MAGS 2020

The 3rd Maritime Archaeology Graduate Symposium

Book of ABSTRACTS

Day One

February 22nd

The use of Remote Sensing for identifying coastal sites in Lebanon

Sirine Ghiye

This paper looks at changes in the coastal landscape due to human interference which is a major cause in the destruction and loss of maritime archaeological sites. Indeed, for the past 20 years, the Lebanese coast underwent changes and alterations due to anthropic interference and urban development such as the building of commercial centres and beach resorts. This resulted in negatively impacting the coastal heritage of archaeological areas that have not been surveyed or studied in the recent past.

Such changes can be detected and studied through the use of Georeferencing. It is the process of taking a digital image, it could be from ancient maps as 'Corona' and adding geographic information to the image so that GIS or mapping software can 'place' the image in its appropriate real world location.

This paper also considers several example of ancient coastal sites in Lebanon that illustrate recent modifications of the shoreline due to urban development and infringement on the sea through the use of remote sensing techniques. These are the sites of Tyre in south Lebanon, where geomorphological studies have revealed variations in sea-level changes from the past 8000 BP.

Another example, the coast of Tripoli el Mina, the coast and the island face they has not been studied before, there are a lack of information about the maritime activities and maritime archaeology.

As for Beirut, comparative imagery shows that due to the construction of the souk in 1991 by a private company, and the enlargement of the new harbour during the reconstruction of the city after the Civil War ends 1975, led to the loss of a large area of archaeological remains on land and at the sea.

Lebanon has an archaeological wealth and a very special coast by its natural formation, but unfortunately there are many changes due to the infringement on the sea so, the use of remote sensing is a way to map in detail both exposed and buried sites and to detect the maritime sites extinct prior to deploying divers.

An effort for underwater cultural heritage protection in Cyprus and its Contribution in Roman archaeology

Mehmetcan Soyluoglu

Due to its location in the Mediterranean, Cyprus is an important research area for those interested in the maritime networks and cultural heritage. The island has been a stop-over point for ancient mariners through history, and this created a rich and diverse underwater cultural heritage. On the other hand, this rich maritime heritage at some circumstances is vulnerable and out of the scientific research zone.

In this paper, the followed pathway for declaring a scientifically neglected underwater cultural heritage area as a protected archaeological site will be discussed from a case study. Over the case study, this paper aims to review the current possible strategies on marine cultural heritage protection in Cyprus and some observed factors that put underwater heritage in danger.

Moreover, discovering the marine connections of one of the Roman settlements in the coastline of Cyprus and its impacts in a broader context will be another aspect that will be mentioned in this presentation.

The impact of Environmental Changes on Mediterranean Coastal Archaeological Sites

Mirette Magdi Abdelnour

Coastal archaeological sites in the Mediterranean Sea have been threaten by various environmental changes throughout the history that does not respect national borders; some changes are rapid while others take place very slowly. These changes reshape our planet; affect our lives and societies as well as our coastal archaeological sites. Many cities located near rivers or oceans have lost their coastal heritage by various threats such as storms, floods, tsunamis, increase the frequency and magnitude of storms, and sea level changes. On the other hand, not only our culture heritage could become submerged, but also our submerged heritage could end up on land.

The presentation will highlight the environmental threats and its influences on the coastal and underwater archaeological sites over the history. In addition, how these risks could reshape our planet. Furthermore, the paper will discuss the history of these environmental changes and predictions in climate changes that might affect cultural heritage in the future according to The Intergovernmental Panel on Climate Change (IPCC) and National Oceanic and Atmospheric Administration (NOAA). Moreover, documentations for the endangered sites using Geographic Information System (GIS).

It is essential to understand that although environmental changes does permanently destroy heritage, it also creates new submerged culture heritage. However, these changes are not only effect culture heritage but also our society, economy and life.

Deep-Sea archaeology in the Exclusive Economic Zone (EEZ) of Cyprus

Achilleas Iasonos

Conducting deep-sea surveys beyond the Territorial waters of a state for Underwater Cultural Heritage (UCH) is often beyond the capacity of national heritage agencies and university-based researchers due to its great expense. The result of this is that research in maritime archaeology has largely been focused in more 'convenient' and 'accessible' areas such as the shallower waters of the Territorial Seas. This is unfortunate as several pioneering projects have demonstrated that UCH finds are possible both in the waters of the Exclusive Economic Zone (EEZ) and on the Continental Shelf (CS) and beyond. Many more are likely to exist, the majority of which either remain unexplored or are potentially under threat from illegal salvagers and other commercial-sector companies. Nevertheless, it is the intention of this thesis to demonstrate that is possible to conduct research, and hence disclose new and unpublished information regarding UCH in the deep seas, by taking advantage of datasets produced by the oil and gas industry and other commercial sector companies. This approach is in its infancy and as a result of this, national heritage agencies are yet to fully exploit the potential for ensuring that any new UCH sites that are discovered are adequately documented. Consequently, the second major element of this thesis is the proposal of a robust set of recommendations that can be specified by heritage agencies to companies surveying in the deep waters of the EEZ.

Maritime Archaeology Outreach Project (MAOP)

Sara Ibrahim Aly

Despite Egypt's extensive and unique underwater cultural heritage, there is an evident lack of public awareness and knowledge of its significance. Hence, organized response is necessary to carry out an outreach project which aims to raise public awareness of the importance of maritime and underwater cultural heritage in Egypt.

Consequently, the Maritime Archaeology Outreach Project (MAOP) is being carried out by Alexandria University Centre for Maritime Archaeology and Underwater Cultural Heritage. Funded by the Honor Frost Foundation, the project started in March 2019. It aims to introduce children, between age six and twelve, to the field of maritime archaeology in an age-appropriate approach which teaches basic archaeological concepts and generates interest and awareness of the field, which will have a direct influence on the way they think about the material past, its discovery, significance, value and protection. Educating children about maritime archaeology not only helps create an informed public but also indirectly educates parents and guardians.

In doing so, MAOP utilizes a number of activities to introduce various aspects of underwater cultural heritage. At the forefront of this project are the conventional hand-on activities and modern presentation of cultural heritage via virtual reality. For that purpose, MAOP got involved in cooperation between different associations in both the education sector and the nonprofit organizations, such as schools and the Bibliotheca Alexandrina.

The presentation will present the project's contributions in raising the awareness of the children to understand and appreciate the role of maritime archaeologists and the different activities they carry out during surveys, excavations and research. Which enhance their consideration of the difference between archaeology, treasure hunting and looting.

The evolution of mast-step and keelson, based on shipwrecks found in the Mediterranean: from 7th century BC to 7th century AD

Georgia – Dimitra Kyriakou

The presentation will focus on the mast-steps and keelsons, as an essential part of the ship construction, which were found in shipwrecks excavated so far in the Mediterranean, covering the span from 7th century BC to 7th century AD. Excavated wrecks, along with the iconographic and textual evidence, have shed light on the mast-step partners and system. Even if the mast-step itself does not survive, the general hull construction may represent its general structure. When the mast-step survives, though, it may reflect a structure system of a special era, place and/or tradition. In addition, the mast-step and the keelson provide evidence for the general development of shipbuilding techniques. The study and analysis of these timbers can, consequently, provide some additional information about the knowledge of the ancient seafaring in the Mediterranean. The analysis of the subject will start from the earliest examples, which are detected in the western Mediterranean. Afterwards, the mast-step of Kyrenia, one of the most well-known ancient shipwrecks in the eastern Mediterranean, as well as this of Ma'agan Mikhael, have a distinct position, as they reveal a special moment in the evolution of construction. The analysis continues until the Late Antiquity, the era which is a watershed in the history of shipwrecks. Travelling in time and space, the constant characteristics of mast-step and keelson will be drawn and the differences will be discussed.

A biography of the Marsala Punic Ship: From construction to exhibition

Mateuz Polakowski

The Marsala Punic Ship, dating to the 3 rd century B.C., is one of the few excavated shipwrecks that provides information about Punic shipbuilding techniques. Excavated in the 1971-4, conserved in the 1975-8, it is currently housed in the Regional Archaeological Museum Lilibeo in Marsala. A new effort, begun in 2018 and supported by the Honor Frost Foundation (HFF), aims to document the ship structure with a high-resolution three-dimensional scan using a Faro Focus5 (S-series) and photogrammetry. A collaborative team of ship archaeologists from Aix Marseille University/ CNRS and the University of Southampton, together with conservators from the Arc-Nucléart restoration laboratory will assess the ship's state of conservation with 3D reconstruction, physio-chemical analyses, and examine the archival data in connection with the ongoing HFF Trinacria Sounding Project (TSP). Data from laser scanner and photogrammetry will be used to compare the ship's current shape to earlier records, examine the best techniques for supporting the Punic Ship structure, and helping the museum create engaging public displays. The digital documentation of the ship will also help formulate a conservation strategy and document the ship before an intervention begins. This paper presents the recent work conducted to reexamine, reframe, and reinterpret the archaeological remains and conservation of the ship from its excavation to its current state.

Egyptian traditional riverine tangible and intangible heritage rescue project (TradEGY)

Ziad Morsy

Egyptian riverine traditions do not get the same degree of attention from maritime archaeologists/ethnographers as their counterparts in the Gulf and Indian Ocean. At the same time the numbers of traditional sailboats on the Nile have witnessed a drastic decline in recent years, leading to the vanishing of 200-year old traditions. Thus, the need for a rescue project to record the remaining fragments of these traditions, is critical. This paper will present the idea of TradEGYproject which seeks addressing this gap and conducting a series of fieldworks on the Nile to locate, record, and preserve the remaining tangible and intangible aspects of these dying riverine traditions. Furthermore, the project will work on raising the awareness of local Egyptians, as well as trying to encourage them to re-engage with their heritage.

To date, the project's team have established first contact with the locals in Upper Egypt, where the main targeted community still have the knowledge of old boatbuilding traditions and terminology. The project is aiming at recording the remain riverine traditions, as well as outlining the change in traditions during the last 100 years.

The Egyptian riverine cultural heritage has formed the country's identity for centuries. Although modern Egyptians are detached from their history, the value and uniqueness of these traditions should be preserved for future generations. This project will provide a stepping stone into the preservation and presentation of a dying tradition. The importance of such project lies in the wealth of knowledge and technical skills that will be protected and presented to others. This paper will include an introduction about the topic and its importance, background of the research, its methodology, latest results, and the plan for future fieldwork in 2020.

This project has been generously funded by the Honor Frost Foundation.

Wood species analysis of ship timbers from Ship A, Pisa San Rossore

Cristina Laurenti

The ship A, found in 1998 at the Pisa San Rossore site, was a medium-tonnage cargo sank due to a violent wave, which caused the crash against the north bank of a river near the ancient city of Pisa (150-190 BC). Despite the long period occurred between the sinking and the discovery of the ship, the permanence of the woods below the aquifer limit, and the almost total lack of oxygen, have allowed an extraordinary conservation of the organic material. But, after a closer inspection it was found that the wood appeared spongy and in a very bad condition.

In order to understand the conservation status, the level of damage and the timbers species, two micromorphological analyses were carried out, the first in 2006, on a single portion of the hull, and the second in 2014 on the whole hull. Both analyses were achieved by the CNR-IVALSA laboratory (Sesto Fiorentino, FI, Italy), through the observation of thin sections of wood with an optical microscope and by comparison with the specialized collections in texts and databases.

The result shows that the species used were typical of ancient shipbuilding, and they were traditional along all the coasts of the Mediterranean Sea: keel, keelson, most of the frames and a part of the planking were made out of oak; other elements of the framing instead were in elm, ash and walnut; internal and external planking and the side keelsons were made of maritime pine wood.

The use of these species finds a comparison in the ancient authors, mainly Theophrastus, Vitruvius and Pliny, when they talk about shipbuilding. Woods with a specific density and good elasticity were used in the same way as ship A timbers, and this allows to insert an additional element in the knowledge of middle imperial age shipbuilding.

The factors affecting the progression of ship size through the Bronze Age and Archaic

Keith Ross

The subject of this presentation comprises part of the work of my thesis on maritime technology and its impact on trade routes in the Late Bronze Age and Archaic Mediterranean. As my research of this subject has progressed it has become apparent that the opinions expressed on vessel size and capability through this period are poorly supported by the archaeological or iconographic evidence, and are frequently lacking the necessary engineering evidence. A key part of the work then will focus on; establishing a secure basis for the largest vessel size in use from the Late Bronze Age and through much of the Archaic. Examining the enabling technologies that needed to be in place for these to increase in size, and determining when the evidence exists in the archaeological record relating to the introduction of these.

This presentation will summarize current evidence to suggest timelines for the introduction of larger vessels, and provide evidence of the changes in technology that enabled their development.

There will be an emphasis on technology in the presentation however this relates to the vessels rather than the archaeological method. On this basis I would prefer to present on the first day in a panel discussion format, this would also be a benefit to me as my research is in an early stage and I would appreciate any feedback that might arise.

Day Two

February 23rd

The Archaeometric Analysis of Stone Anchors that Found at Alexandria's Grain Ships

Orhan Serdar

37 Byzantine shipwrecks discovered in the excavations of Theodosian harbour. Amongst the finds of Thedosian harbour, there were a large number of stone anchors, while most of them they were surprisingly made of marble. The research work on the marble provenance that used in early 90's which develops day by day with new techniques, methodologies and marble databases from most of ancient marble quarries all around the Mediterranean. The research on scientific analysis of the marble stone anchors of the Yenikapi Shipwrecks is a pioneer work of marble provenance on anchors, since marble was not preferred as material to build stone anchors in ancient world. More than 300 stone anchors and weights excavated were surprisingly mostly made of marble.

The study presents the archaeometric analysis of stone anchors from the Yenikapi Shipwrecks. The results of analysis will be presented at MAGS 2020. These analysis held at certified laboratories all around the world that can be represented respectively;

- Geochemical Analysis – CANADA
- XRay Powder Diffraction (XRD) Analysis in Archaeometry Dept. Labs METU

This study will help the collaborative work between the archaeologists and scientific researchers to learn details of marble use in antiquity.

The Binh Chau Anchors- a Composite Conundrum

Ian McCann

Two anchors were retrieved off the coast of Central Vietnam in 2014, near the small village of Binh Chau. These are composite anchors, made from wood, iron and lead. They provide a unique research opportunity, as relatively little is known about anchors in South East Asia.

This research used experimental archaeology, aspects of archaeometry, and a comparative analysis of the anchors' design elements. This multi faceted method of inquiry aimed to determine how the anchor were made; how old they are; identify a culture or country of origin; and give an insight into the history of maritime trade along this section of the Vietnamese coast.

Quang Ngai is situated midway along Vietnam's 3260km coastline and in recent years it has become a minor hotspot for shipwrecks. This contradicts the accepted view that this area is a 'bit of a backwater' regarding international trade. Dating suggests that the anchors were manufactured around the 7th – 8th century CE, a period when there was a rise in maritime trade across the region with the Umayyad Caliphate of the Arab empire, Byzantine Empire, Chola dynasty in Southern India and the Tang dynasty in China being major players. This maritime trade grew to become a complex trading system that has played an important role in the exchange of technologies, religions, and trade across Asia and parts of the Middle East.

Findings indicate a possible transfer of technology, materials and elements of design with East Asia and the Northern Indian Ocean region. It also answered a question Honor Frost posed in the 1970's and until this research had remained unanswered.

A Tale of Two Boat Models: Reconstructing and Recontextualising

Mark Dolan

Model boats and boat models have long been a key source of information for maritime archaeologists. As objects that may reflect contemporary ship design, their research potential can transcend the problems of decontextualisation. They inherently attest to a cultural engagement with rivers, lakes and/or seas and these three-dimensional representations of watercraft have often facilitated greater understanding of naval architecture. This, however, is not all the information these objects have to offer.

On Cyprus, terracotta boat models have been found predominantly in tomb assemblages, but only in some cases are these contexts well recorded and reliable. This paper focuses on two such objects, both from the Late Bronze Age (c. 1650-1200 BC). Both come from tombs and are similar in form, size and style. One was found at the site of Kazaphani on the north coast of the island, the other at Maroni, on the south coast. The excavation records differ markedly too, with the contextual details of the former meticulously recorded and published in the 1980s and the latter with rather more patchy information attached after its excavation during the British Museum's excavations at Maroni a century earlier.

Here I will briefly explore the effect of the differing excavation records of these two boat models to illustrate the wider issue with contextual information that underpins the entire corpus of Cypriot boat models. Finally, I will present an approach built around the employment of proxy data and cross-comparison to begin to reconstruct lost contexts and recontextualise these objects. Through this I aim to broaden the information that boat models can offer archaeologists.

Sadana Island Shipwreck Revisited

Mohamed Khedr

The Sadana Island shipwreck is located c.35km south of Hurghada along the Egyptian Red Sea coast. The wreck settles at the foot the reef north of the Sadana Islands at a depth between 27m and 45m. Between 1995 and 1998 the Sadana Island shipwreck was partially excavated by the Institute of Nautical Archaeology-Egypt (INA-Egypt). During the excavation, it was realized that the ship was 50 meters long, 18 meters wide, and able to carry 900 tons, and it probably dates to the 1760s. The Sadana shipwreck was probably part of a fleet of merchant's vessels that operated within the Red Sea during the Ottoman period, and it sank during its voyage northwards on its way to Suez.

The excavation resulted in the discovery of a cargo of Chinese Qing Dynasty porcelain manufactured for the Middle Eastern market, large quantities of ceramic water jars, in addition to an array of organic remains such as coffee, pepper, coriander, cardamom and frankincense. More than 3,000 excavated artefacts are now in the Alexandria Conservation Laboratory for Submerged Antiquities.

However, the Sadana Island shipwreck was not fully excavated in the 90s as hundreds of artefacts were left underwater, which made it subject to looting by sport divers. Moreover, the ship's hull was not adequately planned. Therefore, in 2017 the Alexandria Centre for Maritime Archaeology and Underwater Cultural Heritage revisited the site of the Sadana Shipwreck in order to assess its present conditions and develop a plan of the site' management. This paper will be looking at the current situation of the Sadana Island Shipwreck and the potentials for its further study.

Maritime networks in the Late Bronze Age Mediterranean: investigations into connectivity and trade between the Aegean and the east

Piers Comley

This study examines a variety of evidence: imagery, artefacts, seal stones and pottery, in order to investigate Late Bronze Age (LBA) maritime trade and connectivity between the Aegean and the eastern Mediterranean. While scholarship on this subject is considerable and far-reaching, previous work tends to focus on specific sites or single artefacts, with limited research adopting broader-scale approaches. Bearing in mind the all-encompassing role of the Mediterranean ocean, this re-examination of archaeological evidence has not only been able to reassess the complexity of east-west contact, but reveals the dependency of LBA Mediterranean civilisations on seaborne trade routes. Furthermore, the scattered distribution of artefacts in contexts often far removed from their original production site highlights the Aegean as a major player in a complex trading hub interconnecting the Greek mainland, Cyprus, Egypt and the islands in-between. This trading network is predominantly considered against a combined theoretical approach of "World Systems", "Maritime Spheres of Influence" and "Core vs. Peripheral civilisations".

Shipwrecks with Betican cargo in the Western Mediterranean; maritime trade and cargo analysis 1 st – 3 rd cent AD.

Stella Rendina

This paper examines the shipwrecks with Betican cargo in the Western Mediterranean between the beginning of the 1 st cent AD and the end of the 3 rd cent AD, focussing mainly on the cargo composition of amphorae-borne products and metal ingots, and the type of trade these wrecks can represent. Despite some limitations due to their nature, wrecks have the potential to outline the mechanisms through which products were transported.

Although extensive publications on shipwreck with Betican cargo are available, so far these wrecks have mostly been considered individually. I instead tackled these wrecks all together in a comparative framework, with a comprehensive analysis of their components; by considering the different cargo compositions, the locations of the wreckages, and the date and nature of the products transported, the aim of this paper is to understand the mechanisms of trade of Betican cargo and its underlying patterns.

In this study, five wrecks will be presented, deemed representative of different ways their cargos were assembled for our time period. Two represent the beginning and the end of our chronological framework, and highlight the implications of the changes that occurred during the period. The remaining three are representative of the ways a Betican cargo could be assembled: first a largely heterogeneous cargo, second a homogeneous cargo, and last an imperially commissioned cargo destined for the city of Rome. What we are seeing are the different mechanisms through which products were transported, not as a result of casual exchanges but instead due to a level of organization and planning.

Ships, draft and harbours in the Hellenistic and Roman Mediterranean: a new approach

Ioannis Nakas

Harbours have been some of the most important centres of trade and exchange, as well as of interaction between different people and cultures, especially during the years of the first "globalisation" of the Mediterranean in the Hellenistic and Roman period. Harbours are, nevertheless, built to serve a fundamental purpose: to accommodate and shelter ships. Choosing a place for the creation of a harbour, equipping it with the necessary infrastructures and successfully operating it is something depended basically on the type, number and size of ships visiting it, as well as on their cargoes and operational needs.
Harbours, however, have never been properly examined by scholarship in terms of their actual ability to receive ships of a certain tonnage due to a lack of depth, space and harbour works. This paper will present a new approach on the study of the harbours of the Hellenistic and Roman Mediterranean, based on the scrutiny of their size, depth and harbour works and their capacity concerning the numbers and types of ships that could use them or not. By examining three case studies from the Aegean (Delos, Lechaion and Kenchreai) and exploiting all data available, especially from the recent underwater investigations of these sites, I will attempt to reconstruct the ancient harbour environment in relationship with the typology and size of ships that would have frequented them and to clarify their operational capacity. This approach can, hopefully, consist a new methodology on the study of ancient harbours that can be applied in more Mediterranean harbours of antiquity.

New approaches to the harbours of Miletus: From representative to functional

Maurice Thurn

The harbours of Miletus (SW-Turkey) were the subject of studies over the course of the last century. However, the research focused largely on representational aspects - especially concerning the so called Lion Harbour. In my master's thesis I seek to add a new perspective to this research by investigating how the different harbours of Miletus were practically used in Hellenistic and Imperial times. Therefore, I will concentrate on the different functions and utilisations of the harbour buildings and facilities. Due to the geomorphological conditions of high groundwater in the harbour areas, it is currently not possible to excavate there within the scope of my project. Nevertheless, In order to identify buildings and spaces related to the harbours and to determine their individual functions, I will re-examine the published works on the already excavated harbour facilities. In particular, an important feat will be the maps, provided by the extensive geophysical prospections that have been conducted over the last 30 years (CAU Kiel). The data thus obtained shall provide a groundwork of identified and yet unidentified harbour structures in Miletus. Subsequently, I will compare my results of Miletus with other, better excavated harbours in the Aegean in order to draw analogies and contextualise them.
In the paper I want to discuss my methodological approach and to present first results. The primary focus will be on the so called Humeitepe-Harbour that has been excavated partly in 2011 (H. Bumke) and is now subject of the ongoing research of the University of Hamburg (Ch. Berns).

Moving in Silence and Violence: Some Thoughts on the Archaeology of Piracy

Adam Dawson

From Thucydides' Archaeologia to Robert Louis Stevenson's Treasure Island, literary tales of swashbuckling pirates have long captured the imagination of the public. Despite this, attempts to produce an archaeology of piracy have largely been unsuccessful. This has led historians (and some archaeologists) to dismiss piracy as a phenomena that cannot be understood using archaeological methods, only historical ones. Yet, the last 10 years have seen an unprecedented spike in archaeological publications in piracy, notable examples including "Persistent Piracy: Maritime Violence and State-Formation in Global Maritime Perspectives" and "X Marks the Spot: An Archaeology of Piracy". So how has piracy transformed from a thema non grata in archaeology to one of the fastest developing subjects in maritime archaeology? Encompassing a series of periods, ranging from modern day Puntland, to Ancient Cilicia, this paper will look at how changes in the perceptions of piracy have subsequently altered how we can perceive piracy from an archaeological perspective. Topics covered will include theoretical developments in maritime archaeology such as: differentiating between Ciceronean and Augustinean piracy and larger socio-political changes in western society caused by events such as the failure of the "war on drugs" and the growth of Somali piracy from 2008 onwards. This paper will go on to review how these ideas have contributed to the creation of an archaeology of piracy characterised by seasonality, disparity in quality between material culture and settlement and a form of third party backing which allows piracy to function as a sub-group of organised crime.