

# CLASSICA ET ORIENTALIA

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Band 13

2016

Harrassowitz Verlag · Wiesbaden

# Megasthenes und seine Zeit

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# Megasthenes and His Time

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2016

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# Cultural, economic and political relations between Mesopotamia, the Gulf region and India before Alexander

Daniel T. Potts

## Introduction

Despite the fact that the conference in which this paper was originally presented was firmly focused on Seleucid and Parthian or more broadly Hellenistic matters – Megasthenes/Apollodorus of Artemita and Isidore of Charax – there is some value in extending the perspective back in time to much earlier periods. My purpose here, therefore, is to discuss some of the evidence of interaction, trade and cultural exchange between those regions linked by direct access to either the Persian Gulf or the western Indian Ocean, from the Neolithic through the Bronze Age, found at sites in southern Iraq, southwestern and southeastern Iran, the eastern seaboard of the Arabian peninsula, the Arabian Sea coast of Oman, Pakistan and Gujarat. In addition, some of the recently discovered evidence pertaining to the sorts of watercraft used to maintain those connections and the implications of early seafaring will be treated.<sup>1</sup>

Until relatively recently, and with some obvious exceptions (e.g. Ras Shamra), the vast majority of surveys and excavations in Western and South Asia were conducted in areas that could be broadly termed 'continental', rather than coastal. This applies to well-known, high-profile sites like Ebla in Syria, Ur in southern Iraq, Persepolis in Iran, Mohenjo-Daro and Harappa in the Indus Valley, and to many more lesser known sites scattered across Syria, Iraq, Iran, Pakistan and India. However, when Danish archaeologists began working in the 1950s on Bahrain in the central Persian Gulf; Failaka island, in the northern Gulf; and Umm an-Nar island, in the southern Gulf, they unintentionally inaugurated the first significant studies of archaeological sites in a littoral zone in this part of the world, at a series of sites that were mainly located on the east coast of the Arabian peninsula and its offshore islands. Relations with the cultures of Mesopotamia, particularly during the Bronze Age when the regions known as Dilmun (Eastern Province of Saudi Arabia and later Bahrain) and Magan (Oman peninsula) are attested in cuneiform sources, represented one of their research priorities. At the same time, the Danes were interested in tracking the development of indigenous cultures along the Persian Gulf littoral; and finally, with their excavations on Failaka island, they made a first attempt at exploring the impact of Alexander the Great and his Seleucid successors on the peoples of the Persian Gulf. During the past half century once neglected areas like Kuwait, Bahrain, the UAE and Oman have attracted more and more interest. The net result has been a huge amount of new work in all of those regions, and a realization that these are areas where inter-regional contacts, by sea, have played an

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<sup>1</sup> This is an only slightly revised version of the paper originally prepared for the Kiel conference. My sincere thanks go to Josef Wiesehöfer for his kind invitation to participate.

important role in social development since the late 7<sup>th</sup> millennium BCE. The stories to be written about these peoples are not the conventional ones of plant and animal domestication, followed by urbanization, as the dominant paradigm in the continental regions of Western and South Asia would have it, but ones in which the sea, both as a source of sustenance and as an information highway, created very different types of societal development and opportunities for inter-regional and inter-societal contact.

### The Persian Gulf in early times

To begin, however, it may be helpful to clarify a few points about some of the hydrological variables involved. During the last glacial maximum, between about 70,000 and 18,000 BP, worldwide sea-levels were up to 120 m. below present levels and the Persian Gulf simply did not exist. Global warming set in motion the melting of the polar icecaps and mountain glaciers, bringing about the so-called Flandrian transgression in which sea-levels rose rapidly if intermittently as warmer phases alternated with cooler periods. The Persian Gulf began building by the beginning of the Holocene, about 10,000 years ago, but as late as 8000 years ago it still had not reached its present limits, with many important features, such as the Bahrain archipelago, the Qatar peninsula, and the Abu Dhabi islands, all still part of the mainland.

We have indisputable material evidence of north-south links in the form of imported Mesopotamian pottery of 6<sup>th</sup> millennium BCE date – made in the so-called Ubaid style at sites in southern Iraq, as confirmed by neutron-activation analyses – turning up on sites distributed along the east coast of the Arabian peninsula, from Kuwait in the north to Ras al-Khaimah in the south. Sceptics could of course suggest that people may have walked south from Mesopotamia along the eastern seaboard of Arabia with their pottery. Indeed, they may have done this, but even in the case of Kuwait, which is not very far from sites like Ur and al-Ubaid where the painted Ubaid pottery was manufactured, travel down the Euphrates, through the marshes and along the coast would always have been far simpler on water than on land, and at the site of As Sabiyah (H3) in Kuwait we have archaeological evidence that seafaring was practiced by the inhabitants of the site c. 6000 BCE. The houses at H3 have yielded hundreds of fragments of bitumen, some with barnacles still encrusted and many with reed impressions, suggesting that the caulking of boats was undertaken by recycling bitumen, that is stripping it off of boats, reboiling it, and then applying it to the same or different vessels. Analyses by Jacques Connan have shown that the bitumen from H3 comes from the Burgan Hills in southeastern Kuwait. Interestingly, it contains no animal or fish fats, such as are often added to lime for the production of an anti-fouling agent with which to coat the hulls of dhows and other watercraft in the Persian Gulf and Indian Ocean. Rather, the H3 bitumen slabs contain a large amount of extractable organic matter, principally chopped or crushed vegetal matter, that was added to create the mix used to give reed boats a robust exterior surface several centimetres thick, much like that applied to traditional Iraqi wood and woven palm-leaf *quffahs* and plank canoes in the marshes of Iraq. The inhabitants of H3 were probably not sailing *quffahs*, however, but rather boats that may have looked like the terracotta boat model found both at H3 and at sites in southern Iraq (e.g. Eridu, Uruk), with a profile not unlike the *shasha* still being

made in Oman and the UAE today. An intriguing painted representation of what looks like a boat with twin masts, on a re-used sherd from H3, suggests that these were not simple rowboats but more complex vessels with masts, rigging and sails.

Following the end of the Ubaid period, around 3800 BCE, there is little evidence of contact between the Gulf region and southern Mesopotamia until we reach the very end of the 4<sup>th</sup> millennium when, at about 3100 or 3000 BCE, imported Mesopotamian pottery, comparable to examples known at Khafajah and the type-site of Jamdat Nasr, appeared in graves of so-called Hafit type in the interior of Oman and the UAE, along with a particular type of square, diagonally-pierced bone bead, which has been found from Tepe Hissar in northeastern Iran to Uruk in Mesopotamia and Oman. Once again, sceptics may suggest that these vessels could have been carried overland, and this is of course theoretically possible but by the mid-3<sup>rd</sup> millennium BCE, when a substantial quantity of Mesopotamian pottery and alabaster and other carved stone from southeastern Iran, appears on Tarut island, off the east coast of Saudi Arabia, and at sites in the interior closer to Hofuf, it seems clear that the links were maritime rather than terrestrial.

From the late 4<sup>th</sup> millennium BCE onwards, Mesopotamian cuneiform sources mention a land called Dilmun, and the Sumerian name Dilmun, Akkadian Tilmun, survived into late antiquity via Greek Tylos, Latin Tylus and Syriac Thilouana, names which we know were used in late sources for the main island of Bahrain. In the 25<sup>th</sup> century BCE, during the reign of Ur-Nanshe, texts from Telloh (ancient Girsu) in southern Iraq inform us that ships from Dilmun were transporting timber from foreign lands to the Mesopotamian city-state of Lagash. Given the abundance of date palms in southern Mesopotamia, this is unlikely to have been native palm wood from Bahrain which would have been redundant. Rather, it is much more likely to have been an exotic wood, perhaps a hard wood like teak coming from much further afield, perhaps in South India; or Indian cedar, fragments of which are known from the later, mid-1<sup>st</sup> millennium BCE palace of Nebuchadnezzar at Borsippa; sandalwood; or even *Dalbergia sissoo*, commonly known as Indian or Pakistani rosewood, which has a wide distribution from Oman to southeastern Iran and the Indian sub-continent, and which was used to make a wide variety of items, including furniture and dagger hilts, in Mesopotamia and the Gulf region. Another pre-Sargonic text from Lagash reports a shipment of dates, linen garments and copper from an unnamed queen of Dilmun to an unnamed queen of Lagash.

Not long after the Lagash texts were written the era of city-states in Mesopotamia was brought to a close by Sargon of Akkad, who is usually credited with the foundation of the world's first empire, and certainly with Mesopotamia's first supra-regional state, around 2350 BCE. In one of his inscriptions, Sargon boasts that ships from Dilmun, Magan and Meluhha docked at the quay of Akkad, a reference which, as early as 1886, led the British Assyriologist THEOPHILUS PINCHES to suggest that each of these regions, and half a dozen others associated with maritime trade, 'most likely had a distinct build of ship'. We shall consider what those ships may have looked like, but first I would like to make a few general observations on Dilmun.

### Dilmun

As already noted, Dilmun can be identified with Bahrain and the adjacent part of the Arabian mainland. Considering the fact that Sargon boasted of the presence of Dilmunite ships at the quay of his capital Agade, it is perhaps not surprising that items of demonstrable Mesopotamian manufacture should have turned up on Bahrain, including Akkadian-style pottery and cylinder seals. Nor is it surprising, given the degree of contact, that the technology of writing in cuneiform on clay tablets was adopted on Bahrain in the late 3<sup>rd</sup> millennium BCE.

Dilmun's connections with the lower Gulf, specifically with the Oman peninsula, are in turn reflected in the presence of typically Omani soft-stone (chlorite or steatite) and ceramic vessels in graves on the island. Oman's Early Bronze Age culture, named Umm an-Nar after the type-site on the island of that name near modern Abu Dhabi, had a distinctive material culture that is easily identifiable. Most importantly, Oman was the major copper source for Mesopotamia at this time, and significantly, after about 2000 BCE, Dilmun was the principal exporter of copper to southern Mesopotamian cities like Ur. Since Dilmun had no copper sources of its own, it stands to reason that the copper called 'Dilmunite' in the cuneiform texts from Ur which deal with this trade, must have originated elsewhere and, as numerous metallurgical analyses have confirmed, the sources were in the Al Hajjar mountains of Oman and the northern UAE.

Whether via Oman or more directly by sea, Bahrain also shows evidence of connections with points further east in the late 3<sup>rd</sup> millennium as well. Graves at al-Maqsha, Saar and 'Ali, for example, have yielded items such as a square-based soft-stone flask belonging to a type well-known in Bactria. In addition, a carved soft-stone vessel from Saar belongs to a type that originated in southeastern Iran where it finds close parallels at Tepe Yahya and in the Jiroft region of eastern Kerman province. In addition, an alabaster bowl from a grave at 'Ali and several tall alabaster beakers from the Barbar temple are paralleled closely by finds from Shahr-e Sokhta in Iranian Seistan, where we know such vessels were manufactured, and at Mundigak in southern Afghanistan.

Finally, Bahrain has yielded a number of finds which originated in the Indus Valley. These include typical etched carnelian beads and a cubical weight of the sort found by the hundreds at sites like Chanhu-Daro, Mohenjo-Daro and Harappa. Two seals, one a triangular prism, the other a circular stamp, on the other hand, might have been local products, but they bear short sequences of signs in the as yet undeciphered Indus Valley or Harappan pseudo-script, suggesting the actual presence of people from the Indus region on Bahrain in the late 3<sup>rd</sup> millennium.

In the case of Bahrain, all of the finds just described must have arrived by sea. Fortunately, Dilmun-style stamp seals from the Dilmunite colony on Failaka illustrate what Dilmunite boats looked like. These single-masted vessels with their distinctive, cut-away sterns – much like those on Kumzari *batils* made and used in Ras Musandam – must have had a distinctive silhouette as they lay at anchor in Agade or one of the Indus Valley ports, just as Pinches surmised over 100 years ago.

## Magan

The second foreign land mentioned in Sargon's inscription is Magan. Sumerian Magan (Akkadian Makkan, Old Persian Maka, Elamite Makkaš) can be identified with Oman, thanks to the Old Persian trilingual inscriptions from Persepolis and Naqsh-e Rostam which equate Old Persian Maka with Assyrian Qade. We know from a now lost inscription of Assurbanipal's, found at Nineveh, that the capital of Qade was Izkie, and this is certainly the well-known oasis of Izki, reputed in Oman to be the oldest town in the country. As noted already, copper from Magan was traded to Dilmun and Mesopotamia, and typical elements of Omani material culture reached Bahrain in the late 3<sup>rd</sup> millennium.

Magan's relationship with Mesopotamia is first suggested by the presence of Mesopotamian items in Oman, and Omani items in Mesopotamia. In the former category, we can point to Mesopotamian storage jars, which may have held oil, on Umm an-Nar island, the site of an important settlement just off the coast of Abu Dhabi. These belong to a type well-attested in Mesopotamia during the mid-3<sup>rd</sup> millennium BCE (Early Dynastic III period). Jars such as these, with pointed bottoms, could obviously not stand but we know from graphic depictions on Sumerian wall plaques how they were carried, and, like much later Roman and Hellenistic torpedo-base amphorae in the Mediterranean, their shape was useful when loading and storing them on boats. Interestingly, at least one such jar probably originated as far away as Syria, judging by the distinctive cylinder seal impression, made before the vessel was fired, on the shoulder. Close parallels for this sort of seal-impressed pottery can be found in Syria at Hama, Tell Chuera and Ebla. Other finds of Mesopotamian origin include three green stone (serpentine?) beads in the shape of a frog from a tomb at Al Sufouh, south of Dubai, which are closely paralleled by finds from the Royal Cemetery at Ur and Kish in southern Iraq.

In the opposite direction, an inscribed soft-stone bowl, with typically Omani dotted double circle decoration, was found at Telloh, in southern Mesopotamia, at the beginning of the 20<sup>th</sup> century. More recently, dozens of similar vessels have been found at a large number of sites in Oman and the UAE, where they were made. At roughly the same time as Omani soft-stone was reaching Telloh, cast copper objects of Omani origin, as confirmed by compositional analysis, were reaching Ur and other sites in southern Mesopotamia, proving that centuries before texts inform us of the export of copper from Magan to Mesopotamia, objects (and almost certainly copper ingots as well) were already moving in that direction, most probably by sea.

Direct evidence of seafaring between Mesopotamia and Oman is provided by bitumen impressed with reeds and encrusted with barnacles from RJ 2, at Ras al-Jinz, just south of Ras al-Hadd in Oman, where a large mudbrick building of the mid- to late 3<sup>rd</sup> millennium, excavated by a joint Italian-French expedition, was found to contain significant amounts of bitumen from the hulls of reed boats. Analyses by Jacques Connan have shown that the RJ 2 bitumen compound contained a high percentage of insoluble organic matter, much like the material from H3 in Kuwait which is, however, almost 4000 years older. But unlike the H3 bitumen, which was sourced from the Burgan hills in Kuwait, all of the bitumen from RJ2 analysed by Connan was found to most closely match bitumen samples taken from Fattah in northern Iraq, providing us with conclusive proof that sailors from Mesopotamia were able to reach eastern Oman by c. 2300 BCE.

Just as we saw evidence of Omani material on Bahrain, so too do we find Dilmunite pottery and an ivory stamp seal in typical Persian Gulf style, from Bahrain in Magan (at Tell Abraq). Continuing the trajectory up and across the Gulf, Tell Abraq also yielded ceramics from southwestern Iran, more precisely from Fars province, of so-called 'Kaftari' type (dating to c. 2200–1800 BCE in Iran, but found in a context at Tell Abraq with calibrated C14 dates around 2050 BCE), while contact with southeastern Iran is shown by imports in Oman of black-on-grey, incised greyware and burnished greyware, all of which came across the Straits of Hormuz from either Kerman or Baluchistan. Other finds from eastern Iran include soft-stone and alabaster vessels and, as we saw in the case of Dilmun or Bahrain, Central Asian finds were reaching the southern side of the Gulf as well. These included soft-stone, pottery, and two incised ivory combs from Tell Abraq with a floral pattern of decoration which is closely paralleled on soft-stone flasks from Bactria. Finally, there are other finds from the region of ancient Magan which point conclusively to the existence of ties with the Harappan or Indus Valley civilization, and this brings us to the third country mentioned in Sargon of Akkad's inscription, Meluhha.

### Meluhha

There is a consensus amongst scholars that Meluhha was the name by which Mesopotamian scribes identified the Indus Valley or Harappan civilization. Nevertheless, although probably correct, the argument is circumstantial, resting to a large extent on the fact that Meluhha is associated in cuneiform sources with several different exotic materials, one of which is carnelian. In antiquity, most of the high quality carnelian used in Iran and Mesopotamia came from Gujarat, more particularly the Ratanpur area, where carnelian occurs as nodules or pebbles in gravels and conglomerates. These are easily accessible by digging narrow shafts into the agate beds and, although other sources are known in Western Asia, they are generally of inferior quality. By the mid-3<sup>rd</sup> millennium, long, barrel-shaped carnelian beads of Indian origin are attested in the Royal Cemetery at Ur in southern Mesopotamia, but it is the etched carnelian for which the Indus Valley beadmakers were perhaps best known in antiquity and indeed into the modern era. In the Gulf region, diagnostic Harappan etched carnelian beads have been found on Bahrain, in the UAE and in Oman, and small numbers are known from Susa in Iran and Ur in Mesopotamia as well.

Meluhha was also known in Mesopotamian sources as an important source of ivory, both worked and unworked. Texts from Ur dating to the last century of the 3<sup>rd</sup> millennium BCE refer to the importation of ivory birds from Meluhha by the merchant Lu-Enlilla, and it is tempting to suggest that a unique duck, mounted on an ivory stand with turned and incised ends, found in the late 3<sup>rd</sup> millennium tomb at Tell Abraq in the UAE, might represent just such a Meluhha bird. Combs are also mentioned amongst the ivory imports from Meluhha at Ur, and a number of sites in the UAE and Oman, including Tell Abraq and RJ2, have yielded ivory combs with dotted-circle decoration which are reminiscent of the sort of ivory comb used in the Harappan world, as witnessed by examples from Chanhu-Daro. Whether the individuals found wearing ivory combs (indicated by the fact that the combs were adhering to their crania), in a collective tomb at Tell Abraq, where nearly 400 people were interred, were Harappans, we cannot say, but it is certainly a possibility.



In addition to carnelian and ivory, other commodities, probably in liquid form, were traded from the Harappan world to the west. Black-painted Harappan storage jars have been found at several sites in Oman and the UAE, including Asimah in northern Ras al-Khaimah and Tell Abraç on the Persian Gulf coast of Sharjah. These belong to a type well-attested at the Harappan site of Mohenjo-Daro in Pakistan. Moreover, one example from RJ2 in Oman bears a short sequence of signs in the Harappan pseudo-script incised on its shoulder. In Mesopotamia, short inscriptions on the shoulder or rim of a storage vessel most often stated the vessel's liquid or dry capacity. It is possible that such was the convention in the Harappan world too, though it is also possible that the inscription was a label identifying contents, and not necessarily a measure of volume. That the language of Meluhha was known in the West, at least by some, is confirmed by a cylinder seal in the Louvre, dating to the late Akkadian period (c. 2200 BCE), which is inscribed with the name of one Šu-Ilīšu, identified as a 'Meluhhan interpreter'.

Other finds in the Gulf region attest to the adoption of Harappan measures of economic control. These include genuine Harappan stamp seals, such as a bronze one from RJ2, which might have been used by an Harappan trader, as well as hybrid seals, already mentioned earlier, like one from Failaka, with short, pseudo-inscriptions in Harappan characters on a seal of local, Persian Gulf style and manufacture. Similar seals have been found at Ur in Mesopotamia and on Bahrain. The fact that the shape of these seals is unique to the Persian Gulf region, while the signs on them are Harappan, whether pseudographic or not, is suggestive of cultural hybridity involving Harappans and Dilmunites in the Gulf.

Another mechanism of Harappan economic control is exemplified by cubical chert weights. Harappan sites like Mohenjo-Daro, Chanhu-Daro and Harappa have yielded several thousand such weights, most of which are made from a distinctive, banded chert sourced from the Rohri hills in Baluchistan. Based on a unit of approximately 13.67 grs, and made in even multiples thereof, this weight system was used throughout the Indus world. In addition, isolated examples have appeared at several sites in Mesopotamia, at Susa in Iran, and at Tell Abraç, Shimal tomb 6, Saar and Qalat al-Bahrain. They are a clear indication that a highly controlled, reliable system of weights functioned in transactions involving Mesopotamia, Dilmun, Magan and the Harappan world.

Thus far we have examined not only artefactual evidence of ceramics, stone vessels, carnelian, ivory and other items that moved between Mesopotamia, Iran, Dilmun, Magan, Bactria and Meluhha, but iconographic and physical evidence of sailing vessels from archaeological sites in Kuwait, Bahrain and Oman. Three images from Mohenjo-Daro illustrate two different sorts of vessels used in the Indus Valley. The first, on a prism-shaped clay tablet, shows a double-ended vessel with a shallow hull, hatched in parallel, vertical lines; a pair of steering oars, side rudders or possibly punting poles at the stern; and a cabin with two tall poles in the centre of the deck. The second, engraved on a stone seal perforated lengthwise, shows a double-ended vessel generally similar to the one previously mentioned, but with a seated figure who seems to be holding a pair of steering oars, rudders or punting poles. Again a cabin with two poles aloft at either end stands on the deck. As Ernest Mackay noted in 1938, this sort of mastless, sail-less vessel is reminiscent of the vessels used by fishermen on the Indus River in the early 20<sup>th</sup> century. The third image, however, a graffito on a sherd, shows a vessel with a much deeper hull, sharp bow, and mast, probably with the rigging cables indicated schematically, and the yardarm just below

the mast head. A single steering oar or rudder is shown at the stern. If indeed the first two images are those of river craft, then this third one is more likely to be a vessel capable of undertaking voyages in open water. These sources are of course mute, in the sense that there is no written record to accompany them. But such is not the case in Mesopotamia.

### Mesopotamian seafaring capacity

A number of late 3<sup>rd</sup> millennium texts throw light on different aspects of sailing. Boat-building texts from the Ur III period (c. 2100–2000 BCE) which mention the types of materials used to build watercraft, recording deliveries of reeds for boat-building, as well as deliveries of rope and rigging made of split reed. According to one text, it took 1.5 days, and around 25–50 kgs of reeds, to make a 27 m. long rope. Another text refers to 186 labourers involved in rope manufacture. Yet another records the delivery of 276 talents (1 talent = 30 kgs) or 82.8 tons of palm-fibre rope and 34 talents or just over 1 ton of palm-leaf rope. Deliveries of wood are also recorded, one text noting the arrival of 11,787 pieces of wood destined for different parts of a boat, including planks of *asal* (poplar?) and boat ribs of *ma-nu* (willow?). One text from Umma mentions a delivery of 59,290 wooden pegs for use in the boat yard there, suggesting that not all vessels were made of caulked reeds, but were, at least in some cases, plank constructions held together by pegs. By way of comparison it is interesting to note that a modern replica of a 14<sup>th</sup> century Swedish boat some 22.5 m. long and 3.5 m. wide required 3000–4000 wooden pegs.

As for the native typology of Mesopotamian seacraft, these were most often referred to not by function, length or geographical origin, but by capacity. Thus, vessels attested in cuneiform sources range in size from 1 to 300 *gur* (1 *gur* = 300 liters). We do not know, however, if a 180 *gur* vessel was so called because it could hold 180 *gur* (54,000 l) of goods. Indeed, one text mentions a 60 *gur* ship loaded with 150 talents (4500 kgs) which would imply that 75 kgs of cargo could be transported per *gur* of ship's capacity. Certainly in the slightly later Old Babylonian period, around 1800 BCE, we have texts that record the transport of over 600 talents, more than 18 tons, of copper from Dilmun to Ur. But perhaps the most astounding figures concern deliveries of bitumen for caulking in the Ur III period. One such text is specifically concerned with the provision of timber, palm-fibre rope, reeds and fish-oil for the construction of an unspecified number of vessels, as well as 3170 *gur* of bitumen 'for caulking Magan boats'. Applying the standard *gur* measurement of the late 3<sup>rd</sup> and early 2<sup>nd</sup> millennium, this amounts to a staggering 951,000 liters of bitumen. If we look at other texts in which the amount of bitumen needed to caulk a boat of a specific size is mentioned, we can deduce that this amount would have sufficed to caulk 116 boats of 60 *gur* capacity.

It is clear, therefore, that boat-building in the late 3<sup>rd</sup> millennium was a highly organised affair in Mesopotamia, and even if the Indus Valley and eastern Arabia have yet to yield anything like the same level of detail, there can hardly be any doubt, in view of the iconographic sources, the evidence of the exports and imports, and the bitumen recovered at H3 and RJ2, that long-distance navigation in the Persian Gulf and western Indian Ocean was well-advanced by 2000 BCE. Nor can it be doubted that the entire area, at least from Gujarat to southern Iraq, including southeastern Arabia, Baluchistan and the interior of the Persian Gulf, was well-integrated into a system of economic and social interaction, long before the *Periplus of the Erythraean Sea* informs us of long-distance seafaring in the

western Indian Ocean during the mid-1<sup>st</sup> century CE. This perspective on maritime connections is not new, and indeed scholars have been talking about the 'seafaring merchants of Ur' for over 50 years, but now for the first time we have the archaeological evidence from the entire area between Mesopotamia and Gujarat attesting to the fact that maritime societies which probably spoke a wide variety of languages, had different looking types of watercraft, and were linked into regionally-specific, terrestrial networks of social and economic interaction, also formed part of a maritime mosaic that stretched right through this eastern extension of what the Greeks would later call the Erythraean Sea. Whether or not one wishes to call it a world system, it was certainly a deeply articulated economic and social network, with its origins in the Neolithic, that was flourishing long before anyone would have suspected only a few decades ago.

### Long-distance seafaring in late prehistory and its implications

Thus far the implications of the sort of trans-regional, seaborne traffic described above have been limited mainly to explaining contact along the maritime corridor linking Mesopotamia, southern Iran, eastern Arabia, Baluchistan and the Indus region. To conclude, however, two much more expansive instances of contact in the Indian Ocean will be introduced, for which the evidence already reviewed, particularly with reference to seacraft, is relevant.

The first of these was sparked by a find made in the 1930s by the Oriental Institute at the site of Tell Asmar (ancient Ešnunna) northeast of Baghdad. There, in a grave of probable post-Akkadian date (c. 2200–2100 BCE) located just north of the so-called North Palace, a fairly innocuous looking, 2 cms long, fragmentary pendant was discovered. The superficial appearance of the pendant led the original excavators to suggest that it was made of amber. This, in itself, would have been quite spectacular, since, although there are several items of genuine Baltic amber known from the 1<sup>st</sup> millennium BCE, no other amber had ever been found in a Bronze Age context prior to the recent discovery of a magnificent amber lion's head in the royal tomb at Qatna in Syria.

It was not until the 1980s, however, that the Tell Asmar pendant was analysed by infrared spectroscopy. To everyone's surprise, the spectrum revealed that the pendant was made not of amber, but of East African copal, most probably from Zanzibar, Mozambique or Madagascar. Like amber, copal is a hardened resin, but made in the Pleistocene from the sap of *Trachylobium Hornemannium*. We are completely ignorant of the means whereby such an exotic item may have reached Mesopotamia from east Africa, but knowing what we now know about seafaring in the Neolithic and Bronze Age, the possibility of at least indirect movement, perhaps between east Africa and southern Arabia, southern Arabia and eastern Arabia, and eastern Arabia and southern Mesopotamia, is not at all implausible. Moreover, the identification of the Tell Asmar pendant as copal sheds new light on a well-known cylinder seal, also from Tell Asmar, depicting a rhinoceros, a crocodile and an elephant. Although it has always been assumed that an Indus Valley connection was implied by the specific fauna shown on this seal, the copal pendant from Tell Asmar might suggest that an African connection should be considered.

The second case is equally intriguing. Recent analyses of sediments from the site of Munsa in Uganda have identified phytoliths of *Musa*, i.e. edible banana. Phytoliths are durable, silica shells produced by plants as a result of the absorption of groundwater by the

roots; and the precipitation of the silica in and around cell walls through evaporation and metabolic activity. When plants die and disintegrate phytoliths are deposited in the soil but because of their hardness, they often survive for thousands of years, providing us with an invaluable supplement to charcoal and seeds in the study of many palaeobotanical issues associated with ancient human communities. Most surprisingly, the oldest *Musa* phytoliths from Munsu have been dated by accelerator mass spectrometry to the 4<sup>th</sup> millennium BCE. This is extraordinary, particularly since many scholars had previously believed that banana only reached central Africa about 1000 or 1500 years ago. But where did this precociously early banana come from?

Recent studies at Kuk Swamp, in the highlands of eastern Papua New Guinea, have shown that, while wild banana was native to the region, the earliest documented banana cultivation occurred there between 5000 and 4500 BCE. In addition to palaeobotanical remains, excavations at Kuk have revealed features in the ancient land surfaces, such as post-holes, ditches and channels, suggesting that banana plants were kept in garden plots. From New Guinea, banana spread to southeast Asia, and eventually to China, Burma, Sri Lanka, India and Africa. Banana is attested at Kot Diji, a pre-Harappan and Harappan site in Sindh, in the late 3<sup>rd</sup> millennium but the new evidence from Uganda predates that evidence by over 1000 years. How was banana spread? What sorts of watercraft and mechanisms of trade may have linked not just the Persian Gulf and Western Indian Ocean, in the early periods, but Africa with the much more remote world beyond India and Sri Lanka, beyond even southeast Asia, of the New Guinea highlands? These are all questions that remain to be investigated but the sum total of the evidence reviewed above strongly suggests that the seafaring capacity to criss-cross the Indian Ocean and its offshoots, the Red Sea and Persian Gulf, certainly existed long before the Hellenistic age.

### Bibliographical orientation

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