



**From the Roman Red Sea to beyond the Empire:
Egyptian ports and their trading partners**

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This paper focuses on the two main Egyptian ports, Myos Hormos (Quseir al-Qadim) and Berenike, with an emphasis on their external connections in order to demonstrate their importance within Mediterranean and Indian Ocean trade. Firstly the range of imports and exports occurring at these sites will be outlined in order to identify trading partners; following on from this the distribution of Egyptian pottery across the Indian Ocean will be examined in order to obtain a more nuanced interpretation of interactions between sites. The early Roman period (1st century BC to 3rd century AD) will be emphasised, although many of the same connections were maintained in some form until at least the 6th century AD.

The Red Sea ports of Myos Hormos and Berenike

The position of Myos Hormos and Berenike, in relation to other Indian Ocean trade sites, is shown on Figure 1 and clearly illustrates their strategic location. The mid-1st century shipper's guide, the *Periplus maris Erythraei* (1989), is clear that the Indian Ocean was divided not only into numerous political entities, but also into separate routes, operating distinct itineraries with their own optimum travel times dictated by the monsoon. The three main regions isolated by the *Periplus* are Africa, South Arabia and India. Information on a fourth region, through the Gulf of Oman and the Strait of Hormuz and into the Persian Gulf (*Periplus* 33–37), is limited and is generally agreed to reflect the lack of direct Roman involvement with that area. A route through the Persian Gulf up the Euphrates and eventually to the Mediterranean via Antioch's port is one of the corridors to the Mediterranean, but the Red Sea was the main outlet to the Mediterranean via Alexandria.

The site at Quseir al-Qadim was excavated by the University of Chicago between 1979 and 1982 (Whitcomb and Johnson 1979, 1982) and the University of Southampton between 1999 and 2003 (Peacock and Blue eds 2006, 2011; Van der Veen 2011). In 1993 David Peacock proposed that the site was ancient Myos Hormos, and the University of Southampton excavations have since corroborated this, in particular by a loan agreement on a papyrus that refers to 'here at Myos Hormos' (Peacock 1993; Van Rengen 2011, 336). The site has an archaeological sequence from the late 1st century BC through at least the mid-3rd century AD, but is likely to have an earlier foundation which was not reached in excavation due to extensive waterlogged deposits.

The University of Delaware and partner institutions (University of Leiden, University of California, Los Angeles, and University of Warsaw) have excavated Berenike since 1994. A series of reports and articles are available on the excavations (for summaries see Sidebotham and Wendrich 1998, 2001–2002; Sidebotham and Zych 2010, forthcoming); and two synthetic volumes which place these results in context (Sidebotham 2011; Cappers 2006). The deposits

cover the period from its foundation by Ptolemy II in the mid-3rd century BC through at least the early 6th century AD.

Both Myos Hormos and Berenike were founded exclusively to facilitate trade, initially with Africa for the import of elephants to be used by the military, and later across the Indian Ocean. For Ptolemaic period Berenike, trade relations are reflected by amphorae which are almost exclusively from within Egypt with only rare foreign vessels, primarily from Rhodes. The systematic and economically motivated long-distance Indian Ocean trade seems to have begun with the annexation of Egypt in 30 BC.

Given that their sole purpose was as outlets for trade with the East, their harbour facilities are of particular interest in understanding the organisation of the trade. At Berenike, targeted work on the harbours is just beginning through the geomorphological work of Anna Kortaba-Morley and excavation of some harbour facilities and a religious edifice (Sidebotham and Zych 2011, 3, forthcoming). Previously two sea walls dating to the late 1st century BC/AD had been excavated on the eastern side of the site (Sidebotham 2011, 60–61). One wall is composed of coral heads and ashlar blocks with wooden bollards, suggesting a landing area for small craft; the other of limestone blocks is a small segment of wall interpreted as a harbour wall.

At Quseir, investigation of the harbour area was a main focus of the University of Southampton's excavation. Through the geomorphological study of these deposits, Lucy Blue was able to define the limit of the Roman and Islamic harbours and demonstrate their extensive siltation (Blue 2006, see fig. 4.13 for a reconstruction of the Roman waterfront). During the Roman period a narrow channel led to a now-silted lagoon which formed the harbour. Excavation on the northeast side of the lagoon identified an installation composed primarily of complete and near-complete Roman amphorae. The full extent of this feature measured more than 60m in length. Its function was two-fold: to consolidate the intertidal, muddy zone and to form a jetty that facilitated the off-loading of goods. A sea wall ran parallel along the waterfront at the back of the bay.

The amphora jetty was composed of amphorae of the late 1st century BC/AD, mostly from Campania and belonging to Dressel's forms 2–4, characterised by bead rim, double rod handles, carinated shoulder and peg base. Egyptian Nile Valley biconical or 'Amphore égyptienne 3' (Empereur and Picon 1989, 234–35; see Tomber 2007 for a fuller explanation of the development of AE3 typology) were also common in the deposit (Fig. 2). The predominance here of Italian amphorae, the most widespread type in India, indicates that items destined for trade with the East were also consumed in the ports (Fig. 3). This pattern, of consumption in the port of goods intended for export, is also reflected by the *sigillata* and other classes of materials, of which gold/glass beads and a diverse and deluxe range of glass vessels are the most obviously identifiable. Since trade with the East was strictly regulated, these items must reflect an over-abundance of goods which could be retained, a situation which is paralleled amongst the imported spices, particularly pepper (Cappers 2006, 165–66). Amongst finds exported from Egypt, the *Periplus* lists amphora-borne products, particularly wine but also oil, clothing and cloth, and a range of metal and glass, both finished objects and raw materials (Casson 1989, 39–43). Coins would have been one of the most valuable cargoes travelling to India. A subject in their own right, the use of coins was likely to vary through

time and space, and many of the hoards found in South India are thought to have served as bullion (Tomber 2008, 30–37 for a summary).

Connecting the Red Sea: Trade goods and trade sites

Turning to the goods imported into the Red Sea ports, the variety of languages represented on coins, inscriptions, papyri and especially pottery—ostraka, labels and graffiti—provide evidence for contact with a number of regions. An impressive range of languages from Greek and Latin to Tamil and South Arabian are recorded from both sites (Sidebotham and Wendrich 2001–2002, 28; Sidebotham 2011, 74–75; Tomber, with Graf, Healey, Römer-Strehl and Majcherek 2011) and in some cases indicate that foreigners were resident there. A particularly clear example of this nature from Berenike is the erection of two Palmyrene dedications (Verhoogt 1998; Dijkstra and Verhoogt 1999).

Artefacts imported from the three regions defined above are varied, but generally speaking, the best sourced and most numerous objects are the archaeobotanical and ceramic remains.

East Africa

The *Periplus* frequently describes natural products, in the case of East Africa particularly tortoise shell, ivory and a range of aromatics (*Periplus* 3–4, 6–13, 17), although more readily identifiable imports from this region at the Red Sea ports include wood, fruits (Cappers 2006, 164) and obsidian (mentioned in *Periplus* 5) (Peacock and Blue eds 2011, 351; Wendrich, Tomber, Sidebotham, Harrell, Cappers and Bagnall 2003, 54). Here, as for other regions, the *Periplus* includes pottery only as indirectly inferred from ceramic containers for wine (*Periplus* 6–13, 17), in one passage specified as Italian and Laodicean (*Periplus* 6), and a single instance of olive oil (*Periplus* 6).

Early Roman wine amphorae, including definite Italian vessels, have been identified at Adulis (Peacock 2007, 80–84). However, the movement of coarse ware pottery, particularly cooking pots exported from Adulis and Aksum, is also visible (Tomber 2005, 43–46). Pottery thought to have been manufactured in the region of Adulis is present at both Berenike and Quseir from the 1st century AD. A later ware from the region of Aksum is represented by a few sherds at Quseir but found in relatively greater numbers at Berenike from the late Roman sequence. When Aksumite pottery first reached the Egyptian sites is unclear. Ongoing excavations suggest it may have been before the 3rd century, but it is most common from the 3rd century and particularly during the late Roman period, coinciding with Aksum's rise as an international power and the beginning of Aksumite coinage. It is from this period that the single Aksumite coin of King Aphilas (c. AD 270/90–before 330) was found at Berenike (Sidebotham and Wendrich 2000–2001, 41).

South Arabia

Although some frankincense was exported from East Africa, South Arabian frankincense was of a finer quality and more highly prized, as is clear from the *Periplus* (27, 29, 32). Previously, evidence for its importation into Egypt was primarily inferred from burnt residue on bowls

found *in situ* in shrines at Berenike. However, since the 2009 excavations, *Boswellia* wood has been recovered in growing quantities, primarily from early Roman levels (Sidebotham 2011, 240–41; Sidebotham and Zych, forthcoming).

Stone and pottery provide more tangible evidence of contact between Egypt and South Arabia. Peacock, Williams and James (2007) have identified the sizeable quantities of unworked vesicular basalt functioning as ballast found at Quseir and Berenike as coming primarily from the Hadramawt. This is compatible with trade in a commodity such as frankincense that would be light and require ballasting. It would be particularly needed if the traffic included a closed route between Kanê and the Red Sea aimed at the incense trade or indeed on the return from India if the Indian cargo was off-loaded for frankincense. Other objects carried alongside the frankincense and ballast on these ships would have included the large organically tempered storage jars produced in the Hadramawt (Tomber 2004, 353–55), and possibly Dhofar as well, between the 1st century BC and the 4th century AD. These vessels appear to have been used to transport liquid commodities as indicated by remnants of plaster stoppers and frequent lining with a bitumen-like substance. Sizeable quantities of Roman pottery from Qana' support identification of this closed route (Sedov and Benvenuti 2002; Davidde, Petriaggi and Williams 2004; see below).

India

Of imports, the largest range of finds at the Red Sea ports are from India: the *Periplus* describes the export of products from a variety of Early Historic period ports along the west and east coasts (*Periplus* 39–63). Although there are distinct differences in export items between the regions, as seen elsewhere, the same goods may be exported from more than one port. If one compares exports from Barygaza in the north (*Periplus* 49) with exports from sites on the southwest coast or Limyrikê (*Periplus* 56), the *Periplus* lists ivory and Chinese silk for both; silk at least reflects a non-local item. Within the *Periplus*, other local items, such as *Piper longum* (long pepper) in the case of Barygaza, and *Piper nigrum* (black pepper) and transparent gems for Limyrikê, seem to be specific to one port or one region. As this example demonstrates, the organisation of trade very much relied on entrepôts that were used for the amassing of goods from throughout India. This is explicitly stated in the *Periplus*: 'This area exports: nard ... and items brought here from the [sc. nearby] ports of trade' (*Periplus* 49 for Barygaza) and is clear from other documents as well, such as the Muziris papyrus which lists the export of Gangetic nard from South India (Rathbone 2000). Those items with a restricted production and export area, exemplified by long versus black pepper, are, therefore, most valuable in trying to reconstruct trade routes from India to Egypt.

Black pepper had a restricted growing area in modern Kerala, and its export is mentioned only from Limyrikê. From the Red Sea, black pepper (not long pepper) has been identified archaeologically, most spectacularly by 7.5kg in an Indian pottery vessel found at Berenike (Cappers 2006, 114–16). In addition to storage jars, including the one containing the pepper, red-slipped cooking pots and casseroles are the most common Indian pottery recovered from early Roman deposits at the Red Sea ports. Although these vessels were produced throughout India, a proportion of those found at Quseir and Berenike have distinctive internal wiping marks that could be the result of bamboo tools (Tomber and Begley 2000,

figs 3–4). A manufacture technique known as scooping, that was ethnographically recorded during the 1960s (Saraswati and Behura 1966, 81–83), could produce similar markings. In the ethnographic literature this technique is restricted to northern Kerala, and archaeologically it has been identified from the site at Pattanam, Kerala, but not from other major Early Historic sites throughout India such as Arikamedu (Podukê). This correspondence in cooking vessels, together with the black pepper and other finds from the Egyptian ports, establishes the material connection between the Red Sea and southwest India mentioned in the texts.

At present the only known and excavated settlement site of this period in southwest India is Pattanam, where imports from West Asia and the Roman world have been recovered. These include Roman glass and large quantities (more than 6,000 sherds) of Roman amphorae, mostly for wine, and *sigillata* (Cherian, Selvakumar and Shajan 2007). Two jug handles from the 2011 excavation season require further study but may be from Egyptian vessels. The range of imports clearly establishes Pattanam as an international port, probably that of ancient Muziris (Shajan, Tomber, Selvakumar and Cherian 2004).

Egyptian pottery in long-distance Indian Ocean trade

The movement of coarse ware pottery, on which the *Periplus* is silent, is, therefore, extremely informative in identifying trading partners, and the distribution of Egyptian amphorae across the Indian Ocean provides corresponding evidence (Fig. 4). Two types of Egyptian amphorae are distributed throughout the Indian Ocean. This includes a Dressel 2–4 wine amphora made primarily at Mareotis between approximately the mid-1st century AD and sometime in the 3rd century AD, which transported the prized wine of the region (Fig. 5). The second type, the Amphore égyptienne 3 (AE3) mentioned above, had a longer chronology with production starting in the 1st century BC (Fig. 6). Within Egypt it contained a variety of foodstuffs, usually wine, vinegar (a poorer quality wine) and fish sauce, but as an export container it was probably used for wine. Peacock and Blue have suggested that the AE3 may have been used as water containers on board the ships and that this would account for their widespread distribution (Peacock and Blue 2011, 350) despite the fact that beyond Egypt, only the wines of Mareotis stored in the local Dressel 2–4 amphorae were renowned (Empereur 1986, 606–07). This is a compelling proposition although it needs to be balanced against the export of Egyptian AE amphorae and, particularly, its chronological successors, to the West (Tomber and Williams 2000).

The Dressel 2–4 is overall the most common amphora across the Indian Ocean. Made throughout the Roman Empire, it occurs at most sites in India with early Roman amphorae (Tomber 2010, fig. 3). Dressel 2–4 amphorae seem to have been especially selected for India, yet they were equally widely distributed throughout the Empire as containers for a high quality wine with a good reputation. Their distinct shape, therefore, had product association and recognition regardless of where they were made. Although not common, the Egyptian examples have been identified at a number of sites in India—Hathab, Pattanam, Arikamedu and Alagankulam. The AE3 has been found only at Pattanam and Arikamedu, the two sites with the largest amphora assemblages (Fig. 4). The Dressel 2–4 would have been traded for

their recognised contents, and while this may also be the case for the AE3, they may have been traded for a different purpose or as suggested above, used on shipboard.

Both types of Egyptian amphorae have been identified in South Arabia from the two extensively and recently excavated port sites, Kanê (Qana') and Moscha Limen (Khor Rori), both of which have sequences that include the early Roman horizon of interest here. The Soviet-Yemeni Joint Complex Expedition (later Russian Archaeological Mission to the Republic of Yemen) excavations at Qana' were conducted between 1985 and 1991 (Salles and Sedov 2010). Excavations at Khor Rori by the University of Pisa Italian Mission to Oman (ITMO) are on-going since 1997 (Avanzini ed. 2002, 2008, 2011). The detailed information available from these sites has enormous implications for our understanding of Indian Ocean trade, and it is significant that both pottery assemblages, in addition to large quantities of Roman amphorae and smaller amounts of *sigillata* which can be paralleled with the assemblages from Quseir and Berenike, also contain Egyptian coarse pottery. At Qana', Ballet (1996, 824–29) has identified AE3 (fig. 25) vessels and an Egyptian (but not Mareotic) Dressel 2–4 amongst the range of amphora imports. In addition she calls attention to a small number of Egyptian jugs or strainers from the region of Thebes (cf. Ballet 1996, fig. 8; Salles and Sedov 2010, fig. 85, nos 812–13) and painted fine ware from Aswan (Ballet 1996, fig. 26). At Khor Rori, a wider functional range of Egyptian coarse wares seemingly in larger quantities are found: jugs, cooking pots and bowls. The presence of these coarse wares at Qana' would be in keeping with the direct route between Egypt and Kanê, but is more difficult to understand in terms of the established interpretation of Moscha Limen.

According to the *Periplus*, Kanê was the most important South Arabian port for the export of frankincense, for 'All the frankincense grown in the land is brought into Kanê ... It also carries on trade with the ports across the water—Barygaza, Skythia, Omana—and with its neighbour, Persis' (*Periplus* 27). The situation with Moscha Limen was entirely different:

... Some vessels are customarily sent to it from Kanê; in addition, those sailing by from Limyrikê or Baygaza that passed the winter because of the season being late, by arrangement with the royal agents take on, in exchange for cotton cloth and grain and oil, a return cargo of frankincense, the Sachalite variety throughout, at a mole that stands there unguarded, thanks to some power of the gods who watch over this place. For, neither covertly nor overtly can frankincense be loaded aboard a ship without royal permission, if even a grain is lifted aboard, the ship cannot sail, since it is against the god's will (*Periplus* 32).

This passage closely links Moscha Limen with Kanê (in effect, trade with other Arabians), and with a second category of visitors—the late returners from India. The ethnicity of these late returners, who missed the monsoon and had to winter at Moscha Limen, has been the subject of some debate, and they have been variously identified as Arab, which is disputed by Casson (1989, 172–73), Indian (Casson 1989, 172–73) or 'Hellenic' (Tavolieri D'Andrea 2011, 115). Overall the implication of the passage as a whole has been that Egyptians did not regularly sail to Moscha Limen. A reinterpretation by De Romanis (2011) has opened another possibility for 'Hellenic' boats from India returning to Egypt stopping at Moscha

Limen in order to off-load Indian produce in exchange for frankincense destined for Egypt. Alternatively, Egyptians could be amongst the late returners. In this context, what is the significance of the range of Egyptian jugs, cooking wares and other coarse wares at Moscha Limen?

The small quantities of Egyptian coarse wares at Qana', and perhaps Pattanam, could easily be on-board provisions for Egyptian sailors travelling to those sites. Although contrary to the documents and conventional interpretation, this would also be the simplest explanation for the assemblage from Khor Rori, which covers a range of functional categories. Conversely, if Egyptian sailors reached Moscha Limen only on the return from India, one must question whether the coarse wares loaded on-board at Myos Hormos or Berenike would survive the journey to India and still be in use on the return voyage. The answer is probably that some would still be functional, but that they may have been supplemented with local pottery in India.

A loose parallel to Qana' and Khor Rori can be found on the African coast at Ras Hafun, thought to be the *Periplus* site of Opônê (*Periplus* 13). Here Chittick excavated two coastal sites in 1976; the pottery from them was later published by Smith and Wright (1988). From the early Roman assemblage at the ephemeral site of Hafun West alongside pottery from the Gulf and South Asia, it is possible to identify a number of Egyptian types. Amongst the Dressel 2–4 amphorae (fig. 4, b–c; k–m) are ones likely to be Egyptian (fig. 4, b–c, k–m?), Egyptian AE3 amphora (fig. 4, a, e) and some conical bowls (fig. 4, h–i), which are very common in Egypt and were probably manufactured there. Wright suggests that the pottery reflects the provisioning of ships on their voyages, rather than being directly related to the ethnicity of visitors (Smith and Wright 1988, 138), although the Egyptian bowls may equally have been provisions used by Egyptian sailors on the African route.

A broader look at the complete assemblages from Qana', Khor Rori and Ras Hafun show that for complex, and probably different, reasons imported wares—cumulatively Roman, South Asian and West Asian—exceed local ones. This is most explicitly quantified for Qana', where local pottery constitutes only c. 25% of the assemblage (Sedov 2010, 372; for similarly small amounts from Khor Rori, see Sedov and Benvenuti 2002, 196). In contrast, at Pattanam local ceramics very much dominate the assemblage. More detailed work is needed to evaluate the availability and function of local wares at individual sites, but Egyptian coarse pottery may have helped to meet shortages in local crockery for sites relatively close to the Red Sea.

It is likely that Egyptian coarse pottery functioned in numerous ways within Indian Ocean trade, and further testing with additional assemblages would be informative. Most importantly, this study demonstrates that by looking beyond the identification of source areas for traded ceramics, distribution maps can yield information on different types of interactions within established trade routes and reinforces the strategic role that Egypt played within the Indian Ocean.

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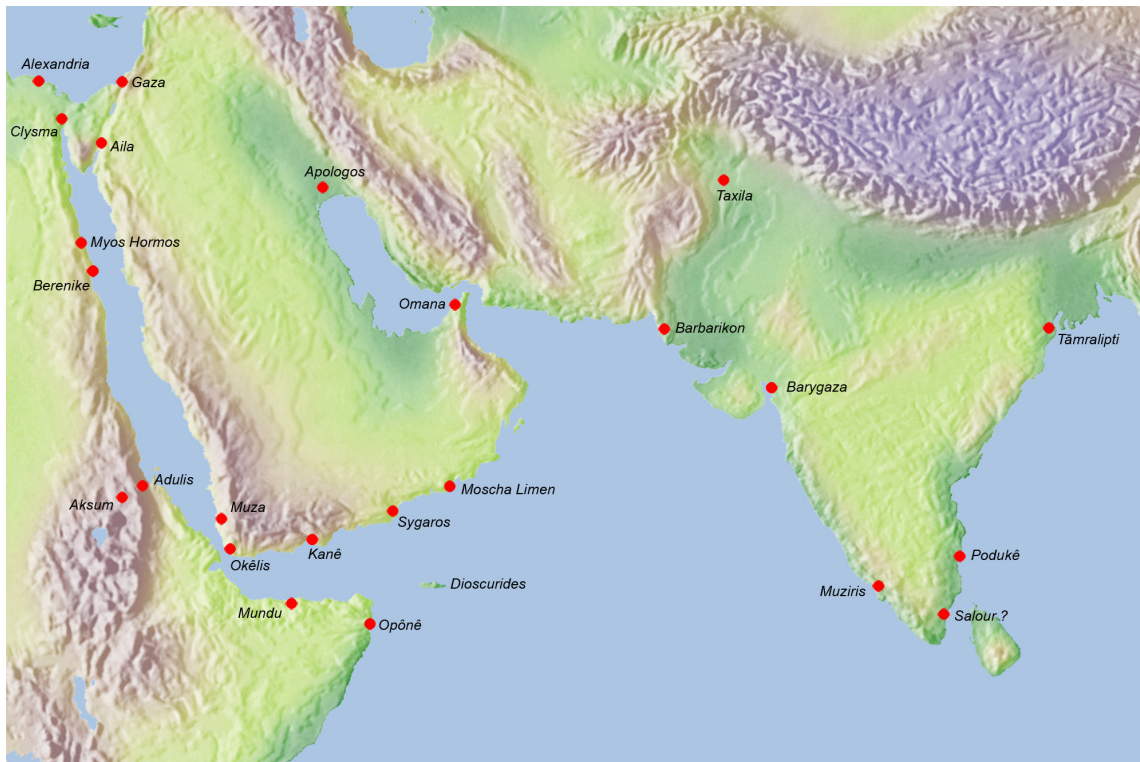


Fig. 1: Major ports from the time of the *Periplus* (Antony Simpson).

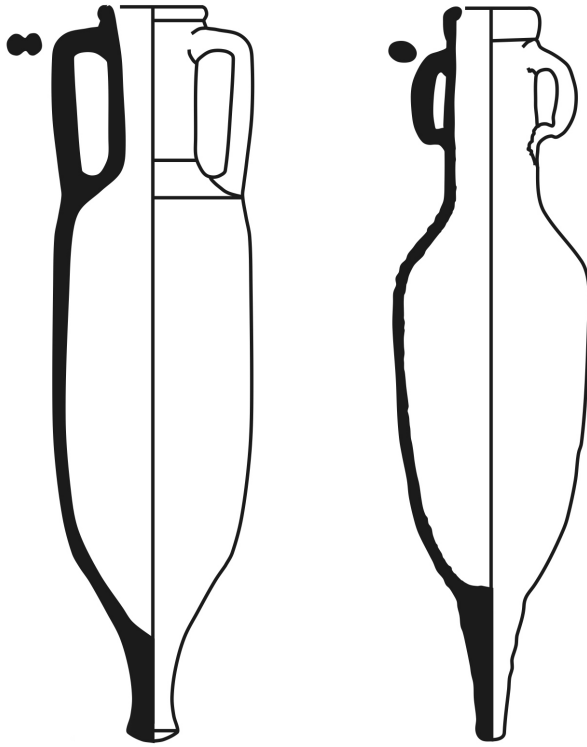


Fig. 2: Dressel 2–4 (left) and Amphore égyptienne 3 (right) (not to scale) (Antony Simpson).



Fig. 3: Italian Dressel 2–4 from the amphora jetty at Quseir al-Qadim (Photo: D. Peacock).

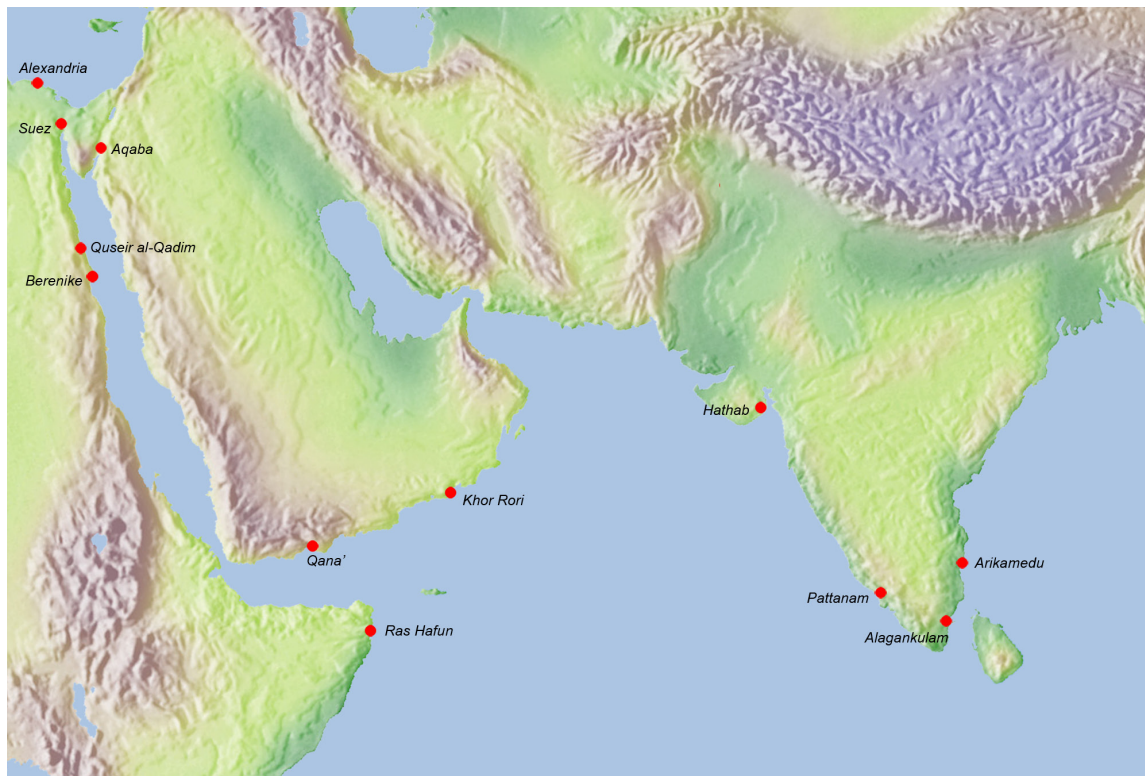


Fig. 4: The distribution of Egyptian pottery across the Indian Ocean (Antony Simpson).



Fig. 5: Mareotic Dressel 2–4 from the Alexandria National Museum (Photo: R. Tomber).



Fig. 6: Amphore égyptienne 3 discarded at Mons Claudianus, Eastern Desert, Egypt (Photo: R. Tomber).