Chapter II

Archaeological Indicators of Mediterranean Sea Trade with Indian Ocean Lands

In this chapter the attempt is to document, as comprehensively as possible, artefacts of Mediterranean origin as well as objects made in imitation of or 'inspired' by Mediterranean craft-technology. Though the chronological span of the survey is from the 1st century B.C. to 3rd century A.D., artefacts of earlier and later dates to within two centuries of the 'core' time-bracket have also been taken into account. The territorial sweep of the review extends from the Red Sea to northern Indian Ocean littorals, the operative arena of ancient Mediterranean sea trade with the Orient.

It is to be noted that the review does not include, except in a few cases, 'Hellenistic' artefacts which were produced in the domains of Seleucid - Parthian - Sassanian West Asia, Bactria/northern Afghanistan and Gandhara/north-west Pakistan. Antiquarians and archaeologists have taken pains to distinguish between Mediterranean and Hellenistic objects, especially ceramics, deposited in the Indian Ocean lands. This distinction has been particularly articulated in fieldwork reports from the Persian Gulf and north-west India (Wheeler 1962: 123; Marshall 1975; Salles 1993: 493-523).

The range of Mediterranean artefacts deposited across the northern Indian Ocean comprise transport-vessels (mainly amphorae), fine *terra sigillata* wares, Roman gold, silver and bronze/copper coins, Mediterranean glassware, Mediterranean bronze *objets d'art* and bronzeware, Roman clay and metal lamps, Roman jewellery, cameos, intaglios and beads. There have also been discovered inscriptions, inscribed seals, ostraca and papyrus documents, all attributed to mariners and traders from the Mediterranean World engaged in maritime commercial ventures with India and other littoral-regions of the Indian Ocean (**Fig. 3**).

Besides articles of original Mediterranean provenance, we find objects of 'indigenous' manufacture drawing upon Mediterranean craft-technology. These comprise imitations of Roman coins in clay, lead and gold, imitations of Roman lamps, the pseudo-*terra sigillata* of southern and eastern Arabia and the Indian Red Polished Ware. There are also indications that specialised glassmaking technology had permeated into India and Southeast Asia where it was being used to manufacture glass imitations of semiprecious stones like agate and beryl. More than the original Mediterranean material, the presence of these 'syncretic' artefacts points to a deep-rooted process of early Mediterranean interchange with the northern Indian Ocean societies These products of technological interaction must have been the manifestations of a long and sustained relationships

The documentation of Mediterranean artefacts in Indian Ocean lands has been undertaken with the purpose of interpreting patterns of deposition of the 'exotic' material in space (territorial/stratigraphic) and time The validity of viewing transported artefacts (or remains of artefacts) as representative of contact, trade and forms of non-commercial exchange has been always open to scrutiny and debate To quote Dark (1995 128-129)

> "An object might have been brought by traders, migrants or spouses It might have been given in 'payment' of non-economic dues, as in *symbolic exchange*, when symbolic artefacts are exchanged, or when the act of exchange is itself symbolic of social rather than economic relationships"

The processes by which 'foreign' objects come to reside in 'indigenous' cultural contexts thus may not necessarily be driven by commercial imperitives (see especially Kohl 1978 463-491,Renfrew 1984, Lamberg-Karlovsky 1972-73 103-117) However, it is at the same time difficult to imagine objects being transported *regularly* over long distances without any motive of profit, if we take profit to include even seeking of friendship and patronage through gift and tribute In most episodes of long distance commerce, the successful ventures are dependent upon stable relationships established by foreign traders with local elites In such situations symbolic exchange may be involved *within the broader motivations of trade*, say, in giving of gifts to royalty and priesthood in exchange for goodwill For instance, the *Periplus* (sec 36) informs us of two different consignments of Roman commodities imported into the harbour of *Barygaza*, one constituting routine trade-goods and the other - silver vessels, singing boys, beautiful maidens, fine wines - exclusively meant 'for the king' (in all likelihood the Saka monarch Nahapana)

The widespread occurrence of these material indicators of Mediterranean trade contact with Indian Ocean lands reflect more than chance deposition Recurrent distribution trends of transported artefacts are indicative of operation of strategy, whether impelled by market forces or the fallout of planned effort However, while studying depositional trends, the 'instability' inherent in distribution patterns is to be recognised The relative paucity or absence of exotic material in a certain area may well be due to the area not being archaeologically prospected Continuing fieldwork can potentially change the 'concentration' of deposition of foreign artefacts Bias could also enter in the very process of observing (read selecting) correlates in a body of data

However, these 'pitfalls' should not preclude analysis and interpretation for within the *archaeology of trade* paradigm, few generalisations about early Mediterranean sea-commerce in the Indian Ocean are possible without viewing the dynamics of trade as a 'distributional phenomena.' The recording of space/time distribution of material indicators of Mediterranean trade in the Indian Ocean allows for certain analytical approaches to be effected despite limitations and biases inherent in such an approach.

In the first instance, spatial distribution of exotic material provides insights into the extent and penetration of long distance Mediterranean commerce. For example, the concentration of Mediterranean artefacts deposited in peninsular India is in sharp contrast to the extreme paucity of such material in the northern region of the Indian subcontinent. This distribution pattern reveals, in archaeological terms, that peninsular India received the full impact of Mediterranean long distance sea trade.

Even in an area where material indicators of long distance trade are to be found, the absence (relative to other zones) of certain types or varieties of artefacts may point to certain trends. For instance, though we observe prolific occurrence of the Dressel 2-4 amphora along the main Egypt - South Arabia - India route, there are still no Dr.2-4 type amphorae reported from the Persian Gulf. Nearly all the Mediterranean amphorae found in the Persian Gulf are Rhodian and dated to the 2nd century B.C., at least 100 years before the earliest datation of the Dr. 2-4 type (discussion below). Does the absence of the Dressel 2-4 type in the Persian Gulf indicate that this area remained marginal for the direct maritime activity along the Egypt-India route? Or could the non-occurrence be due to the fact that export of Koan wine in Dr.2-4 amphorae never formed part of Roman sea trade with the Persian Gulf?

Quantification of exotic material deposited at a site, across a site-cluster or across a trade-zone is essential to understanding the magnitude of commercial activity. At the ancient port-site of Qana (Yemen), excavations reveal that imported Mediterranean amphorae constituted 56 % of the total ceramics recovered in the Lower Period dated between 0-2nd century A.D. (Sedov 1996:12-16). No other excavated site in the Gulf of Aden area (or the entire Indian Ocean for that matter) has yielded Mediterranean amphorae in such large percentage relative to local wares. The large-scale deposition of amphorae at Qana obviously demands explanation.

Proximity is central to the distributional logic. The occurrence of exotic artefacts within a particular spatial or stratigraphic context often creates the scope to draw 'meaningful' correlations. Concomitant with the idea of 'meaningful' association is the idea of 'regularity.' The recurrence of certain correlates in archaeological data

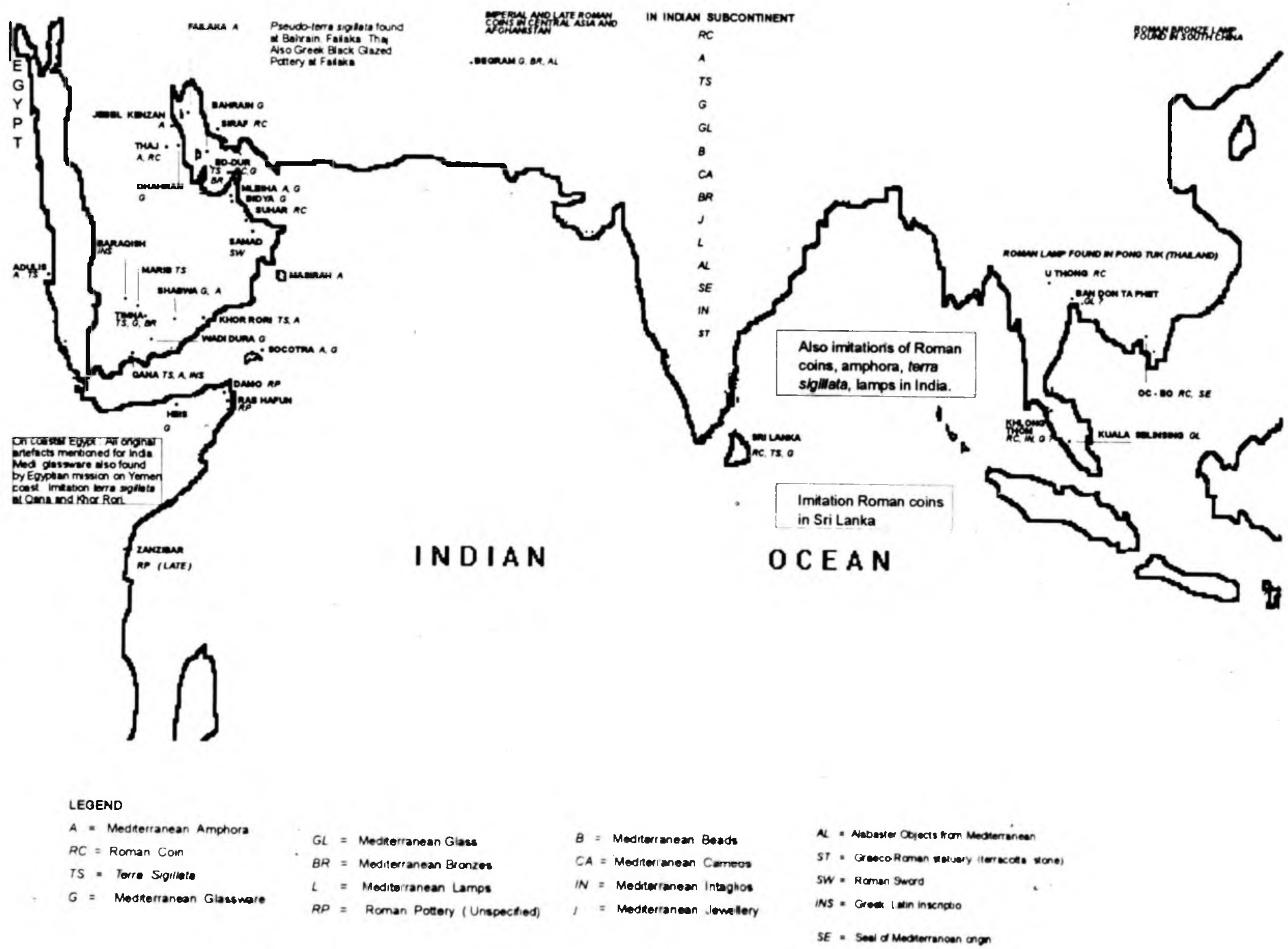


Fig. 3. Distribution of Mediterranean artefacts across the Red Sea-northern Indian Ocean in Early Historic times.

forms the basis for derivations which in turn can be interpreted in the light of broader historical evidence. To quote Binford (1972:88), '...sometimes an attractive procedure has been to pursue a comparative study of temporal and spatial changes of archaeologically known cultural forms, to note certain trends and regularities. These trends are then stated as empirical generalisations...' This procedure has been applied in a number of instances in the present study, especially in the analysis of the stratigraphic evidence for Mediterranean contact in Western and Southern India (Chapter V).

Deposited Mediterranean artefacts can be often linked to their production-areas and can be dated with varying degrees of precision. The consolidation of the dates of the deposited artefacts could help us delineate the chronological *plane* (or planes) of early Mediterranean commerce in the Indian Ocean. Keeping this factor in view, the review of Mediterranean artefacts in the Red Sea-northern Indian Ocean littoral undertaken in this chapter endevours to record all available dates for the objects.

This chapter thus initiaties the analytical approach conceived for this study by documenting the archaeological data for early Mediterranean contact with India and Indian Ocean lands. The documentation seeks to be as comprehensive as possible, drawing widely from published reports, personal communication with scholars and my own fieldwork and study of material in museums and other repositories in India. Various artefacts of Mediterranean origin and of Mediterranean 'inspiration' constitute the main categories under which the database has been organised. The distribution of artefacts or artefact-types is detailed in terms of find-places, quantity of finds, identifiable sub-types and available dates of artefacts. Geographically, the review begins with recording finds on the Egyptian Red Sea coast, proceeds via the Gulf of Aden and the Persian Gulf regions to the Indian subcontinent and terminates with documentation of finds in Southeast Asia.

1. Amphora (Figs. 3, 4, 5)

The amphorae - usually large double-handled clay jars with elongated bodies and spike bases - were commonly used in the ancient Mediterranean as containers of liquid stock such as wine, olive oil, fish sauce and other products. Production centres of various types of amphorae proliferated in the littoral regions of the Mediterranean.

During the B.C./A.D. changeover, wine and other products were regularly exported in amphorae to India along the Egypt-India maritime route. The *Periplus* (sec. 39,49,56,60) informs us of the arrival of Roman wine at ports serving north and south India. Reference to *Yavana* (Mediterranean) wine arriving by sea is to be found in the Tamil Sangam poetry (Cimino and Scialpi 1974: 22). The wide distribution of amphora find-spots in the subcontinent corroborates the textual evidence for Mediterranean wine imports into India (**Fig. 4**).

Distribution

Mediterranean amphorae have been found in all littoral-regions except Southeast Asia.

In the Red Sea littoral amphorae have been recovered in substantial quantity on the Egyptian coast. Excavations at the Roman port-site of Quseir al-Qadim (**Fig. 1**) have yielded a number of amphora plugs and substantial quantity of amphorae (Sidebotham 1986a: plate.10, pp.56). The site of another major trade-port, *Berenice*, has also yielded amphorae on the surface (Meredith 1957:58). Prospections carried out by Sidebotham *et al.* (1989:127-166) at the Roman/Byzantine site of Abu Shah'r on the northern Egyptian Red Sea coast has brought to light a major amphora assemblage. However, most of the Abu Shah'r amphorae are late from our point of view, being dated between 3rd-7th century A.D. A major percentage of the Early Historic ceramic collection made by the Centre National de la Recherche Scientifique, Centre D'Etudes Alexandrines on the land routes connecting Egyptian coast with the Nile comprises Egyptian and Mediterranean amphorae of the Dressel 2-4 variety. This amphora type made up approx. 50 % of the total amphora finds (Dr.J.Y.Empereur, C.N.R.S., Alexandria: personal communication). Egyptian and Mediterranean amphorae have come to light at Coptos, the main inland transhipment centre on the Nile connecting the Red Sea coast with the entrepot of Alexandria (Monica Smith, University of Michigan: personal communication). An integrated survey and classification of amphorae from the Red Sea coast of Egypt has yet to be published. Riley (in Sidebotham *et al.* 1989:149) points to the nascent status of ceramic studies in this region when he says: "The Red Sea coastal region (is) one of the last frontiers for pioneering Roman pottery research...".

The intensity of fieldwork in other parts of the Red Sea has been less than in Egypt. In particular, the vast stretches of Saudi Arabian, Sudanese and Ethiopian coasts remain under-prospected. However, large corded amphorae of Egyptian origin dated to 3rd-4th century A.D. were recovered from the ancient port-site of *Adulis* in Ethiopia in the early part of this century (**Fig. 3**; Casson 1984: 208).

Mediterranean amphorae have come to light in both the South Arabian and Somali coasts of the Gulf of Aden (**Fig. 3**). Specifically, the sites yielding amphorae are Qana (Yemen), Khor Rori (Dhofar, Oman), Shabwa (Yemen), Ras Hafun (Somalia), Socotra Island (Yemen) and Masirah Island (Oman).

The most interesting results from our point of view have been obtained from Qana (ancient *Kane* of the *Periplus*). This site, being excavated by a joint Russian-Yemeni expedition since 1985 has revealed three occupational phases: Lower, Middle and Upper. Significantly, 80% of the pottery recovered from the three periods at Qana is imported and the bulk of it consists of amphorae (Prof. A. Sedov: personal communication).

Dressel 2-4 amphorae provide the primary date (1st-2nd century A.D.) for the Lower Period which falls within the chronological range of the present study. The Dr.2-4 type comprise the bulk of total amphora yield from the Lower Period (Prof. A. Sedov: personal communication). To quote from the preliminary report on the excavation:

> "During the 'lower' period storage vessels were dominant in the pottery corpus. These included both imported amphorae (over 56 % of the total pottery recovered) and locally produced, hand-made vessels, so-called *zirs* (25 % of the finds). *Most of the amphorae fragments* are of the so-called 'Koan type' (Dressel 2-4)" (Sedov 1992: 116; emphasis mine).

According to Sedov (1996:15-21) other types of amphorae excavated from Qana (Lower and Middle periods dated to 1st-4th century A.D.) comprise Rhodian amphorae of the 1st century A.D. (Peacock and Williams Class 9), Dressel 1B, Dressel 7-11, North African Tripolitinian type, Africana type, the North African-Gallic type (including the Dressel 30 variant) and amphorae of Palestinian origin. The excavator is unsure about the classification of some amphora fragments (Sedov 1996: Fig. 5:1-2). He compares these to a similar sherd recovered from Socotra Island (**Fig. 5**). In this study, we attempt to identify handles (grooved with ovoid cross-section) similar to one discovered by Sedov at Socotra. Amphorae handles similar to the Socotra sherd are published in the excavation reports of the sites of Maheshwar, Baroda and Nevasa in India. All these handles are comparable to the Dressel 12 amphora type (**Fig. 5**; discussion below).

Fragments of Mediterranean amphorae dated to the second half of the 1st millenium B.C. were excavated at Shabwa (Salles 1996: footnote 13).

Excavations conducted at the port-site of Khor Rori (identified with ancient Moscha of the *Periplus*) have yielded amphorae fragments (Yule and Kervran 1993: 80).

From the island of Socotra (ancient *Dioskorida* of the *Periplus*) "fragments of the handle of a massive Roman amphora" and "body sherds of large amphora type vessels" were recovered during prospections by a joint Russian-Yemeni team between 1985-87 (Naumkin and Sedov 1993: 601-605). The illustrated handle fragment carries multiple grooves. It may belong to a Dressel 12 type amphora (see Peacock and Williams 1986:113 for parallels , also compare with similar grooved handles excavated from Maheshwar , Baroda and Nevasa in **Fig. 5**).

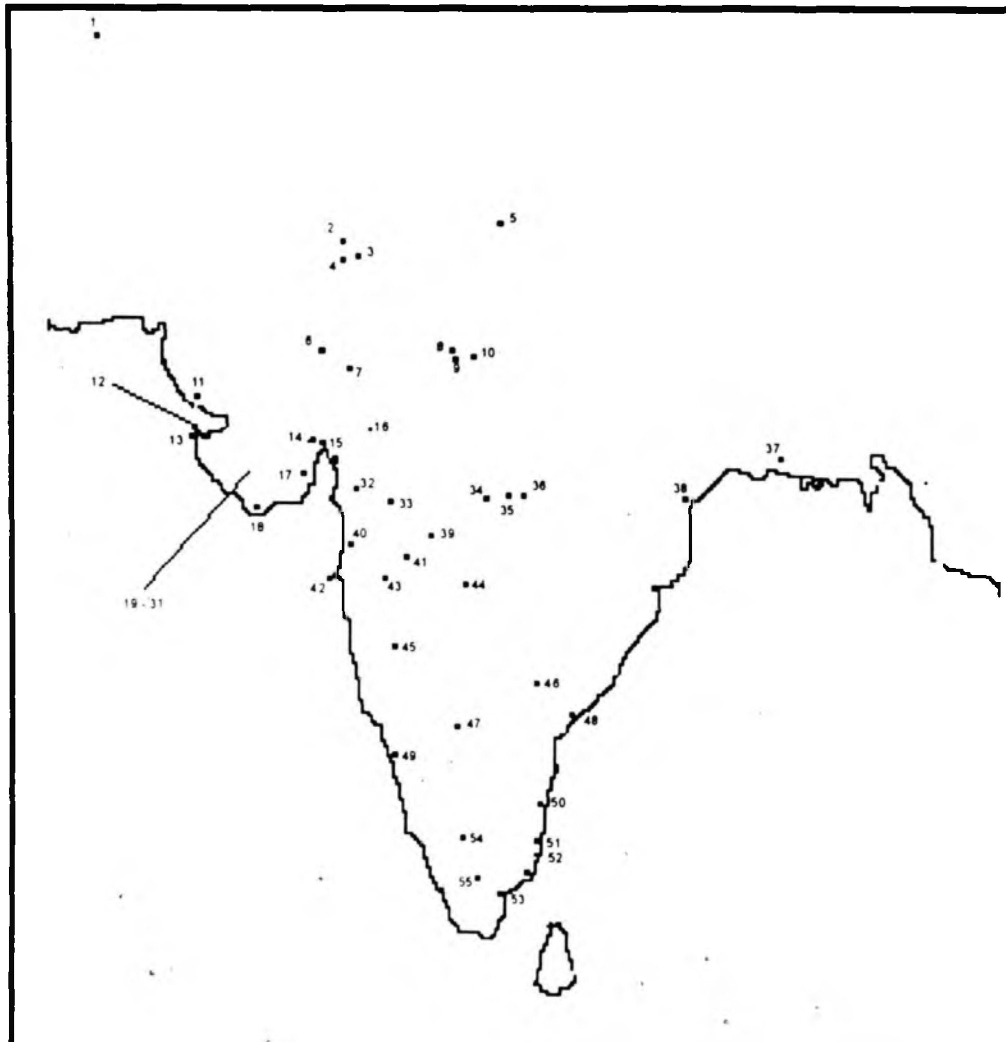
Mediterranean amphora fragments have been excavated from the coastal site of Hafun (*Opone* of the *Periplus*) (Stiles 1992:27-36 ; 1994:59). A complete Dressel 2-4 amphora found at Hafun is believed to have entered a private collection (Prof J.F. Salles: personal communication).

From the island of Masirah, Salles (in Sedov 1996:19-20) discovered two complete amphorae of Palestinian origin similar to those recovered from the Middle and Upper periods at Qana.

In the Persian Gulf littoral Mediterranean amphorae have been recovered from the sites of Thaj (Potts 1990:44), Mleiha (Potts 1990: 265-271; Salles 1993: 493-523) and Failaka (Gachet and Salles 1993:73-75). All amphora fragments from these sites are of Rhodian manufacture and dated to the 3rd-2nd century B.C. (see below).

In India, Mediterranean amphorae have been reported from over 50 sites so far (**Fig. 4**; see also **Appendix-I** for bibliographical details). The distribution of amphora find-places in **Fig. 4** shows a concentration in the western and southern parts of India. A review of the descriptive amphorae recovered in course of prospection and excavation from various sites in India is undertaken below. The review leaves out, in most cases, the body-sherds which are difficult to identify on the basis of published photographs and drawings of Mediterranean amphorae. In course of perusal of fieldwork reports the author found that a number of unidentified handles published are typical to some amphora-types. This review presents a tentative classification of the unidentified amphora handles (**Fig. 5**). The published catalogues used in the identification are : typological chart of amphorae made by Dressel (in Cimino 1994 in Plate XXXVIII), the paper on Roman wine amphorae by Tchernia (1989), the catalogue of Roman amphorae by Peacock and Williams (1986) and studies on the Arikamedu amphorae by Will (1992:151-156; in Begley *et al.* 1996:318-349) and Slane (1992:204-215). Besides, the review includes observations on amphorae studied by the author in collaboration with experts.

Arikamedu (Pondicherry). The most detailed studies to date on amphorae from Arikamedu have been undertaken by Dr. Elizabeth Lyding Will. She has published two reports on part of the corpus of amphorae recovered from Arikamedu



AMPHORA FINDS IN INDIA

1. TAXILA
2. GILUND
3. BALATHAL ?
4. MARMI
5. MATHURA
6. SHAMALAJI
7. DEVNIMORI
8. SODANGA
9. DANGWADA
10. UJJAIN
11. MANDVI
12. BET DWARKA
13. DWARKA
14. NAGARA
15. LOTHAL ?
16. BARODA
17. VALLABHIPUR
18. PRABHAS PATAN

19. SATHOD
20. JALAT
21. AJABPURA
22. SHRIMALA
23. AMRELI
24. FATEHPUR
25. KOTHU
26. ARLA
27. BEYLI
28. SHEDAVADA
29. SANAND
30. MODHERA
31. JUNAGADH

32. KAMREJ
33. DHATVA
34. PAUNAR
35. ADAM
36. PAUNI
37. TAMLUK ?
38. KARNAJA
39. BHOKARDAN
40. SOPPARA
41. NEVASA
42. ELEPHANTA
43. JUNNAR
44. TER
45. KOLHAPUR
46. NAGARJUNAKONDA
47. CHANDRAVALLI
48. DHARANIKOTA
49. BHATKAL ?

50. VASAVASAMUDRAM
51. ARIKAMEDU
52. KARAIKADU
53. ALAGANKULAM
54. KARUR
55. URAIYUR

Fig.4.

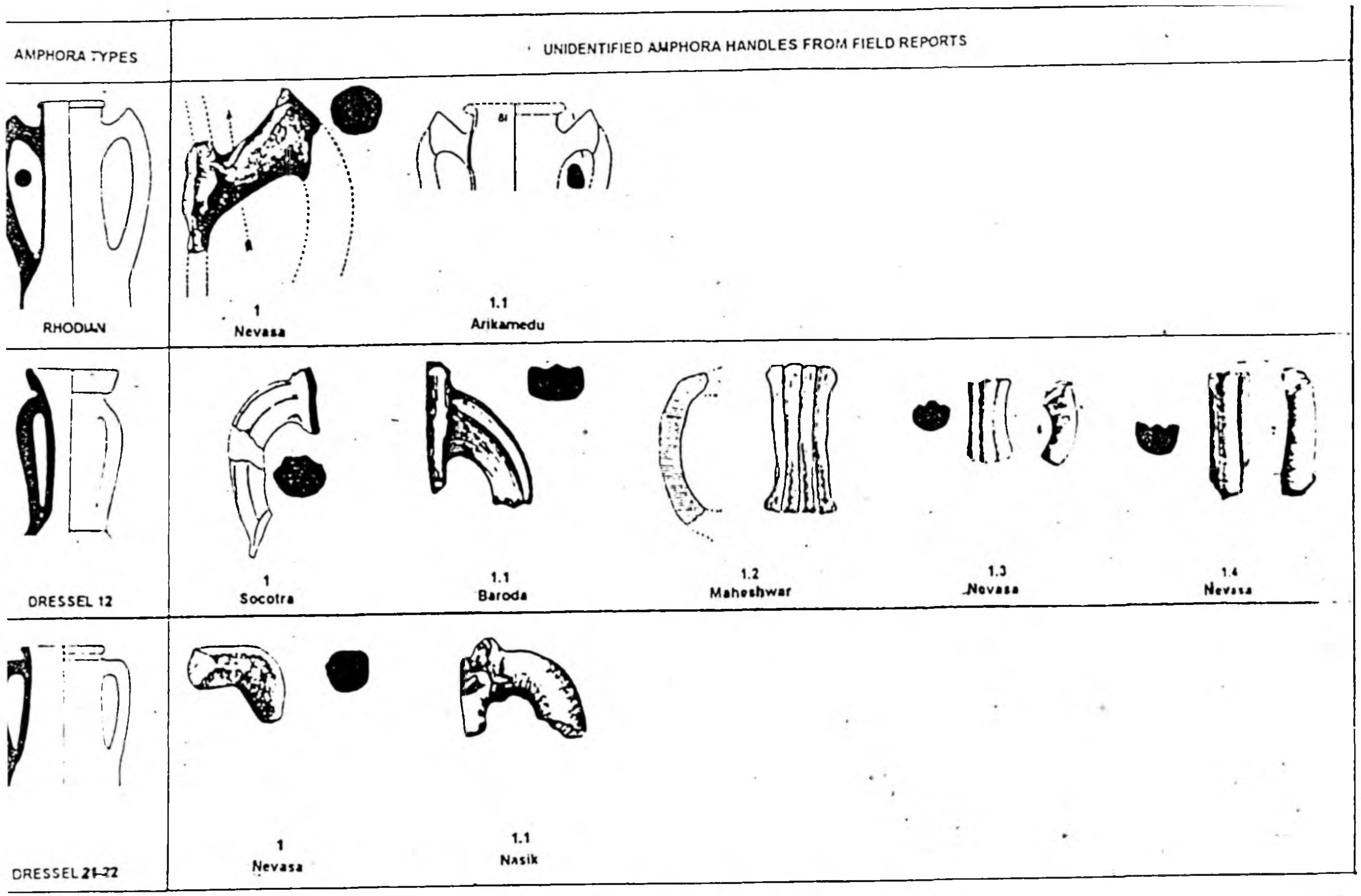


Fig. 5. Preliminary identification of amphora handles from India and Socotra

so far (see Will 1992:151-156; Will in Begley *et al.* 1996:318-349). Will (in Begley *et al.* 1996:320) provides a catalogue of 82 amphora pieces from Arikamedu. According to her, this number comprises 42% of the total yield of amphorae from Arikamedu before 1989-90. Most of the amphorae studied come from French excavations at Arikamedu in the early forties. The various amphora types identified by Will are geniune Koan, pseudo-Koan/Dressel 2-4; Knidian; Late Rhodian; Dressel 6; Dressel 7/8; Dressel 20; Dressel 22; Tunisian (Will type 21c) and Punic (Will type 49-53).

Of the double-handled sherds from Arikamedu studied by Wills (1992: 151-156), nearly half were found to be similar to the pseudo-Koan or Dr.2-4 type. In her recent study, Will (in Begley *et al.* 1996:318) specifies the number of Dr.2-4 pieces as 16. She also identifies 22 fragments of genuine Koan amphorae. Slane (1992: 204-205) studying the amphorae illustrated by Wheeler *et al.* (1946:41-45) opines: "There is no doubt that the long-necked examples from Arikamedu are Italian Dr.2-4 amphoras of the 1st century A.D." Tchernia (personal communication:letter of 25th June 1992) is of the view that double-handles of the Dr.2-4 type are common at Arikamedu. As Will could study only 5 sherds from Wheeler's excavation (Will in Begley *et al.* 1996:320) we cannot be sure about the relative propotions of genuine and imitation Koan amphorae recovered from Arikamedu. However, the observations above by experts suggest that both the Koan and pseudo-Koan amphorae formed strong components of the total amphora corpus of Arikamedu.

Brahmapuri (Dist. Kolhapur, Maharashtra) : From the excavated Brahmapuri pottery, two rim-and- (bifid) handle fragments of amphora were identified by Sankalia (1957: 207-208). According to Sankalia the handles 'resemble the type illustrated by Sir. Mortimer Wheeler from Arikamedu (Fig. 10, type 70)...' As this particular type from Arikamedu has the typical features of a Dressel 2-4 type amphora, it follows that the Kolhapur handles most probably also belong to the Dr.2-4 variety.

Nevasa (Dist. Ahmadnagar, Maharashtra): From Nevasa, a total of 63 amphora sherds were excavated from Pd. IV/V levels of the site (Sankalia *et al.* 1960: 280-281). Presently only 14 of the original 63 sherds are available for study in the Deccan College, Pune. Out of the 14 sherds, 6 are descriptive and the rest are body sherds. The descriptive sherds comprise 1 rim and double-handle portion (NVS 439; **Pl. V.d**), 1 body and double-handle portion (NVS 4426; **Pl. V.c**), 1 double-handle fragment (NVS 4426A; **Pl.V.a**), 1 rib of a broken double-handle (NVS 3342; **Pl.V.b**), 1 single handle (NVS 2803) and 1 carinated shoulder portion (NVS 1709).

Prof. A. Tchernia (Centre Camille Julian, Marseilles, France) has examined the first four sherds detailed above. He compares these sherds to the Italian Koan amphorae excavated by Wheeler at Arikamedu (personal communication: letter of 25th June, 1992).

Besides the Koan types, other amphorae types could be recognised from the drawings of the Nevasa amphorae handles published by Sankalia *et al.* (1960:fig. 145). Two thick grooved handles (Sankalia *et al.* 1960: fig. 146, type 6,7) are tentatively identified in this study as belonging to Dressel 12 amphorae (**Fig. 5**, Peacock and Williams 1986:113-114). The point of similarity with Dr.12 type can be noticed in the grooved, ovoid cross-section of the handles and in the sharp downward curve of the handles from below the rim. Similar grooved handles have been reported from Baroda Pd. II and Maheshwar Pd. VI (**Fig. 5;** discussion below). Furthermore, a double-handle fragment (Sankalia *et al.* 1960: fig.146, no.2) has the typical 'pointed' handles of the Rhodian amphorae of the 1st century A.D. (**Fig. 5**; Peacock and Williams 1986:102-103). A similar handle was also excavated at Arikamedu (Wheeler *et al.* 1946:Fig. 10:81; **Fig. 5**). Another handle fragment from Nevasa illustrated in **Fig. 5** is described by Sankalia *et al.* (1960:315) as 'clamp-like' is similar in cross-section (oval) and its near right-angle 'bent' with the Dressel 21-22 type amphorae (Peacock and Williams 1986:96-97). A handle-portion of amphora (NVS 4426, layer 4, Pd.V) not illustrated in the Nevasa report but which the author could photograph in the Deccan College reserve collections (**Pl.V.c**) seems to be part of either a Rhodian amphora or the type designated Class 11 by Peacock and Williams (1986:107-108). This inference is reached primarily on the basis of the sharp 'upward' curve of the bifid handle. However, it is not possible to say whether the bifid handle conceived a 'pointed' curve below the rim (as in Rhodian type above) or above the rim (as in Class 11 of Peacock and Williams).

Nasik (Dist. Nasik, Maharashtra) : An unidentified terracotta handle published in the Nasik excavation report (Sankalia and Deo 1955:fig. 49:11, p.108) can be compared with the Dressel 21-22 amphora (**Fig. 5**). The Nasik specimen is also similar to an amphora handle identified from Nevasa as Dressel 21-22 type (**Fig. 5**). Like the Dr.21-22 type illustrated by Peacock and Williams (**Fig. 5**), both the Nasik and Nevasa handles have a near right-angle curvature.

Furthermore, the Dressel 21-22 type is described by Peacock and Williams 1986: 96-97) as having an oval non-bifid handle cross-section (Peacock and Williams 1986: 96-97). Similarly, the Nasik handle is described by the excavators as having a "at the broader end a smooth rectangular surface.." (Sankalia and Deo 1955:108) (**Fig. 5**).

Nagara (Dist. Kaira, Gujarat): Recently, Dr. A. Marangou-Lerat (personal communication: letter of 4th August 1994), in her review of amphora from the coastal site of has identified a small fragment of a double-handle as probably from Kos or from some other region of the eastern Mediterranean. This handle-fragment therefore is either geniune Koan or psuedo-Koan/Dressel 2-4 **(Pl. VI.b)**. A base-portion of an amphora excavated at the site is tentatively identified here as belonging to a Dressel 1 type amphora or Fabric 2 of Class 6 in the catalogue of Peacock and Williams (1986:93-95). The base-fragment from Nagara **(Pl. VI.d.e)** has been identified on the basis of Peacock and Williams' description of Fabric 2/Class 6 having a creamy-white fabric and a solid spike. The shape of the spike also matches the example illustrated by Peacock and Williams (1986:93). The two pink handles of amphora from Nagara illustrated in **Pl. V.a.c.** could not be classified on the basis of records available to me.

Prabhas Patan (Dist. Junagadh, Gujarat) : A neck and double handle portion of a Koan type amphora was excavated from the coastal site of Prabhas Patan in Gujarat. The amphora fragment was recently discovered in the Prabhas Patan pottery corpus deposited at the Deccan College, Pune (personal communication with Dr V S Shinde, Deccan College).

Baroda (Dist. Baroda, Gujarat): An unidentified grooved handle published in the Baroda excavation report is unmistakably that of an amphora (Subbarao 1953:fig.15:17). The angle of curve of the Baroda handle and its grooved, ovoid cross-section seems to be typical of the Dressel 12 type **(Fig. 5)**.

Maheshwar (Dist.W. Nimar, Madhya Pradesh): An unidentified grooved handle published in the Maheshwar excavation report seems to be part of a Dressel 12 amphora. The excavators describe the handle as being of "a coarse red fabric, convex in outline with three deep, parallel and vertical grooves on the outer flat surface of the handle." (Sankalia, Subbarao and Deo 1958:Fig.103, n.1, p.200). The curvature of the Maheshwar handle also appears to be like the Dressel 12 type **(Fig. 5)**.

Pauni (Dist.Bhandara, Maharashtra): In the recent excavation at Pauni conducted by the Archaeological Survey of India in 1995-96, a double-handle fragment of an amphora has come to light (Amarendra Nath: personal communication).

Mathura (Dist. Mathura, Uttar Pradesh). A double-handle of an amphora carrying the stamp of the manufacturer on top of the twin ribs was recovered from Saka-Kushana levels (1st-3rd century A.D.) in course of excavations at Ambarish Tila conducted by the Archaeological Survey of India (Joshi and Sinha 1991: 255-259). This sherd has been examined by Will (in Joshi and Sinha 1991: 255-256, personal communication) who sources the stamp to ateliers near Pompei and relates the form to the Dressel type 3.

Gilund (Dist.Udaipur, Rajasthan): While exploring the archaeological mound at Gilund, Dr.V.S. Shinde of the Deccan College found a thick handle fragment of an amphora. The handle, illustrated in **Pl. VIII.a** has a 'curvature' and cross-section typical of amphora. The shape of the amphora handle approximates to the Dressel 20, 23, 25, 28 types. However, a more precise classification was not possible by me

Taxila (north Pakistan): At Taxila, a double-handled portion of an amphora recovered from first centuries B.C./A.D. levels at the Indo-Parthian city of Sirkap by Sir John Marshall can be compared with the Koan type amphorae from Arikamedu (Wheeler *et al.* 1946: 45).

Manikpatna (Dist. Puri, Orissa): A photograph of a body fragment of amphora excavated from the site of Manikpatna on the Orissa coast was provided to me by Dr. D.R. Pradhan. The sherd, illustrated in **Pl. VII** shows the typical 'tapering' shape of the container. The corrugations in the interior of the body also reveal the pot sherd to be part of an amphora. However precise classification could not be done.

Karnaji (Dist. Midnapore, W.Bengal): A photograph of a completely intact amphora discovered at Karnaji village was recently published by Sengupta (1996:128) without specific type identification. A comparison with the typological forms catalogued by Dressel (in Cimino 1994: Pl. XXXVIII) suggests the Karnaji amphora to be a Dressel 28 type.

This brief review of Mediterranean amphorae deposited along the Red Sea-Indian Ocean littoral reveals distribution of a number of types. The following types of amphora have been identified in the Indian corpus: Genuine Koan, Dressel 1, Imitation Koan or Dressel 2-4, Rhodian amphorae of the 1st century A.D., Knidian, Spanish Dressel types 7, 8, 20, Istrian Dressel type 6, Dressel 12, Dressel 21-22 , Benghazi ER amphora 2 (or Class 11 of Peacock and Williams 1986:107), Dressel 28, Tunisian amphora (Wills type 21c) and Punic amphora (Wills type 49-53).

The substantial quantity of amphorae sherds, especially body sherds, which still have to be examined by experts promises to expand the database and make it precise. Of the amphorae identified, the Dressel 2-4 variety seems to proliferate along the Egypt-Arabia-India route. The high incidence of Dr.2-4 finds on the Egyptian Red Sea coast and the strong Dr.2-4 profiles revealed at Qana , Arikamedu and Nevasa leads us to consider that this type of amphora may have constituted the bulk of Mediterranean wine-amphora exports to the Orient. However, the quantitative profile of Dr.2-4 occurrence needs to be elucidated for many more sites (especially in India) before we can be conclusive on this issue.

Chronology

A comprehensive chronological classification of amphorae based on typology is now available (see especially catalogue of Peacock and Williams 1986). Such a classification makes it possible to use descriptive amphorae pieces and in many cases even body-sherds as viable chronological 'markers'. In this section the implications of the chronology provided by the Dressel 2-4 type - the most prolific amphora on the Egypt-India route - is discussed in the light of dating emerging from other associated amphora types and indigenous 'markers' such as Satavahana coins

The life-span of the Dressel 2-4 amphora is taken from the end of the 1st century B.C. to the mid-2nd century A.D. (Peacock and Williams 1986: 105-106). According to Woolf (1992: 286), the 'Dressel 2-4 was the last amphora to be produced on a Mediterranean-wide scale. Even during the main period of its production, from the end of the last century B.C. to the mid-second century A.D., it co-existed with other types....' The main areas of Dr.2-4 production were in Italy, Spain, France, England (?) and Alexandria in Egypt (Peacock and Williams 1986:105-106; Woolf 1992: 285-286; Dr. J.Y. Empereur: personal communication). According to Prof. J.F. Salles (personal communication) the lower date of end of 1st century B.C. holds true for all Dr.2-4 production-areas. However, the upper chronology varies for Dr.2-4 sub-types upto mid-2nd century A.D.

A major implication of the Dr.2-4 chronology is that the lower date of this amphora type is in consonance with the date of establishment of a number of key port-sites and settlements involved in Indo-Mediterranean maritime exchange. For instance, on the Egyptian coast the important trade-port of Quseir has revealed Roman foundations dating to the beginning of 1st century A.D. No stratified evidence of the earlier Ptolemaic period has yet come to light (Sidebotham 1986a: 53-54; Dr.J.Y. Empereur: personal communication).

Similarly, excavations at Qana show commencement of activity in the B.C./A.D. changeover. In the words of the excavators: 'It is not impossible that buildings dating to the second half of the 1st millenium B.C. do exist somewhere in the "lower" city or among the buildings of the 'Urr Mawiyat fortress. However, as noted above, we have found no evidence of occupation at Qana which dates to such an early period' (Sedov 1992: 110-137). In fact, the Lower Period at Qana has been dated primarily on the basis of the chronology of the Dressel 2-4 amphorae which, as noted above, constitute the majority of the imported ceramics from this period.

Besides the Dr. 2-4 type, the dates of other amphorae-types recovered from the Lower and Middle period at Qana have also been applied to attribute a chronology of 1st-4th century A.D. for the two periods. The chronology for the Upper Period at Qana has been drawn from amphorae-types dated between 5th-7th century A.D. (Sedov 1996:21-23)

In contrast to the prolific Dressel 2-4 amphorae found in the Gulf of Aden , in the Persian Gulf littoral the amphorae so far reported are of Rhodian provenance and dated to the 2nd century B.C. (Potts 1990:44, 265-271; Salles 1993:493-523; Gachet and Salles 1993:73-75). Though Roman glassware and coins of the early centuries A.D. have been recovered from the Persian Gulf area no amphora of the B.C.-A.D. transition has yet come to light in this region. In particular, no Dr.2-4 type amphora has been discovered on Persian Gulf sites (personal communication: Prof. J-F. Salles)

Coming to the sites yielding the Dr.2-4 amphora in India, we do know that amphorae occur without break along 8 consecutive layers of Nevasa Pd. IV/V (Sankalia *et al.* 1960: 65; **Fig. 41**). Interesting from our point of view is the fact that the lowest and uppermost amphora-yielding layers have also provided "Early" and "Late" coins of the Imperial Satavahanas (Sankalia *et al.* 1960:65, 176-185; **Fig.41**). The Early Satavahana coins are found mostly in the lower layers (Sankalia *et al.* 1960: 171-176). These are largely the issues of King Satavahana whom Shastri (1987: 89-92; forthcoming) has identified as the Satavahana monarch Simuka and placed his regnal years in the last quarter of the 1st century B.C. The upper amphora-yielding layer D3 provides a coin of of the Satavahana King Gautamiputra Yajna Sri Satakarni (Sankalia *et al.* 1960: 181-182) whose regnal years have been attributed to the later half of the 2nd century A.D.

Therefore, here we have a situation where the "indigenous" context provides a chronology to the amphora-sequence. The end of 1st century B.C. - end of 2nd century A.D. chronology indicated for the amphora-yielding layers at Nevasa on the basis of Satavahana coinage equates to the chronological span of the Dressel 2-4 form. We know that 4 of the available 14 sherds have been identified as Italian Koan type by Tchernia (above). However, the identified Dr. 2-4 sherds are distributed in the middle layers of Nevasa Pd.V and are of no help in dating the termini of the amphora sequence. Among the other available sherds we have 1 body-sherd from the lowest layer H8 and 2 body-sherds from the upper layers C2, C3. The precise identification of these sherds is necessary to corroborate the chronology offered by the Satavahana coins.

For Arikamedu, the chronology of initial occupation proposed by Wheeler *et al.* (1946: 24) was for a beginning at the "end of the first century B.C. or beginning of 1st century A.D." However, Will's identification of more than half the double-handles from Arikamedu as Koan of the 2nd century B.C. serves to 'push down' Wheeler's chronology for initial Mediterranean maritime contact with the settlement.

However, before we accept a revised chronology based on Will's identification, questions relating to the stratigraphic 'positions' of the genuine and imitation Koan amphorae need to be answered. Will does not provide any information on the 'context' of the excavated amphorae. From her account we do not know at which stratigraphic point the genuine Koan sherds give way to the later imitation Koan or Dressel 2-4 amphorae. At least we would expect the genuine Koan double-handles of 2nd-1st century B.C. vintage to occur below Wheeler's 'Arretine layers' where the *terra sigillata* has been firmly dated to the 1st century A.D. (Wheeler *et al.* 1946: 34-41; Comfort 1992: 134-150; Prof. D. Gabler, Hungarian Academy of Sciences: personal communication). However we find no amphora double-handles reported by Wheeler in the pre-Arretine phase. Only three sherds are recorded from these levels: 2 rim portions and 1 carinated shoulder portion (Wheeler *et al.* 1946: 43). None of these amphorae have been studied by Will.

The discussion on the chronology of amphorae from Quseir, Qana (Lower Period), Nevasa and Arikamedu points to the evidence of Dressel 2-4 amphorae as crucial to the periodization of Indo-Arabian-Mediterranean contact. While focusing on the Dr 2-4 evidence it is equally necessary to place in counterpoint the dates of other amphora-types found in association. In this regard we have already discussed the geniune Koan amphorae identified by Will at Arikamedu. Other associated amphora-types recovered from Arikamedu are: 2 stamped handle-pieces of Knidian origin dated to 1st century B.C. (Will 1992: 153; Slane 1992: 205-206); Rhodian sherds of the 1st century B.C. - 1st century A.D. and Spanish Dr.7 & 8 amphorae of the late 1st century B.C. - early 1st century A.D. (Will 1992:153); Spanish Dr.20 amphora of the 1st century B.C. - 1st century A.D. (Will 1992:154); Istrian Dr.6 amphora fragment dated to later 1st century B.C. to 3rd quarter of 1st century A.D. (Will 1992:154); Dr.22 amphorae pieces dated to 1st century A.D. (Will in Begley *et al.* 1996:319), fragment of Punic amphora dated between 3rd-6th century A.D (Will in Begley *et al.* 1996:349), and fragment of Tunisian amphora dated to 5th century A.D (Will in Begley *et al.* 1996:349).

Except for the genuine Koan sherds from Arikamedu placed by Will in the 2nd century B.C., the other amphora-types from the site approximate to dates in the changeover from 1st century B.C. to 1st century A.D.

The dates of various amphorae-types (apart from Dr.2-4) identified from Nevasa are : Rhodian (late 1st century B.C. - 2nd century A.D., Peacock and Williams 1986:102-103), Dressel 21-22 (1st century A.D., see Peacock and Williams 1986:96-97) and Class 11 of Peacock and Williams (1st-2nd century A.D., Peacock and Williams 1986:107-108).

Contextually, at Baroda and Maheshwar the Dr.12 handles are found in levels dated to the early centuries A.D. **(Fig. 5)**. The Dressel 21-22 fragment from Nasik has a 1st century A.D. date (**Fig. 5**; Peacock and Williams 1986:96-97). The base-portion from Nagara tentatively identified as Dressel 1/ Fabric 2, Class 6 can be dated from Late Republican to 79 A.D. with the majority of finds in the Augustan Period (Peacock and Williams 1986:93-95).

This review of chronology of amphorae deposited in Indian Ocean lands reveals that most of the amphorae forms recovered are those produced in the B.C.-A.D. transition years,i.e., late 1st century B.C. to 2nd century A.D.

Provenance

Recent prospections along the Egyptian Red Sea coast have yielded substantial quantity of Alexandrian and Italian Dressel 2-4 amphorae (Dr.J.Y. Empereur, personal communication).

In the Gulf of Aden littoral, the amphora evidence from the port-site of Qana has been best studied in terms of provenance. Though we are not informed about the quantity of amphorae at Qana which can be traced to various production centres in the Mediterranean, nevertheless the preliminary report on the excavations provides details about three Dressel 2-4 amphorae carrying a Palmyrene, Syriac and Greek inscription each. All three vessel fragments have been attributed an eastern Mediterranean origin (Sedov 1992: 116-121). Furthermore, Prof. A.V. Sedov, head of the Russian team at Qana, has indicated that many of the amphorae from the Lower Period at the site are Alexandrian (Egyptian) Dr.2-4 type.

The multiple-grooved amphora handle from Socotra, tentatively identified as belonging to the Dressel 12 group on the basis of the classification of Peacock and Williams (1986: 113), can be attributed to a Spanish origin with reference to their catalogue.

In India, the recorded Dr. 2-4 amphorae from Mathura, Nevasa and Arikamedu have been attributed to production centres in the western Mediterranean

Specifically, the Dressel 3 double-handle from Mathura has been traced by Will (in Joshi and Sinha 1991: 255-259) to the workshops of Campania in central Italy. Tchernia (personal communication) believes that the four Koan type double-handles from Nevasa (discussed above) 'come more probably from the western part of the Mediterranean than from Greece. Italy and Spain are possible origins' (extract from letter of 25th June, 1992). Of the double-handles from Arikamedu, Will (1992: 151) says that about half the collection studied comprises 'Italian imitations of Koan amphoras (Will type 12, Dressel forms 4 and 3...).'

There is a likelihood of an amphora sherd from Nagara being a Dr. 2-4 variety from the eastern Mediterranean. A. Marangou-Lerat (personal communication) has recently identified a double-handle from Nagara as being either from Kos or some 'other region of the eastern Mediterranean' (extract from letter of 4th August 1994).

Of the non-Dressel 2-4 varieties found in India we have from Arikamedu the amphorae produced in Knidia, Rhodes, Istria and Spain and north Africa. From Nevasa, we have identified a handle piece of Rhodian origin. The Dr.12 type from Nevasa, Baroda and Maheshwar can be attributed a Spanish origin (Peacock and Williams 1986:113). The Dr 21-22 type from Nevasa and Nasik may have come from Italy (Peacock and Williams 1986:96). The probable Class 11 amphora from Nevasa may come from the Eastern Mediterranean or even North Africa or Italy (Peacock and Williams 1986:107). Will (in Begley *et al.* 1996:349) has identified amphora fragments of north African origin (Punic and Tunisian) in the Arikamedu corpus.

2. Roman Coins (Figs. 3, 6)

Roman coins, mostly of the Early Imperial period of Rome, are found to occur across the Indian Ocean littoral as far as coastal Vietnam (**Fig. 3**). The most prolific distribution-area of Roman coins in the Erythraean Sea region is the Indian Subcontinent where more than 6000 Imperial Roman coins are estimated to be found (Lebedeva 1988) and more than 50,000 Late Roman coins have been found, majority of these from Sri Lanka (Bopearachchi 1996:59-77). The metrology of Roman coin finds in the Erythraean Sea region shows occurrence in gold, silver and copper/bronze.

Distribution and Chronology

Red Sea Region: From the trade routes connecting the Egyptian ports to the Nile , Zitterkopf and Sidebotham (1989:166) report the find of coins of Theodosius I (A.D. 379-395) , Constantius II (A.D. 337-361) and 3 unspecified Roman coins of the 4th century A.D. They also report a coin of Constantius II from the site of Berenice. From the site of Abu Shah'r (**Fig. 22**) Sidebotham *et al.* (1989:144) excavated a coin of Galerius issued from the Alexandrian mint of A.D. 293-295, a coin of Constantine dated between 335-341 A.D. and a "Byzantine coin minted sometime between Justinian I (527-565 A.D.) and Phocas (602-610 A.D.).

Gulf of Aden: A catalogue of coins compiled in 1925 by Kaiky Muncherjee, an Indian merchant in Aden, was studied by Sidebotham (1986a: footnote on p.19) who noticed a "number of Roman bronze coins in the bronze album. These included several... of Antoninus Pius; a sestertius of Faustina the Elder ; an AE of Augustus ; an Alexandrian tetradrachm of Probus. The gold volume had 4 solidi of Constantius II, one of Jovian, one of Valentinian I and one smaller, probably an aureus of the first century A.D."

According to Sedov (1992:124-125), imperial Roman coins minted in the Eastern Mediterranean influenced the coinage of the South Arabian kingdom of Hadhramaut minted between 1st-3rd century A.D.

Persian Gulf region: A hoard of gold coins of Tiberius Caesar was discovered at the ancient port of Suhar in Oman (Kervran 1996:42). A denarius of Constantine was picked up from the surface of the site of Jebel Kenzan in Eastern Arabia (Potts 1990:218). A gold coin of Tiberius Caesar was recovered from the site of Ed-Dur (U.A.E) at the mouth of the Persian Gulf (Haerinck *et al.* 1993:186). A denarius of Constantine the Great was picked up from the surface of the site of Thaj in Eastern Arabia (Potts 1990:203). One coin each of Theodosius I (A.D. 376-394) and Constans II (A.D. 641-668) was found at the site of Siraf (Iran) on the Persian Gulf (Whitehouse 1973:241-255).

Central Asia: In the Surkhan Darya region of southern Uzbekistan a Roman coin attributed to the Emperor Nero was discovered by a Soviet expedition (Bongard-Levin and Stavisky 1970:38-39). Soviet archaeologists also found Roman denarius of the 1st-2nd century A.D. in the Ura-Tebe area of northern Tadjikistan (Negmatov and Saltovskaya 1970:174). From Kazakhistan was discovered a 3rd century A.D. denari of Aurelian Augustus, from Kirghizia a hoard of denarii from Vespasian to Hadrian, a die of Diocletian near the Issyk-Kul lake and a gold coin of Tiberius from Tillya-tepe (Sherkova 1989-90:notes on pp.113).

In Afghanistan a number of Imperial and Late Roman coins were discovered from various Buddhist sites. Three aurei of Domitian, Trajan and Sabina were found from the Ahin Posh Tope near Jalalabad (Allchin and Hammond 1978:247). An aureus of Trajan was found at Sheyaki near Kabul together with Kushana coins (Allchin and Hammond 1978:247). Late Roman coins came to light from Tope 10 at Hadda comprising 5 gold solidi of Theodosius, Marcian and Leo (Allchin and Hammond 1978:251).

Indian Subcontinent: Studies on Roman coins in India have been exhaustive (see especially coin lists of Wheeler *et al.* 1946:116-121; Turner 1989; Narasimha Murthy 1992; MacDowall 1990:62-74; 1996:79-95). Much of the data in this study draws from Turner's comprehensive review of Roman coins in India. **Fig. 6** updates Turner's distribution map for Roman coin find-places in India. The names of find places (together with names of States) are given in the numerical reference. This information may be correlated with details of Roman coin finds under sites listed in **Appendix-I.**

The chronological pattern of Roman coin finds in India is explicated by MacDowall (1996:81)

> "In the finds from India there are relatively few silver denarii of the Republican period before the establishment of the Principate by Augustus in 31 B.C. There are substantial number of denarii of Augustus (31 B.C. - A.D. 14) and Tiberius (A.D. 14 - 37), but very few later denarii and virtually none after Nero (A.D. 54 - 68). There are substantial numbers of gold aurei issued by Augustus, and even more of Tiberius and a few of the later Julio-Claudian emperors up to Nero. There are virtually no aurei struck after Nero (A.D.54 - 68) in the later first century A.D. There is a growing number of aurei struck from the middle years of the second century - of Antoninius Pius (A.D.138 - 161), Marcus Aurelius (A.D.161 - 180), Commodus (A.D.180 - 192) and the Severi up to the reign of Caracalla (A.D.212). There is virtually complete lacuna of any coins struck in the third century A.D. and we then encounter a growing number of gold solidi struck in the 4th and 5th centuries. In South India we find very large numbers of small Roman copper coins struck between the mid 4th and mid 5th centuries."

The lower chronology of Roman coins in India can be put at the Augustan period (B.C. 31 - A.D. 14). Though pre-Augustan Republican Roman coins have

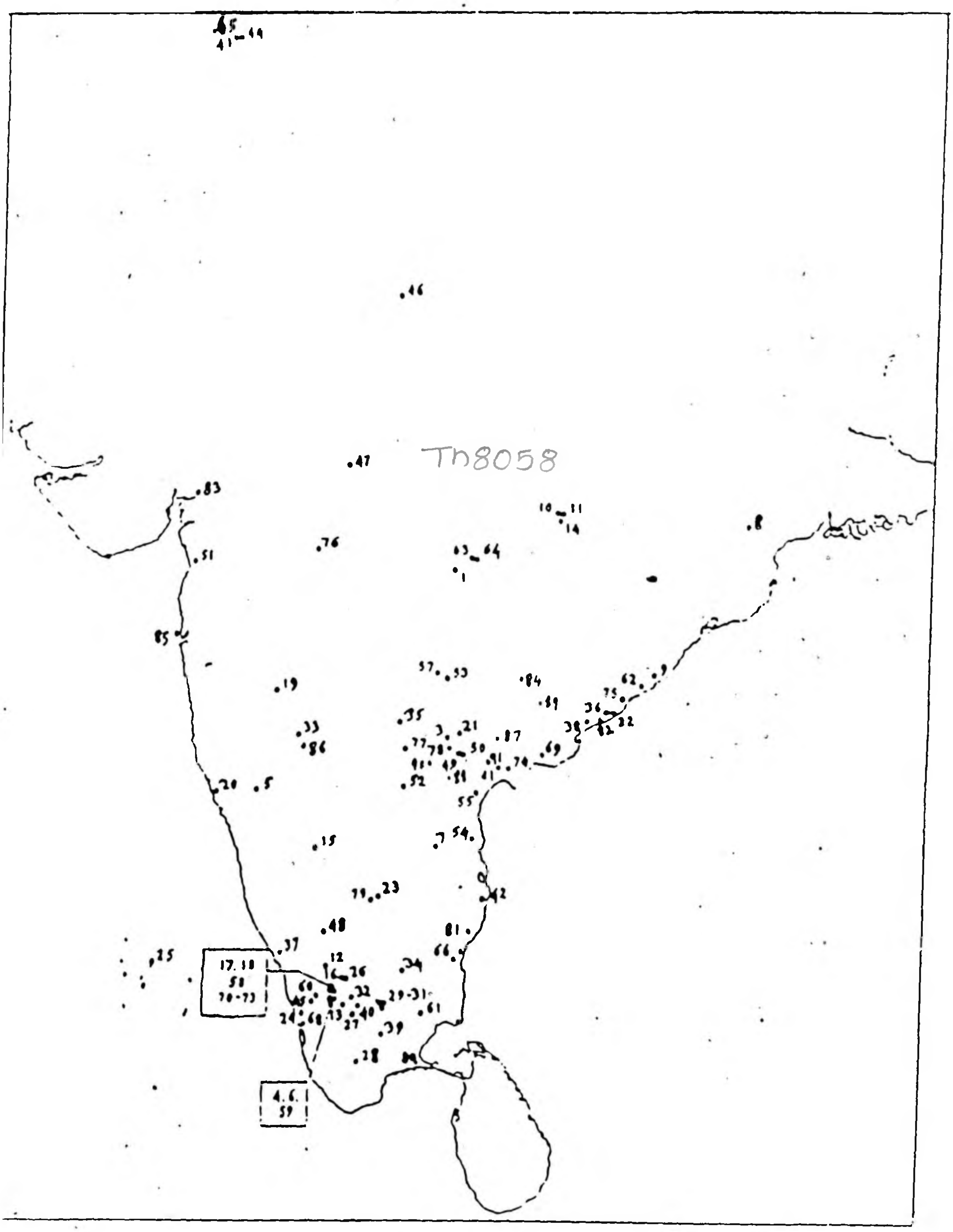


Fig. 6. Map showing the location of finds of Roman coins in India.
(after Turner 1989)

TURNER'S LIST OF ROMAN COIN FINDS IN INDIA
(Updated find places are underlined)

1. Adam
1. <u>Adam</u>
2. Ahin Posh
3. Akenpalle
4. Akhilandapuram
5. Akkialur
6. Annamalai
7. Athirala
8. Bamanghati
9. Bhagavanpavam
10. Bilaspur
11. Bilaspur
12. Bishopsdown
13. Budinathan
14. Chakherbedha
15. Chandravalli
16. Chavadipalaiyam
17. Coimbatore District
18. Coimbatore District
19. Dharphul
20. Goa
21. Gootiparti
22. Gumada
23. H.A.L. Airport
24. Iyyal
24. Iyyal
24. Iyyal
26. Kallakinar
27. Kaliyampattur
28. Karivalamvandanallur
29. Karur
30. Karur
31. Karur
32. Kathanganni
33. Katryal
34. Konneripatti
35. Kondapur
35. <u>Kondapur</u>
36. Kotapad
37. Kottayam
38. Lingarajupalem
39. Madurai
39. Madurai
39. Madurai
41. Mallayapalem
42. Mambalam
42. Mambalam
42. Mambalam
44. Manikyala
45. Mankada
46. Mathura
47. Memadhakedi
48. Mysore
49. Nagarjunakonda
50. Nagarjunakonda
51. Nagdhara
52. Nandyal
53. Nasthullapur
54. Nellore
55. Ongole
56. Pakli
57. Peddabankur
58. Pennar
59. Pollachi
60. Poonjar
61. Pudukottai
62. Salihundam
63. Sampewada
64. Tadali
65. Taxila
66. Tondamanathan
67. Upparipeta (site not located)
68. Valuvalli
69. Veeravasaramu
70. Vellalur
71. Vellalur
72. Vellalur
73. Vellalur
74. Vidyadurrapuram
75. Vinukonda
76. Waghoda
77. Weepangandla
78. Yeleswaram
79. Yeswantpur
80. <u>Alagankulam</u>
81. <u>Arikamedu</u>
82. <u>Bimlipatinam</u>
83. <u>Bharuch</u>
84. <u>Dhulikatta</u>
84. <u>Dhulikatta</u>
84. <u>Dhulikatta</u>
86. <u>Vadgaon- Madhavpur</u>
87. <u>Aluru</u>
88. <u>Peddakodamagudia</u>
89. <u>Warangal</u>
90. <u>Kudavelli</u>
91. <u>Ghantasala</u>

been found in India, their association with Imperial coins in hoards suggests that Republican denarii entered India in the early centuries A.D. This is also indicated by the much worn state of the Republican coins in India (see especially MacDowall 1990:62-74). Though Turner (1989:6-7) is of the opinion that some Republican coins may have come to India before Julio-Claudian kings, she agrees with the evidence that there was a 'major new thrust in the eastern trade under Augustus and his successors.' Of the other pre-Roman Imperial coinage are the Ptolemaic coins from India purchased by Hultzsch (1904:399-405). However, besides this solitary discovery there have been no find of Ptolemaic coins in India since. Hultzsch's coins, now lost to us, either came to India with Imperial Roman coinage or at best can be bracketed with the meagre Ptolemaic material distributed in the Indian Ocean littoral. The primacy of Imperial Roman coinage in the Indian Subcontinent is also suggested by Gobl (1960:151-156) who finds that the coins of the Kushana kings were inspired by coins of various Roman emperors from Augustus (27 B.C. - 14 A.D.) to Antonius Pius.

To recapitulate, we can say that the chronological pattern of Roman coin finds in India suggests a regular period of Indo-Roman contact from the time of Augustus to the reign of Caracalla. In other words, the main period of Roman contact with India indicated by Roman coin deposition is from 0 - 200 A.D. A revival in import of coinage is indicated when Roman-Byzantine coins again occur in India after being virtually absent in the 3rd century A.D.

In Sri Lanka very few Imperial Roman coins have been found in contrast to peninsular India which has yielded hundreds. To quote Bopearachchi (1996: 69) : '...compared to the large quantities of early Imperial Roman coins found in India, the ones attested in Sri Lanka were so far limited to fourteen. We have added three more tetradrachms of this series recently found in Sri Lanka...' However, the situation is reversed for Late Roman coins of which thousands have been discovered in Sri Lanka as compared to a few hundred or even less in India. Again to quote Bopearachchi (1996:63): 'Besides all the hoards published by Codrington and R.Walburg, hoards of Roman <third brass> were reported from Godavaya (about 30,000) and Hungama (20,000). We could examine several hundreds of unpublished Roman and Indo-Roman coins from Bentota, Kalutara and Negombo.' (for latest documentation and critical study of Late Roman coins in Sri Lanka see also Bopearachchi 1990: 20-37 ; 1992: 107-121).

South-East Asia: A copper coin of Victorinus was found at the site of U Thong in Thailand (Glover 1990). A coin of Antoninus Pius was discovered at the coastal site of Oc-Eo in Vietnam (Glover 1990). A Roman coin (unspecified) was found at the site of Khlong Thom in Malaysia (Glover 1996:135).

To recapitulate, the 'consolidated' chronology of Roman coin finds across the northern Indian Ocean shows that nearly all of them belong to Imperial Roman and Late Roman periods (1st-6th century A.D.). In comparison to the thousands of Imperial/Late Roman coins discovered east of the the Bab el-Mandeb, very few Ptolemaic and Republican Roman coins have been found in Indian Ocean lands. In this context, our review reveals that large-scale deposition of Mediterranean coinage in Indian Ocean lands began from the last quarter of the 1st century B.C. or the beginning of the rule of Augustus Caesar in Egypt.

3. Bullae / Imitation Roman Coins (Fig. 7)

Imitation of Roman coins (bullae) mostly in clay but some also in lead and gold have been discovered all over peninsular India. Stone moulds for making bullae also have been recovered from many sites (**Fig. 7**). The names of find-places (together name of States) is given in the numerical reference in **Fig.7.** This information may be correlated with **Appendix-I** for update of bullae finds.

Among the Roman emperors portrayed on bullae, Tiberius Caesar is the earliest. The latest portraiture is of Marcus. The lower chronology of bullae in India therefore does not go below 14-37 A.D. (see especially details of bullae finds in India by in Cimino 1994: 256-257).

4. Mediterranean Glass/Glassware (Figs. 3, 8)

Glass and glassware of the Imperial and Late Roman period has been found in all the Erythraean Sea zones.

Distribution

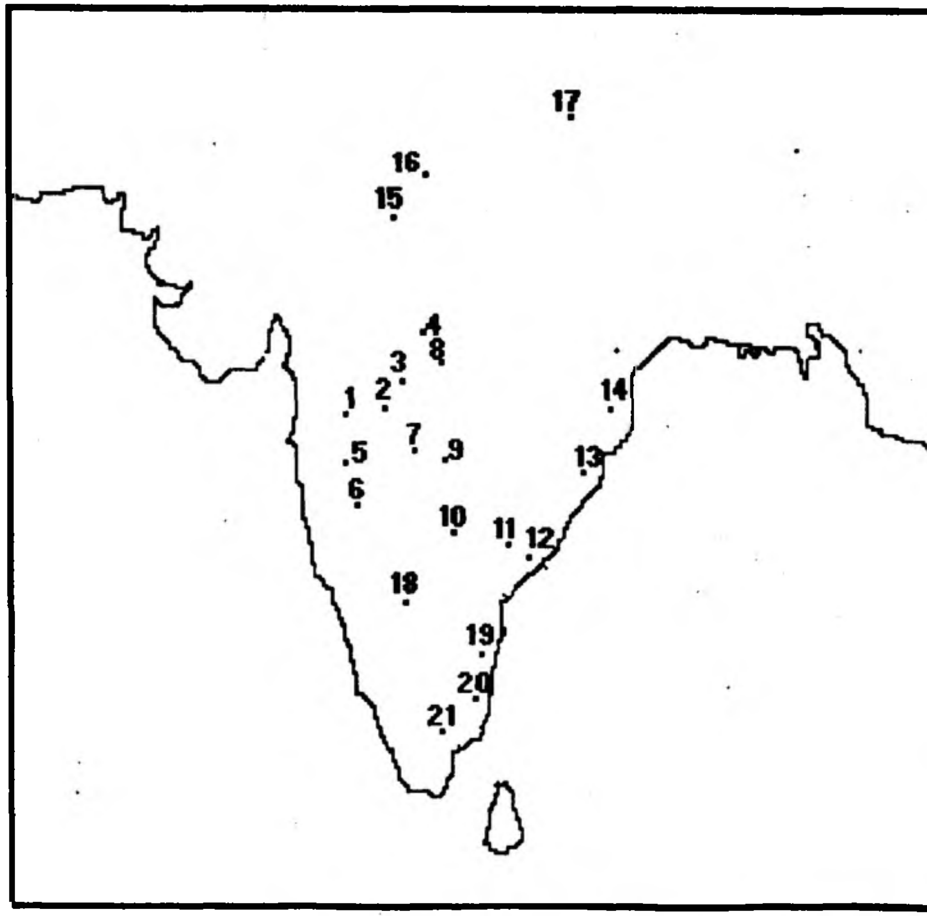
Red Sea littoral: Egypt was a large producer of glass in Roman times (Sidebotham 1986a:26). Coloured glass beads of Roman Egyptian production have been recovered from Arikamedu (Francis Jr. 1987). Excavations at the Roman trade-port of Quseir al-Qadim have revealed a glass manufacturing industry (Sidebotham 1986a:17-18,26). That the trade-ports on the Egyptian Red Sea coast were manufacturing glass for export to the Orient is also indicated by the existence of a glass industry at the port of Clysma (Sidebotham 1986a:57) and by copius quantity of glass observed on the ruins of Berenice, the principal port for Roman trade with the Indian Ocean littoral (Meredith 1957:58).

Gulf of Aden: Fragments of Roman "millefiori" glass have been found in surface explorations at the Early Historic site of Heis on the northern Somali coast (Stern 1992:113-114). Timna, the main city of the Sabean rulers of South Arabia has yielded Mediterranean glassware (fragment of a double convex bowl of Ising Form 2 and a ribbed bowl) (Stern 1992:113). The French archaeological expedition to Yemen recovered Roman glassware from the sites of Wadi Dura and Shabwa (Breton 1987:13-34; Stern 1992:122). Mediterranean glass was also discovered during a coastal survey of selected sites in south Yemen by the Egyptian Antiquities Service (Sidebotham 1986a:16). A Russian-Yemeni expedition to the island of Socotra found glassware in a collective burial which has been tentatively identified as pre-Islamic. A total of 12 glass vessels, 7 of them complete, were recovered from the burial. Though the glassware found at Socotra has typological similarities with Mediterranean vessels, the provenance of the finds has to be clearly established (Naumkin and Sedov 1993:596-600).

Persian Gulf/Gulf of Oman littoral: A number of complete glass vessels were excavated from the coastal site of Ed-Dur at the entrance to the Persian Gulf (**Fig. 3**). The vessels, excavated from stone-chamber graves, comprised varieties of pillar-moulded bowls, an almond bossed beaker, a pear-shaped flask and small jugs (Potts 1990:283-286; Salles 1993:502; Haerinck *et al.* 1993:186). At Mleiha (U.A.E.), excavations yielded Mediterranean glass vessels (Potts 1990:266). On the coastal site of Bidya (Fujairah) a pillar-moulded glass bowl and a small glass flask of Mediterranean provenance were excavated (Salles 1993:501). Further north, at the coastal site of Dhahran (N.E. Saudi Arabia) excavations in 1977 in the tumuli south of Dhahran airport " yielded a complete glass pitcher with applied trails reminiscent of Roman glass of first-fourth centuries". Later excavation in 1983 yielded more Mediterranean glassware (Potts 1990:217). Roman glassware found in excavations at an ancient tumulus in Bahrain included a purple pillar-moulded bowl, glass *amphoriskos* and a glass cup (Potts 1990:115-116, Salles 1993: footnotes in 501; Herling and Salles 1993:175-177).

Lower Indus/Gujarat: Glass vessels of probable Mediterranean origin have been excavated from the coastal site of Banbhore near Karachi in Pakistan (**Fig. 1**). However these vessels belong to the later Muslim Period dated between the 8th and 14th centuries A.D. (Khan 1976).

North of Banbhore, the historic site of Brahmanabad in Sind (Pakistan) has provided from excavated contexts a pillar-moulded blue glass bowl of eastern



1. Nevasa
2. Paithan
3. Bhokardan
4. Adam
5. Karad
6. Brahmapuri
7. Ter
8. Bhatkuli
9. Kondapur
10. Veerapuram
11. Nagarjunikonda
12. Dharanikota
13. Salihundam
14. Sisupalgarh
15. Ujjain
16. Vidisha
17. Rajghat
18. Chandravalli
19. Kanchipuram
20. Kaveripattinam
21. Uraigur

Fig. 7 Imitation Roman Coins (bullae) finds in India

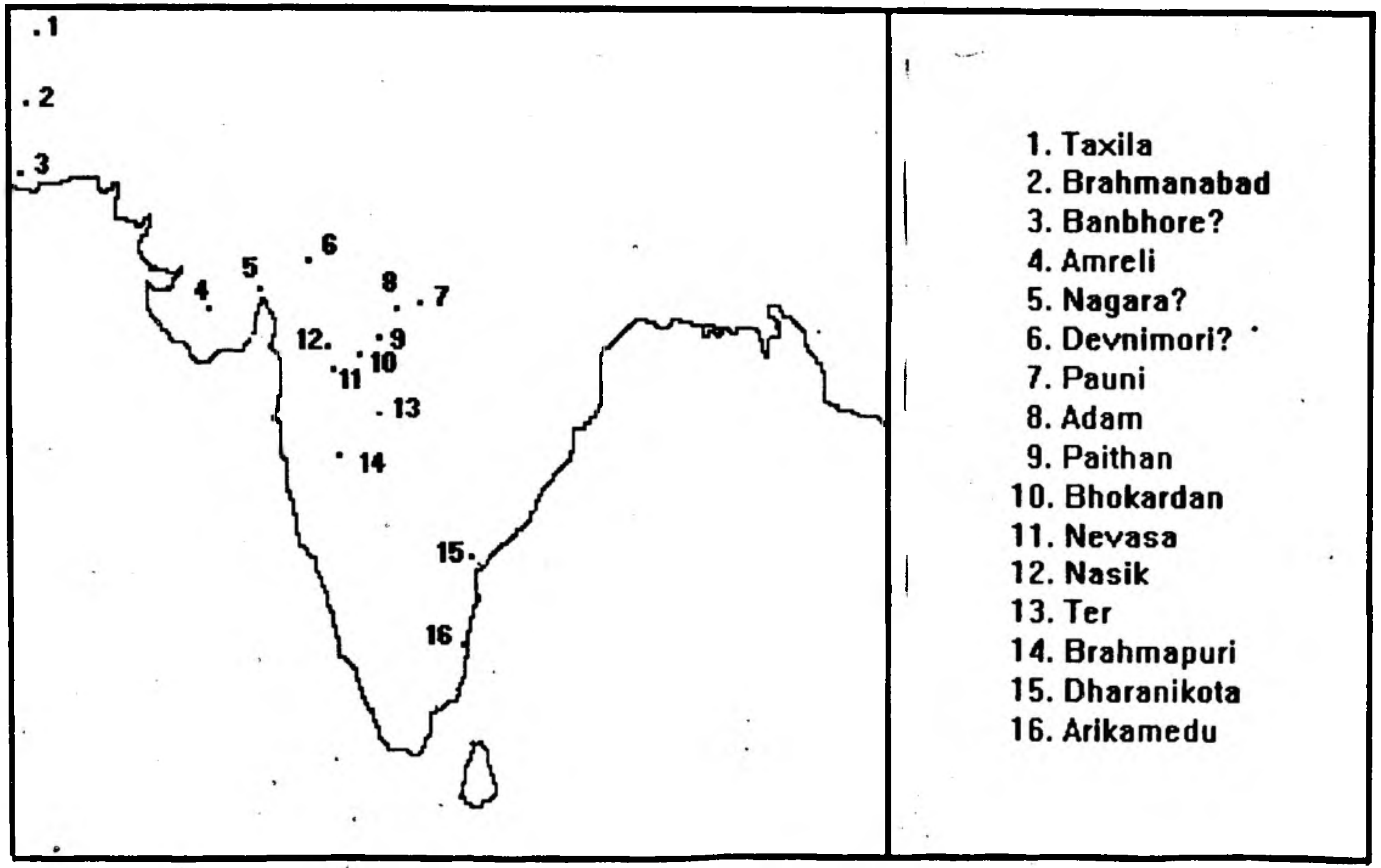


Fig. 8 Roman Glassware finds in India

Mediterranean origin. The bowl is dated to the 4th-5th centuries A.D. (Cousens,H. in ASI Annual Report 1908-9: Pl. XXIII, p.82).

North of the Lower Indus region, Roman glassware has been excavated at Taxila (northern Pakistan) and the ancient Kushana city and trading centre of Begram in southern Afghanistan. The glassware at these sites could have either arrived through the ports on the Lower Indus or by way of overland routes from the eastern Mediterranean. A rich variety of Mediterranean glassware was excavated at Taxila by Marshall (reprint 1975, Vol.II:685-691). The finds comprise ribbed, millefiori, and mosaic glasses. To quote Marshall (reprint 1975, Vol.II:685) "All the glass vessels or fragments of vessels found at Taxila are, without doubt, of foreign origin and nearly all date from the first century A.D. The best preserved are small flasks of sea or jade-green glass identical with those which were common throughout the Roman Empire during the early centuries of the Christian Era." At Begram, the ancient summer retreat of the Kushanaa kings on the outskirts of Kabul, a French archaeological mission unearthed valuable Roman glassware from a warehouse. The Begram finds are dated between the 1st century B.C. and 3rd century A.D. (Taddei 1994: 214-217).

Proliferation of Roman glass observed on Central Asian sites shows that Mediterranean glassware was reaching deep into Inner Asia (Warmington 1928/1995:271-272; Raschke 1978:627).

In the Gujarat region a green glass bottle and a blue glass handle found in the Early Historic (Pd.III) levels at the coastal site of Nagara (Mehta 1968:133) are worthy of study as also glass vessel pieces and a handle of glassware excavated from Pd.II levels of the Kshatrapa-Gupta site of Amreli. About the Amreli finds, the excavator is of the opinion that the handle fragment may have been part of an imported vessel (Rao 1966:80-81). The glass handle is similar to the handle of a Roman glass jug published by Cimino (1994: Pl. XXIII.2).

Western Deccan/Konkan-Kanara region: Mediterranean glass has been reported from several sites in the western Deccan. From the surface of the Early Historic site of Ter has been recovered a small glass flask of Roman production (Dikshit 1969:45, Pl.2A). Also, two rims of glass cups and a base of a glass vessel excavated from the site could be part of Roman mould-made bowls (Stern 1992:115). A rim-portion of a cobalt blue glass vessel from Paithan is probably of Roman origin (Isings Form 20 according to Stern 1992:115). Similarly, a rim-portion of a green glass vessel excavated from Early Historic (Pd.IV) levels at Nevasa has been found by Stern (1992:115) to resemble "early Roman mould-formed bowls". A total of 12 rim fragments have been excavated from the Early Historic (Pd IV-V) levels at Nevasa (Sankalia *et al.* 1960:453) out of which only one, studied by Stern, has been illustrated in the report. Recently, a complete flask of blue glass was excavated from the Buddhist monastic site of Pauni. The excavator, Dr.Amrendra Nath (personal communication) believes it to be of Mediterranean origin dated to the early centuries A.D. Fragments of Mediterranean glassware have also been excavated from the 1st-2nd century A.D. strata of Adam. The excavator, Amarendra Nath (1995:165-166) describes remains of three vessels: a dish of translucent sea-blue colour, a tiny rim fragment of a globular vessel and a translucent blue colour bowl.

Nevasa has yielded fragments of blue glass from Pd. IV/V levels having "affinity with the best type of Roman glass" (Sankalia *et al.* 1960:446). Similar blue glass fragments and beads have been recovered from Early Historic levels of Brahmapuri (Sankalia and Dikshit 1952:117) and Bhokardan (Deo and Gupte 1974:131). At Nasik, pieces of highly weathered glass excavated from Early Historic (Pd. II) levels were found to possess, on the basis of chemical analysis, composition typical of Mediterranean glass (Sankalia and Deo 1955:99-100).

Andhra-Orissa-Bengal: Glassware has been reported from the port-site of Dharanikota at the mouth of the Krishna in Andhra Pradesh (*Ency.Ind.Arch.* Vol.II:126; *IAR* 1962-63:1-2; 63-64:2-4; 63-64:2-3). Fragments of glassware from the site are similar to Mediterranean varieties (Stern 1992:113-124). Rao (1994b) reports finds of Roman glassware pieces from the Early Historic site of Kottapatnam on the southern coast of Andhra Pradesh.

South India-Sri Lanka: Fragments of Roman glass vessels were excavated by Wheeler *et al.* (1946:102) from Arikamedu. These comprise a fragment of a pillar-moulded bowl of white iridescent glass and a fragment of a blue glass bowl with horizontally ribbed sides. Earlier to Wheeler's excavation, fragments of four or five pillar-moulded bowls were found in excavations at Arikamedu by French antiquarians (Wheeler *et al.* 1946:102). In course of her review of Arikamedu material in Pondicherry Museum Stern (1992:117-118) found a "small fragment of an amber coloured ribbed bowl with two interior grooves near the base". According to her this piece may have been part of the pillar-moulded bowls recovered by the French excavators prior to Wheeler. She also chanced upon a hitherto unpublished glassware fragment comprising "the base of an opaque, light-blue glass dish with two concentric grooves on the interior". This piece may be of West European origin dated to early-middle 1st century A.D. (Stern 1992:117).

From the Arikamedu collection of Early Historic glass beads kept in the Pondicherry Museum, Francis, Jr. (1987:5-6) identifies a number of importations from the Roman Empire, specifically some of Egyptian manufacture. Among the glass beads identified by him as Roman are beads made of multi-coloured glass (mosaic beads) and those containing gold-foil (see also Dikshit 1969:56-57). Interestingly, among the Mediterranean "mosaic" glasses identified by Francis, Jr. at Arikamedu, are glass imitations of semiprecious stone such as agate and onyx (Francis Jr.1987). In course of exploring Arikamedu the author picked up a small fragment of glass (glassware?) made in alternate redand white bands imitating sardonyx **(Pl. XII.d)**.

Stern (1992:47) is of the opinion that Arikamedu may have been importing Mediterranean raw glass for manufacturing beads for supply to domestic and overseas markets. She finds support for her contention in the *Periplus'* reference to Mediterranean glass imports into south India (*PME* 54-56). Sen and Chaudhuri (1985:105-123) form a similar opinion on the basis of chemical analysis of selected glass specimens from Arikamedu some of which are found to approximate to the chemical composition of ancient Mediterranean glass, particularly in their silica and alumina contents. Stern (1992:121) also draws parallels between techniques of manufacturing "cane glass" at Arikamedu with similar glass manufacturing techniques practised in Rhodes in the 1st century B.C.

In the context of Mediterranean raw glass imported into Arikamedu a fragment of a translucent green glass retrieved by me from the "bead factory" area at Arikamedu may be mentioned. This piece is a hemi-cylindrical portion of a drilled cylinder. The pale translucent green glass piece could be a discard from an attempt to produce a "counterfeit beryl" **(Pl. XII.c)**. Noticing such discards at Arikamedu Francis, Jr. (1987:10) opines: 'The Indians' secret was being able to draw the glass into a tube, flatten the tube on six sides, and cut it into beryl-like beads. Judging from the finds at Arikamedu, the most difficult problem for the stone imitators was flattening of the tubes into hexagons; many of them have been found collapsed.'

Pliny refers to the skill of the Indians in imitating the hexagonal faceting of beryl/aquamarine on green glass. A good number of these "counterfeit beryls" have been excavated from the last centuries B.C. levels of the coastal site of Ban Don Ta Phet in southern Thailand (Glover 1996:129-158).

In Sri Lanka Mediterranean glassware has been found at the sites of Kantaradai, Manthai and Anuradhapura (Carswell 1992:200; Bopearachchi 1996:71).

South-East Asia: We have referred above to the imitation glass "beryls" discovered at the site of Ban Don Ta Phet in Thailand. Though the excavator initially postulated a Mediterranean origin for the glass used to make the "beryls"

(Glover 1990), he changed his view recently to suggest an Indian or South-East Asian production-source for the same (Glover 1996:139). Imitation glass beryls have also been reported from the Early Historic site of Oc-Eo in southern Vietnam (Glover 1990).

At the semiprecious stone and glassworking site of Khlong Thom in southern Thailand 'rim fragments of a blue glass container very similar to Roman glassware' have been reported (Veraprasert in Glover 1990:6).

Also, according to Ardika and Bellwood (1991:230) glass beads were being manufactured at the sites of Kuala Selinsing and Khuan Lukpad 'using Indian technology and scrap glass of Middle Eastern or Mediterranean origin.' Many of these glass beads were cut in imitation of semiprecious stones.

This review of Mediterranean glass finds across the Red Sea-Indian Ocean littoral reveals that Mediterranean glassware, beads and raw glass were exported to all the trade zones specified here. The deposition of Mediterranean glassware in the Gulf of Aden as well as the Persian Gulf littorals suggests that glassware exports to India were being routed through the Egyptian coast as well as by way of the land-sea route combination from Eastern Mediterranean and Persian Gulf ports. Much of the glassware found in the Persian Gulf area comprises ribbed bowls while only one find of millefiori/mosaic glass has been made from this region (see Ed-Dur above). This could be due to the fact that the Persian Gulf received direct supplies from the eastern Mediterranean where the production centres of mould-made ribbed vessels proliferated. In contrast, much of the mosaic glass was made in Egypt and its natural route of export to India was by way of the Red Sea. This is indicated by the discovery of a variety of Roman mosaic glass fragments at the Somali coastal site of Heis and in south Arabia (Stern 1986:20-23). The mosaic glass appears at Arikamedu in the form of imitation agate and onyx **(Pl. XII.d)**. It may be that the mosaic glassmaking technology had been introduced by westerners at Arikamedu. The same seems to be true for a number of South-East Asian sites like BDTP and Khlong Thom which reveal a flourishing industry of imitating semiprecious stone in glass.

Chronology

The dates available for Mediterranean glassware finds in the Red Sea-Indian Ocean are given below:-

The Mediterranean glassware excavated at Timna can be placed between 11 B.C. - A.D. 96, the chronology of Roman contact with the South Arabian city (Sidebotham 1986a:16). The *millefiori* glass dish recovered from Wadi Dura carries a 1st-2nd century A.D. date (Breton 1987:13-34).

The Roman glassware excavated at Bidya has been dated to the 1st century A.D. (Boucharlat and Salles 1989:115; Salles 1993:501). At Mleiha, the excavations yielded a glass vessel "of the late 1st century B.C. or early first century A.D." (Potts 1990:266). At Dhahran, the Roman glass pitcher excavated in 1977 has been placed between the 1st - 4th century A.D. (Potts 1990:217). The pillar-moulded bowl from Ed-Dur closely parallels the specimens recovered from Bahrain, Arikamedu and Bidya which have been dated to the 1st century A.D. (Wheeler *et al.* 1946:102 ; Salles 1993:501). A pillar-moulded bowl found in Bahrain has been dated between 50-100 A.D. (Potts 1990:116).

The Mediterranean "ribbed" bowl from Brahmanabad has beed dated to around 400 A.D. (Sen and Chaudhuri 1985:58). The Mediterranean glassware from Taxila has been firmly placed in the 1st century A.D. (Marshall reprint 1975 Vol.II:685). The Roman glassware found in Kushana period levels at Begram has been dated to 1st-3rd century A.D (Taddei 1994: 214-217).

Of the finds in western India, Stern (1992:115) dates the rim profile of cobalt blue glassware from Paithan to a 'Neronian date (A.D. 54-68).' The glassware from Ter is placed in the 1st century A.D.(Stern 1992:115). The Mediterranean vessel from Nevasa is also placed by Stern (1992:115) in the 1st century A.D. The suspected Mediterranean glass handle from Amreli Pd.II can be placed, according to the contextual dating, between the 1st century B.C. - 4th century A.D. (Rao 1966:15-16). The glassware fragments from Pd. III levels at Nagara have been dated between 0 - 8/9th century A.D. (Mehta 1968:19, 133). The Mediterranean glassware from Satavahana levels at Adam has been dated to 1st-2nd century A.D. (Amarendra Nath 1995:149-171).

Of the finds from Arikamedu, Wheeler *et al.* (1946:102) date the pillar-moulded bowl to the "end of 1st century B.C. to end of first century A.D." From Arikamedu, a bowl of blue glass with horizontal ribbing (Wheeler *et al.* 1946:Fig.42, no.3) has been compared by Stern (1992:117) to a Mediterranean bowl found in Sudan and dated between 21 - 13 B.C. A third vessel, the base of a blue glass dish, found by Stern in the Pondicherry Museum is placed by her in early-mid first century A.D. (Stern 1992:117).

In South-East Asia, scrap glass of probable West Asian/Mediterranean origin was being used at the beadmaking sites of Kuala Selinsing and Lukpad 'before A.D. 400.' (Ardika and Bellwood 1991:230).

Very clearly, the available dates of Mediterranean glassware distributed across the Erythraean Sea littoral suggest a "core" bracket from the late 1st century B.C. to first century A.D.

5. Mediterranean Bronze / Copper Artefacts (Figs. 3, 9)

Bronze/Copper objects of Mediterranean origin comprising utilities (wine-sets, bowls, *kraters*, *oinochoe*) and *objets d'art* (statuary, plaques) have been found at a number of sites in the western Indian Ocean littoral. In addition to original Mediterranean bronzes, a number of copper mirrors and bowls, found in India and South-East Asia, may have been influenced by Mediterranean designs.

Distribution

Gulf of Aden: Bronze statues of Ptolemaic Egyptian origin have been uncovered at Timna (Van Beek 1958:149; Sidebotham 1986a:16).

Persian Gulf: At the site of Ed-Dur a complete Roman bronze wine set comprising cauldron, strainers and ladle has been excavated from burial contexts (Potts 1990:283-285). The Ed-Dur excavations also yielded bronze socles for statuettes, a Roman bronze lamp with crescent shaped handle and a ram's head from a *patera* of Roman manufacture (Haerinck *et al.* 1993:185).

Indian Subcontinent: In India, the largest number of Mediterranean bronzes were discovered in a hoard from Brahmapuri. They comprise a stattuete of the sea-god Poseidon; an emblema depicting Perseus and Andromeda; *oinochoe* or trefoil mouthed vessel, *calathiscus* (drinking cup), basins, strainer and bronze mirrors (Khandalavala 1960:29-75; for latest review de Puma 1992:82-112). Though the Brahmapuri bronzes were initially dug up as a hoard, Sankalia (1957:207-208) later traced them to their stratrified context when he excavated at Brahmapuri.

Though de Puma offers a thorough review of the Mediterranean bronzes from Brahmapuri, he seems to have overlooked a spouted bronze vessel from the hoard which is reported as being of Roman origin by the excavators (Sankalia and Dikshit 1952:Pl. XXXIII). A clay imitation of the spouted bronze vessel has been found in associated context, indicating a close correlation between ceramics and metalware (for clay imitation see Sankalia and Dikshit 1952: Pl. XIX, A). The design of the spouted vessel is similar to the "sprinklers" found in abundance in western and northern India (**Fig. 14**). In the discussion below on the Red Polished Ware - the basic fabric of the sprinkler vessels - the question of the Mediterranean origin of the spouted vessel is taken up.

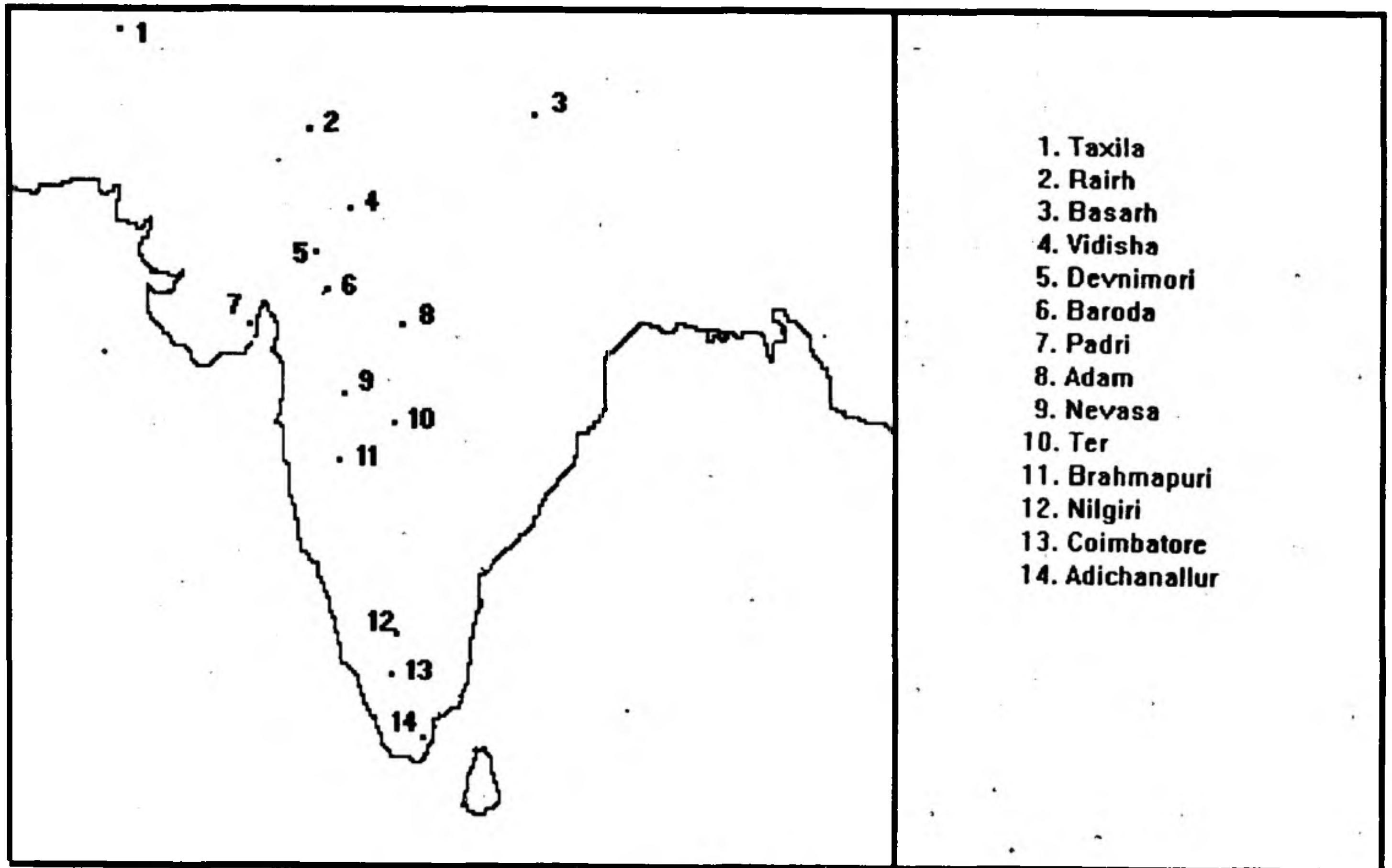


Fig. 9. Location of Sites of Copper/Bronze Objects of Mediterranean origin & imitation in India

From Baroda, a decorated bronze handle of an oinochoe has been excavated (Desai 1950:22-23; de Puma 1992:101-102).

From the site of Devnimori in Gujarat a bronze statuette of Atlas was found during explorations (Cimino 1994:Pl. LVI.2).

From the site of Padri (Gujarat) was excavated a copper lamp of Mediterranean origin (see section on Lamps below).

A bronze jug recalling an *oinochoe* was discovered in 1860 at Avinasi in the Coimbatore District of Tamil Nadu (Walhouse 1875: 302-303).

Among the minor artefacts excavated at Vidisha (Dist. Vidisha, Madhya Pradesh) we can identify a bronze Roman lamp (ASI Annual Report 1914-15:66-68, 86; **Fig. 9**).

Roman bronzes have been excavated from Taxila and Begram. The copper/bronze artefacts of Mediterranean origin from Taxila include a bronze statuette of Harpocrates from Sirkap (Cimino 1994: 212-213). The Begram bronzes include the head of Silenus, bust of Athena and statuettes of a horseman, Hercules and Graeco-Egyptian God Harpocrates (see Cimino 1994:214-219).

Apart from the clearly identifiable Mediterranean bronze finds specified above, a number of bronze/copper objects comprising mirrors and vessels found in India and South-East Asia may have been produced as a result of infusion of Mediterranean techniques. The distinguishing feature of these objects is a "knob" or central protrusion at the back of the mirrors and at the bottom of the vessels. In particular, we may refer here to a copper dish with *omphalos* excavated from 1st-2nd century A.D. levels at Nevasa (Sankalia *et al.* 1960:420-421; **Pl. XIV**). This "knob" has been associated by Sankalia *et al.* (1960:420-421) with the auspicious Greek sign of the *omphalos* and as an auspicious Buddhist symbol by Glover (1990).

Bronze/copper mirrors with protrusions have been found only in India. The find-places are Brahmapuri, Ter (de Puma 1992:82-112), Adam (Amarendra Nath 1995: fig.13), Adichanallur, Basarh and Rairh (discussed in Margabandhu 1973: 21-26; 1996:233-243; **Fig. 9**). Bronze vessels with 'knobs' have been discovered at Ban Don Ta Phet in Thailand (Glover 1990; 1996:142-143) and the Nilgiri region of India (information in Glover 1996:142).

Chronology

Bronze statuary from Timna is dated to the Ptolemaic period (Van Beek 1958:149; Sidebotham 1986a:16). Bronzes from Ed-Dur have been contextually dated to 1st-2nd century A.D. (Potts 1990:288; Haerinck *et al.* 1993:183-193).

The most recent dates for the Brahmapuri bronzes have been provided by de Puma (1992:82-112; for earlier chronology see Khandalavala 1960:29-75). The dates of production provided by de Puma for items reviewed by him: Poseidon figure (300 B.C.-200 A.D.); emblema with Perseus and Andromeda (second half of 1st century A.D.); Millingen-type oinochoe (50 A.D.); pair of handles (related to comparable finds from Pompei and placed in the early Imperial Period of Rome, i.e., 1st century A.D.); basins of Eggers Type 100 (1st century A.D.); fragmentary strainer (closest parallels in 5th-4th century B.C. Etruscan types); *calathiscus* (date not provided).

In the chronology given above the Poseidon figure and the strainer are the earliest manufactured specimens in the hoard. However, de Puma (1992:103) is of the opinion that these two objects may have arrived earlier in India and then become part of the hoard in the 1st century A.D. The possibility of these objects travelling to India from the Mediterranean as "antiques" may also be noted. The 1st century A.D. date for the formation of the hoard (going by the dates of "latest" objects) agrees with the chronology arrived at by Sankalia and Dikshit (1952:139-141; for the stratigraphic context surrounding the hoard see also Sankalia 1957:207-208).

The bronze handle of an *oinochoe* found at Baroda has been placed by de Puma (1992:101-102) between 50-100 A.D.

The Begram finds have been dated between 1st century B.C. - 3rd century A.D. (Cimino 1994: 214-215).

Provenance

Khandalavala (1960:29-75) suggests Alexandria-in-Egypt as the main production centre for most of the bronzes found at Brahmapuri. However, de Puma (1992:100-101) is of the opinion that most of the Brahmapuri bronzes were produced in southern Italy. In particular, the Millingen-type *oinochoe* and the Eggers Type basin had their origin in the Campania region of southern Italy (De Puma 1992:100).

6. *Terra Sigillata* (Fig. 3, 10)

Distribution

Terra Sigillata is an omnibus category for a range of fine redwares produced about the Mediterranean at the beginning of the Christian Era. The main potteries of this group are Arretine, Samian and Megarian Wares. The Arretine Ware, which has the largest representation in India, was manufactured in the western Mediterranean, specifically at the settlement of Arezzo in Italy. The Samian and Megarian Wares, which were produced in centres in the eastern Mediterranean, are also grouped under the term Eastern *sigillata*.

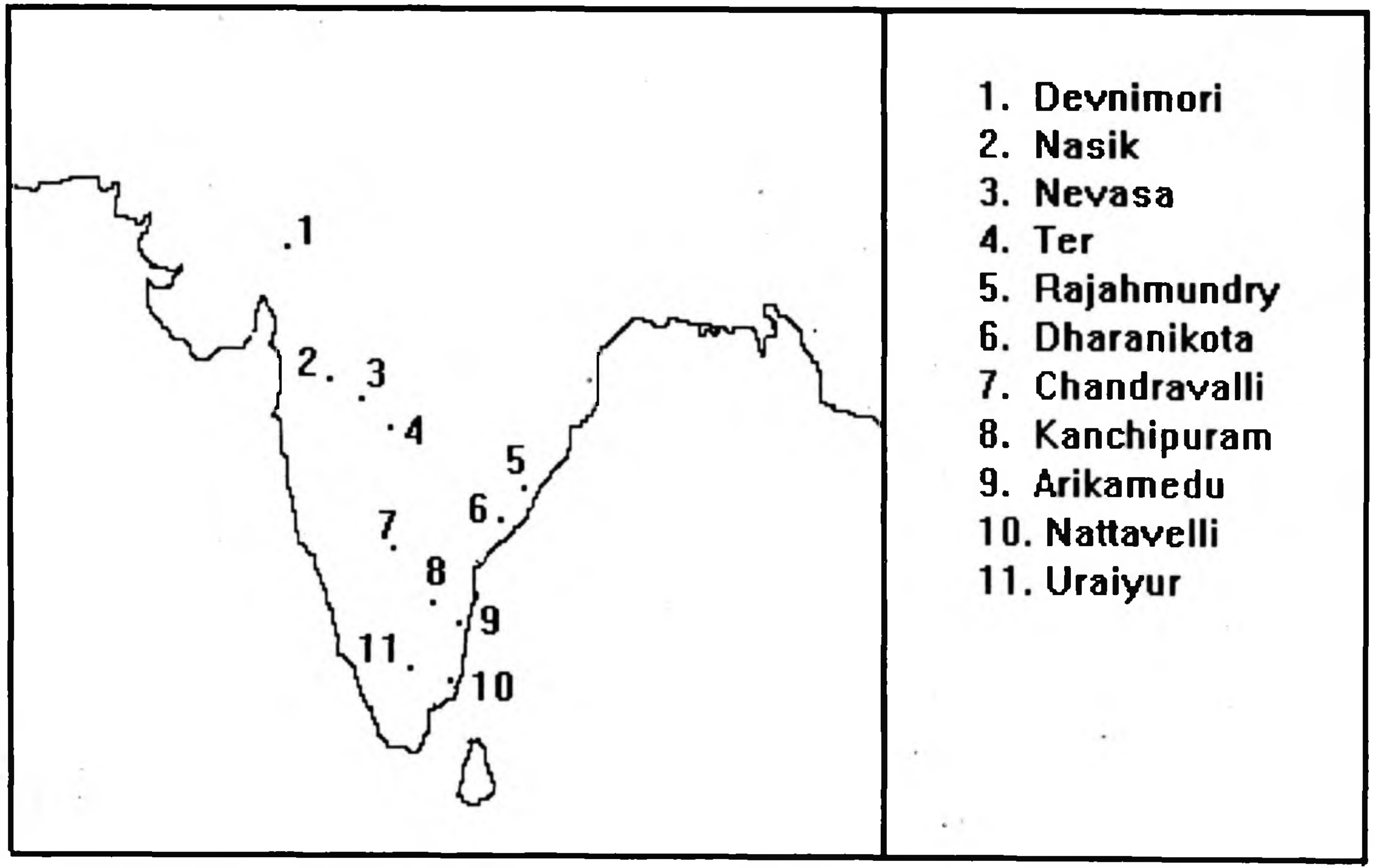


Fig. 10. Location of sites of *terra sigillata* finds in India

Roman deluxe "red gloss" tablewares, comprising the Arretine and associated ceramics of the *terra sigillata* group, have been recovered from the Egyptian Red Sea coast sites (Sidebotham 1986a). *Terra Sigillata* has also been reported from Sudan and Ethiopia (Slane 1992:208) and on the Ethiopian Red Sea coast sites excavated by the Italians in the thirties(Mordini 1967:20-21). Complete vessels of the Arretine Ware were recognised among the finds.

In the Gulf of Aden littoral important sites yielding *terra sigillata* are Timna (Comfort 1958:199-207), Marib (Prof. D. Gabler, Hungarian Academy of Sciences: personal communication), Qana (Sedov 1992:110-137) and Khor Rori (Yule and Kervran 1993:69-106). Both the western and eastern *sigillata* wares occur at these sites. Also, exploration by a Russian-Yemeni team on the island of Socotra brought to light "fragments of high quality red glaze cups and bowls, made in all probability in the Mediterranean region in the early centuries A.D." (Naumkin and Sedov 1993:605). Presumably, the red glaze wares found on Socotra represent *terra sigillata* imports into the island.

In the Persian Gulf littoral *terra sigillata* has so far been found at Ed-Dur (Salles 1984:250,fig. 16.196-199; Haerinck *et al.* 1993:187). Salles (1984:249-250) specifies that 6 sherds of the *terra sigillata* found at Ed-Dur included the Pergamene Ware, Samian A Ware and the Eastern *Sigillata* A/B.

In the Indian subcontinent *terra sigillata* (including Arretine Ware) first came to light during excavations at Arikamedu (Wheeler *et al.* 1946:34-41; Casal 1949; for latest review of Arikamedu finds see Comfort 1992:134-150). A total of 50 fragments are estimated to have been recovered from Arikamedu before the recent excavation at the site between 1989-93 (Slane in Begley *et al.* 1996:351). Between 1989-93, 8 more sherds of *sigillata* were excavated and catalogued by Slane (in Begley *et al.* 1996:351-368). A single sherd of Samian Ware has been identified amonst the small collection of Red Polished Ware at Nasik (Wheeler and Kenyon in Sankalia and Deo 1955:69; Subbarao 1953:56-64). Arretine ware has also been reported from Chandravalli in Karnataka (Wheeler *et al.* 1946:48), Dharanikota (*Ency.Ind.Arch.* Vol.II: 126) and Rajamundry in Andhra Pradesh (*IAR* 1979-80:1) and Kanchipuram (*Ency.Ind.Arch.* Vol.II: 200-201), Uraiyur (*IAR* 1964-65:25-26) and Arasankuppam/Nattavelli (*IAR* 1965-66:25-26) in Tamil Nadu. However, these finds are yet to be studied by experts. Recently, a slightly fragmented bowl which is either a *terra sigillata* ware or imitation of it has been identified among the Red Polished Ware vessels from Ter (Cimino 1994: Pl. XXXVII.3).

In Sri Lanka a foot of an Arretine bowl and fragments of the Eastern *sigillata* group have been reported from Mantai (Slane 1992:214).

Pseudo-*terra sigillata*: Interestingly, imitation *terra sigillata* vessels have been uncovered in the Gulf of Aden-Persian Gulf littoral as well as in India. In the Gulf of Aden region the specific sites yielding pseudo-*terra sigillata* are Qana (Sedov: personal communication) and Khor Rori (Yule and Kervran 1993:91-94). Prof. A.V. Sedov, Director of the joint Russian-Yemeni excavations at Qana, was kind enough to let the author photograph a sample of recently excavated *pseudo terra sigillata* from the site (**Pl. XIX.d**; details in chapter IV).

Around the Persian Gulf the sites yielding imitations of *terra sigillata* are Thaj, Failaka, Ayn Jawan and Bahrain. The Persian Gulf imitations were copies of both the western and eastern *sigillata* groups (Lombard and Salles 1984:111-112). At the site of Thaj in eastern Arabia were excavated rouletted sherds resembling the rouletted Roman *terra sigillata* (Potts 1990: 202-203). From Failaka the Danish expedition excavated two glazed pseudo-Megarian bowls (Potts 1990:167-169) though Salles (1990: 317-320) mentions three such bowls. A fluted hemispherical bowl imitating Megarian vessels is kept presently in the National Museum of Bahrain. Another such vessel was excavated from the ancient cemetery at Karranah in Bahrain (Potts 1990:111).

In India, vessels imitating Arretine pottery were excavated from Arikamedu by Wheeler *et al.*(1946:40-41,Fig.8.41-45). Wheeler has attributed the forms to imitations of Eastern *Sigillata*. Slane (1992:210) is of a similar view.

Apart from the specific imitation-Arretine vessels from Arikamedu, the Indian Red Polished Ware (RPW) has attracted notice as an indigenous ceramic group inspired by the *terra sigillata* manufacturing techniques. The RPW is discussed in detail below.

Chronology

Terra sigillata found in stratified contexts at Quseir can be contextually placed within the 1st-2nd century A.D. chronology of the site. At Timna (Yemen) the *terra sigillata* finds have been bracketed between 11 B.C.-96 A.D. (Comfort 1958:199-207).

In the Gulf of Aden area the *terra sigillata* from Qana has been recovered from the Lower Period (1st-2nd century A.D.) (Sedov 1992:116-121; 1996:12-16). At Khor Rori, the *terra sigillata* is dated in association with Nabatean pottery of late 1st century B.C. - 1st half of 1st century A.D. (Yule and Kervran 1993:91-94).

In the Persian Gulf littoral the *terra sigillata* finds from Ed-Dur have been dated to the 1st century A.D. (Salles 1984:250; Haerinck *et al.* 1993:187). The Roman rouletted ware from Thaj is dated to the 1st century A.D. (Potts 1990:202-203). The imitation *terra sigillata* in BI-Ware fabric from Failaka has been dated to the beginning of the Christian Era though stylistically the tradition may go back to the 1st century B.C. (Salles 1990:303-334). The imitation *terra sigillata* pot excavated from Karranah in Bahrain has been dated to 3rd-2nd century B.C. by Potts (1990:111), who however concedes that the vessel could be of the 1st century B.C.

In India, the *terra sigillata* excavated by Wheeler *et al.* (1946:34-41) from Arikamedu has been given an inclusive datation of 20-50 A.D. with a single sherd put at 10 B.C. In a comprehensive and detailed review of Wheeler's *terra sigillata* finds, together with the sherds later excavated by Casal (1949), Comfort (1992:134-150) places majority of the sherds in the 10 A.D.-25/30 A.D. bracket with the single early sherd dated to 10 B.C. Dr. Denis Gabler of the Hungarian Academy of Sciences has kindly furnished the author with his observations on the *sigillata* illustrated by Wheeler in his report. Gabler (personal communication: letter of 29th May, 1989) suggests a chronological bracketing of 20/25 A.D.-45/50 A.D. as the inclusive period for the majority of the sherds with the earliest pottery dated to the last years of the 1st century B.C. The 8 sherds of Italian *sigillata* found in the 1989-93 excavation have been placed in the 1st century A.D. with a concentration in the 1st quarter of the 1st century A.D. (Slane in Begley *et al.* 1996:351-355).

The inclusive datation for the *terra sigillata* at Arikamedu provided by Wheeler, Comfort, Gabler and Slane makes it clear that the majority of the sherds had arrived in India in the 1st half of the first century A.D. and that the earliest arrivals can be put in the last decade of the 1st century B.C.

The single Samian Ware fragment from Nasik has been found in Pd. III levels dated between 50 - 100 A.D. (Sankalia and Deo 1955:29, 69).

Provenance

Red Sea littoral: *Terra Sigillata* from Timna has been sourced to both the western and eastern *sigillata* groups (for ref. to Italian *sigillata* see Comfort 1992:135). The *terra sigillata* found in Marib can be identified with the Italian and Eastern *sigillata* groups (Denis Gabler: personal communication).

Gulf of Aden littoral: At Qana, *sigillata* from both the western and eastern Mediterranean has been reported (Sedov 1992:116; forthcoming). Recently, *terra sigillata* finds from Khor Rori have been restudied and found to belong to the Eastern *Sigillata* group (Yule and Kervran 1993:93).

Persian Gulf littoral: *Terra Sigillata* found at Ed-Dur has been sourced to the Eastern *Sigillata* group (Salles 1984:250; 1993:502).

Indian Subcontinent: Except for 3 sherds which have been attributed an Eastern Mediterranean origin, all other *sigillata* pieces from Arikamedu belong to the Western *Sigillata* (specifically Italian) group (Comfort 1992:134-150; Slane 1992:205-215).

The single fragment from Nasik, identified as Samian Ware by Wheeler and his colleagues (see above), would therefore have an Eastern Mediterranean provenance. Slane (1992:207), however, is doubtful of an eastern provenance for the sherd and is of the opinion that the fragment could be from Gaul (ancient France). However, it may be noted that unlike Wheeler, Slane makes her observation without studying the sherd first-hand.

Sri Lanka: The *terra sigillata* found in Sri Lanka belongs to the Italian as well as Eastern *Sigillata* groups (see footnotes in Slane 1992:214).

The distribution of *terra sigillata* in the Erythraean Sea littoral shows that Mediterranean fine wares had reached all the littoral-regions except Eastern India and South-East Asia. Both the Western and Eastern *Sigillata* varieties have been recovered from the Red Sea region and the Gulf of Aden littoral. Though the Persian Gulf region has hitherto yielded only *terra sigillata* of the eastern Mediterranean, imitations of the Western *Sigillata* group have been identified at a number of sites. In India, both the Western and Eastern *Sigillata* varieties have been found, the former in greater number and mostly from the site of Arikamedu. Direct imitations of Arretine forms also occur at Arikamedu and probably Adam in western India. As we shall discuss, many specimens within the Indian Red Polished Ware group approximate to the fabric and typology of some *terra sigillata* types.

7. Black Glazed Ware

Specimens of the Greek Black Glazed classic pottery were found in Failaka in levels dated to 285-250 B.C. (Potts 1990:166-168). A fragment of a black polished bowl from Devnimori (Gujarat) having incurved rim and convex belly has been classified as 'Black arretine type' and dated to the early centuries of the Christian Era (Mehta and Chowdhary 1966:69,87). The published drawing of the pottery (Mehta and Chowdhary 1966:Fig.36:106) is similar to a redware bowl from the Lower Pd (1st-2nd century A.D.) levels of Qana (Yemen). Though the excavator has illustrated the latter as part of the *terra sigillata* corpus, he associates the bowl with the Indian Red Polished Ware (Sedov 1996: fig.4:19; **Pl. XIX.d**).

8. Lamps (Fig. 11, 12)

Distribution

Lamps of Mediterranean origin and their imitations continue to be found across the northern Indian Ocean littoral. Mediterranean oil lamps, of metal, stone and clay, are important signifiers of source-areas and chronology as their "types changed with some regularity" since they began to be produced from the mid 1st millenium B.C. (Biers 1980:146).

Gulf of Aden: Two lamps of typical Mediterranean design, having enclosed receptacle and elongated nozzles for wicks, have been reported from the Middle Period at the port-site of Qana in Yemen. The Middle Period at Qana is dated between 2nd - 4th century A.D. (Sedov 1996:19-23).

Persian Gulf: Two Hellenistic lamps with oval body and covered nozzle were excavated at Failaka from Seleucid levels and dated to the 3rd-2nd century B.C. The two lamps are probably of local manufacture (Gachet and Salles 1993:73-75). From the site of Ed-Dur has been found a Roman bronze lamp with crescent-shaped handle contextually dated to the 1st-2nd century A.D. (Haerinck *et al.* 1993:185).

Indian Subcontinent: **Fig. 11** shows the distribution of Mediterranean lamps and their imitations in the Indian subcontinent. Though most of the discoveries are of lamps, there is one reported find of a Mediterranean or imitation of a Mediterranean type hanging lantern as well as a possible candlestick stand of Mediterranean origin. A site-wise review of Mediterranean lamps and their imitations is given below:-

Taxila (Northern Pakistan): Lamps of soft-stone (steatite, schist) were recovered from different sites in the Taxila region. According to Marshall (1975, Vol.II:500) "lamps do not appear to have been made of stone (at Taxila) until the Saka-Parthian period (1st century A.D)." An example of a lamp modelled after Hellenistic types has been reported by Marshall (1975, Vol.II:501; Pl.142) from the site of Sirkap and dated to middle or later part of 1st century A.D. Also, a red terracotta lamp of Hellenistic design was found by Wheeler (1962:124) at the site of Charsada. He dated it to the 3rd century A.D.

Balathal (District Udaipur, Rajasthan): A terracotta lamp of grey-black fabric was excavated in the 1995-96 season at Balathal by archaeologists from the Deccan College, Pune. The lamp was excavated from the upper layers of the site dated to the beginning of the Christian Era. The lamp was found in several pieces which were reconstructed nearly to the complete shape (personal observation). While examining the lamp at the site I could not be sure whether it was imported from the

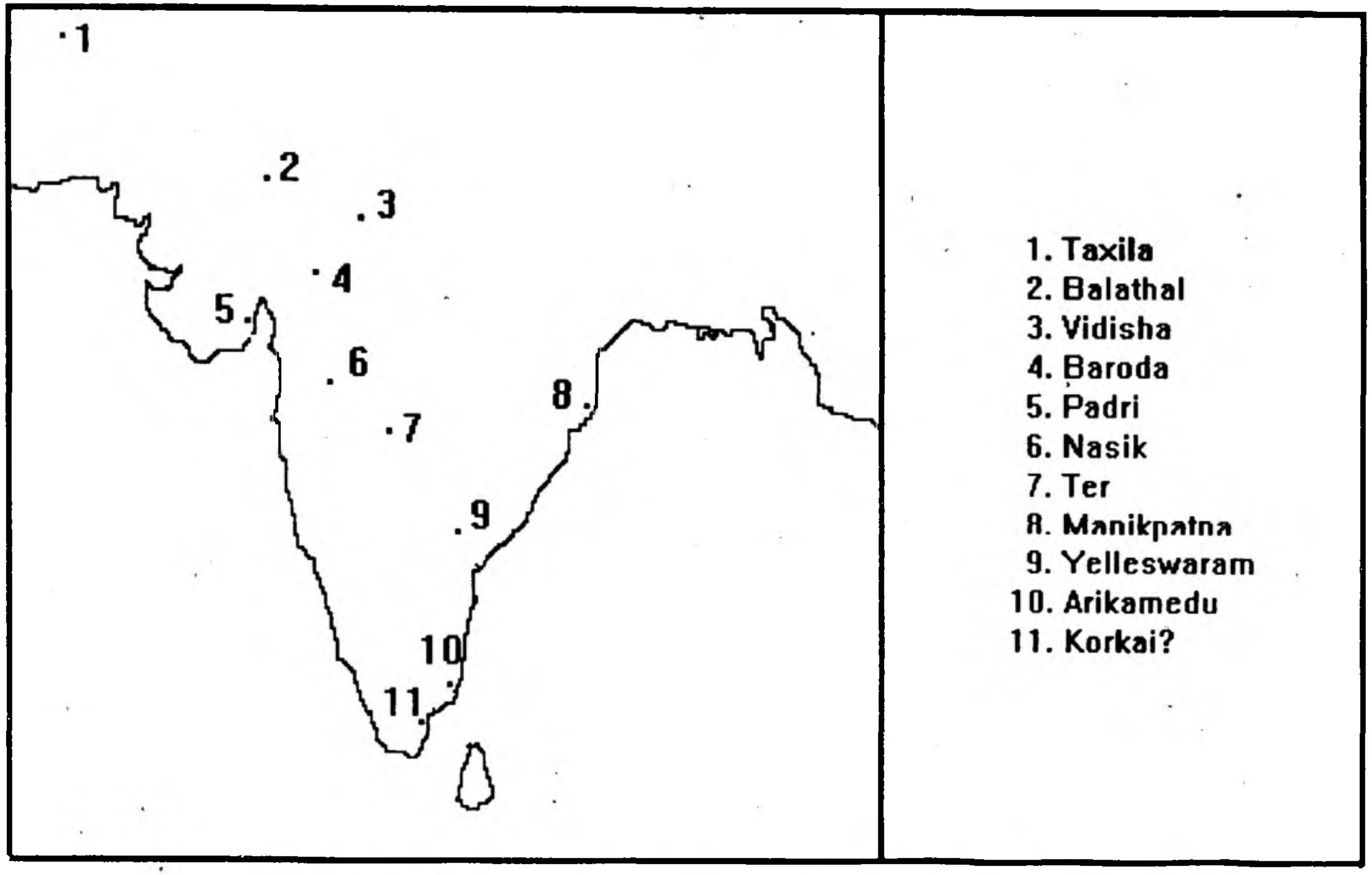


Fig. 11. Distribution of Roman Lamps and their imitations in India

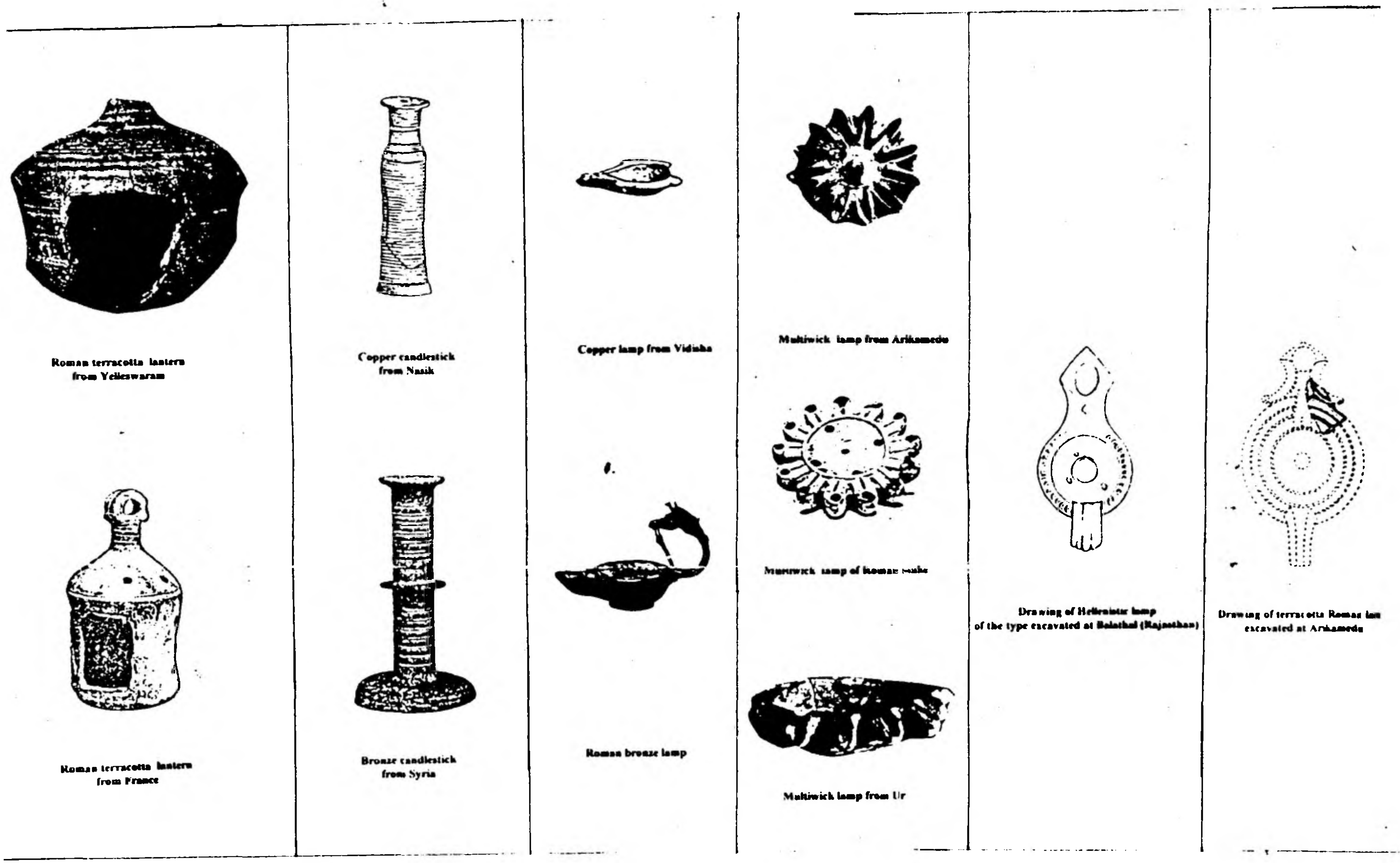


Fig. 12. Comparison of Roman lamps found in India and the Mediterranean

Mediterranean or an imitation. The Balathal lamp compares well with a particular Graeco-Roman lamp type produced in the early centuries of the Christian Era (see catalogue of Mediterranean lamp types in Biers 1980: p.321, fig.10.62:f, **Fig. 12**).

Also, from the Early Historic levels of Balathal, a tortoise shaped clay lamp was excavated (Misra *et al.* 1995: Fig. 14c). This lamp can be confidently compared to a copper Roman lamp in shape of tortoise excavated from Early Historic levels at Padri (discussion below).

Padri (District Bhavnagar, Gujarat): A 'tortoise-shaped' copper lamp excavated from the Early Historic levels at Padri is dated by the excavator to 1st century B.C. - 1st century A.D (Shinde 1992:81; **Pl. X**). The lamp is an importation from the Roman World. It has the diagnostic features of Roman lamps such as the rounded enclosed container with a central rimmed orifice and a covered, elongated nozzle for the wick. Four lugs projecting from the body of the lamp must have been used for suspending it. Rusted remains of iron rings observed on lugs on the body of the lamp reveal that it was suspended on iron chains. The lamp is approx 10 cm in length and approx. 7.5 cm in breath. The outer diameter of its rim is approx. 5 cm. A clay imitation of the copper lamp has been excavated from contemporaneous levels at Balathal (see discussion above).

Baroda (Dist. Baroda, Gujarat): Two vessels in grey ware excavated from Pd.III and Pd.IV levels at Baroda show sharp resemblance to Mediterranean lamps. Both lamps are similar to the type excavated at Balathal (model illustrated in **Fig. 12**). The dating of the suspected Mediterranean type lamps from Baroda is late from our point of view. Baroda Pd.III is placed between 7th-10th century A.D. and Pd.IV between 11th-13th century A.D. (Subbarao 1953:43-45). The vessels may be representative of Mediterranean types continuing in later times.

Besnagar (Dist.Vidisha, Madhya Pradesh): A copper vessel excavated from Besnagar by Bhandarkar (ASI Annual Report 1914-15:66-68, 86) seems to be an oil lamp as indicated by a spout-like elongation (**Fig. 12**). Bhandarkar explained the object as an "utensil for offering worship to gods." The vessel, however, has affinity with Roman lamp types (see **Fig. 12** for comparison).

Ter (Dist. Osmanabad, Maharashtra): This important Early Historic site in the western Deccan, identified with the inland emporia of Tagara named in the *Periplus*, has yielded a terracotta suspension lamp and a number of conch-shell shaped terracotta lamps inspired by Mediterranean forms.

Deshpande (1965:607) describes the suspension lamp: "The object is shaped in the form of a female bust. The head is hollow and is provided with a central knob with a transverse perforation for suspension...The features are typically Roman; the terracotta is pink in colour and is made from fine well-levigated clay, quite different from terracottas of Ter, and appears to be an import."

Also, terracotta lamps having rounded hollow containers with single orifice and long covered nozzles akin to Mediterranean tradition have been collected by antiquarians from the site of Ter. A large number of these conch-shaped or fish-shaped lamps, in red fabric, are kept in the Ter Museum. Some of these lamps are decorated with "anthropomorphic or a zoomorphic figurine" (Cimino 1994:164). Gorakhshkar (1975:28-29) relates the Ter lamps to an inscription from Alluru (Dist. Krishna, Andhra Pradesh) dated to early centuries A.D. which refers to *Yonaka divikaya* (*Yavana* lamps) "gifted to a temple including some hand lamps of the *vadaka* fish-shape."

Bhokardan (Dist. Aurangabad, Maharashtra): Nozzle-like fragments with anthropomorphic and zoomorphic decorations close to the Ter fish-shaped lamps have been recovered from levels dated to 3rd century A.D. (Deo and Gupte 1974:Fig.18,19).

Nasik (Dist. Nasik, Maharashtra): A cylindrical copper object excavated at the Early Historic site of Nasik may be a candle-stand imported from the Mediterranean. The excavators describe the object as: "A stand or handle-like cylindrical object, broken in four pieces, with tapering ends. Possibly the end is slightly broader at the butt end or at the base, and the narrower, with a hole for insertion the front or the top end. There is a broad deep groove below this. The whole is marked by thin grooves all over the body." (Sankalia and Deo 1955:108-109). The copper stand from Nasik is very similar in form and decoration (body grooves) to an Eastern Mediterranean variety of candle-stand (**Fig. 12**). The socket on top of the stand from Nasik must have been to hold the candle. The tradition of burning candles originated in Etruscan Italy (6th-5th century B.C.) and then spread to Greece/Eastern Mediterranean. Socketed candle-stands proliferated in the Roman period (Forbes 1967: 133-134, 140).

The candle-stand has been recovered from Layer 5 which falls in Early Historic Pd. IIA at the site. This period has been attributed a date of 400-200 B.C. by the excavators (Sankalia and Deo 1955:27-29, 109).

Manikpatna (Dist. Puri, Orissa): Terracotta lamps excavated from 1st century A.D. levels at the ancient port of Manikpatna seemed to be modelled on Mediterranean types (**Pl. XI**). The lamps clearly display affinity with Mediterranean types in the shape of the container and the long wick. In particular, the lamp No 1 of **Pl. XI** is seen to have the disc/volute surrounding the circular container. This volute is typical of Mediterranean lamps as evident from the original Roman clay lamp found at Arikamedu (**Fig. 12**).

Yelleswaram (Dist. Nalgonda, Andhra Pradesh): A terracotta suspension lantern of typical Roman design was excavated from Pd.II (1st-2nd century A.D.) levels of the site of Yelleswaram on the banks of the river Krishna. The excavator Md. Abdul Wahid Khan (1963:31) describes the object thus: "A Red Ware lantern provided with a rectangular aperture or a shutter serving as the door for placing a lamp inside. It was meant probably for hanging like a chandalier. It was completely covered, having sloping shoulders provided with grooves. The sides were almost straight, tending towards the bottom to form a rounded base, which was also grooved. The top portion was broken and probably there might have been a long neck."

The terracotta lantern from Yelleswaram Pd.II is either an importation from the Mediterranean or is closely modelled on western forms. This is evident from the reproduction of a Roman lantern from Gaul in **Fig. 12** to which the Yelleswaram lantern approximates. The broken top portion of the Yelleswaram lantern must have had a ring for suspension like the Roman lamp.

Arikamedu (Pondicherry): Two clay fragments of Roman lamps were found at Arikamedu. Wheeler (*et al.* 1946:101) describes the lamps: "Fragment of the disc and side-volute of a Roman lamp, here restored in accordance with the normal form of the Augustan Period (early 1st century A.D.). Of fine red ware. Found in the spoil trench over the principal wall of AK II; not stratified. Another fragment of Roman lamp was found in the previous excavations." (**Fig. 12**).

Recently, in an exhibition on Roman antiquities in India held in Indian Museum, Calcutta, a 12-nozzle circular terracotta lamp from Arikamedu was displayed and its photograph published in the catalogue. Such multi-wick lamps were very common in the Mediterranean in pre-classical and classical times, their unique design being inspired by the Bronze Age oil lamps made by cutting paricular types of shells (Forbes 1967:143-146;**Fig. 12**). We cannot be sure whether the lamp is an importation or imitation.

Korkai (Dist. Tirunelveli, Tamil Nadu): Reported as 'spouted potsherds' from Pd.II (Pandya) at Korkai, a photograph of the objects in question shows it to be strikingly similar to the fish-shaped clay lamps of Mediterranean inspiration found at Ter (Damilica 1970bVol.I.:50-54, Pl.49a).

Southeast Asia: A bronze lamp of Mediterranean origin was discovered at Pong Tuk in Thailand (Glover 1996:151).

Chronology

All the lamps of Hellenistic design reported from Taxila belong to the 1st-3rd century A.D. (see ref. above). The dates of the lamps derived from the typology of lamps or/and their associated contexts are as follows.

The lamps at Qana occur in the Middle Period dated between 2nd-4th century A.D. (for dates of strata see Sedov 1992:113-115) The Hellenistic lamps from Failaka have been placed in Hellenistic contexts (2nd century B.C. ? ,Gachet and Salles 1993: 73-75). The Hellenistic lamp from Balathal belongs to the uppermost layers of the site dated to the 1st-2nd century A.D. (V.S. Shinde, Deccan College personal communication). The copper lamp from Padri has been recovered from layers dated to the 1st century B.C.-1st century A.D. (Shinde 1992:81). The Hellenistic lamps from Baroda belong to layers dated to the 10-17 century A.D. (Subbarao 1953:14-16, fig.19) and are therefore beyond the scope of this study. The date of the suspected copper lamp of Mediterranean origin at Vidisha is indeterminate. The copper candlestick from Nasik comes from levels dated between 400-200 B.C. (Sankalia and Deo 1955:108-109,Fig.51.e). The imitation Mediterranean lamps from Manikpatna come from the lowest levels of the site dated to the 1st century A.D. (D.R. Pradhan: personal communication). The terracotta lantern found at Yelleswaram has been excavated from Pd.II layers dated to the 1st-2nd century A.D. (Khan 1963:9-11, 31). The Roman clay lamps from Arikamedu found by Wheeler have been dated, on the basis of typology, to the 1st century A.D. (Wheeler *et al.* 1946:101). The 'spouted potsherds' from Korkai resembling Mediterranean lamps have been recovered from Pandya Period layers dated between 3rd cent. B.C. and 2nd cent. A.D. (*Damilica*,1970 Vol.I.:50-54). The Roman lamp from Pong Tuk (Thailand) has been dated, on recent revision, between 1st-6th century A.D. (Glover 1996:151).

9. Jewellery

Gold jewellery of Graeco-Roman design was excavated from Taxila by Marshall (1975, Vol.II:616-637). He does not mention whether the jewellery is an importation. The jewellery items were dated by Marshall to the 1st-2nd century A.D.

Gold jewellery of Roman origin was discovered at Vellalore and Koneripatti in Tamil Nadu (Photographs in pamphlet on exhibition of Roman antiquities held in the Indian Museum, Calcutta, 1993). It was found associated with Roman coins (Turner 1989: 84).

10. Roman Swords

A double-edged iron sword with its pommel cast in shape of a bird's head was found at the Iron Age site of Samad in interior Oman. According to Potts (1990:295) the sword is an import from the Roman World. Roman swords have also been recovered from Iron Age sites in Central Asia (Mukhamedjanov 1994:286). These swords may have belonged to traders from the Mediterranean who ventured into the isolated regions of Oman and Central Asia.

11. Beads

Beads of Roman Egyptian manufacture were identified by Francis, Jr. (1987) among the beads from Arikamedu kept in the Pondicherry Museum. They have been dated to the 1st century A.D. (Francis, Jr. 1987).

Beads made from blue glass of likely Mediterranean origin were excavated at Brahmapuri (Sankalia and Dikshit 1952:117), Nevasa (Sankalia *et al.* 1960:446) and Bhokardan (Deo and Gupte 1974:131). All of them can be stratigraphically placed in the 1st-2nd century A.D. (discussion on stratigraphy of Western Indian sites in chp.V).

A 'mosaic' glass bead imported from the Roman Empire was identified among the excavated finds from the port of Mantai, Sri Lanka (Carswell 1992: 200). Date not given.

12. Statuary

Red Sea region : In the temple area of the port-site of Berenice on the Egptian Red Sea coast was found a bust of Serapis and another unspecified 'head of Roman statue' (Meredith 1957:70). Date indeterminate.

Indian Subcontinent : An alabaster statuette of Heracles or a figure in the guise of Heracles excavated at Charsada (North-West Pakistan). According to Wheeler (1962:123), the excavator of the site, the stattuete is of "crude Mediterranean type and it or its artist was an importation from the Greek world." Statuette is dated to 2nd century B.C.

A unique alabaster sculpture of the Roman God of Love, Eros, within a hollow container, was recovered during exploration of the site of Junnar, Maharashtra (Deo 1992:43). Cimino (1994:183-184) describes the piece as "an unicum of its type, probably linked to Orfic beliefs." Date indeterminate.

A number of plaster medallions with sculpted Greaco-Roman figures (Ares, sleeping Maenad) have been recovered from Begram in Afghanistan. Dated between 1st century B.C. - 3rd century A.D. (Cimino 1994: 214-219).

A bronze figure of the Roman sea-god, Poseidon, was excavated from Brahmapuri, Maharashtra (see section on Copper/Bronze objects). Figure stylistically dated between 300 B.C. - A.D. 200 by de Puma (1992:103). However, the Poseidon figure comes from strata dated to 1st-2nd century A.D. (Sankalia 1957:207-208).

A bronze stattuete of Atlas was recovered from Devnimori, Gujarat (see section on Copper/Bronze objects).

A terracotta bust of a *Yavana* (Roman soldier?) was found during explorations at Erode, Tamil Nadu. The bust is in the possession of the Kalaimagal Meenakshisundaram Archaeological learning and Research Centre at Erode. The author was provided with photographs of the unique terracotta figure by Director of the French Institute, Pondicherry (**Pl. XIII**; also Gupta 1990; Cimino 1994:Pl. XVII.1). Date indeterminate.

An imitation of a Roman bust probably inspired by portraitures on "Indo-Roman" coins was found during excavations at Jetavanarama, Sri Lanka (Bopearachchi 1996:71). Mid-1st millenium A.D.

13. Cameos

Indian Subcontinent : From Arikamedu, Wheeler *et al.* (1946:101) reports 'a quartz intaglio of Graeco-Roman workmanship representing Cupid and a bird...' discovered by French prospectors and kept in the Pondicherry Museum. Wheeler also mentions 'the casual discovery of a gem said to bear the head of Augustus Caesar (1st century A.D.)...' The intaglio in question was lost when Wheeler heard about it. A number of cameo 'blanks' have been recovered from Arikamedu (Francis, Jr. 1987). One such blank was found by the author while exploring the 'bead factory' area of Arikamedu mound (**Pl. XII.a**).

From Ter (Maharashtra) two oval carnelian seals were recovered. The seals, though depicting Indian themes (bust of man and figure of bull), nevertheless show influence of Mediterranean crafting (Cimino 1994: 178-181, Pl. LIV:1-2).

From the site of Karvan near Baroda (Gujarat) was found a cameo of red agate showing the bust of a lady of probable Hellenic origin. A carnelian cameo crafted using Graeco-Roman techniques was also discovered at Paithan, Maharashtra (Cimino 1994:185-187).

In Jetavanarama, Sri Lanka was found an intaglio depicting a Roman figure inspired by portraitures on Roman coins (Bopearachchi 1996:71).

Southeast Asia: From the ancient beadworking coastal site of Khlong Thom (Malaysia) were found three Roman carnelian intaglios, two portraying the Goddess Tyche or Fortuna and a pair of fighting cockerels and the third with the figure of God Perseus. They are dated to late 1st-2nd century A.D. (Glover 1996:135).

14. Inscriptions/ Inscribed Pottery / Seals and Sealings (Fig.3).

Red Sea Region : Hieroglyphic inscriptions have been found on the temple-site at the ancient Egyptian port of Berenice. They eulogize the Roman emperors Tiberius Caesar, Marcus Aurelius and Lucius Verus. Many of the inscriptions are dedicated to Tiberius. Only one inscription is dedicated to Ptolemaic royalty - in this case - Ptolemy VII. However, this inscription (in Greek) is on a rock fragment which may have been brought from elsewhere. The inscription can be dated to 1st-2nd century A.D. on the basis of the reigns of the Roman emperors mentioned. (Meredith 1957:59-70).

The Petrie Ostraca, a collection of potsherds inscribed in Greek, contain information about individuals, family firms and mercantile groups in Egypt engaged in sea trade ventures with India. It also referes to wine trade with Indiaand is dated to the 1st century A.D. (Sidebotham 1986a:18, 26, 83, 85-86, 88-91, 99).

An inscription in Greek found on the Berenice-Edfu road records the prayer of 'Sophon, the Indian' to the god Pan. It has been tentaively dated to the 1st century A.D. (Salomon 1991: 731-736).

Upon a Ptolemaic gravestone discovered at Dendereh in Egypt, the Egyptologist W.M. Flinders Petrie observed symbols which he thought 'resembled the Buddhist symbols of the wheel of life and the trisul.' Date indeterminate (Salomon 1991: footnote in 736).

Gulf of Aden : From the port-site of Qana in Southern Yemen was excavated an inscription in Greek engraved on a plaster wall of an early Christian church. The inscription contains the prayer of a merchant Kosmas who desires his 'caravan and ship be kept safe.' It has been dated to the 4th century A.D. (Vinogradov in Sedov 1992:136). Also at Qana, the name 'Neaprot' was found inscribed in Greek on an amphora fragment. This inscription has also been dated to the 4th century A.D. (Shelov-Kovedyaev in Sedov 1992:136-137).

An inscription in Latin with a transcription in Greek was found at Baraqish (Yemen). Dated between 1st-4th century A.D. the inscription was probably engraved by a Roman merchant (Cimino 1994:59).

A rock-inscription in the ancient South Arabian script found near the ancient Hadhramauti capital of Shabwa mentions the presence of Indians at the investiture of some Hadhramauti king (Cimino 1994:58-59).

Indian Subcontinent : Two epigraphs in Brahmi script of Ishkvaku royalty from Nagarjunakonda make mention of 'denari' which Shastri (1992:77-87) takes to be a reference to Roman denari exported to India in large quantity. The inscriptions have been dated to the 4th century A.D. An epigraph in Brahmi dated of the Ishkvaku Period (3rd century A.D.) found in Eastern Deccan mentions *yavana-dvipa* or lamps from the Mediterranean (Gorakhshkar 1975).

From the site of Tilda (Dist. Midnapur, W.Bengal) has been discovered a terracotta tablet carrying a three line inscription in Greek. The word EURULON has been recognised in the middle line and interpreted as 'the east wind that comes with the dawn.' This was probably a votive tablet in possession of a Hellene who had voyaged to the Bengal coast. Date indeterminate (*IAR* 1955-56:62).

From the site of Rajbadidanga (Dist. Murshidabad, W.Bengal) sealing (of clay?) was found containing the Roman letters OABORRA. This sealing has been dated to the 2nd century A.D. (*IAR* 1968-69:43). Also, a fragmentary terracotta seal was excavated from the site. The seal, bearing deeply incised Greek letters, has been deciphered as HORAE, the name of Graeco-Roman deities of the seasons. This inscription has been dated to the 6-8th century century A.D. (Das 1968:63).

15. Papyrus Documents

A papyrus of the 2nd century A.D. found at the Egyptian village of Oxyrhynchus contained passages and records connected to the India trade. In a section of the *Papyrus Oxyrhynchus* were passages from a 'barbarian' language which Hultzsch (1904:399-405) identifies as Tulu, a dialect still spoken on the Kanarese coast. A papyrus document in Greek in the collection of the Vienna Museum records an agreement between a Roman merchant based in the south Indian port of Muziris and his handling agent at an Egyptian Red Sea port. This papyrus is dated to the 2nd century A.D. (Casson 1989:14-15).

For references to other papyri alluding to Rome's eastern trade see Sidebotham (1986a:223).

16. Red Polished Ware

The Red Polished Ware (RPW) represents a variegated corpus of Early Historic Indian "red gloss" ceramics. The term Red Polished Ware first appears in the writings of B.Subbarao who initiated a critical study of this pottery in the fifties (Subbarao : 1953:56-64; 1958:46-47; Subbarao in Sankalia, Subbarao and Deo 1958:159-163). Of course, the RPW was being reported before Subbarao created the nomenclature for it. In 1941, Yazdani (1941:77) recovered in course of excavations at Kondapur (Dist. Medak, Andhra Pradesh) small cups, pots and urns which he described as "extremely thin and delicate and (having) a red colour with lustrous polish". Similar ceramics were recovered by Wheeler (1947-48) at Chandravalli (Dist. Chitaldurga, Karnataka) in the southern Deccan. At Brahmapuri (Dist. Kolhapur, Maharashtra) the pottery was classified as Imported Ware. Sankalia and Dikshit (1952:61) describe the ceramic as having "a light salmon red painted surface which sometimes turns to pinkish grey or yellow and bears a highly polished finish." Again, reporting the RPW from Nasik, Sankalia (in Sankalia and Deo 1955:69) observes that "in all cases from their fabric and type they (RPW vessels) are distinguished from other local ware. All are made of fine levigated clay, uniformly fired, having a dull-red burnished surface, or treated with bright red slip. "

Outside India, the Red Polished Ware has been reported from a number of sites in the Persian Gulf and Gulf of Aden regions. In the Persian Gulf littoral the RPW has been found on the Iranian coast (Whitehouse and Williamson 1973:29-51), at the sites of Ed-Dur (Salles 1993:502; Haerinck *et al.* 1993:187) and Suhar (Kervran 1996:37-58; personal communication). In the Gulf of Aden area the RPW has been reported from the sites of Khor Rori (Yule and Kervran 1993:91-94) and Qana (Sedov 1996:27, **Pls. XVI.a; XIX**).

The initial observations on the RPW reveal that this ceramic acquired its nomenclature primarily because of the high quality of its fabric and lustrous surface finish. Subbarao attributed a Mediterranean origin to the manufacturing technique of the ware, transmitted, according to him, by way of seaborne commerce from the Roman Empire. It is well worth reproducing Subbarao's critical observations -

> "We have reasonable grounds for assuming that as a result of the extensive commercial contact with the Mediterranean region, the technique of Roman Samian wares was successfully copied in western India. Though most of the forms are Indian, their chronology, luxurious character, limited distribution and the comparitavely poor quality of the other local wares, association of Roman coins and other

antiquities, constitute too much of a coincidence to ignore this compromise" (Subbarao in Sankalia, Subbarao and Deo 1958:161).

Reviewing the RPW evidence from his excavations at Amreli (Dist. Junagadh, Gujarat), Rao (1966:51-59) contradicts Subbarao's postulate of a Mediterranean origin for the ware. Rao bases his claim on the evidence of black polished ceramics, identical to the RPW, occurring in levels immediately preceding the RPW-bearing layers. According to Rao, the black polished vessel represents the indigenous precursors of the RPW.

After a long period of hibernation, recent studies on the RPW have rekindled debate on the origin of the ware. Begley (1992:157-196) has compared a group of tableware from the RPW repertoire with Megarian pottery, a deluxe glossy red ware of Greece and Eastern Mediterranean. She has classified the tableware group (bowls, cups, goblets) as Moldware (MW). Earlier, Sankalia *et al.* (1960:279-280, 310-314) had also related the tableware range to Megarian ware. He gave these vessels the nomenclature of "Megarian-like." (**Pl. XVI.b** for Moldware/Megarian-like ware from Nevasa).

Orton (1992:46-81), who has prepared a catalogue of RPW from 12 excavated sites in Gujarat, speaks for an Indian origin of this ware. According to her "RPW vessel forms are strictly Indian in character. All forms can be found in the coarser associated wares of the Early Historical Period, except for the "sprinkler" and globular jars with beaded interior ledges" Orton (1992:46-48).

It is important to note that Orton concentrates on cataloguing RPW vessels *outside the Moldware range*. However, it is to be stressed that the Moldware showing attributes of Eastern *Sigillata* pottery cannot be divorced from rest of the RPW forms. This is because the *primary criterion* for isolating the RPW from associated Early Historic ceramics has been the fine fabric and red polish on its surface. Begley (1992:157) recognising the *common* surface treatment of the shiny redware categories, says: "The red MW of the Western Deccan was made from fine clay, possibly the same as was used for the wheel-thrown red polished ware (RPW), since the two appear to be similar in texture."

A concomitant factor which contributed to recognising the RPW as a separate ceramic corpus was the fact that no prototypes of the ware were found in the 'pre-RPW' levels. The fine RPW fabric (and number of forms) seem to have appeared in the Early Historic horizons of western India fully evolved (stratigraphy of RPW discussed in section on Western India in chp. V, see especially **Fig. 43**). Of course, Rao's discovery of RPW antecedents in polished black vessels at Amreli goes against the above postulation. However, Amreli is an isolated instance and we need to find stratified evidence of RPW prototypes or antecedents from other excavated sites. Though a few 'black' vessels similar to RPW forms have been published by Orton (1992:Fig. 4.1,no.7 and Fig.4.2, no.1) in her catalogue we have no information about their stratigraphy. However, at Yelleswaram, sprinklers of 'Black Polished Ware' are found *in association* with Red Polished Ware sprinklers in Pd.II levels dated to 1st-2nd century A.D. (Khan 1963:9-11, Pl.XVIII).

Applying the common denominator of 'texture' , the nomenclature 'Red Polished Ware' can be used as an omnibus category for a fine red pottery group which is variegated in terms of typology, fabric, quality of surface finish and surface decoration. In this study a revised classification of the Red Polished Ware has been presented. This classification revolves about three categories of the RPW: Hellenistic Type; Sprinkler Type and Utilitarian Type. The proposed classification expands the repertoire of the Red Polished Ware to include RPW forms not documented or elaborated by Begley and Orton.

16.1 Hellenistic Type (Pls. XV, XVI)

This category includes RPW vessels deriving their forms from well-known Mediterranean 'red gloss' wares. Primarily, this sub-group equates to Sankalia's Megarian-like or Begley's Moldware which shows typological and decorative affinity with some Eastern *Sigillata* pottery.

Additionally, some ceramics having typical red polished surface and modelled after Graeco-Roman varieties may be included in the Hellenistic RPW group. Amongst these we may mention a fragmentary "twin bowl in Red Polished ware" excavated at Kudavelli in Andhra Pradesh (Ghosh and Ismail 1980:17; *IAR* 1978-79:37-40). This twin-pot, which contained two gold coins of Constantine (A.D.306-337) and Anastasius (A.D.491-518), is analogous to the *kernoi*, a type of classical Mediterranean double-pot. A number of *kernoi* were also excavated from Taxila (Marshall 1975 Vol.II: 423-424).

Another Hellenistic pottery of RPW fabric was recovered from the site of Karad in the western Deccan. In the words of the excavators: 'Reference may be made to a special type of drinking cup...This cup has a wide flaring rim and a base with a number of ribbings on its globular body...It bears a fine burnished red slip on the exterior and upto the neck inside...A bronze prototype of a similar drinking cup was found in the Kolhapur excavations." (Report of the Bharat Itihasa Samsodhak Mandal, Pune, 1948-49:21). The Kolhapur bronze cup, to which the Karad tumbler with 'fine burnished red slip' is compared, has been identified by De Puma (1992:95-98) as a *calathiscus*, a class of Graeco-Roman cups. Another imitation of a *calathiscus* in the RPW fabric has been recently excavated in the Satavahana (1st-2nd century A.D.) levels at Adam (Amarendra Nath 1995:158-159). From Pd.IV levels of Nevasa, a clay vessel of Slipped Red Ware can be compared to the bronze *calathiscus* from Kolhapur (Sankalia *et al.* 1960: 270, Fig. 120:54).

Included among the 'Imported Ware' (the first nomenclature of RPW) from Kolhapur was a small bowl with *omphaloid* base. A similar cup-cum-bowl was excavated from Nevasa and reported as Megarian Ware by Sankalia *et al.* (1960: Fig.143:5; **Pl. XV.b**). The *omphalos* is an auspicious Greek symbol and its representation - manifested as a small knob - appears at the back of copper/bronze mirrors and in the middle of metal/stone/clay dishes in India.

A fine red ware jar excavated at Yelleswaram (Dist. Nalgonda, Andhra Pradesh) appears to be an *alabastron* or unguent jar shaped after well-known models from the Mediterranean or from the Hellenistic region of Taxila where a number of such jars were excavated by Marshall (1975, Vol.I:408-409, especially type d).

From Pd.V levels at Nevasa a small fragmentary platter with straight out-turned rim was excavated (**Pl. XV.c**). This platter was examined by me at the Deccan College, Pune. The fabric is brick-red and similar to the decorated Megarian-like pottery of Sankalia. This dish, which is unique in the Indian Early Historic horizon, seems to be analogous to the Graeco-Roman *patera*.

Together with the Megarian-like/Moldware forms, the RPW vessels discussed above constitute a substantive sub-grouping. The Hellenistic motifs and forms of these vessels tend to support the theory of the RPW being a deluxe Indian pottery inspired by wares of the Mediterranean or Hellenistic regions between India and Mediterranean. Begley (1992:169) arguing for the syncretic character of the Moldware forms says, '...the similarities in motifs and shapes between the Deccan and Hellenistic long-petal bowls, could hardly be coincidental...A few of the small fragments found at Nevasa, Ter and Kondapur may even be of imported vessels, but very close examination of the ceramics, or analysis of the body clays, could determine the source of manufacture."

I attempted to corroborate Begley's postulation about 'imported' vessels in the Moldware repertoire by examining the finest Moldware pieces from the Nevasa collection at Deccan College (**Pl. XVI.a.b.**). Among the samples isolated was the *patera* and *omphaloid* bowl discussed above. It was also found that a number of thin, fine rim fragments of RPW vessels closely paralled a similar fragmentary rim excavated from Qana (**Pl. XVI.a**). There is an ambivalence in the interpretation of the Qana sherd. I have suggested it to be a RPW piece on the basis of similarity with the Nevasa rim-fragments. On the other hand the Qana sherd has been interpreted as part of *terra sigillata* group by Prof. J-F, Salles (personal communication).

I selected a fine rim-fragment from Nevasa Pd.V for x-ray diffraction analysis. The intention was to check whether the fine RPW from Nevasa is indigenous to the site. The XRD test was carried out by Dr. V. Gogte at the Deccan College on the selected RPW fragment and clay from immediate proximity of Nevasa. The result of the analysis is presented in **Fig.13.** It shows that the spectra yielded by the RPW sample is very different from the spectra yielded by the clay from the site. Dr. Gogte makes the following observation on the XRD result:

> "Different x-ray diffraction spectra of RPW and clay from Nevasa clearly show that RPW was not produced at Nevasa. High levels of albite (A) and augite (Au) and low levels of quartz (Q) are characteristic features of soils of the Deccan trap. As these features are not observed in the RPW, this particular pottery must have come from some distant place (The quartz levels are quite high in RPW from Nevasa as against low levels in the local clays)." (Observation on Sample: Nevasa LJ1 [RPW], 16.3.95).

Dr. Gogte's report indicates that the clay of the fine RPW fragment is not only *not* indigenous to Nevasa but the Deccan region as a whole. More clay tests are necessary before we can identify with precision the 'imports' within the fine RPW from the Indian manufactures. However, the single clay test does indicate that Begley may be correct in postulating the presence of imported Hellenistic/Mediterranean pottery in the Indian RPW corpus. Recently, Cimino (1994:Pl. XXXVII.3) identified a fine red ware dish (fragmentary) among the RPW collection at Ter Museum as a local imitation of the *terra sigillata*. Such a connection points to the validity of Subbarao's 'technique importation' theory for the origin of the Indian RPW.

16.2 Sprinkler Type (Fig. 14; Pl. XVII.a.b.c.d)

The 'sprinkler' type in the Red Polished Ware repetoire was first studied in detail by Subbarao (1958:159-162) who describes the vessel as " a narrow necked sprinkler, with a very small opening. This is generally luted to the globular jug. occasionally there is a spout with a shoulder near the junction of the jug with the sprinkler" **(Fig. 14)**.

The 'sprinkler' has been found prolifically in Early Historic levels of sites in western and northern India. For illustrations of sprinklers from important sites see excavation reports of Brahmapuri (Sankalia and Dikshit 1952:61), Vadnagar (Subbarao and Mehta 1955:19-35), Nasik (Sankalia and Deo 1955:69-70), Maheshwar

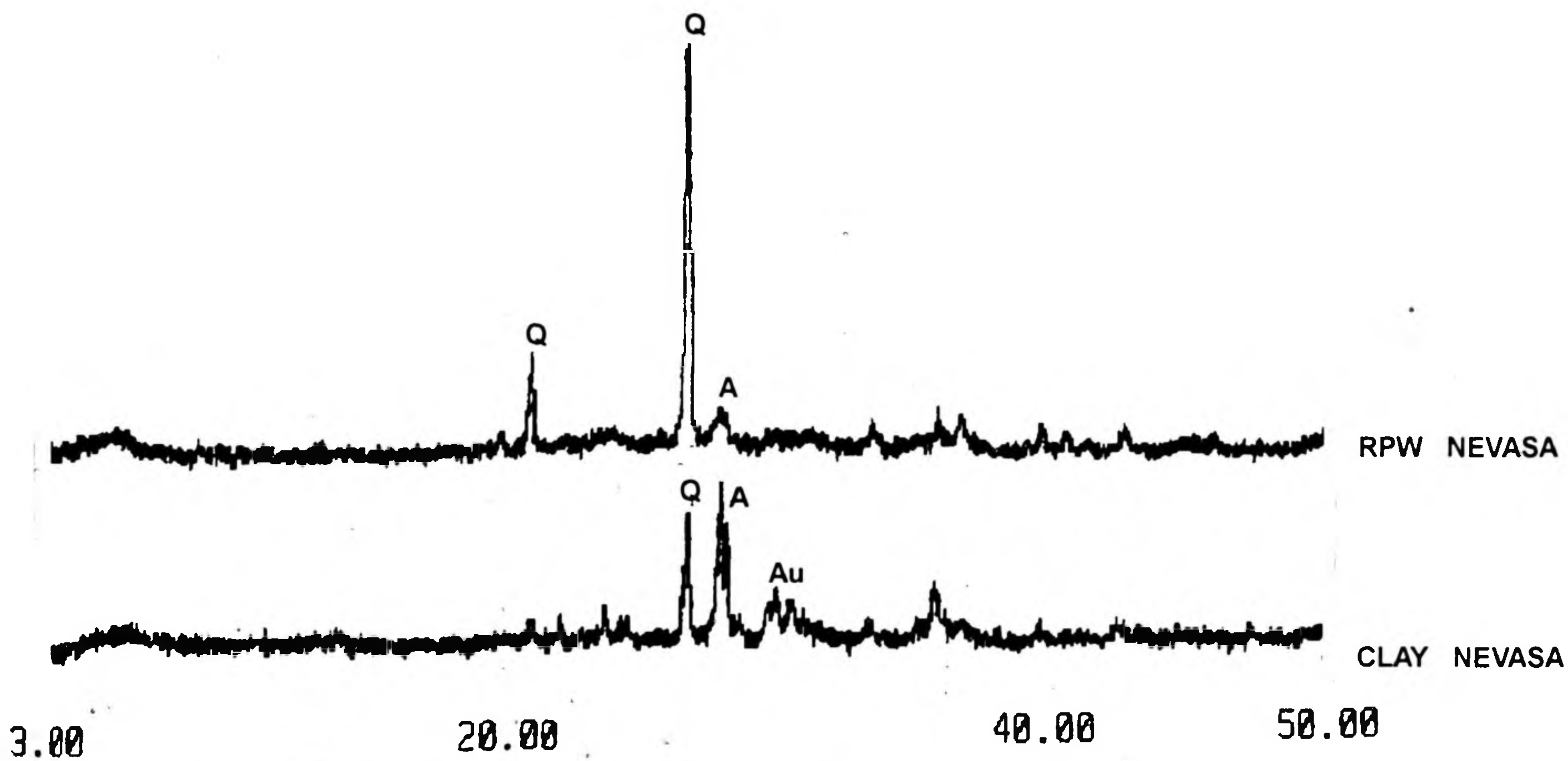


Fig. 13. Comparative XRD spectra of fine Red Polished Ware and Clay from Nevasa

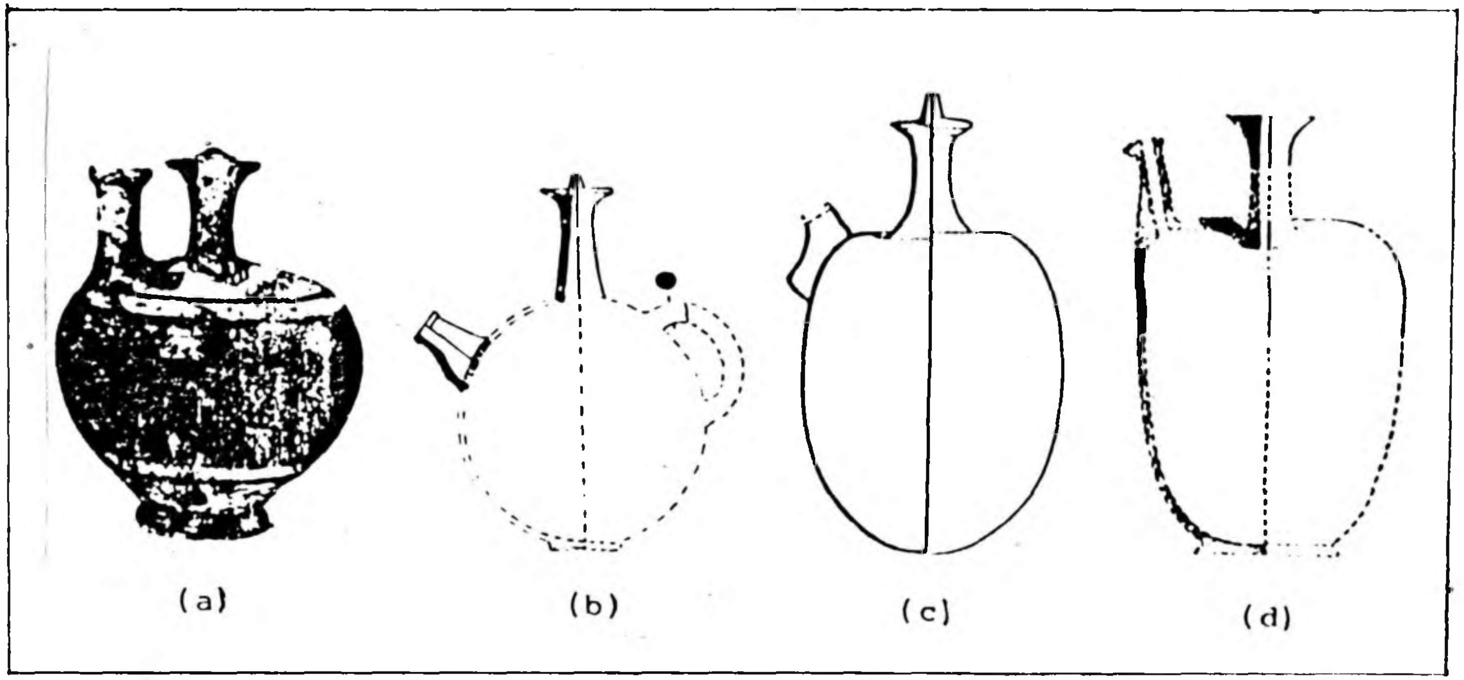


Fig. 14. Mycenean stirrup jar (a) and Red Polished ware sprinklers (b,c,d) from western India

(Sankalia, Subbarao and Deo 1958:159-163), Baroda (Subbarao 1953: 56-64), Nevasa (Sankalia *et al.* 1960:307-314], Amreli (Rao 1966:51-64), Nagara (Mehta 1968:78), Yelleswaram (Khan 1963:34, Fig. XI) and Banbhore, Pakistan (Khan 1976:11-13). The best sprinklers employing the fine RPW clay and polish are concentrated in western India, specifically in the states of Gujarat and Maharashtra (Subbarao 1953: 58; see contrasts in surface finish between sprinklers from western India and Gangetic Valley in **Pl. XVII**).

The origin of this form is unclear. Though Subbarao (in Sankalia, Subbarao and Deo 1958: 159-163) connects the sprinkler-form to "high and narrow necked vases of Mediterranean", he does not cite specific examples to support his case. I have found the sprinkler's shape , especially the design, similar to a 'stirrup-jar' of Bronze Age Mycaenean provenance (**Fig. 14**). However the Mycaenean example is too far removed in time from the Indian sprinklers for the connection to be fully convincing.

Equally important is the question why there are no convincing prototypes of the sprinklers to be found in the pre-RPW levels in India. Like the Hellenistic RPW, the Sprinkler type too makes an 'abrupt' appearance in the Early Historic stratigraphy in western and northern India (see discussion on stratigraphy and chronology of RPW in Chp.V; **Fig. 43**).

It is quite likely that the sprinkler was a product of experimentation and innovation in India. The execution of these unique vessels in the fine Red Polished Ware fabric and their stratigraphic association with the Hellenistic RPW suggests the possibility of the sprinklers being a manifestation of Indo-Mediterranean material cultural syncretism like the imitation Roman coins. The sprinklers have been functionally associated with Buddhist water-rituals. In the context of widespread use of sprinklers for water-rituals, a new design would have come quickly into vogue and become prolific. Such a possibility may be one explanation for the 'sudden' appearance and popularity of the RPW sprinklers.

16.3 Utility Type (Pl. XVIII.a.b)

The third category of RPW represents common bowls, cups and jars which can be typologically "rooted" in the Indian Early Historic wares of common everyday use (**Pl. XVIII.a.b**). The Utility Type RPW sub-group can be equated with the forms catalogued by Orton who considers the ware to be of "indigenous" origin. She observes: "All forms can be found in the coarser associated wares of the Early Historical period, except for the "sprinklers" and globular jars with beaded interior ledges" Orton (1992:46-47)

Though Orton is of the view that the "sprinkler-type" cannot be related to the common Indian Early Historic pottery tradition, the same cannot be said of the "globular jars with beaded interior ledges." Contrary to Orton's observation the latter are to be found among the associated coarse wares. We may see similar globular forms in examples of coarse red pottery excavated from 'RPW layers' at Nagara (Mehta 1968: Fig.37, nos.344-354). A similar coarse red ware sherd with grooved rim and interior ledge was recently excavated at Qana (Yemen) (**Pl. XIX.a**).

Thus, except for the sprinklers, the rest of the common Red Polished Ware catalogued by Orton are found among associated coarse wares. Furthermore, we find examples of such forms in pre-RPW levels also, indicating that the Utility Type was a result of the new 'red gloss' technique being applied to traditionally extant forms.

The appearance of the Red Polished Ware can be dated to the mid-late 1st century B.C. to early 1st century A.D. (see discussion on chronology of the RPW-Amphora Phase under section on Western India in Chp. V.). The overview emerging from the discussion points to the "foreign" character of the 'red gloss' fabric of the fine RPW. A number of RPW forms display affinity with Hellenistic shapes and motifs. The coincidence of the appearance of the RPW in concordance with Mediterranean artefacts in the Early Historic horizons of Western India (discussion in Chp.V; **Fig.43**) also indicates a Mediterranean inspiration for the creation of the RPW. The finding of Megarian/Megarian-like, Samian and imitation *terra sigillata* pottery among excavated RPW gives credence to the Mediterranean 'transmission' theory.

However, the incorporation of a number of Indian elements in terms of manufacturing technique (double-mould process for making Moldware), shapes (Utility type vessels) and motifs (lotus-petal, bead-and-reel decorations on Moldware, see Begley 1992: 157-196) suggests that the creation of the RPW was, in all likelihood, an outcome of interaction between Mediterranean ceramic techniques transmitted along the routes of sea trade and the evolved genius of Indian potters.

17. Rouletted Ware

The Rouletted Ware (RW) was first identified by Wheeler *et al.* (1946:45-49) at Arikamedu. The ware was so named by Wheeler because of "concentric bands of rouletted pattern" on the flat interior of the dishes. He considered the fine quality of RW from the site as importation from the Mediterranean.

On the other hand, Begley (1988:427-440), on the basis of her study of RW, posits that the rouletted design may have been transmitted from the Mediterranean while the fabric was indigenous. Begley (1988:428-429) attempts to trace the inspiration of the RW fabric and shape to the Early Iron Age Black-and-Red Ware which occurs in the lowest levels of a number of sites in South India, including Arikamedu (see Chp.V).

The RW has a widespread distribution in south India and along the coastal areas of eastern India (for details see Begley 1986: 297-319; 1988: 427-440; 1992: 176-196). It has been excavated at Sri Lankan sites like Kantadorai, Anuradhapura and Mantai (Shinde 1987: 327-336; Carswell 1992:197-203; Begley 1992:176-196). The RW has also been found in South-East Asia. Hundreds of RW sherds were excavated at Sembiran, a site on the northern coast of Java (Ardika and Bellwood 1991:221-232). RW sherds were also recognised among museum collection of material from the Buni Complex in Indonesia (Walker and Santoso 1977-78: 104-108). The RW has also been recovered from the sites of Bukit Tengko Lembu (Malaysia), Kobak Kendal (Indonesia), Bali, Biekthano? (Burma) and Tra Kieu (Vietnam; also **Fig. 20**).

An x-ray diffraction analysis (XRD) and nuetron activation analysis (NAA) carried out on samples of RW from Sembiran, Kantarodai and Arikamedu revealed that all the representative RW came from the same source (Ardika *et al.* 1993: 101-109).

Associated with the RW from Sembiran was a sherd having "bright orange surface and a relief band, rather like Roman Samian Ware." This sherd was found to have the same clay composition as the tested RW (Ardika *et al.* 1993:101-109). This similarity of clay composition with the fine red ware sherd re-opens the possibility of the fine RW being an importation from the Mediterranean. However we need more clay tests, particularly on the local clays of Arikamedu and Anuradhapura, to determine the exclusivity of the Indian/Sri Lankan RW from local pottery tradition. Also it may be noted that excavations at the site of Alagankulam have yielded a good quantity of fine *red* Rouletted Ware (Nagaswamy 1991:247-254, Raman 1992a:128). It may be that the single red sherd found at Sembiran belonged to the red variety of RW.

Another likely origin for the design and fabric of red RW could be the Persian Gulf region where a number of sites (particularly the settlement of Thaj in Eastern Saudi Arabia) have yielded fine red ware vessels with rouletted inner bases (Potts 1990: 202-203).

The question of the origin of the fine RW has not been convincingly resolved.

18. Summary

The survey of original Mediterranean artefacts deposited across the Red Sea-Northern Indian Ocean arena of sea trade reveals that the material indicators of contact had reached all littoral-regions.

In terms of *range of objects*, the largest variety of artefacts came to be deposited on the Indian Subcontinent. This is clear from the comprehensive list of Mediterranean material categorised for India relative to other regions (**Fig. 3**). The rich diversity of Mediterranean objects reaching India corroborates, in archaeological terms, the 'centrality' of India in Rome's maritime commerce with Indian Ocean lands.

Quantitatively, the largest number of artefacts deposited are Roman coins and Mediterranean amphorae fragments. Most of the Imperial Roman (1st-3rd century A.D.) coins have been discovered in peninsular India, many of them as hoards. Lebedeva (1988) gives a total of 6527 Roman coins found in India covering the period from Augustus Caesar (27 B.C.-A.D. 14) to Caracalla (A.D. 181-217). Most number of the Late Roman coins (4th-6th century A.D.) in the northern Indian Ocean have come to light in Sri Lanka. Bopearachchi (1996:63) estimates 30,000 Roman 'third brass' coins at the site of Godavaya and 20,000 from Hungama.

East of Egypt, the largest yield of Mediterranean amphorae has been from the port-site of Qana in Yemen. The excavator estimates a total of 6000 amphora fragments from all three (Lower, Middle and Upper) periods at the site dated between 0-6th century A.D. (Dr.A. Sedov: personal communication). In the Indian subcontinent amphorae have been found from over 50 sites, the largest quantity from the sites of Arikamedu and Nevasa. Compared to the Gulf of Aden region and India, the Persian Gulf area has yielded very few amphorae, only 6 fragments reported from Mleiha, Failaka and Thaj.

In terms of chronology, we find that most of the dated Mediterranean objects found across the northern Indian Ocean are placed in the late 1st century B.C. and after. This particularly applies to coin finds which are nearly all of Imperial Roman and Late Roman times. Among the identified amphorae we find also the majority of descriptive sherds dated to the late 1st century B.C. and later, especially the Dressel 2-4 variety which shows a concentration at Qana and on Indian sites such as Nevasa and

Arikamedu. The data presented above also shows that nearly all Mediterranean glassware, *terra sigillata*, bronzes, Mediterranean lamps, cameos/intaglios, beads, ostraca, inscriptions of western traders and mariners seals are dated to the 1st century A.D. and later.

Thus, on the basis of our survey of objects of Mediterranean origin retrieved from Indian Ocean lands, the *lower chronological plane* of the deposition can be confidently pegged to the end of the 1st century B.C. - beginning of the 1st century A.D. The lower chronological plane marks the level of abrupt influx of a wide range of Mediterranean cultural elements in the beginning of the Christian Era across the northern Indian Ocean. The consolidated date of early centuries A.D. emerging from the 'exotic' Mediterranean material in Indian Ocean lands equates to the period of annexation of Egypt by Augustus Caesar (31 B.C.) and the subsequent initiative of the new Roman authority to promote and sustain direct maritime trade with the Orient. Strabo's testimony that there was hardly any sailing beyond the Bab el-Mandeb in Ptolemaic times is indicated, in the archaeological record, by the extreme paucity of Mediterranean artefacts dated before the 1st century B.C. in Indian Ocean lands.