirates is much wider than orginally thought.

Whilst Tomb A was fully excavated, Tomb B was only partially uncovered (Al Tikriti 1989). Excavation at the latter was completed by the late Ernie Haerinck (1991). The aim of this report is therefore to summarize the two preliminary published reports, and more importantly, to introduce an osteological study on the human bone remains from Tomb B. Since the discovery of the Umm an-Nar culture by the Danish Archaeological Expedition in the late 1950s, subterranean tombs of the period are still rare. Tomb N at Hili and Tomb B in Ajman are the only ones known so far. However, despite belonging to the same period and showing similarities in burial customs, the bone study of the Ajman remains demonstrated some differences between the dead of Tombs B and N.

There are more volumes, currently in the pipeline, expected to appear in 2026. Special thanks are due to all at Archaeopress for their hard work and support. To order these, or any other titles in the series, visit the Archaopress website: https://www.archaeopress.com/Archaeopress/Collection/International-Association-for-the-Study-of-Arabia-Monographs



Past issues of PSAS, includng the Proceedings of the 57th Seminar for Arabian Studies, shown above, can be ordered from Archaeopress:. https://archaeopresspublishing.com/ojs/index.php/PSAS

The Proceedings of the Seminar for Arabian Studies (PSAS)

SILVIA LISCHI (EDITOR)

This year, exceptionally, the Proceedings of the Seminar for Arabian Studies will not be published and presented at the forthcoming Seminar in Bologna, as the 2025 edition of the Seminar took place later in the year than usual. Volume 55 is instead expected to be published in the autumn. The Proceedings of the Seminar for Arabian Studies in Bologna should then return to the regular publication schedule.

IASA Grants

The IASA began making awards to support research in the Arabian peninsula from 2013 and since then has benefitted from a generous donation from the IASA Patron, Valeria Piacentini.

These awards can make a real difference in sustaining current research and supporting a new generation of researchers. We attach great importance to disseminating the outcomes of research in the form of publications, contributions to conferences and inspiring exhibitions.

Recipients of awards are required to make full reports to the IASA and agree to give lectures organised by the IASA if asked, as well as writing shorter reports in our bi-annual bulletin to make outcomes known as widely as possible.

IASA grants are intended to support research in any academic areas covered by the IASA's aims, which are to promote research relating to the Arabian Peninsula, in particualr its archaeology, culture, epigraphy, ethnography, geography, geology, history, languages, literature and natural history.

Grants may be used to fund fieldwork, library or laboratory-based research or research support.

There are two types of research grant:

Small Research Grants: up to £500 (for all categories of researchers);

Main Research Grants: up to £1,000 (for post-doctoral research).

The deadline for application for grants is normally 31 May, with awards announced by the end of June They are assessed by our Research Committee, which is chaired by Professor Robert Carter.

Grant Reports

Fieldwork on the Development of Defensive Forts in Central Arabia: Report from Nine Sites in Saudi Arabia

ALHAM ALSHAMMARI
Durham University

In October 2025, fieldwork was conducted across nine forts in Saudi Arabia as part of a PhD project examining the development of defensive forts in Central Arabia. The research focuses on architectural development, spatial organisation, and construction techniques, with the aim of contributing to a broader understanding of their chronological and functional evolution.

The sites investigated include Qasr Kharrash (قصر خراش), Qasr Tuwarin (قصر توارن), Qasr Harun al-Rashid (قصر هارون الرشيد), Qasr al-Qadeer (قصر القدير), Qasr Ithrah (قصر إثرة), Qasr Kāf (قصر كاف), Qasr al-Samhān (قصر السمحان), Qasr Mushrifah (قصر مشرفة), and Uṭm Ibn ʿUmayrah (أطم بن عميرة).

These sites represent a range of architectural forms, chronological phases, and environmental contexts, enabling comparative analysis of fort construction and spatial distribution across Central Arabia. The surveyed corpus spans multiple chronological phases, including possible pre-Islamic origins, early Islamic constructions, and later historic and early twentieth-century reoccupations. Rather than representing a linear developmental sequence, these sites reflect the long-term continuity and reuse of defensive architecture across Arabia. This temporal depth allows examination of both architectural persistence and regional variation in construction practices.



- **Fig. 1.** Location of the nine forts investigated during the 2025 fieldwork, mapped using Google Earth (Author, map produced 2026)

A multi-method approach was adopted, combining non-invasive and minimally invasive techniques. High-resolution aerial photography was carried out using a DJI Mini 3 drone, enabling systematic visual documentation of site layouts and surrounding landscapes.



- **Fig. 2.** Drone orthophoto of Qasr Mushrifah in Ṭā'if showing enclosure and internal layout (Author, 2025).



- **Fig. 3.** Oblique aerial view of Qasr Mushrifah illustrating the relationship between the enclosure and surrounding landscape (Author, 2025).

Geographic Information Systems (GIS) were used to record and integrate spatial data from fieldwork. This enabled comparative analysis of fort layouts, environmental settings, and strategic positioning. The dataset demonstrates variation in site placement, with some forts occupying elevated positions overlooking routes or associated settlement areas, while others are integrated within broader habitation contexts. (Fig. 4)

At selected sites, terrestrial laser scanning (LiDAR) was employed to record architectural remains. For instance, it was used at Qasr Ithrah in al-Qurayyat and Qasr Tuwarin in Hail to acquire high-resolution spatial data relating to wall morphology and internal organisation. Processing of these datasets is ongoing and will support further analysis of construction techniques and building phases.

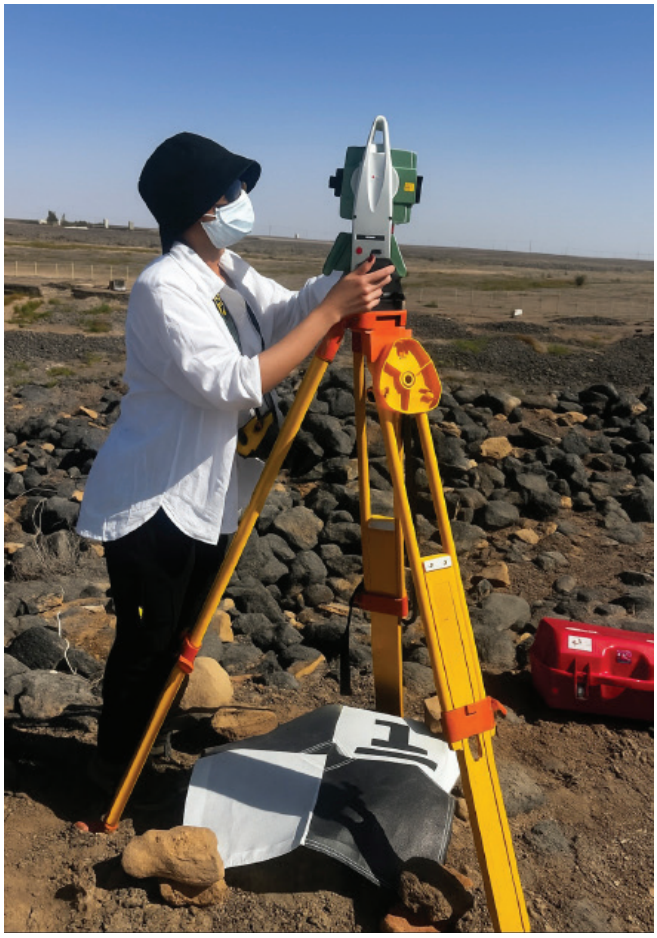


Fig. 4. Total station survey at Qasr Kharrash in Hail (Author, 2025).

Additionally, limited material sampling was undertaken. A plastered cistern associated with an early Islamic settlement at Zubala, located along the Darb Zubaydah in north-west Saudi Arabia, where Qasr Harun al-Rashid (locally known as Husn Zubala) is situated, was identified and sampled. The context has been tentatively attributed to the early Islamic period, with a possible Abbasid date, although an earlier origin cannot be excluded pending further analysis. The material has been submitted for radiocarbon (C14) analysis to establish a chronological framework. Results are currently pending. (Figs 5, 6 and 7)

Surface archaeological remains, including pottery fragments and inscriptions, were recorded in situ and documented photographically. (Fig. 8)



Fig. 5. General view of the cistern showing overall condition and vegetation cover; the sampling area is located within this structure (Author, 2025).



Fig. 6. Sampling location indicated on the cistern wall (Author, 2025).



Fig. 7. Collected material sample following extraction (Author, 2025).



Fig. 8. Surface pottery fragments observed in the field at Qasr Kharrash (Husn Faid), Hail (Author, 2025).

Post-fieldwork analysis is ongoing. The collected datasets are being processed to produce three-dimensional digital models of the nine forts. These models will support comparative architectural analysis and provide a basis for examining patterns in fort design, construction, function, and development across Arabia.

Preliminary observations relate to variation in construction techniques and spatial organisation, which may reflect differences in function, chronology, and regional context. The integration of aerial documentation, GIS analysis, LiDAR scanning, and material sampling provides a multi-scalar framework for the study of forts.

This fieldwork, along with previous fieldwork on other forts in Central Arabia, has generated substantial primary data that contributes to the broader aims of the PhD research and supports further analysis of the origin, development, and use of defensive forts in Central Arabia.

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Country Reports

Bahrain

Seminar on "Christian Archaeological Sites in Eastern Arabia: Towards a Shared Heritage"

BAHRAIN NATIONAL MUSEUM, 13–14 SEPTEMBER 2025

The Bahrain Authority for Culture and Antiquities, in partnership with King Hamad Global Center for Coexistence and Tolerance, organized a two-day seminar entitled "Christian Archaeological Sites in Eastern Arabia: Towards a Shared Heritage" on 13–14 September 2025 at the Bahrain National Museum. The seminar brought together archaeologists, heritage professionals, and official representatives from Bahrain, Kuwait, and the United Arab Emirates, alongside internationally recognized scholars including Prof. Timothy Insoll, Dr. Julie Bonnéric, Dr. Maria Gajewska, Dr. Timothy Power, Mr. Simon Warrack, and Ms. Melanie Muenzner.

The event aimed to explore the significance of Christian archaeological heritage in Eastern Arabia The event aimed to explore the significance of Christian archaeological heritage in Eastern Arabia and to foster dialogue on its documentation, conservation, and potential for regional collaboration.

Over the course of the program, participants examined four key sites that illustrate the diversity and extent of Christian presence in the Arabian Peninsula: Samaheej Archaeological Site in Bahrain, al-Qusur on Failaka Island in Kuwait, Sir Bani Yas in Abu Dhabi, and Siniya Island in Umm al-Quwain. These sites were presented through case studies that highlighted their historical context, architectural features, conservation status, and current management challenges. architectural features,



Fig. 1 Conference participants



Fig. 2. The conference in progress

conservation status, and current management challenges.

The seminar was structured around four main thematic areas: key sites and recent archaeological discoveries; comparative perspectives and regional significance; the current state of conservation and management; and gaps, needs, and research priorities. Presentations were delivered by representatives of governmental heritage authorities and academic institutions across the GCC, providing valuable insight into ongoing initiatives at both national and institutional levels.

The first session focused on recent archaeological discoveries and their contribution to understanding Christianity in Eastern Arabia. Prof. Timothy Insoll presented research on the Samaheej site in Bahrain, highlighting its importance as a possible bishopric center during Late Antiquity. Dr. Julie Bonnéric discussed the monastic complex at al-Qusur on Failaka Island, presenting evidence of both cenobitic and ascetic traditions. Dr. Maria Gajewska shared findings from excavations at Sir Bani Yas, emphasizing aspects of water management and settlement organization. Dr. Timothy Power introduced the recently discovered monastery and pearling settlement on Siniya Island, offering new insights into the continuity of Christian communities into the early Islamic period. Together, these case studies underscored the Gulf's role as a dynamic hub connected to wider maritime trade networks and religious exchanges.

A second session explored comparative perspectives, situating the Christian sites of Eastern Arabia within broader regional contexts such as Mesopotamia and the Levant. Discussions highlighted shared architectural forms and ecclesiastical traditions associated with the Church of the East, as well as patterns of mobility and exchange among monastic communities. Particular attention was given to the island setting of many of these sites, which offered both seclusion and connectivity. At the same time, participants reflected on the limitations of the current evidence and emphasized the need for cautious interpretation when reconstructing identities and community structures.

The third session addressed conservation and management challenges across the region. Case studies from the UAE, Kuwait, and Bahrain illustrated varying approaches to site preservation and public presentation. Dr. Richard Cuttler discussed the conservation and interpretation of Sir Bani Yas, while Mr. Simon Warrack highlighted environmental and developmental pressures affecting Siniya Island. Ms. Khelod Al Khashram presented the complexities of managing the multi-layered archaeological landscape of Failaka Island, including its nomination efforts. Ms. Melanie Muenzner shared updates on the management planning process for Samaheej, emphasizing the importance of community engagement and sustainable visitor strategies. These discussions revealed both shared challenges and opportunities for strengthening conservation practices across the region.

The seminar concluded with a session dedicated to defining next steps. Key recommendations included the preparation of a publication with the proceedings of the seminar and the establishment of a regional working group to coordinate efforts among participating countries. Further discussions also emphasized the need to explore funding mechanisms, technical support, and appropriate management frameworks.

Overall, the seminar provided an important platform for advancing knowledge, strengthening regional collaboration, and laying the groundwork for the recognition and protection of an underrepresented aspect of the Gulf's cultural heritage.

GCC Archaeological Heritage: Between Discovery and Preservation

BAHRAIN NATIONAL MUSEUM, 6–7 JANUARY 2026

The seminar "GCC Archaeological Heritage: Between Discovery and Preservation" was held at the Bahrain National Museum on 6–7 January 2026, organized in partnership with the Gulf Cooperation Council (GCC) Secretariat. The two-day event brought together archaeologists, heritage professionals, researchers, and institutional representatives from across the Gulf to exchange knowledge and present recent work in archaeological research and heritage management. It provided a valuable regional platform for discussing emerging discoveries, ongoing projects, and collaborative approaches to the protection and documentation of archaeological heritage in the Arabian Gulf.

The seminar addressed three principal themes: recent archaeological discoveries, efforts to safeguard heritage, and the application of modern technologies in archaeological practice. Presentations by representatives of governmental heritage authorities, museums, and academic institutions across the GCC offered insight into current initiatives at both national and institutional levels. Participants from Bahrain, Saudi Arabia, Kuwait, Qatar, the United Arab Emirates, and the Sultanate of Oman contributed perspectives reflecting the region's diverse archaeological landscapes.

Several contributions highlighted recent findings from ongoing excavations and fieldwork. Representatives from archaeological authorities and research missions presented results from sites across the region, demonstrating the continued expansion of knowledge on settlement patterns, trade networks, and cultural interactions within the Gulf and beyond. These presentations reinforced the importance of sustained field research and the role of collaborative international missions in advancing archaeological understanding.

This was complemented by presentations on the preservation and protection of archaeological sites and cultural landscapes. Representatives from heritage institutions shared experiences related



Fig. 1 Group photo of conference participants



Fig. 2. Logo and poster of the conference

to site management, conservation initiatives, and legislative frameworks designed to safeguard archaeological resources. They emphasized the challenges of balancing development pressures, environmental conditions, and public access while maintaining site integrity.

Another focus of the seminar was the integration of modern technologies in archaeological research and documentation. Several speakers presented projects utilizing tools such as geographic information systems (GIS), digital archiving, photogrammetry, and other emerging methods. These approaches are increasingly central to the recording, analysis, and dissemination of archaeological data, enabling more effective management of heritage resources while expanding access for wider audiences.

It also served as a forum for regional dialogue and professional exchange. By bringing together heritage professionals from across the GCC, the event encouraged discussion of shared challenges and opportunities in archaeology and heritage management. Participants compared methodologies, exchanged institutional experiences, and identified areas for future collaboration.

A key outcome of the seminar was the strengthening of professional networks among archaeologists and heritage specialists in the Gulf region. In-person engagement enabled participants to develop a clearer understanding of ongoing research and preservation efforts. This exchange also brought greater visibility to the range of archaeological activity within the GCC and underscored the value of continued regional cooperation in advancing knowledge and safeguarding cultural heritage.

The seminar underscored the shared cultural legacy of the Arabian Gulf, reflected in archaeological sites that extend beyond national boundaries. By facilitating dialogue among institutions and specialists, the event contributed to a broader understanding of the region's archaeological landscape and the collective responsibility for its protection. Such gatherings remain essential to knowledge exchange, fostering collaboration, and strengthening the networks that support the long-term preservation of Gulf archaeological heritage.

Country Reports

Oman

Excavations and surveys of Sapienza Archaeological Mission in the Arabian Peninsula and the Gulf (MASPAG) in the Sultanate of Oman. Preliminary results, new discoveries and perspectives in Wadi al Ma'awil.

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Introduction

At the beginning of the 2025 season, we refined the area's topographic framework by integrating and correcting satellite and drone imagery of three macro-sectors into a unified network, ensuring geomatic control of excavation areas (A, B, C), geological and palynological surveys, and the surrounding natural and human landscape of the Muslimat oasis. Along the road between Muslimat and Tawiyah, we re-established the expedition base for the third season, supporting ongoing multidisciplinary research and the development of a natural and cultural open park linking Wadi al Ma'awil, Khatum, Mahalil, and Al-Awabi with key sites such as Nakhal, Al Gasham House, and Wakhan Village.

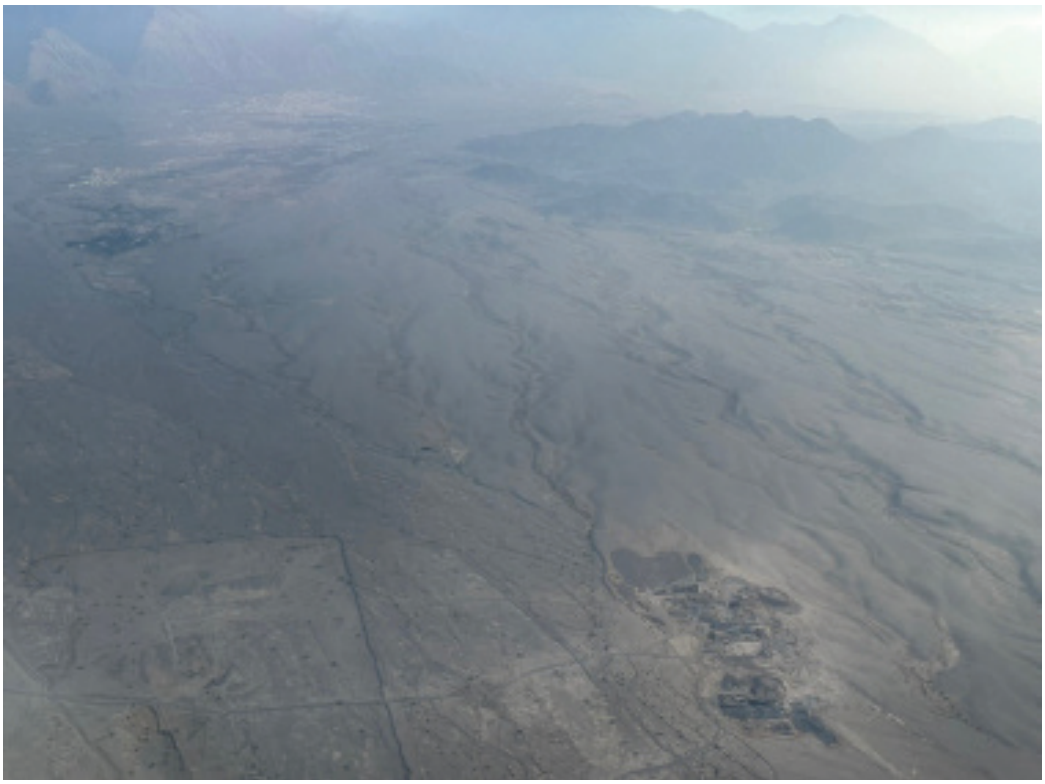


Fig. 1 Wadi Al Ma'awil, aerial view (MASPAG, courtesy MHT).



Fig. 2 Area A, Mound 1, drone zenithal view of WS1, WS2 and WS3 (Photo by N. I. Almu'wali MASPAG, courtesy MHT).

Mound 1, Jennat Manqal, Area A, Worksite 2 and 3

In 2024, on Mound 1, we opened two excavation areas (Worksites 2 and 3) on the southwestern slope, collecting extensive architectural and archaeological data to reconstruct the spatial organization and occupation phases of the Iron Age fortified settlement.

In WS2, stratigraphic excavation revealed a large pre-Islamic funerary area with multiple-chamber graves, similar to those in the Southwestern Cemetery. Locus 2, an ogival chamber, contained a primary burial of a young woman (27–32 years old) with rich grave goods, including gold and bronze earrings and rings. In 2025, microstratigraphic excavation in WS2 identified a multi-layered funerary area: a semicircular stone wall likely belonged to an older circular grave, later reused for elongated tombs (Loci 1–3), probably dating to the Late Samad period. Evidence suggests that the area was transformed into a burial ground in the late Iron Age. Later wall remains indicate a final phase with small interconnected rooms reusing funerary structures, suggesting a limited reoccupation before the Islamic period. Despite erosion, at least four occupation phases are proposed: early monumental graves, fortified Early Iron Age settlement, Late Iron Age/Late Samad funerary phase, a pre-Islamic village reusing grave remains (possibly as temporary shelter). In WS3, excavation exposed a dense system of small structures along the northwestern slope, supported by retaining walls. Associated features indicate productive activities, likely storage or processing, clarifying the area as an industrial sector of the citadel.

Western Cemetery, Area B

Thanks to intensified survey work we expanded knowledge of the Western Cemetery, recording 529 graves and identifying a new funerary zone (Area D) with 282 graves, morphologically distinct from Hafit and Umm an-Nar types but similar to the Southwestern Cemetery. The area now appears structured into Hafit-period tower graves on the Akhdar peaks, numerous circular graves in Area D and a few large monumental graves on the foothills, possibly linked to transitional phases (Hafit/Umm an-Nar or Umm an-Nar/Wadi Suq).



Fig. 3 Area B, Western Cemetery, Grave 1, Grave 2, Grave 4 and Grave 5, drone from North (Photo by A. al-Rawahi, MASPAG, courtesy MHT).

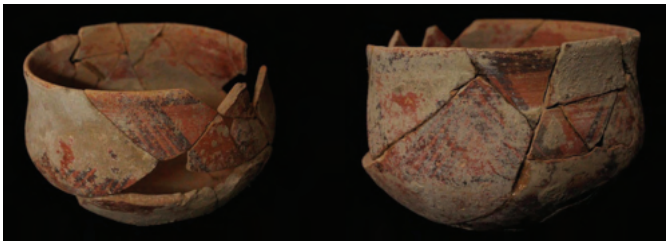
Excavations in Area B clarified these transitions. Grave G1 (2023) confirmed an Early Bronze Age date, likely transitional, while G2 (2024) revealed a large concentric structure with a single central chamber, attributable to the final Umm an-Nar phase and comparable in plan to later Wadi Suq tombs. The 2025 excavation of G5 showed a similar structure but with later reuse phases, evidenced by secondary pits and scarce material remains. Stratigraphy indicates an original chamber (Locus 3) and later reuse (Loci 1–2). Excavation of G3 revealed a large

(13.5 m diameter) concentric-ring tomb with two perpendicular chambers. Rich finds, including over 160 beads and an etched (or bletched) carnelian bead comparable to Umm an-Nar examples from Hili.

Southwestern Cemetery, Jennet Hesseneiat, Area C

In 2022, the South-Western Cemetery was identified and surveyed southwest of Mound 1, extending over a 3.5 km terrace with 185 graves of various types. Excavations in Areas C (G1 and G2) confirmed a complex Wadi Suq–Iron Age funerary landscape.

In 2023, G2 revealed a cluster of five small chambers with limited remains, while G1 yielded a monumental rectangular tomb with rich deposits, including human bones, incised stone vessels, gold elements, and fragments of precious jewellery. In 2024, excavation between G1 and G2 uncovered three adjacent multi-chamber tomb complexes (G3a–c), each composed of several ogival chambers arranged in parallel. In 2025, Area C was fully excavated, revealing an interconnected funerary system of 29 chambers, including G3a–c, G2, and the southern G4.



- **Fig. 5** Area C, Southwestern Cemetery, WMS25C30, Wadi Suq diagnostic pottery (Photo by D. Michilli, MASPAG, courtesy MHT).

The evidence suggests a transitional Late Bronze/Early Iron Age funerary horizon, with reused or heirloom grave goods such as pottery, stone vessels, bronze fragments, and beads.

Intensive Multidisciplinary Surveys and Human Mobility

In 2025, four main multidisciplinary surveys were conducted: updated ground truthing of the Western Cemetery, confirming 529 graves and identifying Area D with 282 additional graves; a geophysical survey with the Italian National Institute of Geophysics and Volcanology identify-



- **Fig. 4** Area C, Southwestern Cemetery, Grave 1, Grave 2 and Grave 3a, 3b and 3c and Grave 4 (Photo by N. I. Almu'wali, MASPAG, courtesy MHT).

ing copper-bearing and hydrothermal mineral zones; palynological sampling with Sapienza University to reconstruct paleoclimate and habitat–biome relationships; materials analysis (chlorite, shells, bronze, gold) with Sapienza's Department of Chemistry, focusing on production technologies and aesthetic/technical characteristics.

Extraordinary and Emergency Surveys

The operational team active in the Batinah since 2022 also carried out three emergency interventions. First, we conducted an inspection and photogrammetric survey of two graves within a rescue-excavated cemetery in Wadi Zahimi, affected by dam construction. Second, we investigated Area E in al-'Awaynah, near modern infrastructure, identifying 77 features, including 59 burials, pottery scatters, and stone alignments. In addition, in Wadi al-Jahfan, we documented extensive petroglyphs and recorded damage from climbing equipment, highlighting the urgent need for protection of these widespread rock art sites marking ancient routes around Muslimat.

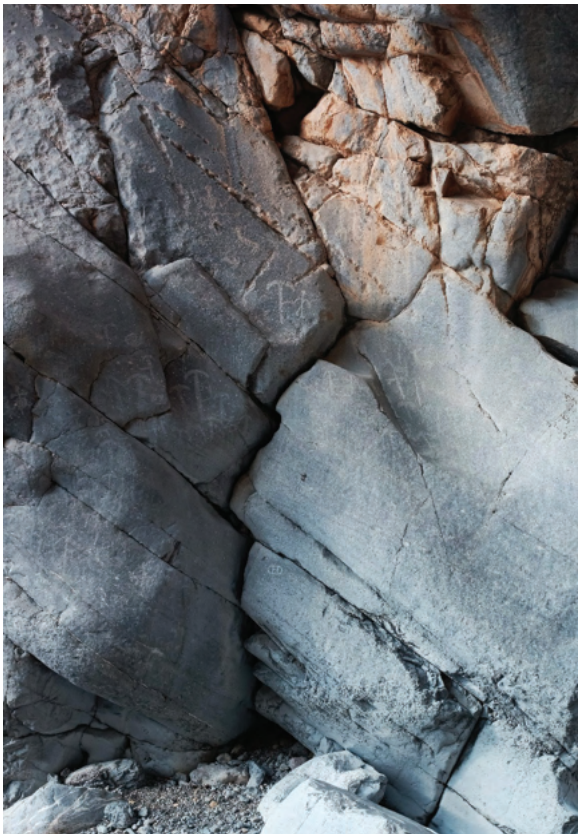


Fig. 6 Wadi al Ma'awil, T-shaped petroglyphs wall in Wadi al-'Asey (Photo by E. Zanetti, MASPAG, courtesy MHT).

New Proposals and Perspectives

The MASPAG project proposes the creation of a natural and archaeological park in Wadi Al-Ma'awil to enhance Oman's tourism potential. The park will initially include key settlement and cemetery areas around Muslimat and later connect them with surrounding heritage sites such as Nakhal, Al Awabi, Khatum, and Mahalil. The project aims to preserve and promote the region's archaeological and natural heritage while increasing its touristic appeal through immersive and technological experiences.

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Ongoing Research at Al Baleed and the Dhofar Region: New Data from the 2025 Field Season

R. GIUNTA, A. PAVAN

University of of Naples L'Orientale

The 2025 field season of the Italian Archaeological Mission of the University of Naples L'Orientale at Al Baleed and in the Dhofar region (IAMOB) was conducted between 30 November and 28 December, in collaboration with the Ministry of Heritage and Tourism of the Sultanate of Oman. The project continues a long-term research programme focused on the site of the ancient port city of Zafar, today Al Baleed, and its wider territorial context, integrating excavation, survey, and documentation activities, alongside initiatives dedicated to training and public engagement.

At the site of Al Baleed, fieldwork focused on mound BA017, an area under investigation since 2024, located in the north-western sector of the town, close to major buildings, including the citadel and the Grand Mosque (Giunta et al. 2025). A total of sixteen rooms and open areas were investigated, revealing a dense concentration of installations, including sixteen clay ovens (tannurs), hearths, refuse pits, and dumping areas. The evidence points to a productive complex primarily devoted to food preparation and cooking. These activities are attested throughout the stratigraphic sequence, with no substantial functional change between the main phases identified. Rather than indicating different uses of the space, the phases reflect successive reconfigurations of the same functional area, shaped by the repeated installation, dismantling, and rebuilding of cooking facilities. The archaeological materials can be broadly dated between the 16th and 18th centuries, as indicated by diagnostic ceramics associated with the latest occupation of the city, with parallels also attested at the citadel (Pavan et al. 2020).

Particularly significant is the presence of well-stratified dumping deposits, which could provide valuable insights into dietary practices through the analysis of food remains. Variations in the composition of faunal remains, especially fish and



Fig. 1 Al Baleed, aerial view of the excavated area at the end of the campaign (©IAMOB, 2025)



Fig. 2 Al Baleed, cooking and processing installations in Room A5 (©IAMOB, 2025)

shell assemblages, point to changes in resource exploitation over time. The study of malacofauna has been initiated in collaboration with the University of Milan, while archaeobotanical samples have been systematically collected for analysis, opening new perspectives on plant use and environmental interaction, both on a seasonal basis and over longer-term trajectories.

The materials recovered during the 2025 campaign have further expanded the interpretative framework of the area, supporting its identification as a multifunctional space where food preparation, consumption, and possibly distribution took place. The assemblage, in fact, includes not only vessels related to cooking and food preparation, but also containers associated with serving and pouring, as well as a large number of incense burners, which may have been produced or assembled in this part of the site. Additional evidence of everyday practices is provided by finds such as small containers associated with betel chewing and objects possibly linked to leisure activities.

The mission also continued its survey activities in the Dhofar region, with particular attention to the coastal area of Hasik, already investigated during previous campaigns (Pavan 2024), integrating desk-based remote sensing conducted in Italy with field verification. Several sites of archaeological interest were identified, including shell middens, circular stone structures, and architectural remains. The evidence points to a long-term and multi-phase occupation of the coastal landscape, extending into the Late Islamic period, and highlights the role of this area within broader patterns of mobility and resource exploitation. The reuse of several structures by fishermen who still frequent this stretch of coastline further suggests a continuity of use and practices over time.

Additional work was carried out at the Al Ribat cemetery, where preliminary mapping and documentation activities were undertaken (Antonelli 2025). This area represents a key component of the research strategy of the mission, offering the opportunity to investigate funerary practices and their relationship with the settlement dynamics of occupation at Al Baleed.

From a methodological perspective, the project continues to develop an integrated approach to documentation. The combined use of total station, GNSS, and drone-based photogrammetry, also implemented through a new collaboration with Dhofar University in Salalah, has enabled the production of high-resolution spatial data, supporting both fieldwork and post-excavation analysis. These datasets form the basis for ongoing interpretative work and for future digital applications, which are planned to be developed in collaboration with the Ministry of Heritage and Tourism.

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Country Reports

Qatar

Archaeology Exhibitions and Public Archaeology Programming

MARGAUX DE PAUW, Qatar Museums Authority

Over the past six months, outreach programming of Qatar Museums Authority's Archaeology Department has focused on engaging the public through hands-on activities and guided tours at archaeological sites. This included school workshops on the Stone Age in Qatar and introductions to archaeology, as well as on-demand guest lectures. Monthly object handling sessions and children's workshops with QC+ helped reach new audiences, while new interactive worksheets and the UNIV220 awareness course with Qatar University contributed to understanding local knowledge of archaeology.

Other returning activities included Open Days and 'Archaeologist for a Day' sessions, allowing participants to join work on site, the night run Al Zubarah Challenge, as well as Tasweer Photo Walks capturing both aesthetic views and personal perspectives of archaeological landscapes. Educational cleanups at Al Zubarah, Fraiha, and Al Areesh combined heritage stewardship with environmental care. International engagement included expert lectures through Years of Culture and the organisation of the First Arab Youth Forum: Empowering Arab Youth for a Sustainable Heritage. Together with the following three exhibitions, these efforts made archaeology more widely accessible to the public while encouraging respect for heritage and a shared responsibility to protect it.





Atharna Exhibition (24 October - 15 February 2026, Doha - Qatar

Qatar Museums Authority launched the first edition of Atharna, an annual archaeology exhibition series, which translates ongoing research into an accessible public experience supported by dedicated programming. Atharna 2025: Unearthing Qatar's Ancient Textile Factories at the National Museum of Qatar presented within an immersive archaeological tent and loom shaped displays. The exhibition introduced visitors to the work of a field archaeologist while showcasing artefacts from the Abbasid sites of Ain Mohammed and Mesaika, part of the Landscapes of Faith project. Recent discoveries provide evidence of textile production and offer insight into craft activities and everyday life at these sites.



Shaped by Stones Exhibition (24 October 2025 – 30 June 2026, Sharjah-UAE) 2026, Doha - Qatar

Hosted at the Sharjah Archaeology Museum and created by Qatar Museums Authority in collaboration Sharjah Museums Authority, Shaped by Stones: The Tools That Made Prehistoric Qatar presents 110 remarkable artefacts from Qatar's Stone Age. Focusing on stone tools found across the country, it demonstrates human presence from the Lower Palaeolithic and shows how communities adapted to their environment through ingenuity, craftsmanship, and knowledge of the landscape. The exhibition also highlights the work of Danish archaeologist Holger Kapel, whose 1960's Atlas of Stone Age Cultures in Qatar remains a cornerstone in understanding the region's prehistory. It concludes with pre-Islamic human and camel burials, displayed alongside finds from Mleiha (UAE), illustrating cultural connections across the Gulf.

Archaeological Exhibition of the Arab Gulf States

(2 December – 30 December 2025, Riyadh-KSA)

Qatar Museums Authority participated in the eighth joint Archaeological Exhibition of the Arab Gulf States at the National Museum of the Kingdom of Saudi Arabia, contributing 25 artefacts spanning from the Stone Age to the Islamic period. The display highlighted Qatar's place within the wider Gulf region and emphasised the importance of collaboration and shared heritage across Gulf institutions.



Archaeology Maritime Archaeological Survey in Northwestern Qatar Exhibitions and Public Archaeology Programming

OUAFA SLIMANE, Qatar Museums Authority

As part of the "Maritime Cultural Landscape in Qatar" project, an underwater archaeological survey was conducted along the coastal zone between Al Ruwais and the Al Zubarah Archaeological Site, in collaboration with the University of Southampton. The field campaign, conducted from 5 to 8 December 2025, focused on an offshore area covering approximately 28 km^2 and extending nearly four nautical miles from the baseline.

An integrated geophysical survey system was deployed, including side scan sonar, multibeam echosounder, marine magnetometer, and sub-bottom profiler, with data collection undertaken from a designated survey vessel. Operations were carried out systematically, ensuring comprehensive spatial coverage in accordance with established marine geophysical and maritime archaeological survey protocols.

Interpretation of the acquired dataset by the University of Southampton team revealed three geophysical anomalies, which are preliminarily assessed as potential indicators of submerged archaeological or historical shipwrecks. These targets require additional validation; accordingly, a subsequent phase of targeted underwater investigation, including controlled scientific diving, is planned to confirm the anomalies, perform in situ documentation, and evaluate their significance within the broader regional maritime cultural landscape.



Fig. 1 Geophysical equipment prepared for the marine survey (© Qatar Museums Authority)

Unearthing a Forgotten Fort at Al Jumail Heritage Village

FERHAN SAKAL, Qatar Museums Authority

Al Jumail Heritage Village is situated on the northern coast of Qatar and functioned as an important coastal fishing settlement during the 20th century CE, prior to its abandonment in the 1960s. Aerial imagery from 1958, however, provides clear evidence for the presence of an earlier fort at Al Jumail, located immediately west of the village mosque (Fig.1). The imagery reveals the outline of a rectangular structure measuring approximately 25 × 35 m, oriented along a NNW–SSE axis. Shadow patterns indicate that part of the fort was still standing to a considerable height.

The western wall of the fort was reused as part of a courtyard wall and remains preserved today. While subsequent construction impacted the fort, the area remained open space and was never completely overbuilt. Consequently, the remains are preserved beneath accumulated collapse deposits.

The excavation was undertaken as part of a broader initiative aimed at the reactivation of Al Jumail Heritage Village. The primary objectives were to investigate the southeast corner tower to clarify the fort's chronological framework, assess the preservation of subsurface architectural remains, and collect data to inform future conservation and site development.

Fieldwork was conducted by the Archaeology Department at Qatar Museums Authority intermittently between 5 and 29 January 2026. The structure was found to be heavily eroded and partially disturbed by modern activity, particularly at the



Fig. 1 Detail from a 1958 aerial image of Al Jumail village (courtesy of CGSI, Qatar)



Fig. 2 Southeast tower of the fort with associated date press (madbasa), seen from the east (© Qatar Museums Authority)

southeastern corner (Fig. 2). Nevertheless, the excavation revealed a relatively well-preserved section of the fort wall, demonstrating two principal construction phases. The earlier phase is characterized by the use of large limestone slabs, whereas the later phase consists of smaller masonry units, suggesting a period of modification or rebuilding. Stratigraphic evidence indicates that the fort may originally have been constructed on slightly elevated ground, as the floor level of the southwest corner tower lies below the internal floors associated with the earlier phase.

The tower was accessed via a doorway and appears to have been used as a date press (madbasa). The internal layout suggests a functional division, with the western half serving as a storage and working area and the eastern half accommodating a small date press installation measuring 2.5 × 2 m. This installation comprised four shallow channels sloping gently from east to west toward an opening in the southwest corner. A collection jar was set into the floor at this point, allowing for the accumulation of date molasses. A limestone stopper recovered from an adjacent room was likely used to seal the opening.

Date presses have been documented in the region for over 3,500 years and are known from domestic, commercial, and defensive contexts across the Gulf, including Bahrain, the United Arab Emirates, and Oman. Within Qatar, comparable installations have been identified particularly during the 18th–19th centuries CE in fortified contexts such as Fraiha Fort and Al Rekayat Fort, as well as on a significantly larger scale at the Al Zubarah Archaeological Site, where approximately 60 date presses have been excavated in close association within a commercial area (suq).

Despite the relatively short duration of the excavation season, the results have already provided valuable insights into a fortification that had previously received little attention. The material cul-

ture is consistent with that documented at nearby 18th–19th-century CE sites, including Al Ruwaida, Fraiha, and Al Zubarah. Further detailed analysis will be required to refine the dating of the two identified construction phases, and future excavations will expose more of the fort's architectural design.

Country Reports

Saudi Arabia

The activities of the Saudi-Italian archaeological project at Dūmat al-Jandal and al-Jawf region, season 2025

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DARHAN AL-QAHTANI, MANSUR RAFI AL-MOUTARI, AIYDH AL-QAHTANI, NASSER AL-GHURAIBI, KHALIL AL-MAHRE, RAYAN SALEH AL-MUTAIRI, YAZEED AL-EIDAN, NORAH AL-HARBI, ZIYAD AL-MUTAIRI, LAYAN AL-TAMIMI[2],

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Introduction

Since 2009, a joint Saudi-Italian archaeological project conducted research and valorisation activities in Dūmat al-Jandal and the al-Jawf region. 2022 marked an important step towards the development of surveys in al-Jawf region, excavations and, most of all, conservation and valorisation strategies at Dūmat al-Jandal. Until 2025, main restoration and conservation efforts, performed alongside excavation activities, were devoted to the management of the hydrogeological risk in the archaeological park revolving around the Mārid castle.

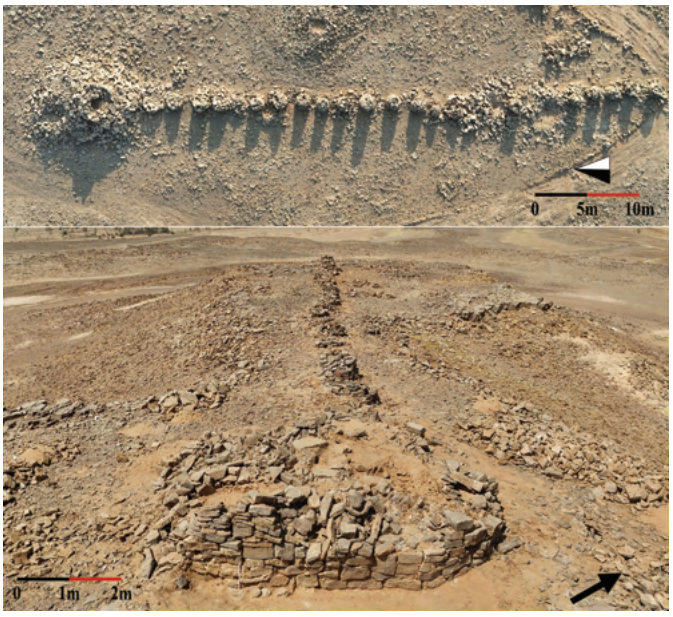


Fig. 1 The funerary landscape of Jebel aẓ Ẓillīyah plateau, north of Dūmat. Top) TEB45; bottom) TEB46 (©Heritage Commission-MAIRAS)

Surveys in al-Jawf

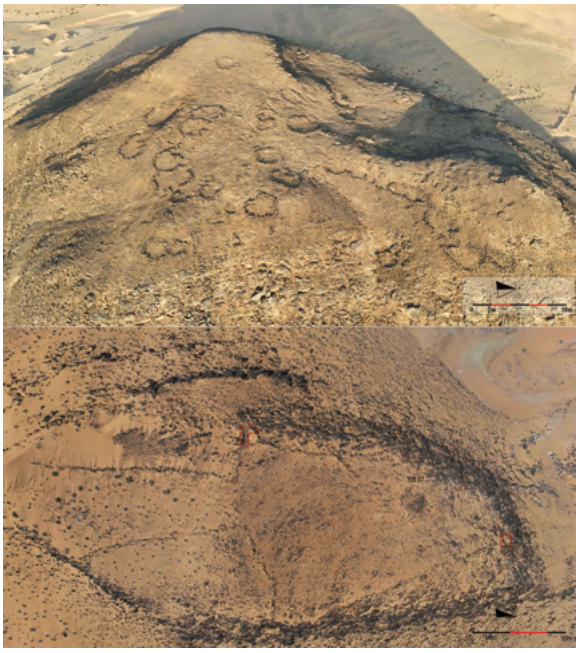
The Holocene in al-Jawf region is defined by the presence of plausible Neolithic settlements and a Bronze Age funerary landscape. Within this context, the 2025 field season focused primarily on the Jebel aẓ Ẓillīyah plateau, just north of Dūmat, and the Quraymīz inselberg system.

Jebel aẓ Ẓillīyah

More than 20 tombs were preliminarily surveyed, overlooking the lowlands of the oasis from the ridgelines. Three of those were excavated, aiming to develop an architectonic typology coherent with the funerary landscapes of the Peninsula. Useful insights regarding the osteological dataset were retrieved (fig.1), as well as first copper alloy material dated to the 3rd-2nd millennium BCE.

Quraymīz inselberg system

The area is 40km ca. NW of Dūmat al-Jandal, comprising several isolated sandstone hills. Plausible prehistoric settlements and tombs were investigated, with a preliminary overview of the rock art engravings of the area. A large encampment was the primary source of interest (QRA.1 / A3.1351). It is



- **Fig. 2.** Fig. 2. Prehistoric evidence of Quraymiz inselberg system. Top) The encampment on top of a sandstone outcrop; bottom) the desert kite with highlighted soundings in apical pits (©Heritage Commission-MAIRAS)

placed on top of an inselberg, composed by at least 50 different structures. An arrow-shaped desert kite (QRB.1 / K282), laying just 2 km east of the encampment, was surveyed and its pits excavated (fig.2).

The archaeological park associated with Marid Castle

Trench 1

The 2025 excavation season in Trench 1 at Dūmat al-Jandal (Nabataean and Early Islamic periods) aimed to clarify the layout of the Islamic settlement and investigate earlier occupation phases. Excavation went on side by side with the consolidation of the ancient structures, by means of anastylosis and the construction of retaining walls and terraces to prevent hydrogeological risks. An open-air site musem is planned, thanks to the creation of channels and safe pathways meant both for visitors and as a way of diverting rainwater during the winter season.

Trench 12

The excavation of Trench 12, the medieval ad-Dira' village, pursued two primary objectives: to intercept the monumental structure previously identified in Trench 10 (a monumental building referred to the Qedar or Neo-Assyrian centuries, 8th-7th cent. BCE), and to begin consolidating the Islamic-period walls of the surrounding buildings. Stone "coating" to prevent decohesion issues is the main strategy adopted, up to now, to protect the building from rainwater



- **Fig. 3** Aerial view of Trench 1, view from N-E. proceeding of the creation of retaining terraces and fruition pathways (©Heritage Commission-MAIRAS)

as well as to maintain and protect the state of preservation of the buildings.

Trench 14

The historical market, together with Mārid Castle, 'Umar Mosque, and the surrounding village of ad-Dira', is the core of the archaeological park of Dūmat al-Jandal. Excavation of Trench 14 began in 2022 and, revealing the remains of the historical market of Ukhaydir, well known from Islamic medieval sources. A long occupational time span is marked by pottery materials, most of which dates to between the Nabataean to Late Antique-Early Islamic period. The identification of this site with the market of Ukhaydir is supported by the identification of material culture related to the presence of a Christian community on site.



- **Fig. 4** Aerial view of the medieval ad-Dira' village. Visible excavation activities as well as architectural areas already restored (©Heritage Commission-MAIRAS)



- **Fig. 5** Further view of the medieval ad-Dira' village. Top left, the historical market (©Heritage Commission-MAIRAS)

The material culture

Since 2024, a devoted study of the Nabataean pottery from Dūmat al-Jandal revealed that Nabataean Building A (Trench 1) presents a complex typology with diverse productions and possible imports, currently under archaeometric investigation. The presence of fine painted ware (eggshell) and wine cups suggests a date at least as early as the 1st century BCE and indicates differentiated uses of space. Nabataean Building C (Trench 11) yielded further domestic contexts, while the historical market area (Trench 14) shows mixed materials ranging from the Nabataean period (1st century BCE-1st century CE) to the Islamic period. The finds are also being 3D modeled and printed to support more accessible open-air museum display.

Among the small finds identified during the 2025 excavation are artifacts such as vitreous paste bracelets, terracotta pipes, beads in different materials including coral, and tools related to daily life.

Out of all the trenches investigated, the majority of small finds come from Trench 1. The latter yielded valuable objects, including a late antique mosaic fragment and several incense burners, some of which are decorated. Furthermore, excavations revealed different fragments of anthropomorphic figurines in terracotta, representing different iconographies. These female depictions could be interpreted as representations of Pre-Islamic female deities who are attested in both written sources and the archaeological record.

Publications

Among the most recent publications, we would like to point out: "The Rediscovery of the Necropolis of the Ancient Dumah/Dumata (Dūmat al-Jandal, Saudi Arabia)". Arabian Archaeology and Epigraphy 2026. https://doi.org/10.1111/aae.70020

Exploring the Hejaz Hajj Route between Makkah and Madinah. Preliminary Results of Excavations at Al-Juḥfah, Hijaz, Saudi Arabia

PROFESSOR TIMOTHY INSOLL OBE FBA

University of Exeter, UK

The Hajj route between Makkah and Madinah has been partially traced using historical sources, landscape studies, and features such as milestones (e.g., Alkadi 2021; Insoll and Alkadi In Press), but archaeological investigation has been minimal. To redress this a new 5-year partnership research project with the Saudi Heritage Commission has begun involving survey and excavation along the route and at key settlements it is linked with. One of these is Al-Juḥfah, approximately 185km north of Makkah. This was the location of a mīqāt, where pilgrims entered into ihram for Hajj and 'Umrah, but was apparently abandoned by the early twelfth century CE. It was also important in the earliest Islamic period being visited by the Prophet in 1/622, during the Hijrah, and is believed to be the place of revelation of verse 85 of Surah 28, al-Qasas, of the Qur'an. However, before 2025 when intensive investigation began, archaeological research at Al-Juḥfah had been limited (e.g., Al-Subaie 2018, 2025). To redress this a new four year project has begun in partnership between the University of Exeter, the Saudi Heritage Commission (SHC), and Professor Abdullah Alkadi, and generously supported by the SHC and Engineer Anas Serafi and the al-Medad Foundation.

The first field season was undertaken in November 2025 with 33 shovel test pits and seven larger excavations completed. The shovel pits were focused on the campsite that surrounded the stone town on three sides except to the east and revealed dense occupation across an area of a maximum 500m width. The larger units were initially placed to investigate three areas disturbed through illicit digging as they had already revealed extensive stratigraphy and features. One of these contained multiple tannūr and was presumably a bakery potentially supplying pilgrims, and another inside the qasr which dominates the site (Figure 1) exposed part of the buildings to the north of its internal courtyard, whilst the third unit on the opposite southern side was sterile, suggesting the courtyard was open and possibly utilised for storing goods, and perhaps stabling animals. A fourth unit in a midden area was particularly informative with massive quantities of ceramics and other artifacts recorded (Figure 2), that were selectively sampled in this initial exploratory season.



Fig. 1 The qasr at Al-Juḥfah (Courtesy, Saudi Heritage Commission).

The ceramics are of diverse origins including from Egypt, the Levant, Iraq, the Horn of Africa and/or Sudan, potentially the Maghreb and/or al-Andalus, as well as local Hijazi wares, and reflecting the varied origins of the pilgrims. The chronology of Al-Juḥfah is pending the return of the AMS dates, but the ceramics imply an Umayyad through Abbasid sequence, with some later occupation as well. Faunal preservation was also excellent and extensive charcoal lens infer archaeobotanical recovery will likewise be optimum. The other three units were completed to the north of the site where

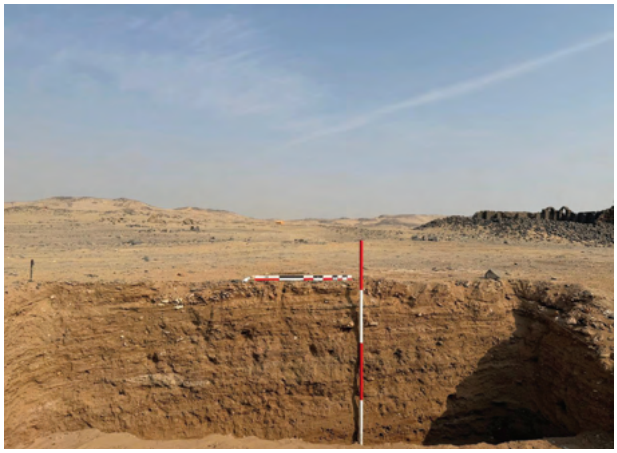


Fig. 2 The midden excavation (JUH25 TP3) (photo. T. Insoll).

two maintenance shafts for a disused qanāt for supplying Al-Juḥfah with water were investigated as well as the base of a boulder bearing Thamudic inscriptions. Additionally, a transect survey was completed to assess ceramic surface visibility and density, and survey of Azuriwah to the north of Al-Juḥfah to record numerous inscriptions on rock outcrops there (Figure 3). Finally, quarry spoil in another area of Azuriwah was sorted to retrieve funerary inscriptions displaced from a cemetery during quarrying and this yielded 12 inscribed gravestones.

The next field season is scheduled for two months duration between mid-November 2026 and January 2027 when it is anticipated this remarkable settlement will yield significant information on the formative early Islamic era in the Hijaz and the diverse communities which visited it.

Acknowledgements
The author is grateful to all members of the field team especially Mr Mousa Alqarni, Mr Sultan Alrasheed, Mr Tariq Altuwayjiri, Dr Nathan Anderson, Dr Mustafa Baig, Mr Frank Stremke, Mr Endris Hussien Siraj, and Dr Nicholas Tait, and is also most grateful to Dr Ajab al-Otaibi, Professor Abdullah Alkadi, and Mr Anas Serafi.



Fig. 3 One of the inscriptions on Azuriwah (photo. T. Insoll).

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Assessing coastal archaeological vulnerability on the Farasan Islands, Saudi Arabia

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Abstract

Coastal archaeological sites worldwide are facing accelerating threats driven by both direct human activities, such as urban expansion and infrastructure development, and indirect pressures associated with climate change, arising from both natural processes and anthropogenic influence. The Farasan Islands provide a critical best-case visibility scenario for examining these dynamics: the severity of site destruction observed in this highly visible context suggests that impacts elsewhere may be equally or more pronounced, but less readily detected.

Introduction

Many archaeological sites are directly under threat from both urban and industrial development of the coastlines, a phenomenon that has accelerated over the past decade (de Noronha Vaz et al., 2012; El Safadi et al., 2022; Ray and Nikolaus, 2022; Reeder-Myers, 2015). Indirect human activities driving climate change result in accelerated sea level rise and changing frequency and intensity of storms with concomitant impacts on archaeological sites via erosion and flooding (Dawson et al., 2020; Gregory et al., 2022; Reimann et al., 2018; Vousdoukas et al., 2022; Westley et al., 2023).

Here we show the results of a recent assessment of archaeological site endangerments, current state of erosion and assessment of future risks of destruction on the Farasan Islands, Saudi Arabia, using a combination of field survey, aerial monitoring and integration into long-term open access databases. The Farasan Islands in the southern Red Sea represent a unique opportunity to study the double impacts of development and climate change on a coastal archaeology landscape whose preserved archaeology has a high visibility, owing to the aridity on the islands which has prohibited sediment accumulation through hydrological processes, and also limited vegetation growth that would otherwise hide the archaeology. The Farasan Islands have perhaps the highest concentration of coastal prehistoric archaeology in the world — with over 3000 major sites recorded (Fig. 1). This high concentration of activity is not unique, but likely a product of the excellent archaeological visibility on the islands, where other locations with similar potential have higher sedimentation rates and vegetation cover that make these sites harder to detect.

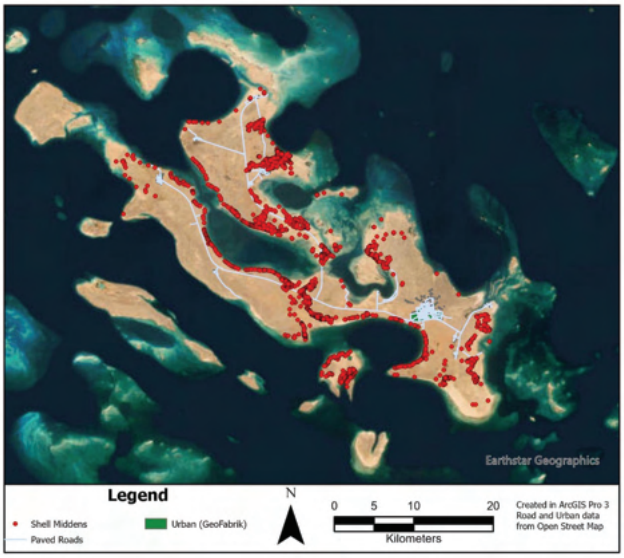
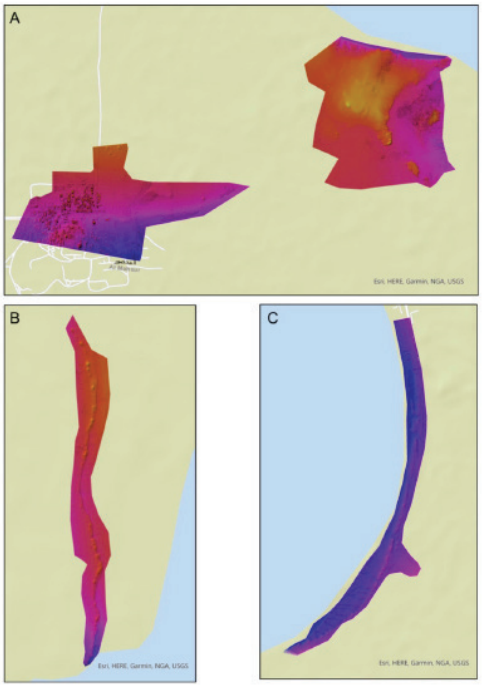


Fig. 1 Shell midden distribution on the Farasan Islands, Saudi Arabia, with marked survey areas and location of major roads and urban developments.

Survey Results

We targeted three survey areas (Fig. 1 and 2): Saqid Island and Janaba Bay East and West on Farasan Kabir, chosen for proximity to known urban expansion. Aerial drone surveys and photogrammetric analysis generated georeferenced surface rasters (5 cm resolution) from which midden dimensions were extracted. Of the recorded middens, we were

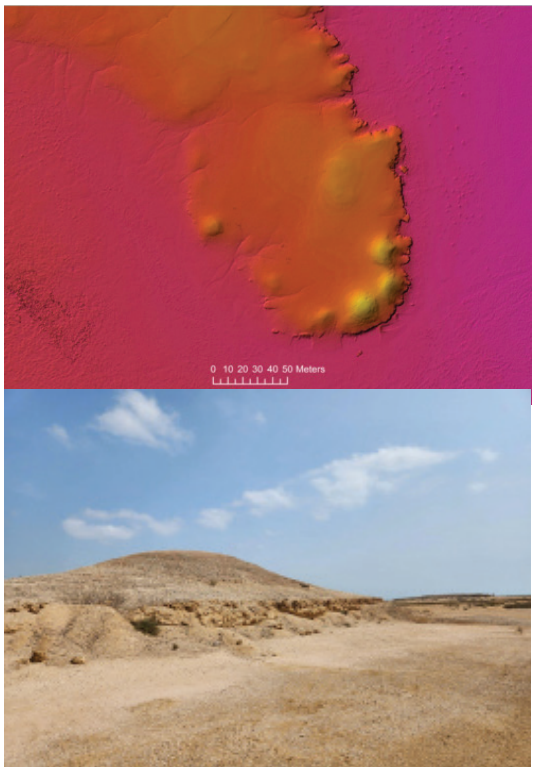
able to measure individual height and volume, providing a baseline of what dimensions largely uneroded shell middens can take. These are over 100 m3 of size and 1–2 m tall. We did see differences between the research areas: middens in Janaba East that are more exposed to shoreline dynamics include several large examples (over 250 m^3) that are shorter than similarly sized middens elsewhere, suggesting that subtle exposure to erosion has increased their deflation, with material being displaced rather than lost outright.



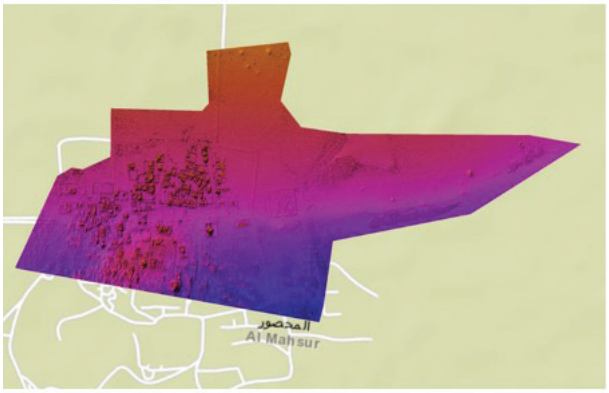
- **Fig. 2** Survey results overview. A: Elevation rasters of the survey location with the town of Al Saqid on the left and the area of high shell midden concentrations on uplifted palaeoshorelines on the right. B: Palaeoshoreline in the West of Janaba Bay. C: Palaeoshoreline in the West of Janaba Bay.

Saqid

The Saqid survey was split into the peninsula and the town of Al Saqid. The wider region itself comprises more than 200 shell midden sites of various sizes; the palaeo-peninsula that extends towards the southeast (Figs. 2+3) is a good example of how the middens are distributed along palaeoshorelines. On the very edge of the peninsula lie several distinct middens, but the undulating interior also hints at roughly circular deposits that could represent deposits that have been reworked, resulting in their edges becoming less clear. The preservation of sites is good and representative for most of the Farasan Island shell middens along the coast.



- **Fig. 3** Palaeoshoreline-peninsula east of Saqid town. Top: DEM of recorded middens, some of which have suffered erosion due to tire tracks or water run-off. Preservation is generally good. Bottom: View of peninsula and its largest midden from the south facing north-east.



- **Fig. 4** Elevation raster of Saqid town and palaeoshoreline at the transition from pink to purple on an eastern trajectory.

The palaeoshoreline extends to the west and reaches the town of Al Saqid (Fig. 4). Previous survey work

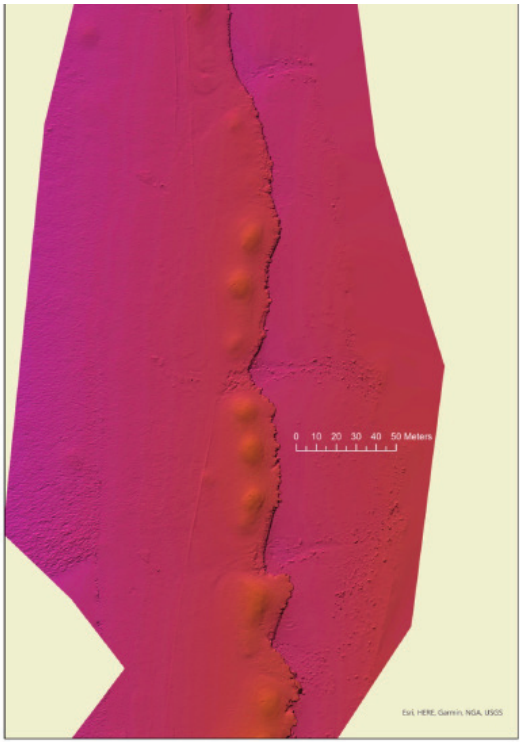
cannot confirm how many middens were destroyed by the town's growth, but three sites appear to now be within building envelopes and destroyed. We found several middens that were currently being used as sources for building materials, with the furthest of these being 700 m outside of the town (Fig. 5), approached with diggers that excavated shell material indiscriminately from midden rims. Several other sites have been recorded to have been eroded by excavation machines before (Alsharekh et al., 2014).



- **Fig. 5** Shell midden used as source for building material. Top: elevation raster. Bottom: view from the north.

Janaba West

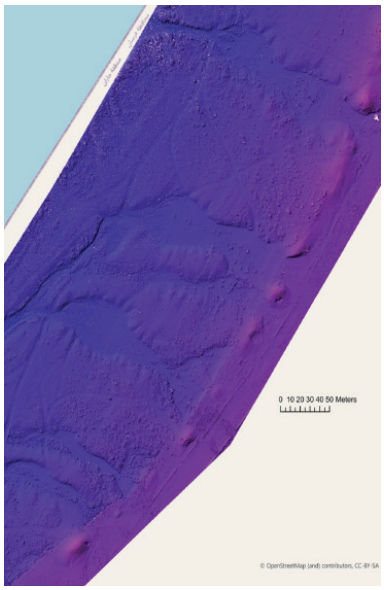
The Janaba West research area is in the central region of Farasan Island, in close proximity to the road turning leading to the bridge to Saqid Island. Since previous fieldseasons, new coast guard buildings had been erected at the southern extremity of this area. Despite this, damage to the sites has remained minimal, with only two sites being damaged that are in close proximity to the building. The remaining line of middens (Fig. 6) is still well preserved and sitting on top of a small cliff that is now a palaeoshoreline.



- **Fig. 6** Elevation raster from Janaba West with palaeoshoreline visible on a north-south trajectory and middens sitting on top. Small channels have visibly developed from water run-off, slightly eroding middens where they meet.

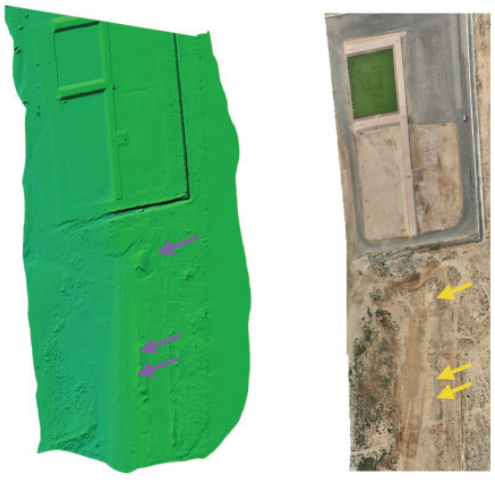
Janaba East

This area also features multiple parallel palaeoshorelines with lines of shell middens. These sites have experienced erosion both through natural causes and increased development. Prominent natural erosion is mostly due to exposure to the coast (Fig. 7). Many of the middens in the central bay area are not very high above modern sea level, and are within range of infrequent large surf that reaches far onto land during storms. The more destructive element is runoff; the gently sloping interior has no large drainage channels, with the infrequent, but heavy rainfall, often forming sheet runoff into poorly developed channel depressions, impacting middens over a wide area.



- **Fig. 7** Elevation raster of Janaba East with middens sitting on top of palaeoshoreline. Water run-off caused small channels cutting into middens. Occasional tire tracks on middens are also visible.

In the northern sector is a large development of tourist infrastructure: large car park, seating, play area, etc., that has already removed multiple sites from the record, with others to the immediate south targeted for resource extraction for these builds. (Fig. 8).



- **Fig. 8** New development in the north of Janaba East, where middens have been used as building material.

Discussion

The dual threats of development and climate change are clearly visible on the Farasan Islands. Direct pressures from urban expansion and road network development, not only impact the sites directly, but also through the industries necessary to support such activities, namely extractive industries for building materials. It is costly to ship materials on the ferry from the mainland. The shell middens represent a well-documented source of readily available building material, an issue not unique to the Farasan Islands.

In the field it was observed that close spatial proximity to roads or urban areas increased the likelihood of a midden being impacted. An assessment of the proximity of sites to urban areas and roads shows that: Only 36 middens are known to be within 50 m of a road. This increases to 89 at 100 m, and 155 at 150 m; and 600 (20% of known sites) at 500 m. For urban areas, these figures are: 50 m = 7; 100 m = 10; 150 m= 14; 500 m = 72. Near urban areas, impact within 50 –100 m is close to 100%, but drops rapidly with distance. The impact of extractive industries was severe in concentrated areas, in southern Saqid 69 middens were extensively or completely destroyed. The true total is likely higher, but no record of completely removed sites survives. This immediate threat contrasts with the longer-term, but accelerating, impacts of climate change: sea-level rise, increased storms and short intense precipitation events. In the past, sea-level change likely destroyed over 1000 sites (Hausmann et al., 2019), giving an example of future destruction. On the Farasans, this is partially mitigated by most middens sitting on the Holocene high-stand palaeoshoreline, up to 2 meters above current sea level and further raised by salt diapirism.

Urban development and climate change are not independent, development can weaken landscapes already vulnerable to erosion. Likewise climate change can necessitate mitigation strategies that require additional building, placing further demand to extract material from the already diminished, but increasingly accessible, sites.

The results from this study have demonstrated that impacts are disproportionately associated with infrastructure, primarily as a result of urban development (as seen in Saqid and Janaba East), and also very strongly related to the accessibility of sites as facilitated by the construction of paved roads. A key theme that the Farasan Islands highlight is "Visibility Bias", where sites are exceptionally visible owing to the sparse vegetation and historically low erosion rates. Other regions with higher sedimentation or vegetation cover almost certainly have comparable but undetected site densities; current datasets therefore substantially underestimate global heritage loss.

The sheer number of sites creates a real monitoring challenge. Drones, satellite data, and open access databases can all contribute but scalable, repeatable approaches are needed to make landscape-scale management feasible (Graham, 2025; McCarroll et al., 2024).

The Farasan Island shell middens are now recorded on the Endangered Archaeology of the Middle East and North Africa (EAMENA) database (https://database.eamena.org/). This database is partnered with the Maritime Endangered Archaeology (MarEA) project, whose sole focus is the threat assessment of maritime and coastal archaeology, making both particularly relevant for the Farasan shell middens (Andreou et al., 2020; Breen et al., 2022). This archive has ensured detailed coverage tailored for the unique characteristics of coastal environments (Andreou et al., 2020).

Having identified at-risk coastal archaeology, heritage legislation needs to be robust enough, so that ongoing site monitoring and protection can occur. Jurisdictions across the globe are actively developing more rigorous approaches to these issues. In Saudi Arabia, heritage protection has advanced significantly over the past 20 years, starting at relatively passive levels of protection, the Heritage Commission now wields powers to protect and fence off culturally significant sites for protection. While this has in the past been focused on the more visually impactful sites of the more recent past, a new appreciation of the stone ages has recently emerged.

Summary

Threats to coastal archaeology globally are increasing at an ever increasing pace, this comes from both direct anthropogenic activity from urban and infrastructure development, and indirectly from both naturally and anthropogenically driven climate. Policies need to be developed to address these pressing issues:
- Developing site prioritisation frameworks,
- Rapid-response documentation for site exposure
- Open-access data systems for long-term monitoring.
The Farasan Islands act as a best-case visibility scenario within which to address these into the future: if destruction is this severe here, it is likely worse but less visible elsewhere. From archaeological research of the mid-Holocene sea-level highstand on Farasan (Hausmann et al., 2019) we know that shell middens of likely similar size as the ones encountered today have been entirely removed from the landscape and that their size provides no protection from inundation and wave action. These sites urgently need protection, preserving their unique and irreplaceable palaeoecological record, and evidence of human resilience, which must be managed at landscape scale through prioritisation frameworks, rapid-response documentation, and tools such as EAMENA that raise their global profile.

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Country Reports

UAE
Abu Dhabi

Al Ain Museum reopens

STEFFEN TERP LAURSEN, Senior Curator, Al Ain Museum, DCT, Abu Dhabi

In terms of museum openings, the year 2025 was busy like no other in Abu Dhabi. On Saadiyat Island the National History Museum Abu Dhabi opened 22 November (see Beech 2025: 48), followed on 3 December by the spectacular Zayed National Museum.

Prior to this and after a lengthy 8-year period of closure, the Al Ain Museum had formally reopened to the public on 24 Oct. The new Al Ain Museum is focused on the amazing archaeology and ethnography of the al Ain region and is situated next to the al Ain Oasis and historic Sultan Fort.

The museum was originally established in 1969 as the Al Ain National Museum under the direction of the late Sheikh Zayed and is the oldest museum in the UAE. After the Al Ain National Museum was closed in 2018 to undergo a substantial expansion and modernization, the "national museum" status has officially been transferred to the Zayed National Museum.

The archaeological collections, initially established through the pioneering Danish expeditions (est. 1958-1971) to the UAE (Højlund 2012), were at first housed in the Sultan Fort and after the museum building's completion in 1971 they found a permanent home there. In the 68 years since the collection was first established, Al Ain has witnessed a steady flow of remarkable archaeological discoveries and the 2011 inscription as UNESCO World Heritage of Hafit, Hili, Bidaa Bint Saud and several of the oases represents a milestone in the development of al Ain as a powerhouse of culture in the UAE.



During archaeological excavations in preparation for the construction of the new museum buildings in 2019 dense concentrations of archaeological remains were encountered by Peter Sheehan and his team from the Historic Environment Department, DCT. For this and other reasons, the project initiated in 2018 was only resumed in 2023. The archaeological remains included a number of substantial systems of aflāj underground water channels and tiqāb service shafts, water wells, and tombs dating from the Iron Age to the Late Pre-Islamic period (Sheehan et al. 2023).

It was decided to integrate large portions of the new discoveries as in situ archaeology in the floors and galleries. Consequently, the detected archaeology prompted a significant reconceptualization of the original museum plan, which incorporates the original museum building in its design and galleries. Because the architecture had to be almost completely revised the changes further significantly delayed the new museum project.

The long wait was well worth it as it provided the projects curator Sarah Mary Collins a unique opportunity to show visitors examples of the aflāj water system, which is one of the most important components of the archaeology and oasis life of al Ain. The in-situ archaeology is found in three separate zones, one of which features an impressive falaj system over 62.5 m long by 15 m wide, crossed by several other aflāj channels, an area with deep shafts and wells, and finally, the exposed lower portions of a Late Pre-Islamic tower tomb. The new museum also houses extensive conservation facilities, a research centre and library, education spaces, and visitor amenities.

As a treat to both the informed museum guest and the novice visitor, the museum's exhibits are generously furnished with artefacts from some of the most important archaeological sites in Eastern Arabia. The focus of the galleries spans from the fascinating diplomatic gifts presented to H.H. Shaikh Zayed in 20th century, to the archaeology of the Stone, Bronze and Iron Age as well as the Late Pre-Islamic and Islamic periods, to the rich local heritage, history and culture of the al Ain region.

The al Ain Museum is directed by Omar Salem Al Kaabi and the new exhibitions was curated by Sarah Mary Collins, with Peter Sheehan advising on the archaeology of the museum sites. The more than 8000 m2 museum was re-designed by Dabbagh



Fig. 2. Al Ain Museum is next to al Ain Oasis and historic Sultan Fort.



Fig. 3. Entrance to Al Ain Museum

Architects and hold 1432m² permanent galleries and a 302m² temporary Gallery. An impressive 1317m² rof this space is dedidacted to the archaeology of Al Ain.

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Renewed Discoveries and New Perspectives: recent archaeological research in Al Ain

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1 DCT, Abu Dhabi, 2 CNRS

Archaeological research in the Al Ain region is currently experiencing a particularly dynamic phase, marked by the reassessment of long-known sites, the continued discovery of remarkable new evidence, and the launch of ambitious research and survey programmes. Recent work by the Department of Culture and Tourism – Abu Dhabi highlights the depth and diversity of Al Ain's archaeological record – from early prehistory to the Iron Age – underscoring the value of returning to key sites with new questions and methods.

Rumeilah: Return to Building G

One highly significant recent development concerns the renewed excavations at Rumeilah, a site that has long occupied a central place in discussions of Iron Age occupation in Southeast Arabia. Between January and March 2026, excavations resumed at the widely known "Building G", a structure first uncovered in the early 1980s (Boucharlat & Lombard 2001). At the time, three phases of the building were identified, but only interpreted through a 1.5 m-wide trench along the northern wall.

The new project focused on the final phase of occupation of Building G (Phase III), aiming to understand better its architectural development and patterns of reuse throughout the Iron Age. Improved architectural documentation has clarified elements of construction and spatial organisation that were previously unknown. Particularly striking has been the identification of mudbrick elements with fingerprinted designs rather than the usual quick fingerprint lines seen previously (Karacic et al. 2019). Such distinctive designs were identified in previous excavations, though never published, and are now being unveiled as the project team also dives into the site archives, in preparation for a monograph.

These recent excavations and archival assessments demonstrate that Rumeilah still has much to reveal. On this basis, further excavation seasons are planned, including work targeting earlier phases of the building (Phases II and I) and expansion into adjacent areas to address questions of functionality, chronology and settlement organisation. The renewed research at Rumeilah demonstrates how revisiting sites can generate entirely new insights and reinvigorate long-standing debates.



Fig. 1 Rumeilah Research Project. View of Building G under excavation and examples of mudbricks.

Bida Bint Saud: from documentation to new research horizons

Another key focus of recent work has been Bida Bint Saud (Al Tikriti 2002; 2010), with extensive re-excavation and documentation conducted between October and December 2025. This project has resulted in comprehensive documentation of the funerary and settlement area, providing a clearer understanding of the site extension and water management systems.

In particular, research has refined knowledge of the known Iron Age communal building and its nearby falaj system, revealing a complex, multi-channel irrigation network. High-resolution 3D documentation, combined with the re-evaluation of material from earlier excavations, has allowed the site to be reassessed as a whole, rather than as a series of isolated features. Concurrent systematic field surveys have identified new areas of archaeological potential in the surrounding landscape, suggesting the existence of additional structures. Collected charcoal material (currently under analysis) will also provide a valuable chronological framework.

Future excavation campaigns (2026/27) will target potential surrounding structures, with planned geophysical surveys intended to build on the newly established baseline data. As with Rumeilah, Bida Bint Saud illustrates how careful reassessments of known sites can open new research directions and enhance their interpretative value.



Fig. 2 Bida Bint Saud Research Project. Views of communal building (left top), falaj (right) and tombs (left bottom).

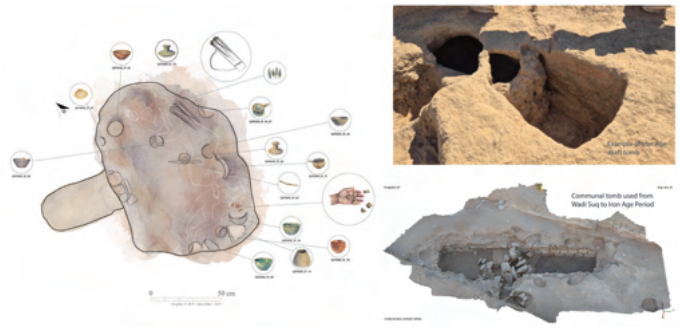
The Qattarah Necropolis: a continuing source of astonishment

While reassessment has been essential, recent excavations in Al Ain have also produced discoveries of exceptional scale and impact. Among these is the Qattarah Iron Age Necropolis excavated between November 2024 and April 2026 as part of a major rescue project. Excavations revealed over fifty individual Iron Age tombs (and more in unexcavated areas), alongside a communal tomb dating to the Wadi Suq Period continuing in use until the Iron Age (de Vreeze et al. in press).

The extent and density of burials at Qattarah are remarkable, making this necropolis one of the most

important funerary complexes documented in Al Ain in recent decades. The site continues to amaze due to both the number of tombs identified and the research potential they represent.

An extensive programme of post-excavation analysis is underway, including typological and archaeometric studies, residue analysis, detailed examination of human remains (including aDNA and stable isotope analyses), radiocarbon dating, and 3D reconstructions of tomb architecture. Together, these studies promise to enhance understanding of both Bronze and Iron Age communities in Al Ain, shedding light on funerary practices, social organisation, and population histories.



- **Fig. 3** Qattarah Necropolis Research Project. Illustration of Iron Age burial chamber (left) and example of Iron Age shaft tomb (right top) and communal tomb (right bottom).

Jebel Hafit: searching deeper into the past

Recent work at Jebel Hafit highlights another important direction in Al Ain archaeology: the renewed exploration of earlier prehistoric periods. Excavations initiated in February 2025 at a rock-shelter site have identified stratified deposits associated with Iron Age and Early Neolithic occupations. While only Neolithic levels have been securely identified so far, the stratigraphic sequence suggests that older, pre-Neolithic deposits may exist.

This ongoing re-evaluation of Jebel Hafit reflects a wider interest in the deep prehistory of the region and the potential of inland environments to preserve long-term records of human activity (e.g. Bretzke, Conard, & Uerpmann 2014; Gebel et al. 1989; Handel et al. 2023). Planned excavation seasons aim to further explore these deposits, clarifying whether evidence of earlier occupation can be identified.



- **Fig. 4** Jebel Hafit Research Project. Excavation site and some materials identified.

A vibrant and expanding archaeological landscape

Altogether, these projects illustrate the diversity of current archaeological research in Al Ain. From the reassessment of iconic sites such as Rumeilah and Bida Bint Saud, to discoveries at the Qattarah necropolis and the renewed search for early prehistoric evidence at Jebel Hafit, research in the region is characterised by both continuity and innovation. Importantly, this work is complemented by broader landscape surveys, rescue archaeology linked to development, and long-term initiatives focused on documentation, data integration, and heritage management. These combined efforts ensure that Al Ain archaeology is not only about revisiting the past, but also about discovering new sites, protecting fragile landscapes, and building robust frameworks for future research.

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Maritime Archaeological Investigations in Abu Dhabi: The DCT Maritime Archaeology Unit

ERIC STAPLES, ALESSANDRO GHIDONI, RODRIGO ORTIZ VAZQUEZ, DOMINIC TOMASI, HEATHER ANDERSON AND RICHARD CUTTLER

DCT, Abu Dhabi

Introduction

In 2025 the Department of Culture and Tourism (DCT), Abu Dhabi created a permanent unit for the development of maritime archaeology within the Historic Environment Department. Abu Dhabi has a rich maritime heritage that extends back millennia in the historical and archaeological record. The potential for underwater heritage sites is particularly significant in the emirate, with over 37,000 square kms of marine areas and over 200 islands under its authority. The unit is currently in the capacity-building phase but has already undertaken several surveys and engaged in a variety of research projects.

Submerged Landscapes

Due to the dramatic rise of sea levels 15,000-8,000 years ago the Arabian Gulf, and Abu Dhabi in particular, hold tremendous potential for the study of ancient, submerged landscapes. Circa 5000 years ago the sea level transitioned from a mid-Holocene high stand to a gradual regression which stabilized at present day levels. Such sea level fluctuations significantly altered Bronze Age coastlines, directly impacting human settlement patterns, trade routes, and access to marine resources. The maritime unit is currently developing more detailed flood models of Abu Dhabi's marine areas to better understand marine transgression in the

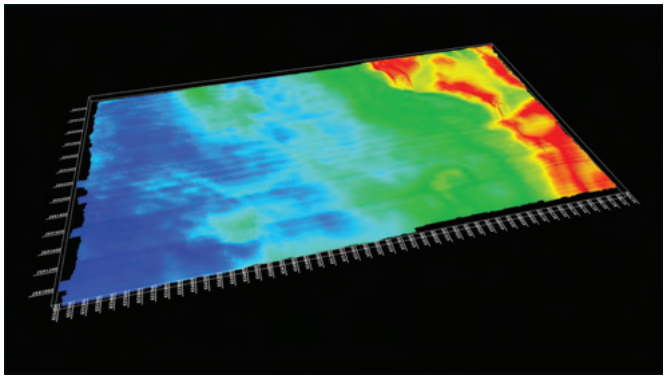

Fig. 1 Seabed morphology of Area 3, Delma.

late Paleolithic and early Neolithic. In addition, the unit is also investigating potential submerged landscape features south of al-Marawah Island that were identified during marine geophysical surveys conducted in 2021 and 2024 by DCT and Technology Innovation Institute (TII) (Cuttler et al., 2023). In November 2025 initial surveys comprising diver investigation and a Remote Operated Vehicle equipped with Cathx cameras carried out a photogrammetric survey to model potential sites. There are plans for geotechnical coring operations in late 2026 to further investigate the archaeological potential of the identified features. While still in its initial stages, this research has tremendous potential for deepening our understanding of the late prehistory of the Gulf.



Fig. 2 Submerged landscape mound DCT-M1 in Khor al-Bazm, south of Marawah Island.

Umm An-Nar Bitumen Collection

In April of 2025, the Maritime Archaeology Unit undertook an evaluation of the bitumen fragments and impressions that had been found at the Bronze Age (3rd millennium BCE) site of Umm an-Nar. This investigation uncovered a much larger and more significant assemblage of bitumen fragments than previously thought. Over 1,700 fragments have been assessed to date, making it the largest known assemblage of Bronze Age bitumen in the southern Arabian Gulf. A significant number of the fragments have impressions of reed bundles, matting, and wooden components; several have the remains of barnacles attached, indicating prolonged submersion in sea water. The presence of barnacles indicates that many of these fragments were likely the remains of the waterproofing layer from a Bronze Age boat. An initial study was presented at the 2025 Seminar for Arabian Studies, and further detailed analysis of the collection and a monograph are planned for 2027.



Fig. 3 Bitumen fragment from Umm an-Nar (third millennium BCE) showing impressions of woven matting and ropes.

The Abu Dhabi Pearl Banks Project

The maritime unit has also initiated the first phase of a long-term underwater archaeological research project on pearling in the region. The pearling industry was central to the pre-modern economy of the Arabian Gulf, and there has been considerable archaeological evidence found in coastal terrestrial sites for the importance of pearling in Abu Dhabi's islands and coastal areas. Until now there has been

little underwater archaeological investigation of the pearl beds themselves, which were the site of seasonal human occupation for millennia. The team has compared four historic pearl bank maps and initiated the first of a series of scientific dive surveys of pearl banks in Abu Dhabi waters. This is the first step to further investigate one of Abu Dhabi's most significant underwater cultural landscapes.



Fig. 4 Survey of oyster beds at Delma.

The Abu Dhabi shipwrecks survey

The Maritime Archaeological Unit has also commenced an investigation of shipwrecks to accurately record and monitor all known shipwreck sites in Abu Dhabi's Historical Environment Record. The first stage involved a desk-based assessment and analysis of extensive geophysical data sets, predominantly sidescan sonar. This study has resulted in the discovery of multiple steel-hulled wrecks and one wooden dhow, tentatively dated to the twentieth century. This wooden vessel is scheduled for excavation in late 2026. Further shipwreck surveys are scheduled as the unit continues to develop their marine geophysical capacity.

Marine Geophysical Capacity

Given the extensive size of the marine areas within the Emirate of Abu Dhabi, the development of multi-platform marine geophysics is considered central to a strategy for effective underwater cultural heritage management. Geophysical surveys are an essential first step in identifying potential underwater cultural sites and for efficient long-term monitoring. Detailed bathymetry mapping of the seafloor is also important to better understand submerged palaeolandscapes and pearl banks. The unit is in the process of developing its own marine geophysical capacity for side scan sonar, magnetometer, multibeam echosounder and sub-bottom profiler platforms and sensors. However, it is also simultaneously working with other institutions such as the TII's marine robotics division, the Abu Dhabi National Oil Company (ADNOC) and the Environmental Agency Abu Dhabi for the analysis of existing data sets and access to emerging technologies in the field.

Outreach

Another goal of the unit is to actively participate in education and professional outreach to raise regional and global awareness. The unit has provided maritime specialists for an MA course on the archaeology of the UAE at the Sorbonne Abu Dhabi, and instruction for a maritime archaeology class at NYUAD in January 2026. In August 2025 the DCT brought together international experts for a workshop on underwater cultural heritage legislation and will be hosting the international IKUWA 9 conference in Abu Dhabi in 2029 to promote the importance of protecting and promoting regional, and global, underwater cultural heritage.

Conclusion

In summary, while DCT's maritime archaeology unit has only been active for a year and is still in the early stages of its development, it has already indicated the potential for maritime archaeology and underwater cultural heritage in the southern Arabian Gulf. Initial explorations into submerged landscapes, bitumen layers of Bronze Age boats, pearl banks and shipwrecks collectively indicate the tremendous potential that lies beneath the seas of Abu Dhabi's marine areas.

Continuing excavations at the dispersed Christian monastery on Sir Bani Yas Island, Abu Dhabi, UAE

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In 2025, a new excavation project began within the Late Antique-Early Islamic monastic landscape on Sir Bani Yas Island (Abu Dhabi Emirate, UAE). This constituted the first research-led excavation of the monastery since 2011, and the first to target dispersed monastic cells since the 1990s. Preliminary results were reported in the Autumn 2025 issue of this Bulletin (Gajewska et al 2025); a more detailed paper is forthcoming in the 2026 Proceedings of the Seminar for Arabian Studies. In winter 2026, a new season of excavations was carried out at the same two sites targeted in 2025 (SBY0011 and SBY0014), aiming to further elucidate the dating of the settlement, monastic economy and the daily life of the monks.

SBY0011 and SBY0014 are two free-standing houses set within walled courtyards, located within walking distance from the Sir Bani Yas church and communal monastery (site SBY0016). They form part of a dispersed monastic settlement comprising at least seven such houses, extending to ca. 1 km northwards from SBY0016 (Figure 1). The settlement almost certainly belonged to the Church of the East, and such dispersed monasteries have been described in Church of the East literature, with junior monks living in communal dwellings around a church, moving into independent cells to practice solitude and reflection as they progressed in their spiritual journey (e.g., Payne 2011: 103; Novaček 2023: 13-14; Mingana 1934: 78-82; see Elders 2001: 53).

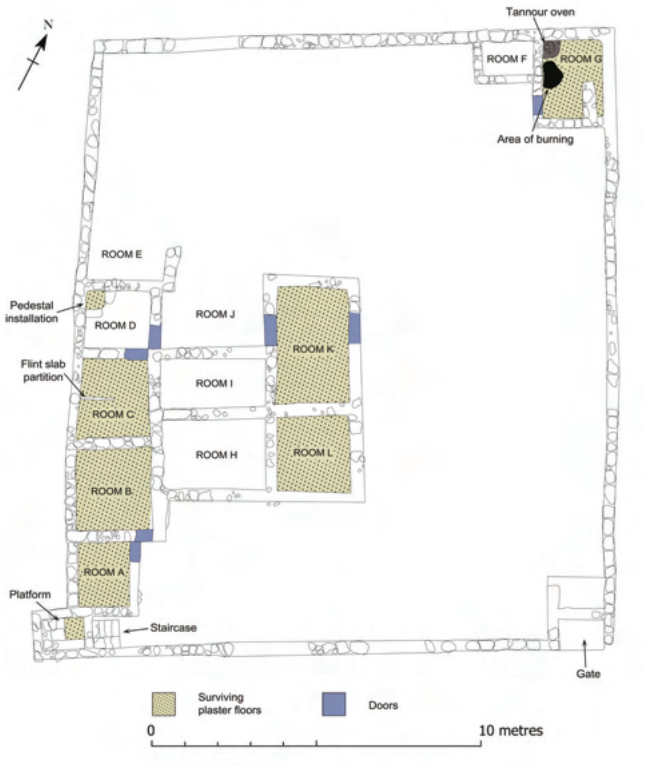
In winter 2026, excavations succeeded in revealing a near-complete plan of the cell at SBY0011, in addition to clarifying the layout of the mostly



Fig. 1 showing the location of all sites belonging to the SBY monastic landscape. SBY0011 and SBY0014 are marked in red.

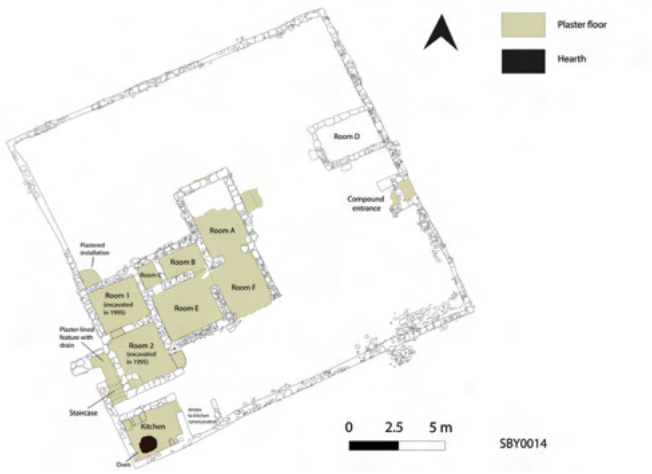
excavated cell at SBY0014. These contradict earlier assumptions about monastic dwellings, which were expected to repeat the layout of the communal monastic cells, as at sites SBY0002 and SBY0007 (two-four rooms surrounded by a Pi-shaped courtyard – Elders personal communication; see also Elders et al forthcoming). Since 1995, it had been clear that the house at SBY0014 was larger, and this was confirmed by the 2025 excavations, which revealed a house comprising seven rooms and at

two separate, walled enclosures adjoining the compound wall. The question of whether the building was an outlier, an uncommonly large structure, can be conclusively refuted by new evidence from SBY0011 which, with nine rooms (and at least two separate walled enclosures), is even larger than SBY0014. Crucially, most of the SBY0011 building appears to have been built in one construction phase, and there is so far no evidence for multiple occupation phases. In other words, the building was not large due to phased expansion as the monastic community grew. It appears to have been planned as a nine-room structure from the get-go. This also applies to SBY0014, which yielded limited evidence for phased development, with the core of the cell also built in one go.



● **Fig. 2** Plan of the cell at SBY0011 (©DCT Abu Dhabi).

This calls into question assumptions about either the solitude of monks within the Sir Bani Yas monastic landscape (if such large buildings were shared between several monks), or the modesty of monastic life (if a single monk lived in such a lavish dwelling). In fact, it might simultaneously challenge both: SBY0014 preserves evidence for two access points into the building, one of which leads to a suite of two rooms, the other – five. These two sets of rooms did not communicate, and several features suggest a difference in status between the two: the size (two vs five rooms), the location within the house (west for the former, east for the latter, with east being a more exalted direction in Christianity), and the proximity of a smelly, polluting activity (cooking, with an oven installation discovered in the room identified as a kitchen) to the smaller, westernmost suite. Might this be a sign of a monk living with an acolyte or a servant (a notoriously blurry line to draw in a monastic context)? Such arrangements are known from literature, most pertinently described by Dadisho Qaṭrāyē in the context of a dispersed monastery similar to that on Sir Bani Yas (Mingana 1934: 85; 88-89). In fact, relatively large and sumptuous monastic cells are well documented across the Late Antique world – a reminder that the Christian call to poverty was not always heeded literally (Payne 2011: 103).



● **Fig. 3** Plan of the cell at SBY0014, showing the two separate sets of rooms (©DCT Abu Dhabi)..

The two western rooms of SBY0014 had already been partially excavated in 2025. In 2026, we decided to remove the backfill and extend excavations around this area to better understand the layout, function, chronology and phasing of this space.

This revealed several unusual features. First, a narrow, rectangular, plaster-lined installation abutting

the wall of the rooms to the west had in past been described as a "water cistern" in unpublished reports. This was clearly incorrect: the feature has no standing walls and a doorway with a threshold and a door post (leading to a staircase which runs along the compound wall). At the opposite end, we identified a drain. The feature slopes gently towards this drain, which suggests that it was indeed related to liquids in some way, but it clearly was not a cistern, as it would have been incapable of storing water (Figure 3).



Fig. 4 The plaster-lined installation, view from N/NW (©DCT Abu Dhabi).

The westernmost part of the building also includes two quarter-circular features, under 0.5 tall (0.24 m and 0.44 m respectively), abutting the southern wall of Room 2 ([1254]) and the northern wall of room 1 ([1239]) (Figure 5). There were also three holes in the floor of room 1, close to the western wall, arranged to form an isosceles triangle (Figure 6). Finally, several splashes of an unidentified black and, less commonly, red substance were noted on both floors and sampled for analysis. The purpose and meaning of all these features are currently unclear. However, together they add up to a picture of activity associated with the western side of the house which is quite different to the almost completely empty eastern rooms (with the notable exception of Room C, which yielded an unusual concentration of amorphous iron objects, as well as shells, some with bituminous or red residue inside). Whatever the actions to which they testify, the volume of activity alone is worth noting. These may be the first-ever discovered traces of production or, in any case, an activity other than sleeping, cooking or prayer within the monastic landscape.



Fig. 5 Feature [1254] inside room 2 (©DCT Abu Dhabi).



Fig. 6 Plaster floor of Room 1. Note three holes towards the top of the figure (©DCT Abu Dhabi).

Excavations at SBY0011 and SBY0014 are expected to continue in the autumn of 2026. Meanwhile, ceramic analysis, environmental sample processing and radiocarbon dating are ongoing.

Acknowledgements

The authors wish to thank all our colleagues at the Archaeology Section and the broader Historic Environment Department, DCT Abu Dhabi, for facilitating and supporting our work. Special thanks are due to the colleagues who joined us for parts of the winter 2026 season: Ahmed Abdallah El Hag El Faki, Dr Filipe Costa Vaz, Amna Al Zaabi, Anna Zuber, Felipe Andres Gutierrez and Ola Mohd Shaker, as

well to Dr Richard Cuttler, Head of Archaeology (who also joined the excavations for a few days) and Noura Hamad Al Hameli, Head of the Archaeological Research Unit – Al Dhafra and Abu Dhabi. We are grateful to Dr Joseph Elders, former director of excavations at the Sir Bani Yas church and monastery, for his visit and his insightful comments, as well as to Suhaila Almansoori (Sorbonne Abu Dhabi) for her work on site and to Prof. Andrea Ceriani for his visit and his expertise on the local geology. Thanks are as always due to our site assistants: Rashed Ali, Arshad Gul Meena, Hari Kumar Dangol, Badr Gomaa Abdou Mohamed, Shahed Iqbal Munawar and Muhammad Aslam Allah. Finally, we are deeply grateful to everyone on Sir Bani Yas Island, especially to Sony Xavier and Jamhela Alvarez of Inspire Integrated and to Engineer Nabeel of Barari Natural Resources, for all their help and support.

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Country Reports

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Dubai Culture and Arts Authority Contributions to International Conferences and Publications – 2025

ENG. BADER MOHAMED AL ALI, Director of Antiquities Department

In 2025, the Antiquities Department of the Dubai Culture and Arts Authority actively participated in five international conferences and presented nine scientific papers, demonstrating its commitment to advancing research, knowledge exchange, and cultural heritage preservation.

Among the key international events, Dubai Culture delegation contributed to the AI for Good Global Summit, held in July 2025 and hosted by the International Telecommunication Union (ITU) in Geneva, Switzerland. During the summit, the use case "AI-Enhanced Detection and Prediction at Saruq Al-Hadid Archaeological Site, Dubai, UAE"[1] received the 'Innovate for Impact' award under the Smart Cities category. The certificate was presented to Eng. Bader Al Ali, Director of the Antiquities Department (Figure 1). In addition, Chief Archaeologist Mariam Al Suwaidi delivered a presentation highlighting the project as a case study, showcasing its application and impact in cultural heritage research. Developed in collaboration with Khalifa University, the project applies artificial intelligence, remote sensing, and geophysical survey technologies, including ground-penetrating radar (GPR) and magnetic surveys, to support non-invasive archaeological exploration. The research led to the identification of over 2,500 anomalies indicating potential archaeological features and objects.



- **Fig. 1** Eng. Bader Al Ali, Director of the Antiquities Department, receiving the 'Innovate for Impact' award at the AI for Good Global Summit 2025.



- **Fig. 2** Antiquities Department representatives, Eng. Bader Al Ali and Maitha Al Mutaiwei, with Karol Juchniewicz and Agnieszka Lic of the Polish Academy of Sciences during the Islamic Archaeology conference.



Fig. 3. Figure 3 Late Islamic Period Sites in Hatta – Suhaila (16th–20th Century AD).

Dubai Culture participated in two international conferences in November 2025. The Antiquities Department representatives participated in the Islamic Archaeology Conference held in Warsaw, Poland (5–8 November 2025), organized by the Institute of Mediterranean and Oriental Cultures of the Polish Academy of Sciences (Figure 2). During the conference, Archaeologist Maitha Al Mutaiwei presented a scientific paper titled "Survey and Excavation of the Late Islamic Suhaila Archaeological Site (Hatta, Dubai - UAE)".[2] The study presented the results of systematic survey and excavation work conducted at the Suhaila site in Hatta, a well-preserved Late Islamic agropastoral mountain settlement located along the northeastern slope of Jabal Qallat Sabbā in the Hajar Mountains. The findings highlight the presence of multiple structures and agricultural terraces, with notable parallels to other Late Islamic sites in the region. The research emphasises Suhaila's role within a broader regional system characterised by economic interaction, cultural continuity, and adaptive mountain lifeways during the Late Islamic period.

Later in the same month, Dubai Culture delegation participated in the 28th International Conference of the General Union of Arab Archaeologists, held in Cairo, Egypt (22–23 November 2025), where three research papers were presented.

The first, presented by Noura Al Khoori, Antiquities Conservation Section Manager at Dubai Culture, focused on 'Results of the Restoration and Conservation Project of Artifacts Discovered at Archaeological Sites in Dubai: An Analytical Study of Selected Metal Artifacts'.[3] This study focuses on a scientific analysis of selected copper and copper-alloy artifacts unearthed from major archaeological sites in Dubai. These sites, located in humid sandy desert and coastal urban environments, reveal multiple phases of settlement documented in previous excavations. Most artifacts date to the Iron Age, with some from the Bronze Age and Islamic periods. The research aims to deepen understanding of the artifacts' chemical and mineral composition, assess their preservation state and corrosion processes, and develop effective, non-destructive conservation strategies to support the sustainable preservation of Dubai's tangible cultural heritage.

The second paper, presented by Dr. Mansour Boraik, Archaeology Expert, explored "Ancient Egyptian Seals from Saruq al-Hadid (Dubai): Evidence of Cultural Interaction during the Iron Age (1300–300 BCE)".[4] A collection of ancient Egyptian seals was recently discovered at the Saruq al-Hadid archaeological site in Dubai (UAE), dating to the Iron Age (1st millennium BCE). These artefacts provide important material evidence of cultural interaction between ancient Egypt and southeastern Arabia, reflecting the depth of trade and cultural relations during this period. The paper examines these seals and analyses their cultural significance, shedding light on the trade networks that connected ancient civilizations across the region.

The third paper, presented by Chief Archaeologist Fatma Abdulla Salem, explored "Dubai during the Late Islamic Periods (16th–20th century AD) in Light of Recent Archaeological Discoveries at the Suhaila Site".[5] The study examined recent archaeological surveys and excavations in Hatta, particularly at the Suhaila site (Figure 3), highlighting the presence of multiple residential settlements, including sixteen villages built along the slopes of the Hajar Mountains. The findings reveal diverse architectural features such as houses, mosques, agricultural terraces, and burial areas, as well as a rich assemblage of artefacts reflecting daily life. The research underscores the significance of Suhaila as a mountain settlement connected to regional trade networks, providing new insights into the

social and economic development of Dubai during the Late Islamic period.

During the 28th International Conference of the General Union of Arab Archaeologists, the Authority also received an Appreciation Award from the Arab Council of the General Union of Arab Archaeologists (Figure 4), an accolade granted to institutions dedicated to archaeology and heritage preservation. It marks a significant milestone for the Authority's teams conducting archaeological surveys and excavation projects across Dubai's key sites, including those at Saruq Al-Hadid, Jumeirah, Al Sufouh, Al Qusais, and Hatta. To date, these projects have uncovered more than 25,000 artefacts. The honour also recognises the Authority's work in restoring archaeological structures and objects, as well as publishing specialised studies, research papers, and academic articles across the field of archaeology.



Fig. 4 Eng. Bader Al Ali, Director of the Antiquities Department, receiving the Appreciation Award from the Arab Council of the General Union of Arab Archaeologists on behalf of Dubai Culture.

Dubai Culture, in collaboration with Chronicle Heritage, contributed a poster presentation at the 45th Conference of the Association for Environmental Archaeology (AEA), held in Stavanger, Norway (4–6 December 2025). The poster, titled "Connecting Mountains to Seas: Evaluating Potential Transhumance Routes Through Charcoal Assemblages at Saruq al-Hadid (SAR53)"[6] and presented by Abigail Buffington, explored how charcoal assemblages from the site can provide insights into transhumance (a regular movement of people, animals, and resources through a landscape or multiple landscapes) through the analysis of general patterns within the assemblage.

Concluding the year, Dubai Culture, along with its international archaeological missions (Figure 5), contributed to the 58th Seminar for Arabian Studies, hosted at the Zayed National Museum in Abu Dhabi (12–14 December 2025), where multiple research papers were presented.



Fig. 5 Antiquities Department staff of Dubai Culture with members of international archaeological missions during the 58th Seminar for Arabian Studies.

The first contribution titled "Palaeoenvironmental Reconstruction of the Dubai Emirate Coastline from the 3rd Millennium BC to the 1st Millennium AD using GIS Techniques"[7] was presented by Dr. Adrián Fernández-Sánchez from the Sanisera Archaeology Institute, in collaboration with Dubai Culture representatives, including Eng. Bader Al Ali, Dr. Mansour Boraik, and Hassan Zein. The study applied Geographic Information Systems (GIS) to reconstruct past coastlines and environmental conditions in Dubai by integrating geological, faunal, and archaeological data.

A second contribution titled "Recent Findings of the Jumeirah Archaeological Research Project"[8] was delivered by Agnieszka Lic from the Institute of Mediterranean and Oriental Cultures, Polish Academy of Sciences.

The third contribution titled "Fuelling Iron Age Ritual Economy in the Rub' al Khali: Results from the 2024 Excavations at Saruq al-Hadid Site 53" [9], by Dr. Joseph Lehner from the University of Sydney, in collaboration with Dubai Culture representatives, including Eng. Bader Al Ali, Dr. Mansour Boraik, Mariam Al Suwaidi, and Jamal Safi, was presented. The study focused on recent excavations at SAR53, located east of the main Saruq al-Hadid site, and examined dense charcoal deposits, pits, and associated material remains to better understand the fuel economy supporting large-scale ritual and industrial activities during the Bronze and Iron Ages. The findings provide a stratified environmental record that contributes to reconstructing site chronology and resource use, addressing a key gap in understanding how fuel resources sustained metallurgical production and ritual practices at Saruq al-Hadid and across Iron Age societies in Southeast Arabia.

These contributions reflect Dubai Culture's continued academic engagement, supporting innovation and strengthening professional networks.

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Dubai's Greatest Archaeological Treasures Through Time

ZAINAB SALMIN, GHADA TAREK IBRAHIM, MANSOUR BORAIK, ENG. BADER AL-ALI
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The Emirate of Dubai has over twenty-three archaeological sites extending from the Lower Palaeolithic to the Late Islamic period.[1] The first excavation was conducted at Jumeirah in 1969,[2] and ongoing work has uncovered more than 25,000 artifacts. Most were found at the Saruq Al-Hadid archaeological site (SAH), discovered by H.H.Sheikh Mohammed bin Rashid Al Maktoum in 2002[3].
This paper presents a selection of archaeological masterpieces from Dubai's antiquities collection, arranged chronologically.

Selected Artifacts from the Collection

1| Lower Paleolithic period

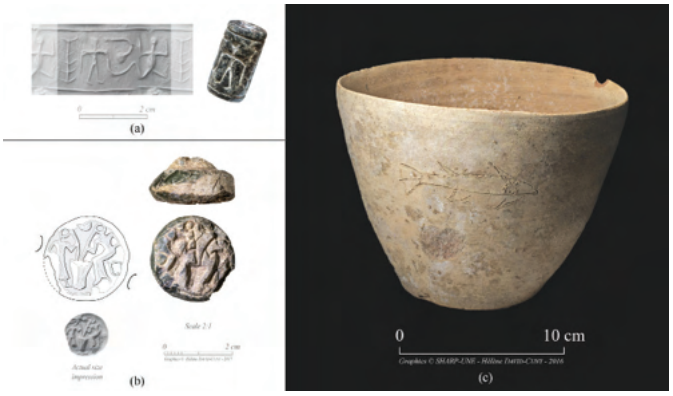
One of the earliest artifacts in the collection is a stone hand axe (DAR.9627), 17 cm in length, discovered at SAH (Fig. 1). It has a pear-shaped form with sharp edges, suggesting its use[4].



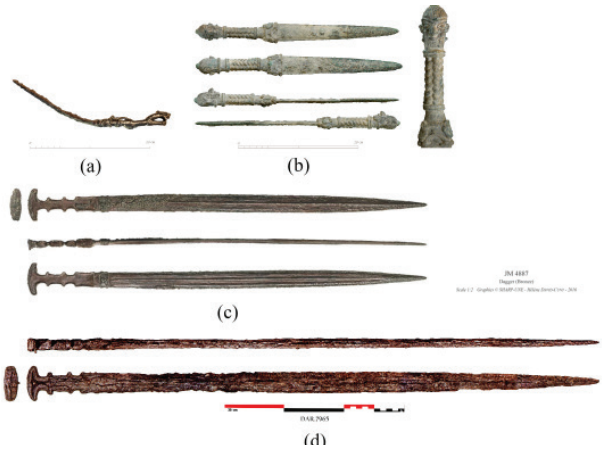
- **Fig. 1** Stone hand axe (SAH), Saruq Al-Hadid Museum. Al Shindagha Museum (Saruq Al-Hadid House)

2| The early to late Bronze Age (3rd–2nd millennium BCE)

From the collection of Bronze Age artifacts discovered in Dubai (Fig. 2) three objects are presented. These include cylinder seal made of chlorite (DAR.11520), 2.1 cm in length and 1.1 cm in diameter, found in an Umm Al Nar tomb at Al Sufouh[5], that represents a man with raised hands standing in front of a palm tree (Fig. 2.a); a conical chlorite stamp seal (DAR.10948), 2.5 cm in diameter, from Al Ashoosh, engraved with a scene depicting two figures in a seated position facing each other, drinking from a vessel using straws, with a possible sun disk above them[6] and most likely brought from Dilmun (Bahrain) (Fig. 2.b); and a pottery bowl (DAR.12002), 13.3 cm in height, from SAH, with residue of whitewash and incised decoration representing a goatfish motif (Fig. 2.c).



- **Fig. 2.** Bronze Age Collection: (a) Cylinder seal, Al Sufouh; (b) Stamp seal, Al Ashoosh; (c) Pottery bowl, SAH, Al Shindagha Museum (Culture of the Sea Pavilion).



- **Fig. 3** Iron Age weaponry collection: (a) Bimetallic, SAH, Al Shindagha Museum (Saruq Al-Hadid House); (b) Bronze dagger (SAH); (c) Bronze sword (SAH); (d) Iron Sword, SAH, Al Shindagha Museum.

3| The Iron Age (1300–300 BCE)

During the Iron Age, archaeological sites in Dubai reached a peak of cultural and technological development, with more than 20,000 artifacts discovered. Most artifacts were discovered at SAH, one of the major metallurgical production and trade centers in South Arabia[7]. Other important Iron Age sites in Dubai include Al Qusais and Margham[8].

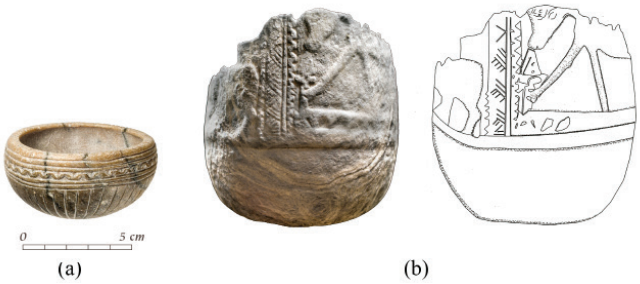
Among the most distinctive Iron Age objects are metal weapons from SAH (Fig. 3)[9]. These include a bimetallic dagger (DAR.2518), 27.5 cm in length (Fig. 3.a), with an iron blade and a bronze handle molded in the form of a running lion with detailed anatomical features; and a unique complete bronze dagger (DAR.18570), 32.7 cm in length (Fig. 3.b), with a handle terminating in a human head with pronounced facial features (big round eyes, heavy beard, and big nose), representing the only known anthropomorphic dagger from an Iron Age site in South Arabia. Additional weaponry includes copper alloy and iron swords, such as a copper alloy sword (DAR.4887), 55 cm (Fig. 3.c), with a long blade and short decorated handle; and a rare complete specimen of iron sword (DAR.7965), 101 cm in length (Fig. 3.d), with a flanged hilt secured by pins for attaching a bone handle[10].

Iron Age sites in Dubai also functioned as important ritual and ceremonial centres, as evidenced by the snake temple in Al-Qusais and cultic objects from SAH, such as snake models and incense burners. Among these is a pottery incense burner (DAR.2575), 17.5 cm in height (Fig. 4), is decorated with snake motifs crawling toward the top of the burner's rim.



- **Fig. 4** Pottery incense burner, SAH, Al Shindagha Museum (Saruq Al-Hadid House).

Among the unique collection of ceremonial vessels (Fig.5) are a small steatite cup (DAR.11605), 3.5 cm in height, decorated with incised snake motifs under the rim (Fig.5.a), and an intricate alabaster vessel (DAR.10716), 10 cm in height, with a bass-relief of a bull (Fig.5.b)[11].



- **Fig. 5.** Iron Age ceremonial vessels collection (a) Steatite cup, SAH; (b) Alabaster vessel, Al Shindagha Museum (Saruq Al-Hadid House).



- **Fig. 6** Iron Age jewelry and personal adornments collection: (a) Lead pendant, Al Qusais; (b) Gold finger ring, SAH; (c) Gold crown, SAH; (d) Necklace of carnelian and gold beads, SAH; e) Shell button, SHA.

Jewelry and personal adornments from the Dubai collections (Fig.6) reflect both aesthetic preferences and social identity. These include a pendant made of lead (DAR.18432), 2.1 cm in length, found in the snake temple at Al Qusais[12], representing a standing camel with clearly defined anatomical features (Fig.6.a); while the remaining objects are from SAH, including a finger ring made of gold (DAR.17223), 1.02 cm in diameter, which has two outer rims formed with gold granules (Fig.6.b); and a miniature gold crown (DAR.12805), 2.4 cm in height, with a conical decorated base topped with two horns [13] (Fig. 6.c), Additional examples include a necklace (DAR.15802), composed of 43 gold and carnelian beads, found in situ as a complete strung necklace (Fig. 6.d), and a conical-shaped shell button (DAR.17425), features a central six-pointed star, bands of guilloche decoration defining four quadrants, each containing a depiction of a female vulture. Its diameter is 8.5cm, and it is 0.6 thick.



- **Fig. 8** Copper alloy spoon, Hatta.

4| The Islamic era

Artifacts from the Islamic period in the Dubai collections range from the Early Islamic era at Jumeirah (Umayyad–Abbasid, 8th–13th century CE) to the Late Islamic era in Hatta (16th–20th century CE). From Abbasid period, two large ceramic vessels discovered together at Jumeirah_2 (Fig.7, next page) includes a conical-shaped storage jar with incised lines (DAR.23980), 61 cm in height (Fig.7.a), and a pear-shaped glazed vessel (DAR.23981), 36 cm in height (Fig.7.b), with an inscription on the neck reading "mataa' li" (متاع لي) "my belongings"[16]. From the Late Islamic period, a copper spoon (DAR.25006) was discovered at Suhaila in Hatta; it measures 24.5 cm in length and features a floral-decorated handle (Fig. 8, left).

Finally, several of these objects presented in this paper are currently displayed in different museums across the United Arab Emirates.

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Fig. 7 Abbasid ceramic collection: (a) Pottery jar, Jumeirah 2; (b) Glazed pottery vessel, Jumeirah 2.

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Country Reports

UAE
Fujairah

Current research on the weapon assemblages from rescue excavations in Dibbā Murbā (Fujairah-German Archaeological Project)

BJARNE KORTMANN, KRISTINA PFEIFFER

The Fujairah-German Archaeological Project, a collaboration between German research institutions and the Fujairah Tourism & Antiquities Department, conducts rescue excavations at the threatened Late Bronze-Early Iron Age site in Dibbā Murbā, UAE. The site of Dibbā Murbā is located directly at the Omani border and features four collective tombs and one grave-inventory depot pit. The tombs have elongated long-chamber and horseshoe shapes lined with stone settings, and the deep pit has an amorphous shape and was found lined and/or layered with wood. One long-chamber tomb and the pit are being excavated (Pfeiffer et al. 2026, 18–21). Gravel extraction activities between 1998 and 2007 caused disturbances at the archaeological features and extensive relief alterations up to 3 m deep across the 300 × 500 m site area (Fig. 1). These activities created basins where, due to increasingly frequent heavy rainfall events, lakes reaching depths of up to 2 m (Fig. 2). Hence, the stratified deposits rich in archaeological features, such as artefacts, human remains, and organic materials, are heavily threatened by water erosion intermixing with heat-induced fast evaporation, and lie exposed. Rescue measures in Dibbā Murbā began after initial surveys in 2017, with major seasons in 2018 and 2019 to protect and document the site (Pfeiffer et al. 2018; Pfeiffer et al. 2019).

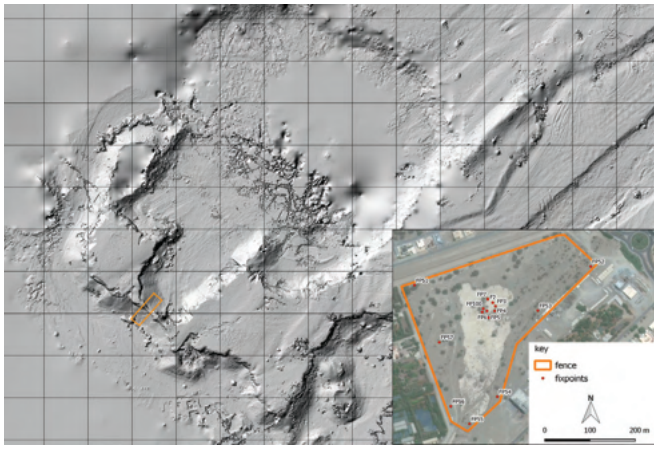


Fig. 1 Digital elevation model of the Dibbā Murbā site: strong relief highlighting the vulnerability of site parts (orange box). Image: C. Forster



Fig. 2 View of rapidly covered cultural layers at the most fragile site area during the 2019 heavy rain event, Photo: K. Pfeiffer

In one area at acute risk of collapse, only a narrow baulk measuring 3.6 m in width and about 3 m in height revealed truncated grave inventory

contents in its northern and southern sections, approximately 1.10m below the surface. Next to it, collapsed rocks, stone masonry, and strata with human bones were detected, partly disturbed by bulldozer activities. The joint team opened two trenches—Trench 1 (78 m^2) and Trench 3 (55 m^2)—confirming the presence of a long-chamber tomb exceeding 17 m in length and an associated grave inventory pit (Fig. 3). The data of the two trenches and their inventories are in progress.



- **Fig. 3** Plan and overview of trenches established during the 2018 rescue measures. Map/Orthophoto: S. Reichmuth

The collective long-chamber tomb measures 2 m in width. It was first investigated through a south-western and a north-eastern sounding. The uppermost strata comprise three superimposed layers of human remains attesting to diverse burial practices: primary inhumations with associated grave goods (such as bronze bowls and shells with copper pigments) in the lowermost layer; a middle layer of secondarily redeposited, commingled remains; and primary burials in shallow clay basins at the top (Figs 4–5).

The pit, adjacent to the long chamber tomb, displays prehistorically cleared grave inventories



- **Fig. 4** Preserved primary burials in the lower layers of the long-chamber tomb SE part (Tr1), documented and backfilled (not yet excavated). Photo: K. Pfeiffer



- **Fig. 5** Preserved primary burials and crania in the upper layers of the long-chamber tomb NW part (Tr1), documented and backfilled (not yet excavated). Photo: K. Pfeiffer

that were re-deposited, most probably in wood containers or wrapped in organic mats (Fig. 6a+b). It contains human remains and a large number of intact artefacts, such as pots, bronze weapons, soft stone containers/lids, mollusc artefacts, beads of diverse materials, decorative objects, and pigment containers and seals (Pfeiffer – Fügert 2021, 125–137). Stratigraphic relations between the pit-depot and the adjacent long chamber tomb seem to indicate a direct correlation between those two. Traces of prehistoric disturbances or looting have not yet been found in the studied areas.

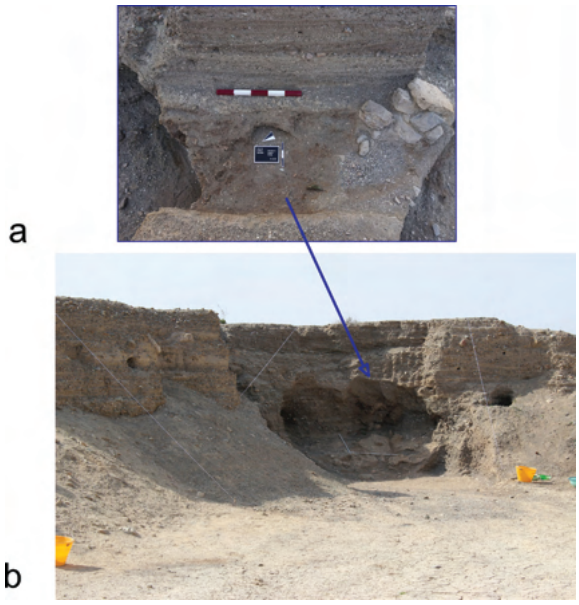


Fig. 6 a & b a. Excavation of the archaeological layers of the pit in the baulk, the brown coloration is due to wood/organic remains, b. Overhanging profile of the baulk with the pit. Photos: S. Reichmuth

The assemblages suggested a rather Late Bronze Age date of the pit inventories and a predominance of Iron Age I-II in the long-chamber tomb. Two 14C dates on wood remains from an axe (F692), and a dagger (F690, Fig. 7) from the pit underlined a time frame within the first half of the second millennium BC (F690: 1875–1693 calBC 1σ; F692: 1883–1773 calBC 1σ; OxCal v4.4.2 Bronk Ramsey (2020), Reimer et al. (2020) dated by CEZA Mannheim). Hence, we suppose that the archaeological structures at Murbā date between the "Wadi Suq"-period, c. 2000–1600 BC, and extend through the Late Bronze Age (1600–1300 BC) into the Iron Age II (Iron Age I–II, 1300–600 BC).

The exceptionally rich assemblages include 1512 stratified objects and ceramic collections, along with 181 non-stratified objects. The objects are in an exceptionally good state of preservation, including remnants of wood. Conservation work on the organic remains and research on the artefacts have since been carried out step-by-step. The investigation of the weapon assemblage (174 objects) from the site of Dibbā Murbā forms part of a doctoral dissertation examining the technology and use of arms and armour in south-eastern



Fig. 6 Dagger (DIBMRB_1_35_F690) with wood remains at the handle that were radiocarbon dated. Photo: A. Strauß

Arabia during the second and first millennia BC. Weapons are a uniquely informative class of artefacts, providing evidence for both the craft of design and production, and the craft of warfare. The former sheds light on aspects of economy, trade, and technological development, while the latter offers insight into the social realities and lived experiences of those communities.

At present, a total of forty-five bronze weapons and weapon fragments have been recorded. These included twenty-three swords or sword fragments, eleven daggers or dagger fragments, four spearheads, two axe heads, and four projectile heads. This accounts for all stratified bronze weapon finds from Dibbā Murbā (except for the arrowheads), and a selection of unstratified finds salvaged from disturbed contexts during gravel extraction.

The background of these studies is the discrepancy between the volume of archaeometric and provenance data on weaponry and the still-lacking interpretative research (see Potts 1998; Al-Jahwari et al. 2021; Genchi 2024). To understand these objects fully and reconstruct their "Sitz im Leben", material analysis must be combined with additional lines of evidence.

Material composition is central to determining what may be termed the mechanical properties of an object, namely, the stresses it can withstand before deforming. Yet mechanical perfor-

mance equally depends on the object's shape. In weapons, this requires detailed analysis of profile and cross-section along the entire length, with particular attention to variables such as distal taper, to identify, e.g., passive or even active tip reinforcement. Post-casting treatments, such as heat treatment, can alter the toughness of bronze, while cold hammering can increase hardness in specific areas. Reconstructing the chaîne opératoire is therefore essential for approximating mechanical properties (see Sidiropoulou et al. 2021). Beyond merely withstanding mechanical stresses, morphological features can contribute to overcoming different forms of resistance, rendering a weapon more efficient in inflicting specific types of damage. For example, a tongue-shaped tip may slightly reduce the penetrative capacity of a thrust but enhance its effectiveness in slashing attacks.

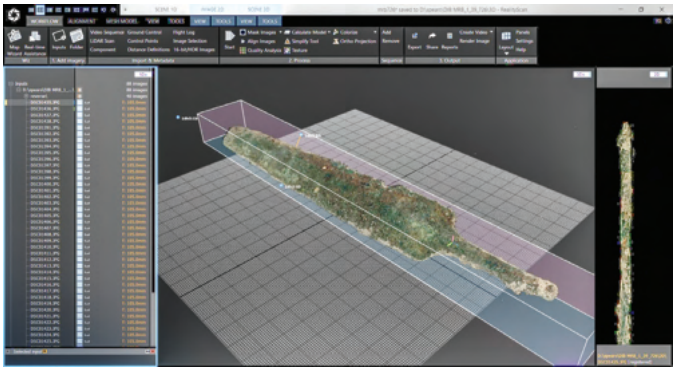
The interplay between material composition and shape also determines the weight and, crucially, the distribution of that weight within the object. It gives rise to what may be termed the dynamic properties of the weapon. These properties do not set fixed limits to its use, but inform us on how the object would be moved most efficiently. Closely related are ergonomic considerations, which can only be assessed where handles are preserved (spears and axes excluded) (Fig. 8). As the primary interface between user and object, grips provide direct insight into potential ways of use. Only by integrating these aspects can the role of weapons within their societal context be reconstructed in an informed way.

We are applying this framework to the study of the DIB MRB assemblage by 3D documentation through advanced photogrammetry (Fig. 9). The resulting 3D models enable precise morphological analysis and comparison, and form the basis for further methods such as finite element analysis (FEA) to virtually evaluate mechanical properties, followed by 3D printing for experimental ergonomic studies without risking damage to the originals. This is complemented by manual measurements, including weight and



- **Fig. 8** Complete handle made of polished white quartzite (DIBMRB_BDZ_50). L: 7.4 cm. Drilling: 0.5 cm Ø. Lens-shaped cross-section and a rectangular shape with slightly convex edges on the short sides and concave edges on the long sides. Photo: B. Kortmann

weight distribution, and by detailed visual documentation through macrophotography, RTI (Fig. 10, next page), and textual description. Additional techniques, such as pXRF and micro-CT scanning, would provide valuable data on material composition and internal structure to more accurately assess mechanical properties, but have not yet been employed.



- **Fig. 9** Photogrammetric dataset of a tanged spear (DIBMRB_1_39_F729) processed into a 3D model in the software RealityScan.

We thank the Fujairah Tourism & Antiquities Department, Head Archaeologist Salah Hassan, for the excellent cooperation and the trust in our work.

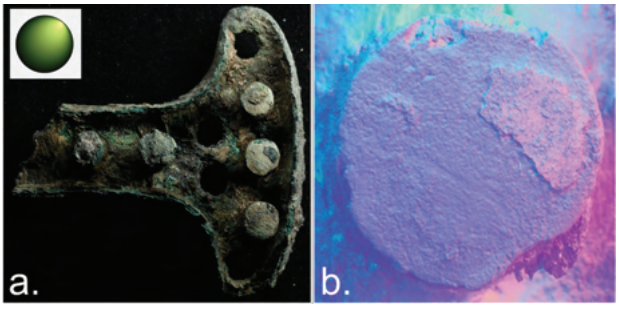


Fig. 10 Photometric Stereo dataset of a dagger handle (DIBMRB_HEAP8_F1002) processed into a relightable image (RTI): a. example setting with light emitted from a low angle from the upper right, b. example visualization of surface geometry of a rivet

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Country Reports

UAE
Ras Al Khaimah

National Museum of Ras Al Khaimah series (1 out of 3):

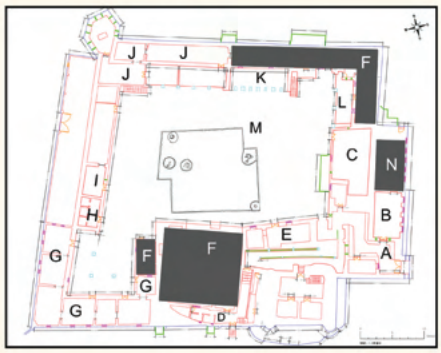
Complete Restoration of the Ground Floor

The RAK Fort building, which houses the National Museum of Ras Al Khaimah, has completed its latest restoration project and has renewed its ground-floor spaces to almost 100% for public use. The project was based on pre-restoration investigation, research, and analysis initiated by the Directors at the time for the National Museum, Dr. Kate Ayres, and for the Archaeology Department, Ahmed Hilal. The fundamental scientific reports that are referenced in the project include (1)"Characterization of Constituent Materials" an analytical report by Dr. Adel El-Turke (May 2017); (2) "Analytical and Historical Assessment of the First Structure by David Connolly and Hana Kdolska (July 2017), and (3) "Structural Analysis as a Restoration Proposal" developed by Myrto Tsitsinaki (December 2017).

Restoration work began in stages from December 2019 through 2025, while the museum remained open to the public. Once the restored section is complete, the restoration team will begin work on the other part of the museum. During the preparation of the restoration project in Quarter 4 of 2019, the previous Archaeology Department Director prioritized rooms on the north side of the building (partial F1 and J) due to the urgent need to replace the ceiling timbers, as well as the idea to open the smallest galleries in the museum, the Natural History Galleries (E). The latter led to the discovery of one out of two madbasas in the fort. As work on the walls and floors of F1 and the rest of J continued, the restoration progressed to complete the northwest side. In 2020-2021, the late senior archaeologist Tibor Paluch oversaw the continuation of the restoration work on the west side of the building, the Recent Discovery galleries (I), two small storage rooms (F3) adjacent to the Archaeology Galleries (G), and the temporary exhibition space (C). In the transition period of 2022, the restoration work continued under the supervision of the Al Jazirah Al Hamra project team before being carried out by the Surveys & Excavation Section of the Department of Antiquities and Museums.

The latter continued the restoration and renovation in 2023-2024 for the following areas: the watchtower (O), the Liwan space of the ethnography galleries (J), the Liwan space (K), and the outer walls of the Wind Tower (Barjeel) located above it. In September of 2026, the Archaeology Galleries (G) restoration project completed its last three rooms, ready for the inauguration of the renewed galleries by His Highness Sheik Saud bin Saqr Al Qasimi in a candlelight concert in November 2026, the museum's birth month. As of Q1 2026, the ground floor of the RAK Fort is designated for the public service of the National Museum of Ras Al Khaimah. Most of the restored spaces have been transformed into something different from what they were before (see comparative floor plans). New spaces and never-displayed objects are part of the museum's new offerings. Details of new galleries and never-displayed objects will be provided in the next piece of the National Museum of Ras Al Khaimah series.

2019



2026



#	then in 2019	today in 2026
A	The ONLY Entrance and Exit	Entrance /Exit 1, service access, a **new exit** is on the other side
B	Majlis 1	Majlis 1
C	Temporary Exhibition space, tour guide office	Welcome Area, Introduction to the museum
D	2 Male Washroom and 1 storage room	2 Male Washrooms, Male Musholla with Wudhu space
E	Natural History Galleries	Madbasa Galleries
F	Storage	Julfar Galleries
G	Archaeology Galleries (7 rooms)	Archaeology Galleries (**9** rooms)
H	3 Female Washrooms	2 Female Washrooms, 1 Unisex-POD-Baby Change Room
I	Archaeology themed "Recent Discoveries"	Temporary exhibits: (1) Military Museum (2) Weaponry
J	Static permanent exhibition of Ethnography (3 rooms)	Changing themes in Emirati heritage, currently on its 3rd cycle
K	Semi opened inactive area "Liwan"	Space for temporary exhibits and programs
L	Qahwa Seating are and storage	Qahwa Seating area, offices for customer support & guides
M	Open air courtyard "Hadiqa"	Open air courtyard "Hadiqa" activated by hosting events
N	Majlis 2, general storage	**Gift Shop**

Country Reports

Pakistan

The Historical-Archaeological Mission at Banbhore: an overview of the results from the campaigns 2017-2025

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[2] Directorate General of Antiquities and Archaeology - Culture, Tourism, Antiquities & Archives Department, Government of Sindh – Pakistan

Banbhore is located in the western delta of the Indus River, about 60 km SW of Karachi (Sindh, Pakistan). After the first excavations conducted in 1958-1965 (Khan 1976), research at the site resumed in 2011 and is ongoing under a joint Italian-Pakistani project.

The site comprises a walled citadel with a dense, well-defined urban layout, a lower town to the east, an artificial lake and extensive suburbs (Fig. 1). Inside the citadel, several architectural complexes have been uncovered, including a large mosque, the oldest in South Asia. Its features conform to the earliest Arabian hypostyle type without a *mihrab*.

In the western part of the citadel, we discovered an early Islamic residential and artisanal quarter with five buildings around a crossroads (Trench 9, Fig. 2; Felici et al. 2016, VV.AA. 2019). Building 2 has two rooms and an outer portico along the N-S street, where two spots rich in ivory waste point to an ivory workshop active around the 11th-early 12th century (Fig. 3). Building 4 has eight rooms, with a main occupation phase of the 10th-11th century. Each room preserves many earthenware pots in place, together with filters and funnels, possibly related to food processing (Fig. 4). The 12th-century occupation of Buildings 2 and 4 was associated with metalworking and forging activities.

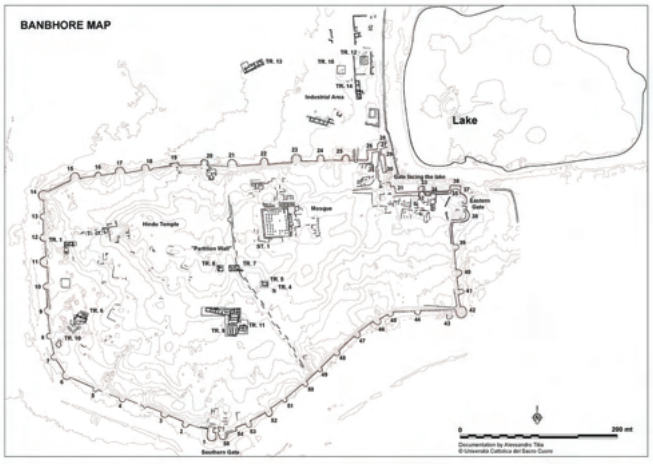

Fig. 1 Topographic map of the site of Banbhore, with the indication of the areas excavated since 2012 (© A. Tilia).

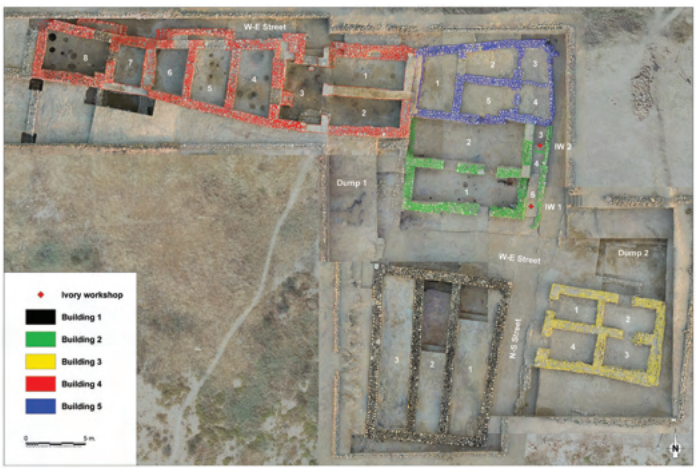

Fig. 2 Orthophoto of the plan of Trench 9, with the five buildings highlighted (© A. Tilia).



Fig. 3 Detail of the ivory wastes and offcuts found in place inside the portico of Building 2 (© S. Mantellini).

Two huge dumps full of discarded materials obliterated the buildings and the E-W street, suggesting that this part of the citadel was abandoned in the late 12th-early 13th centuries. Inside the dumps, more than 150 kg of ivory from elephant tusks, primarily offcuts and wastes, were collected, revealing the only known case of an in-situ industrial ivory production area in the global archaeological record. 76 offcuts bear inscriptions, mainly Arabic but also Indian scripts, currently under study. This discovery shows that, while Banbhore was experiencing progressive decay and urban shrinkage, in this area the population continued to live and manufacture ivory items until its final abandonment in the early 13th century (Mantellini et al. 2021).



Fig. 4 Detail of the rooms of Building 4, with the earthenware pots found in place and the related pits (© D. Redamante).

Outside the citadel, an extensive survey revealed a hinterland settled from the 2nd to the 18th century CE (Mantellini et al. 2022, Fig. 5), comprising an ancient bridge, artificial cuts in the outcropping bedrock, manufacturing and residential areas, graveyards, including one pre-Islamic associated with torpedo jars. The latter is particularly interesting as it could point to cultural links with people from the Gulf.

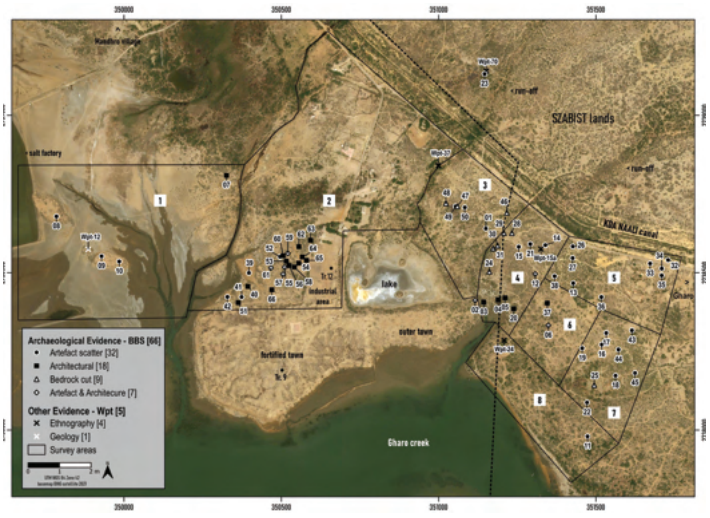

Fig. 5 Map of the site of Banbhore and its surrounding territory, with the archaeological evidence uncovered (© S. Mantellini).

North of the citadel, excavations have uncovered a large artisans' quarter, active mainly from the 9th to the early 11th century (Fig. 6, next page). Scattered throughout the quarter, ash and charcoal concentrations, crucibles, and slags reveal the presence of kilns. The eastern part was full of large earthenware hole-mouth containers, set into the floors and arranged systematically in rows very close together (Trench 12). Archaeological data and historical information point to their use for dyeing fabrics or processing fibres. In the western part of the quarter, we exposed a building with evidence of a lime/plaster production from shells (Trench 13).

A bathhouse was found in the quarter, close to the lakeshore (Trench 14, Fig. 7, next page). It comprises a fire chamber, a hot room and a warm room with a well-defined hypocaust system, a cold room for washing, and a changing room. The preliminary attribution to the 9th-early 10th century makes it the earliest hammam known so far at the easternmost margins



Fig. 6 Aerial view of the artisans' quarter, to the north of the citadel, with the indication of the excavated trenches (© A. Tilia).



Fig. 7 Aerial view of the hammam from NW, with the lake and the citadel's walls in the background (© D. Redamante).

of the Islamic world, comparable with examples from Arabia (Qalhat), Iran (Siraf), and Central Asia (Khankurgan) (Fusaro et al. 2025).

Inside the citadel, we have started a reappraisal of the mosque to provide up-to-date documentation, better understand its foundation and refurbishments, and substantiate the hypothesis of an underlying Hindu building.

Both the hammam and the mosque testify that Banbhore was part of the architectural landscape typical of the early Islamic world under the Abbasids.

The research work has recovered a huge quantity of materials, which are rich and varied. The ongoing study investigates local manufacturing, the evolution of technology and style, and the complex trade network by land and sea in which Banbhore was involved from the Red Sea to China, especially in the 9th-11th centuries. Pottery and glass items found at Banbhore prove closer connections with harbours/markets along the Indian Ocean, particularly Arabia and the Gulf.

Among the imported ceramics circulating at Banbhore were opaque glazed wares, splashed sgraffiato ware, Chinese porcelaneous vessels, Gulf jars and Sasanian-Islamic turquoise monochrome jars, and underglaze painted ware. They were identical to those recovered at sites in Arabia, East Africa, and the Gulf: Sohar, al-Arja, al-Hamr al-Sharqiya, Sharma, al-Shihr, Ras al-Khaimah, Bilad al-Qadim, Siraf, Shanga and Manda. At the same time, ceramics produced in Sindh reached sites in Oman, Yemen, southern Iran and East Africa (Piacentini, Fusaro 2022).

Among the glass types that better illustrate the contacts between Banbhore and the Arabian sites are disk-rim bottles, deep blue flasks, flasks with "mushroom" rims, and cups with a triangular rim. Major comparisons have been traced with Sharma in Yemen, Khadima and Mughaira in Kuwait, Kush in the UAE, and pilgrimage stations to Mecca or Jerusalem, such as Raya and Aqaba in the Sinai Peninsula (Blair 2016; Foy 2015; Keller 2010; Meyer 2017; Shindo 2003).

Finally, the ongoing systematic study of the extensive metallurgical corpus highlights the site's significant industrial and economic role. A particular emphasis has been placed on terracotta casting moulds, featuring small cavities, probably used for producing small metal discs or by-products, interpreted as intermediate forms of wealth storage (Fig. 8). Comparable evidence found from North Africa (Nixon et al. 2011) to Iran (Whitehouse 1972) reinforces Banbhore's strategic integration into the broader networks of exchange and production during the early Islamic period.

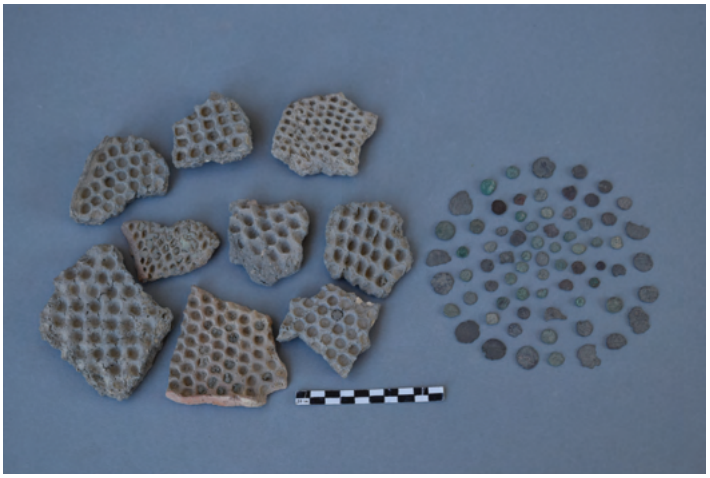

Fig. 8 Fragments of casting moulds, metal discs and coins from the Banbhore museum (© D.A. Sheikh).

Acknowledgements

The project has been supported by the Italian Ministry of Foreign Affairs and International Cooperation, the Università Cattolica del Sacro Cuore of Milan, the Directorate General of Antiquities and Archaeology of Sindh and, since 2025, by ISMEO and the University for Foreigners of Siena. Funding from the Max van Berchem Foundation was granted in 2022-2023.

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Research Notices

Oman

The Al-Ṣalaylī Archaeological Project 2024: From the Field to the Laboratory

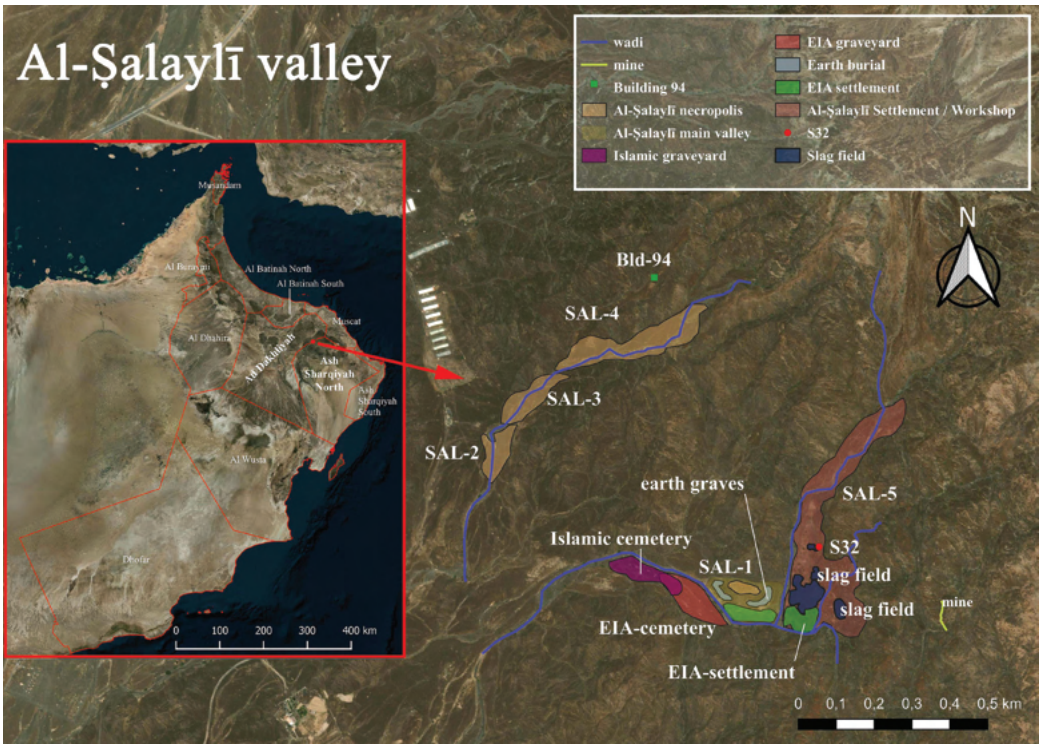
MICHELA GAUDIELLO, VERONIKA BRYCHOVA, VIKTORIA CSERYOVA

Following the successful completion of the first two seasons (2022, 2023) of archaeological fieldwork at Al-Ṣalaylī (Gaudiello 2024a-b), the project transitioned into a fundamental phase of laboratory-based research.

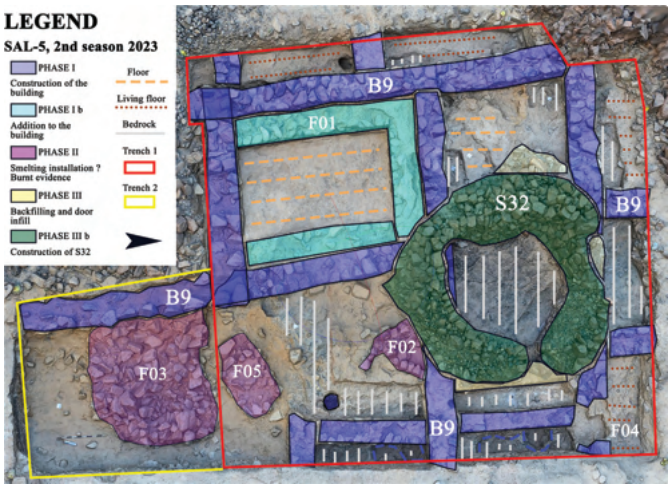
The third season, conducted in 2024, was designed to move from stratigraphic data collection to high-resolution scientific characterization of the recovered materials. This analytical campaign was made possible through the generous support of the Beatrice de Cardi Award, with the third year of the grant providing the necessary resources to implement a multi-disciplinary laboratory program.

The site, located in the Al-Sharqiyah North Governorate at the administrative limit with Ad-Dakhiliyah (Figure 1), is characterized by five main distinguishable areas: SAL-1 to SAL-4 are necropolises containing mostly hut tombs and a few other tomb types, for a total of 245 burial features (Gaudiello 2024a, Yule et al. 2021). While other archaeological areas were only tentatively distinguished based on their architectural characteristics—as no artifacts were recovered there—the area of SAL-5 proved much more productive.

Consequently, excavation began in SAL-5 thanks to the sponsorship of the Society of Antiquaries of London as it was the only sector to yield ceramic



● **Fig. 1** Qgis map of Oman with detail of al-Ṣalaylī archaeological site (Gaudiello 2023).



- **Fig. 2** Photogrammetric orthophotos of Trench 1 and 2 at the end of 2023 season and features organized by archaeological phases (Gaudiello 2023).

materials and other finds. Now identified as a settlement or workshop area due to the presence of large copper fields and various stone structures, the excavation of SAL-5 reveals three main archaeological phases: an ancient building (B9) representing Phase I; several possible smelting installations (F02, F03, F05) containing copper slag, ash, and charcoal remains, built with stones salvaged from the partially abandoned B9, representing Phase II; and finally, Phase III, which is characterized by rounded structures such as S32 that embed walls from B9 and cover the architectural elements of both the installations and the ancient building itself (Figure 2).

The first radiocarbon datings confirmed the archaeological assumption of three historical phases of occupation and use in this part of SAL-5. Charcoal yielded from Phase I contexts dates the level to the Early Islamic period. Samples collected from contexts related to Phase II are Middle Islamic. Unfortunately, no charcoal was collected from the uppermost layers to confirm the Late Islamic period suggested by some potsherds (Gaudiello, 2024b). The new C14 results confirm Phase 1 and Phase 2 as belonging to the Early and Middle Islamic periods. Starting from the westernmost side of the building and moving toward the east, the samples dated to the Early Islamic period are (Table 1):

SU no.	Find Number	ID_lab no.	Radiocarbon age BP	Calibrated age CE	Percentage %
SU104	400	25_0554	1169±19	772–955	97
SU112	408	25_0555	1127±20	885–990	97
SU010 (2023)	149	23_1715	1139±16	880–979	93
SU010 (2025)	388	25_0553	1121±22	706–884	96
SU010 (2025)	409	25_0556	1232 ±19	702–880	97
SU014 (2023)	170	ID#170	1149±23	773–979	95
SU017	171	23_1716	1216±17	772–883	94
SU019	172	23_1717	1149±16	912–977	97
SU085	367	25_0552	1120±19	707–883	96
SU070	257	25_0551	1167±19	771–958	97
SU094	470	25_0557	1137±19	878–988	93

- **Tab. 1** Photogrammetric orthophotos of Trench 1 and 2 at the end of 2023 season and features organized by archaeological phases (Gaudiello 2023).

The following results are instead related to Phase 2 contexts and the Middle Islamic period (Table 2):

SU no.	Find Number	ID_lab no.	Radiocarbon age BP	Calibrated age CE	Percentage %
SU006	139	23_1714	672±16	1281–1386	96
SU055	233	25_0549	612±20	1301–1400	96
SU022	218	ID#218	581±22	1309–1411	95
SU060	231	25_0548	656±20	1285–1390	96

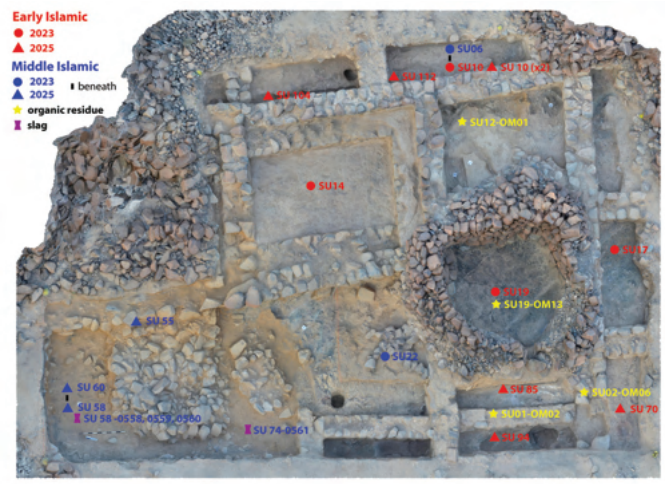
- **Tab. 2** The charcoal samples were analysed by CRL, except for ID#218, which was analysed at DirectAMS in Bothell.

As evident from Table 1, three samples of charcoal from SU010 (see Figures 2-3) were collected and analysed because that part of the ancient building yielded two clamps (Gaudiello 2024b, Figure 10 e-f) during the 2022 season, followed by an iron blade and a nail the season after.

SU no.	Find Number	ID_lab no.	Radiocarbon age BP	Calibrated age CE	Percentage %
SU058	247	25_0558	768±19	1226–1280	95
SU058	248	25_0559	770±19	1226–1279	95
SU058	248 (-3)	25_0560	786±19	1224–1274	95
SU074	254	25_0561	641±19	1290–1394	96

- **Tab. 3** C14 dating of the charcoal extracted from the copper slags and analysed by CRL, Prague. (Gaudiello 2023).

Regarding the radiocarbon dating of charcoal samples, the discovery of charcoal pieces embedded within the slag was particularly significant (Figure 4). Of the four samples (Table 3), three were extracted from slag associated with context SU58, which the aforementioned radiocarbon analysis dates to 1281–1389 CE.



- **Fig. 3** Photogrammetric orthophotos with the C14 (red and blue symbols), slags (purple symbol) and ceramics (yellow star) samples collected for laboratory analysis (Gaudiello, 2026).

The fourth charcoal sample extracted from slag came from the archaeological layer related to Feature F05, rather than F03 (Figures 2-3).

Dating charcoal from slag can be problematic when older carbon is incorporated or when contamination processes affect the material. These issues are well-documented in iron-production contexts and carbonate-rich geological settings (Gassmann and Schäfer 2018). At al-Ṣalaylī, however, the slag-charcoal dates align closely with sedimentary charcoal from the same stratigraphic unit. Differences fall within the expected 2σ range or may be attributed to the "old wood" effect, which is the inbuilt age of wood prior to combustion (Bird 2013; Gassmann and Schäfer 2018). This coherence is consistent with successful applications of in-slag charcoal dating in copper-smelting contexts (Tumiati et al. 2005; Hendrickson et al. 2013; Toffolo et al. 2013; Bukowski et al. 2025), indicating that the results reflect a single occupational phase rather than contamination-driven distortion.

A fifth charcoal sample was recovered from a piece of slag (SU001, f.n. 216, ID_lab 23_1718, 750±18 BP, 1229–1286 CE, 96%) collected from the infill of structure S32. It was excluded from the main chronological table because the date does not correspond to the timeframe of stratigraphic unit SU001. As SU001 consists of topsoil, no charcoal was collected directly from that layer; furthermore, surface ceramics span a wide range from the Early to the Late Islamic Period. Crucially, however, this specific charcoal date confirms that the rounded structures were constructed using stones from ancient buildings, with gravel and Middle Islamic period slag (associated with excavation Phase II) utilized as infill.

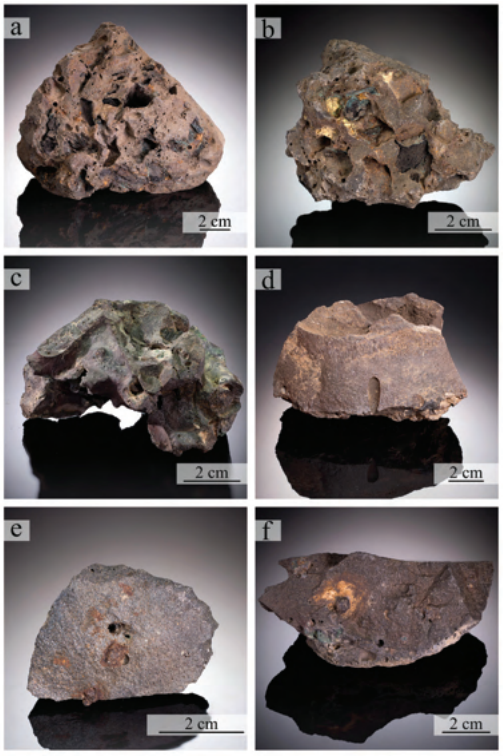
At the end of the 2023 season, 15 potsherds were sampled for organic residue analysis at CRL in Prague to explore potential residues of lipids and other accompanying non-polar compounds. An overview of the results is provided in Table 4.

As shown in Table 4, detectable lipid residues (exceeding 5 µg per g of extracted potsherd) were obtained in more than half of the analysed samples

ID	ORA code	Inv. number	TLE [µg g-1]	Compounds detected*	$\delta^{13}C_{16:0}$ [‰]	$\delta^{13}C_{18:0}$ [‰]	$\Delta^{13}C$ [‰]	Classification based on Δ13C
1	OM-SAL-1	SAL-VU-072_161	**26**	FAs (l, vl), ALK, FAOH	-23,13	-23,95	-0,82	Ruminant adipose
2	OM-SAL-2	SAL-VU-034_118	**23**	FAs (l, vl), ALK	-21,13	-21,33	-0,2	Ruminant adipose
3	OM-SAL-3	SAL-VU-109_202	**27**	FAs (l, vl), ALK	--	--	--	--
4	OM-SAL-4	SAL-VU-115_202	**24**	FAs (l, vl), ALK	--	--	--	--
5	OM-SAL-5	SAL-VU-067_161	**n.d.**	--	--	--	--	--
6	OM-SAL-6	SAL-VU-011_208	**24**	FAs (l, vl), MAG, DAG	-19,70	-20,66	-0,95	Ruminant adipose
7	OM-SAL-7	SAL-VU-009_164	**n.d.**	--	--	--	--	--
8	OM-SAL-8	SAL-VU-077_127	**n.d.**	--	--	--	--	--
9	OM-SAL-9	SAL-VU-073_161	**8**	FAs - traces	--	--	--	--
10	OM-SAL-10	SAL-VU-045_155	**19**	FAs (l, vl)	--	--	--	--
11	OM-SAL-11	SAL-VU-114_202	**n.d.**	--	--	--	--	--
12	OM-SAL-12	SAL-VU-143_075	**22**	FAs (l, vl), MAG, DAG	--	--	--	--
13	OM-SAL-13	SAL-VU-062_193	**49**	FAs (l, vl), MAG, DAG	-16,42	-16,99	-0,57	Ruminant adipose
14	OM-SAL-14	SAL-VU-053_132	**n.d.**	--	--	--	--	--
15	OM-SAL-15	SAL-VU-027_177	**4**	FAs - traces	--	--	--	--

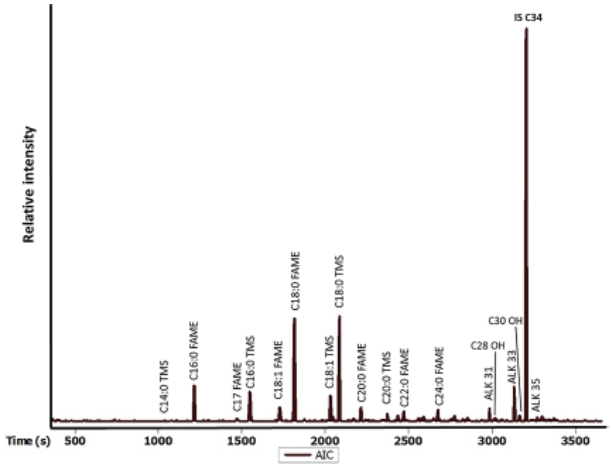
* **FA:** fatty acids; **l**: long (C_{12-18}); **vl**: very long (C_{20} and more); **ALK**: alkanes; **MAG**: monoacylglycerols; **DAG**: diacylglycerols; **FAOH**: fatty alcohols; **n.d.**: not detected.

- **Tab. 4** Concentration and lipid residue composition in potsherd samples from Al-Salayli



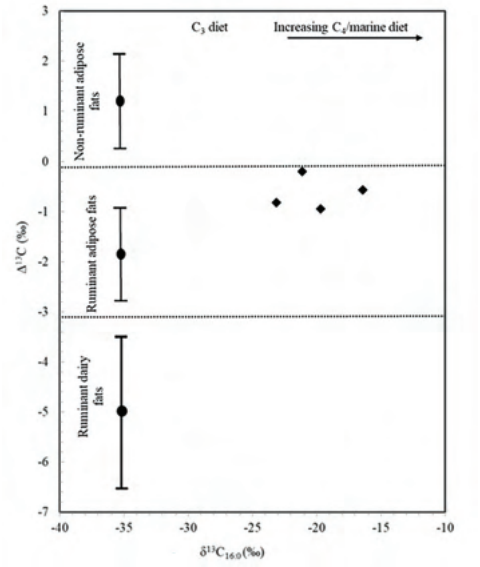
- **Fig. 4** Furnace slags collected from SAL-5 with charcoals: a) f.n. 308-2; b) f.n. 304-1; c) f.n. 222; d) f.n. 350-1; e) f.n. 317-4; f) f.n. 319-1 (Cseryová, 2025).

However, the overall concentration was relatively low, never surpassing 50°µg°g^{-1}.



- **Fig. 5** Analytical ion chromatogram of TLE from OM-SAL-1 sample. FAME: fatty acid methylesters; CXY: aliphatic chain with XY number of carbon atoms; TMS: trimethylsilylether; ALK: n-alkanes; OH: fatty alcohols; IS: internal standard.

The majority of the extracts consisted of palmitic and stearic fatty acids, accompanied by very long-chain fatty acids, aliphatic n-alkanes (C20-C35), and long fatty alcohols (Figure 5, corresponding to the sherd in Figure 7, 4). These compounds likely originated from animal adipose fats as well as residues of plant waxes (Kolattukudy, 1976), suggesting a combination of animal and plant sources processed within the original vessels (Filipovic and Tasic, 2012). While very long-chain fatty acids are common components of plant waxes, they may also arise from the adipose fats of ruminants through unprocessed plant fodder (Whelton et al., 2017; Brychová et al., 2021).



- **Fig. 6** Scatter plots of Δ13C values (Δ13C=C18:0 -C16:0) for the C16:0 and C18:0 fatty acids from the TLEs extracted from potsherds of Al-Ṣalaylī. The ranges represent the mean ± s.d. for a global database comprising modern animal fats from across the UK (Copley et al., 2003) and the globe (Outram et al., 2009; Dunne et al., 2012). Each data point represents an individual potsherd. Analytical precision ± 0.3‰

The four samples selected for isotopic analysis were sub-sampled directly from the potsherds illustrated in Figure 7. These samples, which yielded appreciable lipid concentrations, were subjected to compound-specific stable carbon isotope analysis of C16:0 and C18:0 fatty acid methyl esters using GC-C-IRMS to differentiate the animal fat sources.

As shown in the isotopic plots (Figure 6, above), the adipose fats originated from a non-ruminant source. Furthermore, since the stable carbon isotopic values (δ13C) of the C16:0 and C18:0 fatty acids are relatively enriched, it appears the animals grazed on a combination of C3 and C4 plant fodder (Casanova et al., 2023).

These results indicate that four of the fifteen samples originally analysed were used to cook meat from animals that grazed on local desert vegetation. These four vessels were further examined through ceramic typology to establish a relative dating for the contexts.

Indeed, except for sample SAL-VU-062_OM-SAL-13 (Figure 7, 2), collected from SU19, the radiocarbon dating of which fits the Early Islamic period, the remaining samples were recovered from contexts for which no charcoal or slag was analysed. Archaeologically speaking, SU19 was the lowermost layer inside structure S32, located just above the bedrock. However, we believe that this layer is not directly connected with S32, but rather with the underlying building, B9. It was associated with the extension of Wall 2 discovered beneath S32 (Gaudiello 2024b, Figure 6), as well as with blackish spots, slag, and charcoal remains located on the southeast side of S32. The interpretation of these latter elements remains unclear; it is uncertain whether they relate to the external Feature F02, which abutted the exterior of S32, or to burning activities in the space that previously lay east of Room II (Gaudiello 2024a, Figure 8). A comparison with well-known ceramic types is necessary. Unfortunately, the rim recovered from the SU19 assemblage (Figure 7, 2) has not yielded a direct parallel in the consulted literature regarding the Islamic period.

The cooking bowl SAL-VU-072_OM-SAL-01 (Figure 7, 4) was collected from SU12, located at the rear of S32 (Figure 2; identified as Room II in Gaudiello 2024b, page 87, Figure 6). Notably, this vessel is the same sample analyzed for Organic Residue Analysis (ORA) shown in the isotopic plot in Figure 6. This context has been archaeologically interpreted as a stone backfill within the empty space of the B9 room, intended to provide stability for the subsequent construction of S32. Based on our established sequence of three consecutive archaeological phases and the presence of Late Aksumite pottery, we are inclined to believe that S32 and other associated structures were built during this period of Islamic history. The sherd resembles the Julfar CP1.2 type (Kennet 2004, Figure 21), likely from the Early al-Mataf period, which Kennet dates from the early

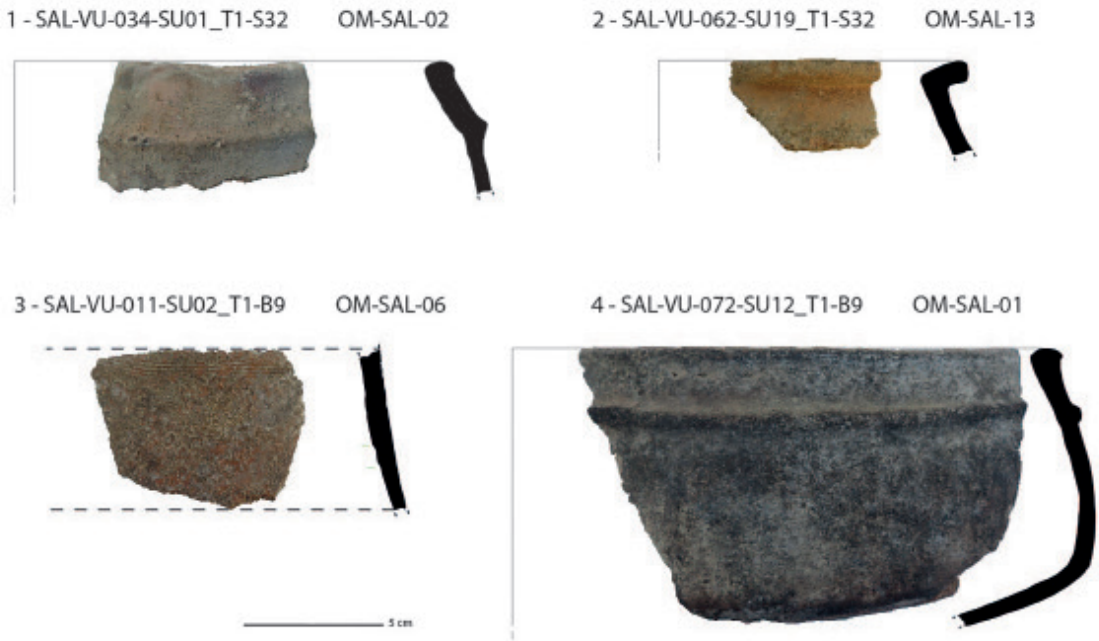


Fig. 7 Potsherds sampled for Organic Residue Analysis (ORA), which resulted in the presence of ruminant adipose fats as discussed for Figure 6 (Gaudiello, 2026).

14th to the 15th century. This same Julfar type has been reclassified by Priestman as JUL-CR1.2 (Vol. 2, Figure 177b).

The sherd SAL-VU-034_OM-SAL-02 (Figure 7, 1) was collected from the surface deposit SU01. Based on its profile and collar ridge, this sherd could also be Julfar ware. However, the fragmentary nature of the piece makes it difficult to attribute it to a specific subtype; it may be Priestman's JUL-CR1.2 (2021, Figure 177c), or more likely a JUL-CR6.2 (2021, Figure 178d), or Kennet's simple CP1.2. Generally, Julfar ware in the United Arab Emirates has been dated from the 14th to the 20th century.

The final sherd, SAL-VU-011_OM-SAL-06 (Figure 7, 3), was collected from the uppermost layer, SU02, immediately below the surface deposit. Consequently, it could be considered coeval with the previous sample and the assemblages from SU01; however, the decoration does not allow for a definitive correspondence.

Conclusion

To conclude, the 16 radiocarbon samples collected from the archaeological strata firmly confirm the archaeological interpretation of the history of the site in three main phases (Gaudiello 2024a, b). Phase I represents the Early Islamic period, when the large building B9 was built, featuring some rooms with nice, plastered floors.

Phase II represents the destruction of part of building B9, maybe because it was abandoned, and the reuse of the stones to construct features used for the smelting process. These features, called generically "installations", and the slag collected from the assemblage yielded from the connected archaeological strata, are dated to the Middle Islamic period.

An important element was achieved from the charcoal extracted from the slags rescued from installation Feature 3 and probably Feature 5. Specifically, three samples were collected from the context associated with F03 and one probably with F05. While dating charcoal from slag can be problematic due to the incorporation of older carbon or contamination, the slag-charcoal dates at al-Ṣalaylī align closely with sedimentary charcoal from the same stratigraphic units. This coherence indicates that the results reflect a single occupational phase rather than contamination-driven distortion.

Phase III, represented by structure S32 and all the other architectonical rounded structures and a few squared buildings clearly visible on the surface, has no radiocarbon dating. The level immediately connected with these superficial structures is the topsoil, which is not a sealed context but mixed with modern levels of soil deposition. The ceramics from the surface collection were dated from the Early to the Late Islamic period. However, one slag was collected from the top of the infill of S32, SU01, but the date yielded from the charcoal therein found confirms that the smelting at SAL-5 was performed during the Middle Islamic period. It also confirms that the uppermost structures were made of spolia from the previous materials. Because we were able to ensure building B9 (Phase I) and the installations (Phase II) belong to the Early and Middle Islamic periods respectively, we are keen to believe that the structures in SAL-5 were built during the Late Islamic period or even later, and were seasonal structures. Their dimensions do not suggest they were used as houses, as was probably the case for B9.

The last season at al-Ṣalaylī (2024) also included Organic Residue Analysis. Of 15 analysed fragments of potsherds, four were subjected to stable carbon isotope analysis ($\delta^{13}C$) of C16:0 and C18:0 fatty acids revealing the animals domesticated and processed for food were ruminants and were grazed on a mixed diet of C3 and C4 plants, consistent with local desert vegetation. Three of these four vessels are morphologically attributable to Julfar ware types (JUL-CR1.2 or JUL-CR6.2), a ceramic tradition broadly dated from the 14th to the 20th century. One sample (SAL-VU-072), recovered from a stone-backfill context (SU12) aligns with Early Julfar types (CP1.2).

Looking back at the 2024 laboratory campaign, we can say it achieved three main things. First, it gave us solid radiocarbon dates that anchor the Early and Middle Islamic phases at SAL-5. Second, it confirmed that dating charcoal embedded in slag is reliable in this copper-smelting context, because

dates matched the regular charcoal from the same layers. Third, it provided the first direct evidence of what people were eating at al-Ṣalaylī, specifically ruminant meat from animals that grazed on local desert vegetation.

These results turn al-Ṣalaylī from a site known only by its pottery and architecture into a well-dated example for understanding Islamic-period metallurgy, daily life, and food practices in the interior of Oman. Future work should focus on trying to obtain secure dates for Phase III and expanding the organic residue analysis to see if there is variation in diet across the different occupational phases.

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Umm al-Quwain, UAE

Bitumen-coated basketry from the Late Antique town of Siniya Island (Umm al-Quwain) – a preliminary study

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Introduction

Several complete and fragmentary bitumen-coated baskets and/or mats were discovered during the excavations conducted within the scope of the Siniya Island Archaeological Project (SIAP) at the so-called Siniya "Pearling Town" (mid-4th to mid-6th century AD) (Power et al. 2024). Bitumen lumps were also discovered at the nearby site of the Siniya Monastery (mid-6th to late 7th/early 8th century AD), although they do not seem to pertain to woven-fibre objects.

The outstanding preservation of this basketry is due to a combination of factors: the dry, arid climate; minimal disturbance of the site; protective soil layers; and, most significantly, the bitumen coating. The discovery of these items offers an invaluable opportunity to gain insight into the technological skills, craft practices, local resource use, and cultural continuity of Siniya Island's inhabitants, linking ancient practices with contemporary Emirati traditions.

A preliminary study of a sample from the Town identified the weaving patterns and used vegetal fibres. The study also highlighted the essential role of bitumen in making these baskets into durable, liquid-proof containers.



Fig. 1 Cleaning and photogrammetric documentation of the basket remains

Research Aims

This study adopts a multidisciplinary approach to investigate bitumen-coated basketry, aiming to explore its technological, environmental, and cultural dimensions as an organic assemblage.

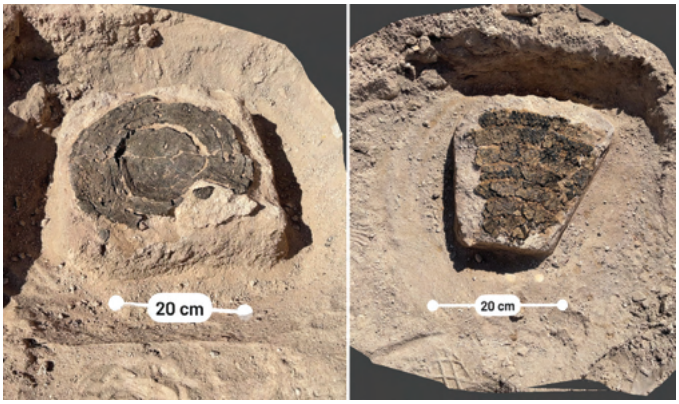
Four key objectives were set at the programming stage:

1. Characterise the production techniques and raw materials employed.

2. Assess the functional and technological role of bitumen as a preservative and waterproofing agent.

3. Evaluate the preservation context, including depositional environment and site taphonomy.

4. Explore the cultural continuity of basket-weaving practices within the broader ethnohistorical framework of Emirati communities.



- **Fig. 2** 3D modelling of the basket remains on site

Methodological approach

An integrated approach combining archaeological, archaeobotanical, microscopic, and ethnographic methods has been implemented, as summarised in the following table.

Task		Technique/tool	Aim
1	Archaeological recovery	Stabilisation in situ with Paraloid B-72; extraction within rigid frame and a polyurethane foam.	Ensured structural integrity during transport due to fragility.
2	Microscopic analysis	Hirox 3D digital microscope (×20 to ×160 magnification).	Documented regularity in weave patterns, fibre morphology, and surface texture.
3	Botanical identification	Cross-sectional microscopy (Silica Phytoliths).	Identified the specific plant raw material.
4	Contextual analyses	Oral interviews with traditional Emirati weavers (Al Dhafra region).	Provided insights into contemporary palm frond selection, drying, braiding, and spiral coiling methods.

- **Fig. 3** Outline of the methodological approach implemented for the study

Results

Weaving Technology and Morphological Standardisation

All complete and fragmentary items witness the consistent application of the 1/1 twill plaiting technique. Besides, the analysed samples show a remarkable production uniformity. Strip widths consistently measure between 4.0 and 5.0 mm. This uniformity is evidence of deliberate standardisation in material processing, suggesting technological transmission and controlled material processing within the settlement community.

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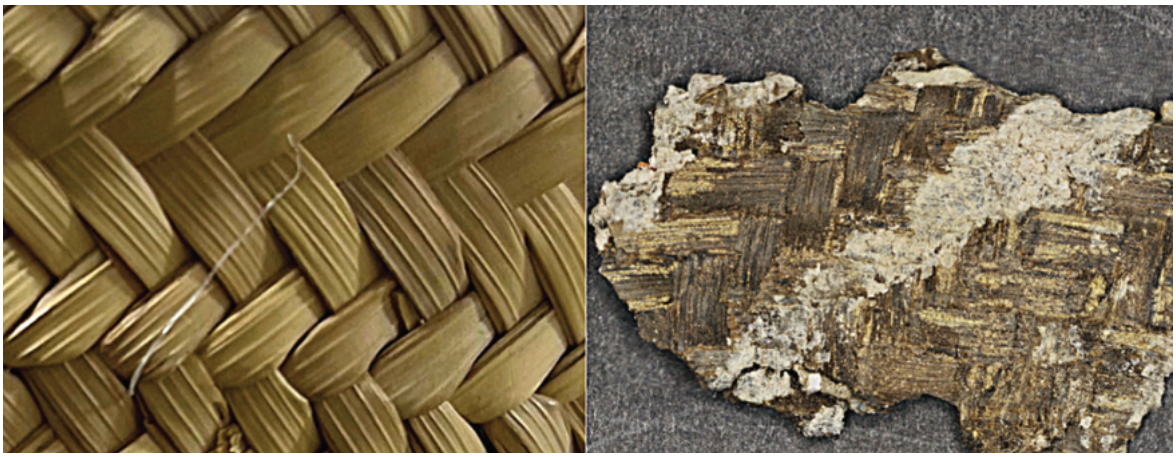

- **Fig. 4** Side-by-side visual comparison of a fragmentary sample and a modern palm frond basket.

Botanical Identification
The fibres were identified as Phoenix dactylifera (date palm). This conclusion was based on morphological characteristics of embedded phytogenic silica bodies (phytoliths), specifically tabular and spheroid echinate forms, consistent with date palms grown in arid conditions.

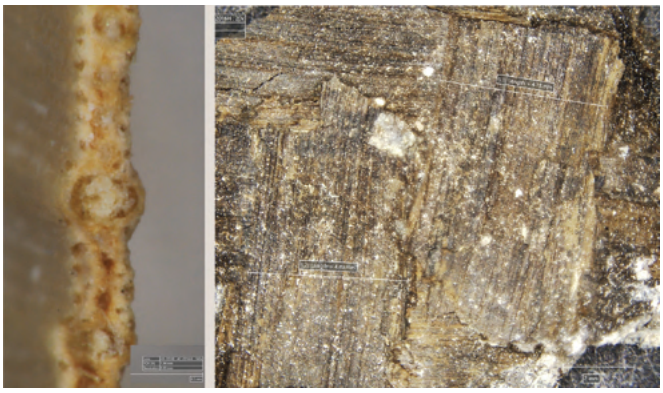

Fig. 5 3D digital microscope photograph of a fragmentary sample, with the cross-section highlighting the presence of the silica bodies (photo by Dr Celine Kerfant).

Bitumen Coating
All samples exhibited a comprehensive bitumen coating, possibly obtained by immersion after the weaving process. The coating would have functioned as a hydrophobic barrier, allowing the use of the containers also as liquid containers. Laboratory-based geochemical analyses (FTIR, GC-MS) to locate bitumen provenance are ongoing.

Preliminary remarks and future developments

This preliminary investigation provides a multidisciplinary perspective on the bitumen-coated basketry recovered from Late Antique contexts on Siniya Island. By integrating archaeobotanical, microscopic, and ethnographic approaches, the study contributes to a broader understanding of craft practices and technological knowledge in Late Antique coastal communities.

The results show that these specimens are ancient examples of a traditional craft— entailing the use of palm fronds—that is still practised today. Parallels from the Gulf region highlight the exceptional continuity of this tradition, which dates as far back as the 3rd millennium BC, as witnessed, for example, at several sites in Bahrain, among which some yielded similarly bitumen-coated specimens (Degli Esposti 2021: 226 for a concise summary).

Significantly, bitumen-coated baskets were discovered at the site of Ed Dur, facing Siniya on the coast of the Umm al-Quwain lagoon (Haerinck et al. 2021: pl. 123/11). Ed Dur, occupied between the second half of the 1st century BC and the 3rd / 4th century AD, was possibly also contemporary with the early phases of the Siniya "Perling Town". It is not unlikely that its population moved to the newly established settlement. A bitumen-coated basket was also discovered at Mleiha from a domestic context dated to the 1st-2nd century AD (Van de Velde 2015: figs. 48 right, 62). The analysis of its bitumen suggests a provenance from southwestern Iran (Van de Velde 2015: 109-110) and provides a comparison for the future study of Siniya samples.

The next step of the study will involve examining a larger sample of these bitumen-coated items, possibly also from the Siniya "Pearling Town" (part of the Siniya Monastery site). The planned geochemical study of the bitumen, aimed at understanding its origin, will hopefully shed light on the trade and technological-transfer routes of the Late Antique period in the lower Gulf. Further study is, moreover, underway to refine the functional and cultural interpretations of the assemblage, with particular attention to its integration within the broader historical context and environmental setting.

Acknowledgements

The activities undertaken by IAMUQ in partnership with TAD–UAQ, within the scope of the SIAP, would not have been possible without the vision of its Chairman, H.H. Sheikh Majid bin Saud Al Mualla, and the support of its General Director, H.E. Haytham Sultan Al Ali.

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Southeast Arabian coins from Tell Abraq: first archaeometric insights

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Introduction

Excavations on the eastern slope of Tell Abraq (Umm al Quwain) yielded 24 copper-base coins of the Abi'el issue, which circulated regionally between c. 300 BC and 300 AD (Macdonald 2010).

All specimens were recovered from the uppermost archaeological deposits. The presence of mineralised woven fibres on some coin surfaces suggests they were originally contained within now decomposed bags. A significant find involved seven coins discovered alongside a silver bracelet and three imitation Roman aurei, deliberately placed as a votive offering inside a pottery cup near the site's small Late Pre-Islamic shrine.

Following restoration conducted in collaboration with the Zayed National Museum, seven coins—including six from the votive deposit—underwent portable X-Ray Fluorescence spectroscopy (XRF) analysis. This compositional data allows for a critical comparison with the limited existing studies on Abi'el coinage.

Typology and chronology

Typological studies of pre-Islamic coins from Southeast and Eastern Arabia identified approximately sixty subcategories across two major traditions (Potts 1991; 1994; Callot 2004): one belonged to a group of issues with considerable stylistic homogeneity originating from sites in north-east Saudi Arabia, and the second is primarily known from the sites of ed-Dur and Mleiha (both within the UAE). The earliest coins date to the late third century BC, and minting continued until at least the first century AD. Notably, these coins stayed in use long after production stopped, circulating as late as the third or early fourth century AD.

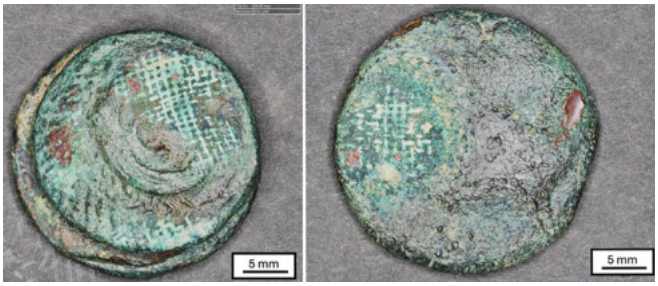
Southeast Arabian coinage was modelled after the issues of Alexander the Great and minted in three primary denominations: the obol, the drachm, and the tetradrachm. In our case, all diameters are close to 25 mm, a measure consistent with tetradrachms (Potts 1991).

Based on the materials discovered in the same stratigraphic context as the Tell Abraq coins, they can be broadly dated between the 1st and 3rd centuries AD, pending the numismatic study that might help refine this span.

Only three of the analysed coins show an identifiable seated figure on the reverse, facing right in two cases and left in the third case. This figure seated on a throne holding a staff could be interpreted as "the representation of Shams/Sha mash, the solar deity worshipped by the inhabitants of this region" in south-east Arabia (Delrue 2007). The obverse is likewise very poorly visible, but, except for two coins, the outline of the head of Heracles (wearing the pelt of the Nemean lion) is discernible (Delrue 2007).

Sample	Measurement 1 in mm (horizontal line)	Measurement 2 in mm (vertical line)
F.624	24.9	25.17
F.607f	27.1	26.73
F.607c	26.02	25.92
F.607e	26.21	25.6
F.607d	24.4	25.49
F.607a	27.29	27.51
F.607b	25.7	26.18

- **Fig. 1** Main axes length for the investigated coins



- **Fig. 2** Coins showing the mineralised remains of a woven cloth, likely part of a small bag that contained

Previous archaeometric studies of Abi'el coins

Published archaeometric studies of Southeast Arabian coins provide comparable data for the Tell Abraq specimens. However, caution is necessary as different techniques were implemented. Seven coins from Mleiha were investigated by XRF (Boucharlat and Drieux 1991), while another seven from the same site were tested with PIXE/PIGME (Grave, Bird and Potts 1995). The largest number, 108 coins from Ed Dur, were analysed with SEM-EDS (Delrue 2007).

Among these, Delrue's study (2007) attempted a correlation between Potts's typology, weight and chemical composition of the coins. The iconography of our F.624 resembles that of his classes XLVIIIa or XLIX , with the seated figure facing right. F.607f, where a palm tree is still visible, could match classes XLVIIIb or XLVII. Finally, F.607d resembles class XLV, where a trident could be observed. The chemical composition of these coins could, therefore, help verify these suggested attributions, although a careful numismatic study remains necessary.



- **Fig. 3** The three coins from Tell Abraq with a readable reverse. Left to right, F607d, F607f, F624.

Results

Despite surface corrosion, it was possible to obtain a reliable estimate of the coin composition. As expected, copper is the main component of their alloy. This data is of relevance since Grave, Bird and Potts (1995) isolated three compositional groups of copper-silver coinage in their dataset: i) a relatively silver-rich group; ii) silver coins debased with lead; iii) silver coins containing elevated levels of iron and nickel. However, silver content could not be determined consistently. In fact, its Kα transition at 22.16 keV falls beyond the instrument detection range, while the Lα at 2.97 keV overlaps with the Kα peak of atmospheric Argon. A new analysis with a more sophisticated instrument is planned to address this issue.

Tin was detected in coins F.607d and F.624, suggesting a more typical bronze alloy.

Iron Kα peak at 6.41 keV is visible on all spectra. This might be consistent with the results reported by Grave, Bird and Potts (1995) about one group with low silver levels and rich iron and nickel levels. However, the nickel Kα peak at 7.45 keV was not observed in our specimens. An explanation could be that iron entered the alloy from the ore, although it could also derive from the burial environment (Husman et al. 2023).

Zinc peaks were detected in F.607f. These are not consistent with previous studies, but the signal was low and noisy, and the analysis should be repeated.

Sample	Elements visible in the spectrum	Elements composing alloy coins
ZNM. 2024.00057.1 F.607f	Co, Cu, Fe, Zn, Ar, Ca	Cu, Zn ?
ZNM. 2024.00057.2 F.607c	Co, Cu, Fe, Mn, Ca, Ar, Si, K, Ti	Cu
ZNM. 2024.00057.3 F.607e	Cu, Co, Ca, Cl, Mn, Fe, Cr, Ar, K, Si, Ti	Cu
ZNM. 2024.00057.4 F.607d	Co, Cu, Fe, Ca, Ar, Mn, Sn, Si, S	Cu, Sn
ZNM. 2024.00057.5 F.607a	Cu, Co, Fe, Ca, Mn, Ar, Si, Ti, S, Cl	Cu
ZNM. 2024.00057.6 F.607b	Cu, Co, Fe, Ca, Mn, Cr, Ar, Ti, Si, K, Cl, As	Cu
ZNM.2024.00042 F.624	Cu, Co, Ca, Fe, Sn, Mn, Ar, Si	Cu, Sn

Fig. 4 Main elements identified in the samples

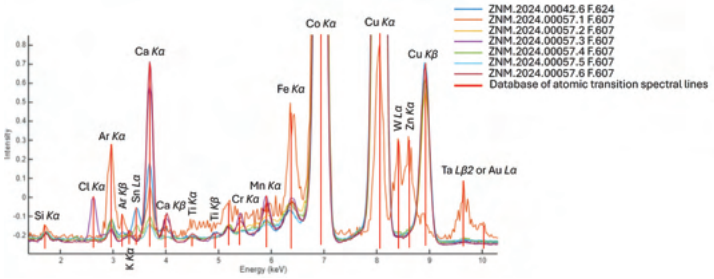


Fig. 5 Comparison of the XRF spectra of different coins

Remarks and future goals

The association between iconographic classes and compositional data, attempted only on three sufficiently well-preserved coins, was only consistent for F.607d: the presence of tin indicates an attribution to class XLV, as indicated by Delrue (2007).
Based on iconography, coin F.624 could fit classes XLVIIIa or XLIX, but tin content has only been reported for class XLV.

Coin F.607f resembles classes XLVIIIb or XLVII, but the possible presence of zinc would not be consistent.

These preliminary results will inform the continuation of the study on a wider sample, including the complete corpus of 24 coins from Tell Abraq. The particularly relevant aspect of silver content will be investigated with a more accurate instrument. It is hoped that this will also allow attributing the non-readable coins to specific classes, thus contributing to establishing a plausible date.

Acknowledgement

The investigations at Tell Abraq are a partnership between IAMUQ and TAD–UAQ, invaluably supported by its Chairman, H.H. Sheikh Majid bin Saud Al Mualla, the General Director, H.E. Haytham Sultan Al Ali, and Ms Rania Houssein Khannouma, Acting Director of the Dept. of Archaeology and Heritage.

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Bibliography continues on page 93

Qatar

Preliminary study of bitumen objects, Zekreet, 19th century, Qatar.

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Introduction

The site of Zekreet consists of a fort, a temporary encampment and a madbassa; it was excavated by the Qatari-French team from 2001 to 2005, and all the occupations date from the first half of the 19th century (Lorimer 1970, ii/B: 1576 and Guerin et al, 2008). The investigations carried out during the three archaeological seasons enabled a comprehensive study of the archaeological site and show intensive occupation.

Sampling

As part of the curatorial work for this site in the permanent archaeological gallery of the National Museum of Qatar, 405 bulks of objects were classified and recorded in the QCHIMS database (Qatar Museums Department of Archaeology), comprising ceramics, glass, stone, metal and shell. Twenty-four sets of fragments and bitumen mastic objects were catalogued, comprising a total of 380 artefacts. Of these 380 artefacts, 68 are moulds belonging to containers and 16 are defined, complete objects.

Location of the artefacts

These bitumen-mastic objects were found in large numbers within the area of the temporary settlement. This area, which has been excavated and surveyed at surface level, covers a 50 m × 50 m square situated equidistant between the fort (to the south) and the madbasa on the seashore (to the north). This area of temporary occupation, with no traces of buildings, features large expanses of





Figs. 1 & 2 Bitumen artefacts from the encampment: 2 rims with traces of handles/grips (right), 2 balls, traces of plant matter on fragments of body sections. Spindle from the encampment.



Fig. 3. Container bodies found in the settlement, traces of vegetation, and encrustations of shells.

charcoal/ash that is very compacted, most often accompanied by small open-air hearths (0.40 m to 0.50 m wide and up to 0.60 m long) made of limestone blocks laid in rows. Rows of uncut and unpolished stones may divide these large charcoal-rich areas. These zones could have been seating areas and thus places of work and processing.

It was in this settlement that 19 lots of bitumen mastic fragments were discovered, comprising 291 artefacts. The seven surveys, numbered from 30 to 36, were carried out in a quincunx pattern and in areas containing a high density of ceramic material close to the hearths, yielding 2,943 sherds, compared with 1,789 sherds in the fort and only 64 sherds in the madbasa (Guerin et al.,2008).

Description/Function of the objects

The main known uses of bitumen, as evidenced by objects from excavations carried out in Qatar since 1956 – the first archaeological mission – primarily concern waterproofing in construction and fastening: the construction and repair of boats, and the waterproofing of certain containers by sealing repair holes with bitumen to achieve a watertight result. Finally, bitumen was used in lighting and heating as a fuel for torches and lamps.

Containers – This is the largest category identified at Zekreet. Indeed, 364 artefacts fall under this classification of containers, which are large open basins. 68 forms were observed: most commonly inward-curving rims of large diameter (28 to 46 cm), with a very large number of handles attached to these rims. The handles are most often ear-shaped – flat, semi-circular and horizontal, or moulded into the wall, of a horizontal shape. Judging by the traces of plant material found inside the walls of these containers, the technique involved preparing a form made of wicker or plant material – very rarely featuring simple weaving – and covering the outside with a layer of bitumen mastic of a certain thickness until it dried, making the walls fairly sturdy.

The Objects – Only 16 complete objects have been recorded. There are small balls measuring 1.5 cm to 3 cm in diameter, as well as larger ones (5 cm in diameter), and some bear traces of embedded shells. Could this be a transport technique? Indeed, the viscous bitumen could have been packaged in the form of balls rolled in sand – in this case with small shells – to prevent them from sticking together. Other utilitarian objects are present, such as spindles, a distinctive lid for a bottle or small jar, and weights with a central hole.

Future research should focus on laboratory geochemical analyses in order to determine the origin of this bituminous mastic used during the 19th century. Indeed, there are two main areas in Iraq where viscous bitumen was sourced: one in the upper Tigris valley, and the other along the middle reaches of the Euphrates (Connan, 2012, 26). A third area is located in south-western Iran, in Khuzestan, which includes the sources at Ain Gir and Masjid-i Suleiman. Furthermore, other sources are known to exist in Burgan, Kuwait, which are known to have been used in the past to exist in Burgan, Kuwait, which are known to have been used in the past (Connan et al., 2005, 61).

The value of an in-depth study involving geochemical analyses lies in this extensive sample, consisting exclusively of bitumen and bitumen mastic, which takes the form of various large containers. Furthermore, the study could clarify the nature of the plant material used as 'moulds' – whether they are from the Zekreet region or imported - and also identify the materials transported, preserved or stored in these containers or large basins.

Finally, this new data would provide a better understanding of this human settlement, which appears to be temporary – there is no evidence of permanent structures – yet at the same time was densely populated, judging by the traces of charcoal and ash and the number of bitumen containers. Could the Zekreet site have been a trading hub, a transhipment point for date syrup or other goods? And if so, which ones? And so, how were the economy and social life organised during the first half of the 19th century?

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Request for information & contact: gaming kit from Arabia and the Gulf

SUMMER COURTS, BRANISLAV KOVÁR, TIM PENN
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Boardgames are a significant yet often overlooked part of our shared history, acting as markers of social contact and cognitive change over thousands of years. While certain high-profile finds, such as the gameboards at Salalah, Oman (Charpentier et al, 2017) and Qal'at al-Bahrain (Lombard et al., 2018), have demonstrated the region's potential, the wider archaeology of boardgames in Arabia and the Gulf region remains remarkably under-studied. Significant quantities of gaming material—informal boards scratched into stone, dice and counters—undoubtedly exist, yet many remain unpublished or lack a broader comparative framework.

We are a collaborative team from the GameTable COST Action CA22145 (https://gametable.network/), and we are looking to develop a more comprehensive dataset of gaming kit, published and unpublished (as appropriate) (Piette et al., 2024). As part of a collaborative study with Julie Bonnéric on Early Medieval gameboards at al-Qusur (Failaka Island, Kuwait), we are currently cataloguing comparable published gaming material from all periods in the region and would be extremely grateful to hear from any colleagues who have published material from their own projects that we may have missed.

We also recognise that gaming finds are often secondary to a project's primary focus and can be difficult to interpret without specialist input. Our aim is to foster a network where this material can be discussed and eventually brought to light. Critically, our objective is to facilitate publication rather than to take it over. We are not looking to publish your finds for you, but we would be delighted to provide the specialist support, comparative data, and collaborative environment necessary for you to publish the material yourself. We believe that by working together, we can ensure that these artefacts are given the scholarly attention they deserve without infringing on the rights of the primary excavators.

Whether you have a single counter, a complex board, or simply an interest in discussing the role of games in Arabia and the Gulf, we would welcome the opportunity to talk. If you have unpublished material and would be interested in exploring how it fits into the wider regional picture, please do get in touch.

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Indian Ocean Nautical Arabic Literature: Latter Manuals (raḥmaniyyāt) and Logbooks (rūznāmāt) (18th–20th centuries)

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BADAR AL-ʿURAIMĪ (Sultan Qaboos University, nbader8066@gmail.com)

Indian Ocean nautical literature in Arabic has been so far compartmentalized in two distinct chronological moments. First, there are the two "classical" late medieval authors, Aḥmad ibn Mājid and Sulaymān al-Mahrī, between the 15th and 16th centuries, to whom may be added (in Turkish) admiral Seydi Ali Reis (Ali Çelebi). Second, there are a number of modern manuals, produced from the beginning of the twentieth century, which in all but language replicate modern Western navigation manuals. Typical examples of this genre are the manuals by al-Khaduri and al-Qitami. In the intervening period, however, a space from the end of the 16th to the late 19th centuries, there are a plethora of minor understudied works, quite varied and yet consistent in their basic contents, and authored by a number of almost anonymous seamen.

Our two lines of research, based in Muscat and in Lisbon, have been converging for a few years, zooming in on different aspects of the second phase or second wave of nautical manuals. Right now we have two simultaneous research projects. In Muscat, Badar is working on his PhD thesis at Sultan Qaboos University (completion expected in 2027), with the title "The Historical Importance of Oceanic Navigation Logbooks in the 20th Century (esp. in Oman and Kuwait)"
الأهمية التاريخية لرزونامات الملاحة البحرية في القرن ٢٠م (عُمان والكويت أنموذجًا). In Lisbon, Juan is running a six-year project financed by the Portuguese Science and Technology Foundation (FCT, https://sciproj.ptcris.pt/12987EEC). Titled "Merging Times and Techniques of European and Asian Science Through the Indian Ocean (15th–19th centuries)", it focuses on the *raḥmāniyyāt al-ḥadītha*, and is due for completion in 2030.

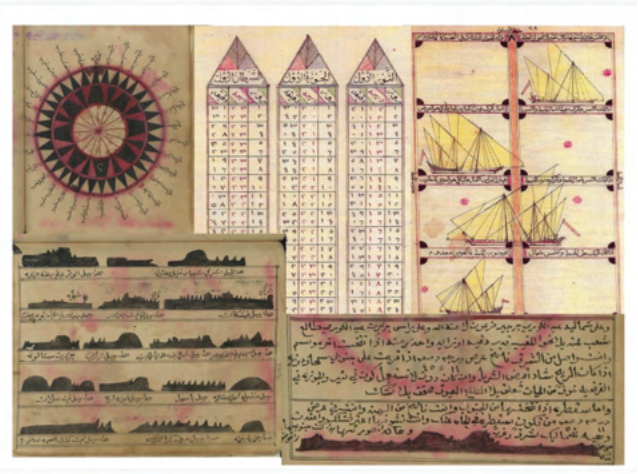
Our projects share several basic stages, starting with the initial location and identification of new sources. This means surveying manuscript collections, particularly in the Arab world and the Indian Ocean Rim, where our subjects of interest have sometimes been miscatalogued under astronomy or geography, or simply ignored within collectanea. It is partly as an appeal to our colleagues for help in finding yet undiscovered similar texts that we publish this notice.

And how do we identify them? The matter of characterising and defining this literature is yet again one of our common points. We are establishing what are the basic traits of these texts, what makes them a distinguishable genre. Here we are fortunate —thinking of identification— in that one of the most characteristic aspects of this literature is the abundance of graphic and diagrammatic elements: tables, coast outlines, and other kinds of technical drawing. The images we provide here aim to represent the variety of illustrations found in our texts, and we would be grateful to hear about any sightings of similar pages.



From the point of view of history of science and technology, these "new" or "latter" manuals are the result of a very gradual, centuries-long

harmonization between traditional techniques and themes, such as the stellar compass, the lunar mansions (manāzil al-qamar), Islamic prayers, and Western novelties such as the sextant and the tables of solar declination. This eclectic, inclusive Fachliteratur, which is neither from the East nor from the West, neither medieval nor modern, is then a testament to the eminently pragmatic purpose of their authors. They did not hesitate to bring together disparate elements from partly overlapping cosmologies to compose their rich manuals, because it worked!



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Southeast Arabian coins from Tell Abraq: first archaeometric insights

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Exploring the Barʿa as an Expression of Liminality: Ritual Performance, Identity, and Conflict Prevention in the Highlands of Yemen

ULRIKE STOHRER

In the tribal society of the Yemeni highlands, encounters with strangers are considered situations of uncertainty and potential danger. In order to stabilize such liminal situations and avoid conflict, an elaborate reception ritual structures the transition from separation to integration. Within this framework, the performative genre Bar'a plays a central role as a nonverbal, bodily means of communication between social groups. It strengthens collective identity, regulates interaction, and transforms potentially conflict-bearing encounters into peaceful social relations.



Fig. 1 Bar'a is accompanied by two drums (marf'a and tasah) only, which serve as ceremonial devices in a broad communication system throughout the Yemeni highlands

Bar'a is often translated as "dance" in European terminology; however, in indigenous Yemeni concepts it constitutes a distinct category, clearly separated from raqs (arabic for "dance"). While raqs may be associated with musical accompaniment and emotional expression, Bar'a is defined as a ritualized, nonverbal practice characterized by restraint, self- control, and responsibility. It is performed exclusively by men in public outdoor spaces and accompanied only by two kettle drums (marfa' and tasa), which are understood not as musical instruments but as ceremonial devices within a broader system of social communication.



Fig. 2 The first part of Bar'a is performed in a circle.

The choreography of Bar'a reflects its integrative and self-regulating function. Movements are upright, controlled, and forward-directed, avoiding exaggeration and bodily contact. Each participant maintains individuality within a collective framework, contributing according to his abilities. The performance progresses from formalized group action to increasing individuality and playful creativity, yet always within a disciplined structure. Even in its most dynamic phases, movement remains controlled and never becomes aggressive. The handing of the dagger (janbiya) - transformed from weapon into an object of aesthetic display -- symbolizes the channeling of potential violence into refined, socially meaningful expression. Bar'a thus serves as a performative means of concentration, self- restraint, and the easing of tension.



- **Fig. 3** The second part of Bar'a is performed in a line.



The last part of bar'a (hawshaliyya) may appear very dran



- **Fig. 4** The last part (hawshaliyah) is playful-creative.

This practice unfolds within the structure of a rite of passage, as conceptualized by Arnold van Gennep and further developed by Victor Turner. The reception ritual consists of three phases: the procession (sĩra), the encounter (istigbal), and the social gathering (samra).

During the sĩra, participants leave their homes and move toward the meeting place, entering a liminal state. Bar'a, performed intermittently during the procession, stabilizes this uncertain situation by channeling movement and emotion into a structured collective form. It provides self-assurance and reinforces group cohesion while preserving individuality.



Handling of the dagger in bar'a

Handling of the dagger in violent action (drawing of Carsten Niebuhr in local dress, The Royal Library of Denmark)

- **Fig. 5** the handling of the dagger (Janbiyyah) in bar'a and when used as a weapon.

In the istiqbāl, hosts and guests confront each other in a formalized setting. Through structured greetings and the performance of Bar'a, strangers are transformed into guests. This transformation entails binding social obligations: guests come under the protection of the hosts, who assume responsibility for their safety. Bar'a marks the beginning of this integration and functions as a performative guarantee of peaceful interaction.

In the samra, this integration is consolidated. The private house becomes a temporary public space, and participants engage in performative genres such as Bar'a, zamil, and bala. These practices allow for both cooperation and competition, enabling creativity while maintaining social order. Personal relationships are established, completing the transformation from strangers into integrated members of a shared social space.



- **Fig. 5** The sĩra procession



Fig. 7 The guests are performing bar'a in front of the hosts who are standing along the wall observing carefully the performance (istiqbal).



Fig. 8 Raqs (dance) at the soiree (samrah) of a wedding

The effectiveness of this ritual system is rounded in broader concept of body language and social values. Upright and controlled movements are associated with honesty, authenticity, and responsibility, while exaggerated or uncontrolled movements are viewed negatively. Bar'a embodies this ideal of restraint and concentration and thus represents an embodied moral code.

At the same time, the practice allows for diversity and variation. Different regional versions coexist as equals, expressing "unity diversity." Cohesion is not based on uniformity, but on temporary alliances of autonomous individuals and groups. Even within an integrating ritual framework, performative genres and regional styles remain distinct. This reflects a social system that balances autonomy and cooperation, difference and integration.

Despite ongoing adaptation and the incorporation. of new elements, the fundamental structure of Bar'a remains intact. Innovations are selectively integrated through a process of cultural adaptation, ensuring their compatibility with established concepts. This dynamic process allows Bar'a to remain a living practice that continuously negotiates social values.

In summary, the tribal reception ritual provides a safe space for the negotiation of social affairs. It guarantees peace and safety, stabilizes uncertain and potentially conflict-bearing situations, and creates space for reactivity and play. It balances autonomy and cohesion, expresses multiple layers of identity, and acknowledges "the Other" as "the Own." Bar'a serves as a performative tool to maintain and re-establish peace.

Crucially, the playful (ludic) elements of the ritual do not constitute free or arbitrary expression, but function as a form of social "work" that enhances the efficacy of the ritual. This flexibility enables the ritual to adapt to new circumstances - an ability of particular importance in the current situation of Yemen. The preservation of the dynamic process is therefore essential.

The rich intangible cultural heritage of Yemen, in all its facets, offers significant potential for negotiating peace and reconstruction at the communal level. Practices such as Bar'a provide culturally embedded mechanisms for conflict prevention and social stabilization. Their safeguarding should therefore be considered not only as cultural preservation, but as a contribution to peacebuilding "from below."

This context, the recognition of Bar'a as Intangible Cultural Heritage by UNESCO, would constitute an important step toward strengthening and stabilizing Yemeni cultural identity alongside its architectural and archaeological heritage. Such an initiative would build upon existing efforts, such as the inscription of ghina' sanaāni, and expand the recognition of Yemen's performative traditions.

Yemenis possess a strong national identity, while local, regional, tribal, Arab, and Islamic identities coexist as complementary aspects of a complex whole. In performance, these multiple identities can be expressed simultaneously. Bar'a, as an

embodiment of this plurality, reflects not only traditional social structures but also the current liminal condition of Yemeni society as a whole.

Publication & Translation Statement

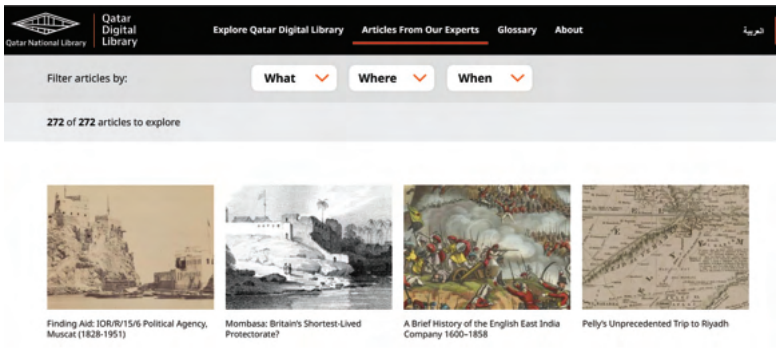
The author is currently preparing the doctoral dissertation underlying this research for publication in both English and Arabic. Given the work's originality, ethnographic depth, and relevance for anthropology, cultural policy, and peacebuilding, the author welcomes collaboration with leading international academic publishers interested in producing authoritative editions for global scholarly and policy audiences.

Literature

Stohrer, Ulrike (2009): Bar'a - Rituelle Performance, Identität und Kulturpolitik im Jemen, (Studies on Modern Yemen 8), Berlin De Gruyter.

Stohrer, Ulrike: Bar'a as an Expression of Liminality. Ritual Performance, Identity, and Conflict Prevention in the highlands of Yemen, CARPO Studies no 8, 20.01.2020 (https://carpo-bonn.org/publikationen/carpo-studies/bar-a-as-an-expression-of-liminality)

News from the British Library Qatar Foundation Partnership (BLQFP)



Since the Autumn e-Bulletin a large number of Expert Articles have been published on the Qatar Digital Library (QDL) as we are now clearing a backlog that had been building up due to the cyber attack on the British Library in October 2023. Topics covered based on India Office Records (IOR) have included British relations with the Al Thani family, sources on the Gulf's pearl industry, and the legacy of the "General Treaty". The Arabic Scientific Manuscripts component of the project have contributed articles covering alchemy and colophons.

The India Office Records held at the British Library are a British colonial and imperial archive derived from the foundation of the English East India Company until just after independence on the Indian subcontinent. The archives include a range of languages as well as English, for example, Arabic, French, Farsi, German and Urdu. A newly published finding aid series covers sources in French: Part 1, Part 2.

The list below gives a flavour of the articles published in recent months. All expert articles are available in English and Arabic and individual articles have the language switch in the top corner (right or left).

From Alchemy to Chemistry: Islamic Scholars and the Science of Matter

A series on how to read colophons in the Arabic Scientific Manuscripts:

Part 1: Reading the Ends of Manuscripts: How Colophons Reveal Scribal worlds

Part 2: Dating Manuscripts: Calendars, Months, and the Complexities of Time in Colophons

Part 3: Scribes, Places, and the Human Voices of Colophons

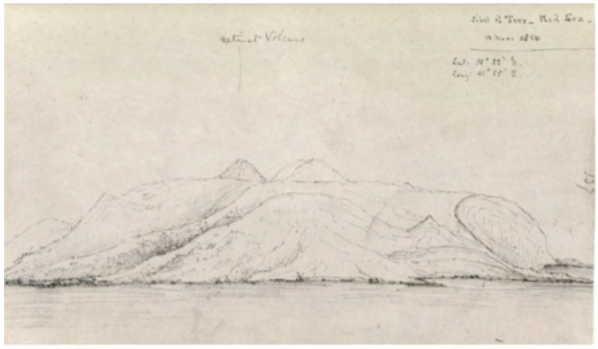
Fragments of Abbasid Science from a Desert Monastery. This piece involved technical support and coaching from colleagues in the British Library's Digital Research Team, as well as linguistic support from a former colleague to liaise internationally with colleagues at Milan's Veneranda Biblioteca Ambrosiana.

Many maps are available in the QDL and a series by our maps curator is available:

Part 2 – The Language of Maps: Surveyors of all they see

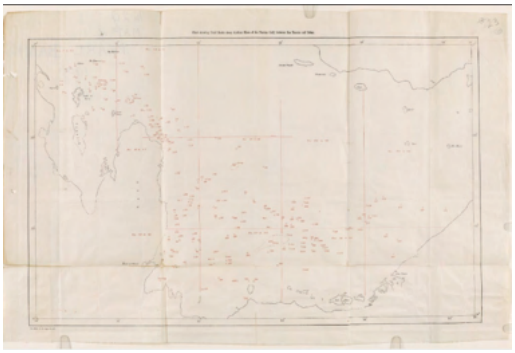
The QDL includes a wide range of archival material including photographs and sketches. The sketch below feature in the article Sketching Empire: The scrapbooks of a civil servant and artist Augustus Fortunatus Bellasis.

This sketch (next page) of the volcanic island, Jabal al-Tair, is available on the QDL with zoomable functionality.



A Bellasis drawing of Jabal al-Tair Island, Yemen, inscribed in the centre and top right corner, 13 November 1850. Mss Eur G45/8, f. 34r

The BLQFP has progressed in four project phases. Engagement work has included films and TV interviews. The second of our Phase 3 films is now live on the QDL: Melodies and Music Theory: In conversation with Maya Youssef. The QDL featured in a programme of Al Rawy (Series 16, 9th episode) on the British Library broadcast on Dubai TV in February. IOR records on the economy of Dubai in the early 20th century were displayed for filming and discussion with the presenter, HE Jamal bin Huwaireb, including this map of pearl banks.



'Chart showing Pearl Banks along Arabian Shore of the Persian Gulf, between Ras Tanura and Dabai' IOR/R/15/5/91, f 18

Keep in touch with the BLQFP on X @blqatar (all notifications are available in English and Arabic).

Conferences and Events

‘Embroidered Traditions from Morocco to Afghanistan’ Exhibition at the Art Institute of Chicago May 2, 2026 - January 25, 2027

In the textiles of Southwest Asia and North Africa, embroidery is more than surface decoration.

In this region (SWANA) artists have used, and continue to use, centuries-old embellishment techniques to transmit cultural expressions of identity, status, and long-held belief systems. Cultural groups throughout the region wear layers of dress and adornment to protect their bodies physically and spiritually. Garments and household items are ornamented with valuable materials that function as wearable wealth, including symbolic motifs and designs constructed with coins, thread, beads, amulets, ornaments, and jewelry.

The vast area that spans from Morocco and Algeria in the west to Afghanistan and Uzbekistan in the east is connected by millennia-old trade networks. The works presented reveal pathways of deep cultural exchange shaped by diverse landscapes—from mountains and deserts to seas—along with the movement of nomadic peoples and the spread and interweaving of multiple religious traditions and urban fashions.

‘Embroidered Traditions from Morocco to Afghanistan’ is the first exhibition at the Art Institute of Chicago devoted exclusively to the artistic and cultural traditions of SWANA and spectacularly showcases the region’s distinctive beauty and iconic visual expressions. Drawn primarily from the Art Institute’s rich collection of textiles, jewelry, and adornment, this display presents over 70 works from the 18th through 20th century—most of which have never been exhibited publicly—including four rare face veils on loan from a private collector based

Among the many other highlights are elaborately decorated garments from Syria, Yemen, Niger, and Egypt; silver and coral “treasure necklaces” from Morocco’s Anti-Atlas Mountains; richly embroidered linen panels from the Art Institute’s exceptional collection of Ottoman Turkish textiles; and a



Fig. 1 Ceremonial Abaya (Man’s Robe). Syria, late 19th to early 20th century. Art Institute of Chicago, Malott Family Foundation in memory and honor of Elizabeth Hubert Malott, 2024.888.

The dazzling beauty, diversity, symbolism, and technical innovations of textiles and dress traditions across the SWANA region, long valued and sustained by the members of those communities, come to life in this exhibition.

'Embroidered Traditions from Morocco to Afghanistan' is curated by Dr. Janet Marion Purdy, associate curator, Textiles.

Exhibition link:
https://www.artic.edu/exhibitions/10585/embroidered-traditions-from-morocco-to-afghanistan



- **Fig. 2** Gargush (Woman's hood), Yemen, mid to late 20th century, Art Institute of Chicago, Malott Family Foundation in memory and honor of Elizabeth Hubert Malott, 2024.894.

Sir Richard F. Burton, 9th International Conference

The conference will take place on Friday 23rd October 2026 at 9.30am in Ljubljana, Slovenia at Narodni Muzej, Slovenije, Metelkova, Maistrova Ulica 1, 1000 Ljubliana.

For more details contact mickwalton@libero.it



Red Sea Conference 12, Exploring the Red Sea Shores

The 12th Red Sea conference, organised by The Saudi Museums Commission and Heritage Commission, in conjunction with the Society for Red Sea Studies, has been postponed and will take place later this year.

For more information on the conference or its rescheduling, please write to rsm.info@moc.gov.sa.

New & Recent Publications

Agius, D. A., Alhazmi, M. and Hujairi. H. Songs of the Arabian Red Sea - A Cultural History. I.B. Tauris/ Bloomsbury. ISBN 9780755634064

Alshaar, N., La Sala, B.U., Wilmsen, D. (eds) Storytelling, Seafaring, and Travel Writing The Arabian Gulf and the Indian Ocean, Islamic History and Civilization, Volume: 224 Brill, Hardback ISBN 9789004736856. eBook ISBN 9789004736863

Bilotto, G., Daftary, F. and Jiwa, S. (eds.) Fatimid Cosmopolitanism: History, Material Culture, Politics and Religion. IB Tauris/Bloomsbury 2025. ISBN 9780755657780

Burton, R. F., Kennedy, D. (foreward) The Land of Midian, (Revisited) Vol. 1. Empty Quarter Press ISBN: 9781068507212

Dost, S., Before the Qur'an Material Sources at the Advent of Muslim Scripture. Edinburgh University Press Hardback ISBN 9781399528641 ebook ISBN 9781399528665

Edaibat, O., The Bā ʿAlawī Sufis of the Hadhramawt Valley A Premodern Intellectual and Social History (317-992/929-1583). Brill Hardback ISBN 9789004749061. eBook ISBN 9789004749078

Farrin, R.K. The Early Qur'an in Mecca Apocalyptic Expectation at the Dawn of Islam. Cambridge ISBN 9781009638524

Insoll, T., Maclean, R., Almahari, R. (eds) The Archaeology of Irrigation Technology and Water Management in the Islamic World. Proceedings of the Bahrain Conference, January 2024 Archaeopress. Hardback ISBN 9781805831099. eBook ISBN 9781805831105

Montgomery, J.E., (translator), Oswald, A. (foreward) Fate the Hunter: Early Arabic Hunting Poems. New York University Press ISBN: 9781479834259

Morano, R., Watson, J. and Dickins, J. (eds.) Yemeni Poetry in the Frontline: Love and Conflict. Routledge. Hardback ISBN 9781032275338. eBook ISBN 9781003293200

Risse, Marielle, Ethnographic Reflections on Marriage in Dhofar, Oman. Anthem Press ISBN: 9781839999550

Said Reynolds, G. Christianity and the Qur'an: The Rise of Islam in Christian Arabia. Yale University Press. ISBN 9780300281750

Stephenson, M., Fossils of Arabia: The Palaeontological Story of Life in the Peninsula. Medina Publishing Ltd ISBN 9781911487944

Vroom, J. and Nol, H. (eds.) Explorations in Islamic Archaeology: Material Culture, Settlements, and Landscapes from the Mediterranean to Western Asia. Brepols Publishers. Hardback ISBN 9782503618722. eBook ISBN 9782503618739

If anyone would like to write a review of these or any other recent publications on Arabia, please email us at bulletin@theiasa.com and we will put you into touch with Alexandra Hirst, our Book Review Editor. Book Reviews will appear in the Autumn 2026 edition.

Recent Publications in Bioarchaeology

Three recent or forthcoming publications focusing on the bioarchaeology of the Emirate of Ras Al Khaimah during the Umm an-Nar and Wadi Suq periods may be of interest to the IASA membership. Two of these publications (2024 and 2025) include contributions from undergraduate students as part of a U.S. National Science Foundation – Research Experiences for Undergraduates (NSF-REU) grant program that ran from 2019-2024 under the direction of Professors Lesley Gregoricka (University of South Alabama, USA) and Jaime Ullinger (Quinnipiac University, USA). These articles employ both traditional and innovative bioarchaeological techniques in order to improve our understanding of Bronze Age lifeways, despite the immense difficulty in studying ancient human skeletal remains from the region due to their fragmentary and commingled state.

Gregoricka, L.A., & Ullinger, J.M. (2026). A multi-isotopic approach to examining mobility and social reorganization during the Bronze Age transition in Ras Al Khaimah, UAE. American Journal of Biological Anthropology, 189, e70220.

Gregoricka, L.A., Ullinger, J.M., Arellano, C., Burke, Q., Goodman, A., Heil, R., McGrath, A., & Sheibley, R. (2025). The impact of secondary mortuary practices on representation and distribution of commingled elements from Umm an-Nar human skeletons in communal tombs. Advances in Archaeological Practice, 13(2), 233-240.

Bolster, A., Jeanlouis, H., Gregoricka, L.A., & Ullinger, J.M. (2024). Estimating adult age categories in commingled skeletons with Transition Analysis 3. American Journal of Biological Anthropology, 183(2), e24890.

The Last Word

A Photo Essay of The Empty Quarter with Jerzy Wierzbicki

Jerzy Wierzbicki talks to us about his project photographing The Empty Quarter (al Rub Al Khali) which started in 2023 and is expected to finish in 2027. Jerzy previously shared his photographs of abandoned homes in Oman with The IASA (Bulletin number 29, 2022 Autumn Edition) so it was interesting to see such a shift in subject.

Why did you shift your work to photographing the Empty Quarter?

I have an inclination towards and attraction to isolated or abandoned places, or those that are not part of the mainstream agenda. And, as always, I am curious and want to capture something significant for my photographic journey.



My first projects, years ago in Poland, focused on the outskirts of industrial towns and human problems that were not popular subjects at that time. I took my first black and white photos of the Empty Quarter in 2014 and quickly found out that this topic revealed my lack of preparation for such specific climatic and non-typically photographic conditions. This acted as a catalyst and made me intend to make up for any shortcomings in this area. The Empty Quarter, in many respects, proved to be the most difficult subject I have undertaken. Furthermore, some brief research revealed that it was a subject not widely explored by photographers in great detail. We have Wilfred Thesiger's monograph from the late 1940s to 1950s and a major publication by George Steinmentz, who photographed the desert from a paraglider in the 1990s, nothing major has emerged. At first, this surprised me. But later, I think I understood why. The Empty Quarter is an extreme climate condition, harsh and dry and also an isolated area. It is hard to be there for a long time, operating heavy equipment. My usual set is around 11 kilograms (I am using exclusively medium format cameras equipped with long and heavy lenses) and black and white films require a specific approach in execution that I had to correct quite often after my photo sessions, as I discovered various failures and mistakes. I don't think many photographers want to face with such unique challenges and problem. Finally, it is costly. Very often to get three to five good shots from one session I need to drive over 800 kilometres in my 4x4 Toyota, camping on the drive for sleep, driving on the soft sands etc. I'll leave going there alone without much comment, because it still arouses surprise in some people today, caused by the perception of the dangers of such a practice.

What is it about the Empty Quarter that attracts you?

Initially, of course, the super-symmetry of the dunes and the vast empty spaces are very visually attractive. But later, during the project when the photographing process became more advanced, the aesthetics went further down the priorities and what I want to capture. As the project progressed and my experience and personal observations grew, I began to see many more nuances and they became the reason why I continue with this topic.

What is different when you are taking photos of scenery rather than cataloging abandoned homes?

It is a completely different story. I photographed the abandoned homes in colour and most of my photographs were captured in the dark ruined interiors. The concept was also different: as I am an archeologist by education, I understood why we should document and photograph these fascinating cultures that seemed to be destined for oblivion. Now, after over a decade. many of the homes that I photographed do not exist anymore. For example, almost all the Al Hafa houses in Salalah were demolished at the beginning of 2015 and I was the last one to photograph them. Rub Al Khali will be there even after Homo Sapiens



has disappeared but it is probably now one of last parts of the world that is not intensively explored.

Tell us about a typical expedition into the Empty Quarter

It is a purely logistic problem. First I have to monitor the weather forecast. Any strong wind or risk of sandstorms or rains obviously limits my possibilities. If the weather is stable I explore two particular places. For short weekend trips, I visit the part of the Empty Quarter around 450-600 kilometres from Muscat. Before the trip I study the satellite maps and try to select precise places where I propose to establish my camera on the tripod. Also I found that going there and climbing up onto one dune for three to four photos a day is extremely inefficient, so I have had to raise my physical condition to be a bit more resilient and fast in order to visit at least two to three different dunes during one session to get more interesting photographs. The temperature and sun are also against me. During a typical day the perfect time for black and white photography is about two or perhaps two and a half hours before sunset or two hours after sunrise. So I lost several kilograms and significantly increased my condition to be able to walk efficiently over the soft sand to be sure that there are enough photographs from these sessions. This is leaving aside the issues related to sand driving skills or the additional equipment



needed for such a trip, as they should be obvious. I also rely on many years collected experience, based not only on my personal trips, but also on information from local people or the wisdom of great explorers that I found in literature. Other locations, such as Ramlat Hashman or Ramlat Fasad that are over 1000 km from Muscat, I visit usually twice a year during breaks or vacation from my college but these trips are longer, sometimes staying there a few days. Mostly my trips are alone, except for the company of my old dog Frank, and the best British progressive rock emanating from my car speakers.

When is your favourite time to be in the Empty Quarter, and why?

Undoubtedly a clear day in the winter season. Clarity is perfect, visibility is over several kilometres and the tolerable temperatures let me get more good photos. But my summer trip last year walking around the dunes near Barik where the thermometer in my car gave a reading of 47 degrees centigrade is also an unforgettable experience and I will definitely repeat it in the coming hot season.

Will there be an exhibition or publication of this project?

This is the final plan. I am aiming for a major exhibition and perhaps a monograph. But it is complicated now: many galleries and museums are booked for several years in advance and I am still looking for a good gallery for a potential exhibition.

What inspires you to work in Oman?

I have lived in Oman for many years and I really love this country and the people here. I have the ambition to be known as a western photographer who explored Oman consistently for many years. My interest does not only lie in lost heritage and architecture, or the vast desert's emptiness: other aspects are also interesting to me and I have an open mind for further potential subjects.

Anything else you would like to tell us?

I do my photography in the traditional way. I use black and white films and later, after all the trips, I develop everything in my darkroom. It is also my intention see my photographs produced as fine art prints for galleries or collectors. As a kid, I devoured the adventures of archaeologists from C.W. Ceram's books or stories from the times of the first expeditions. What I do now is my personal tribute to the classics of world photography and a personal reference to the times of those first true expeditions into the unknown.

