CHAPTER 4: MATERIAL CULTURE

4.1 Ceramic Assemblage- an Introduction

Ceramic traditions and techniques undergo changes because of a number of factors that include modifications in the social, economic and cultural components of a society, and external influence- contacts, and movement of people, ideas and goods. In the Early Historic Tamilakam during the course of urbanization numerous changes occurred in the ceramic traditions. This chapter discusses the characteristics of the ceramic of the Iron Age and early historic periods in Tamil Nadu and Kerala.

There is a lack of clarity in the use of terms such as ‘megalithic’, ‘iron age’, and ‘early historic’ in some of the texts on the archaeology of south India. Here, ‘iron age’ is defined as the period spanning between 1000 BC and 300 BC, and ‘early historic’, between 300 BC and the 500 AD. Megalithism is viewed as a burial tradition that appeared in the Iron Age and continued in the early historic. The Iron Age was characterized by the presence of plain and white varieties of Black and Red ware (BRW), megalithic burials and iron objects (Gururaja Rao 1972; Leshnik 1974; Moorti 1994). The early historic period saw the introduction of Russet
Coated Painted ware (RCP), fine Rouletted Ware and imported ceramics such as amphora and terra sigillata (Arretine), while certain ceramics and material culture of the Iron Age continued. However, it is not always possible to distinguish the Iron Age megaliths from the early historic megaliths, except in the cases where Russet Coated and Painted Ware or there chronological markers are found or C14 dates are available. Hence, the terms megalithic and megalith are used sometimes to denote the burials of Iron Age and early historic periods together (Selvakumar 2008).

4.1.1 Black-and-Red Ware

Black and Red ware with black interior and red exterior – occurs in India from the Chalcolithic period onwards in various cultural contexts (Singh 1982). It is typical of megalithic or Iron Age of south India and it continuous in to early historic period. The pottery was fired between 500° C and 600° C (Gurumurthy 1981: 268) using inverted firing technique, and the lustrous polish on the surface is attributed to the debatable ‘salt glazing’ (Wheeler 1948). The common vessel forms in this ware, which primarily served as tableware, include dishes and bowls with simple rim and with sagger base (Soundrarajan 1994: 47), and jars. This pottery was thin
bodied/sectioned in the Iron Age and becomes thicker in the early historic period (Maski, Period III: Thapar 1957: 76; Perur: Gurumurthy 1981: 156). Though predominant during the Iron Age, this pottery began to decline in popularity in the early historic period (e.g. Uraiyyur: Raman 1988: 13), and is absent or rarely present in several early historic assemblages/contexts, e.g. Northern Sector at Arikamedu, Kanchipuram, Vasuvasamudram and Kaveripattinam (Soudararajan 1994: 42, footnote). However, it continued to be used in burial context. This pottery was widely used till about 500 AD (e.g. Thirukampuliyyur: Raman 1988: 31), and perhaps survived in the early medieval period, in a very limited frequency (Raman 1988:13). The upper limit of this ceramics is not known. But definitely, BRW must have come into use in the beginning of the first millennium BC in Tamil Nadu. However, more C14 dates are needed to ascertain the early presence of this pottery in this region.

During the present survey this pottery (B & R) was discovered from many sites like Parikal (Fig. 60 and 61), Sengamedu, Tiruvakkarai, Suttukeni and Karaimedu. Since the region around Arikamedu abounds in Megalithic sites its presence suggests that they had some sort of commercial and cultural links with Arikamedu.
Fig. 60: Line drawing of Black and Red ware from Parikal
Fig. 61: Rim portion of Black and Red ware from Parikal
4.1.2. Coarse Grey Ware

This Ware is a medium to coarse pottery with surface colour approaching white. Coarse Gray Ware is a distinct pottery that is so far reported only from Arikamedu in Pre-Arretine and Arretine levels in the Northern Sector without the association of BRW (Wheeler et al., 1946; Begley et al., 1996). This ware, which decreases in frequency in the Post-Arretine levels, has quite distinct forms from BRW of Iron Age and early historic period. The Coarse Grey Ware has been confused with the Neolithic pottery (Sundara 1987). However, it is a wheel-made pottery, quite distinct from the Neolithic ware (which was hand made), though some similarity is noticed in vessel forms (Selvakumar 2008).

During the present survey this (grey ware) pottery has been collected from the surface of the Tirasu (near Villupuram).

4.1.3 Coarse Red Ware

This ware (CRW) is found both in the megalithic burials and habitation contexts of site in both Iron Age and Early Historic periods. This pottery has a slip or wash, and it did not require any additional treatments. Some times, it is also referred to as Red Slipped Ware, Orange Slipped Ware
with a medium fabric. CRW is generally in low proportion in the Iron Age, but more commonly encountered in the Early Historic and later sites (e.g. Uraiyyur: Raman, 1988: 53). This type of pottery, which does not require any special treatment, became popular from the early historic period onwards. Cooking vessels, jars, large storage jars and urns are the common forms of CRW, which sometimes has a red slip. While the BRW decreases in frequency in the early historic, the CRW increases. At Arikamedu CRW increased in popularity, whereas the coarse grey ware declined in Southern Sector, which represents the later occupation. In the production of thin-bodied vessels, clay was sieved to remove the large stone particles and in the case of large jars straw and husk were added as tempering materials.

This ware was reported during the present survey from Tirasu, Thirusopuram, Manikolai and Parikal (Fig. 62, 63 and 64). In both the places this ware is unearthed along with glass beads.
Fig. 62: Line drawing of Coarse Red ware from Manikolai
Fig. 63: Line drawing of Coarse Red ware from Thirusopuram
Fig. 64: Parikal- Coarse Red ware
4.1.4 Fine Wares (*Rouletted, Grey and other Wares*)

An assemblage of very fine pottery appears in the early historic context at Arikamedu, Nattamedu (Karaikadu), Kaveripattinam, Alagamkulam and several other sites in Tamil Nadu and sites in south India (Fig. 65) They include Rouletted Ware dish (Arikamedu, Wheeler et al. 1946, Types 1 and 2), stamped bowl (Arikamedu, Wheeler et al. 1946, Type 10), bowl with ring foot (Arikamedu, Wheeler et al. 1946, Type 18), plate with stamped decorations (Arikamedu, Wheeler et al. 1946, Type 129) and Fine Grey Ware (Arikamedu, Wheeler et al. 1946, Type 44), very distinct from the Coarse Grey Ware mentioned above, (Arikamedu, Wheeler et al. 1946, Types 6 and 44). A few of these fine wares, especially Rouletted Ware, are reported from Berenike (Tomber 2000), Sri Lanka (Deraniyagala 1992) and Indonesia (Walker and Santoso 1977; Ardika and Bellwood, 1991; Ardika et al., 1993; Gogte 1997, 2002) (Fig. 66).

Among these fine wares, Rouletted Ware is widely distributed in India and is present at numerous sites in Tamil Nadu (Fig. 67). Other fine wares are mainly found at Arikamedu, Nattamedu (Kudikadu) and Alagankulam in the coastal region of Tamil Nadu in a large quantity, may be around 10% of
Fig. 65: Rouletted ware from 1 & 1a Arikamedu, 2 Brahmagiri, 3-5 Satanikota
Fig. 66: Map showing Rouletted ware sites in India and South East Asia
Fig. 67. ROULETTED WARE SITES IN TAMIL NADU

1. Arikamedu
2. Appukallu
3. Alagankulam
4. Kanchipuram
5. Karaikadu
6. Karur
7. Kaveripumpattinam
8. Kodumanal
9. Korkai
10. Kilaiyur
11. Kudikadu
12. Manapattu
13. Manigramam
14. Nattamedu
15. Neidavasal
16. Sengamedu
17. Tiruvamathur
18. Uraiyur
19. Vanagiri
20. Vasavasamudram
21. Vellaiy aniruppu
22. Tirasu
23. Karaimedu
the total ceramics, whereas at inland settlements such as Uraiyur, Karur and Kanchipuram in Tamil Nadu. It is distributed even at remote settlements of Tamil Nadu such as T. Kallupatti and S. Pappinayakkanpatti in Madurai District. The Rouletted Ware has black, black-and-red and red ware varieties. Arikamedu mostly has black, grey, and black-and-red varieties.

The rim and body sherds of Rouletted Ware which do not show rouletting decoration are generally treated as a distinct ware. Gurumurthy (1981: 146, pl. 16a) reports a grey ware sherd at Kanchipuram with inscription and it appears to be the rim sherd of Roultted Ware or fine ware. The Vanagiri inlet-sluice site at Kaveripattinam has buff-grey fine ware (Soundararajan 1994: 50) which appears to belong to this group. This pottery at Chandraketgarh is described as Black and Red Ware (Chakraborthy 2000). This Black and Red ware is distinct from the megalithic Black and Red Ware, which has a coarser fabric.

Based on scientific analysis a single source is attributed to the Rouletted ware and the related fine ware ceramics (Ardika et al., 1993; Krishnan and Conningham 1995; Gogte 1997; Ford et al. n.d.). Earlier it was thought that this ceramics was produced in the Mediterranean region. On the
basis of XRD-analysis, Gogte proposed that this pottery was perhaps produced in the Chandraketugarh-Tamluk region of West Bengal (Gogte 1997 & 2002). However, the two sherds from Satanikota indicate that they were produced locally (Ghosh, 1986: 151). The analysis made by Selvakumar on coarse ware pottery from Arikamedu, and the observation on ceramics from the Chandraketugarh in the collection of Dr. Sharmi Chakraborty point out the possibility of Rouletted Ware source being in Bengal region. However, more samples of clay and from different regions of South India need to be analysed to test the hypothesis proposed by Gogte (1997).

An imitated version of Rouletted Ware of coarse ware fabric is found at several sites including Arikamedu (Wheeler et al., 1946), Kanchipuram (Gurumurthy 1981: 146), Vasavasamumudram (Gurumurthy 1981: 147) and Perur (Gurumurthy 1981: 157). Black and Red Ware at Kilayur wharf site have imitated Rouletted Ware designs (Selvakumar 2008).

During the present survey Rouletted sherds were discovered from three sites viz. Tirasu, Kottaimedu and Karaimedu (Fig. 68 and 69). Maligaimedu, which is adjoining Tirasu many Early Historical artefacts have been reported including rouletted shreds. At Tirasu, Rouletted sherds
Fig. 68: Tirasu- Rouletted sherds

Fig. 69: Karaimedu- Rouletted sherds
have been discovered. Whereas at other two sites, (i.e. Kottaimedu & Karaimedu) very few sherds of Rouletted variety were unearthed. Totally fifteen body sherds and a rim of rouletted ware found on the surface of the above mentioned sites. None have fine fabric, although the collected sherds are studied and compared with Arikamedu. A rim fragment of Rouletted Ware has a similar form with the Wheeler Type 3b (see Wheeler et al. 1946: 53. fig. 14). It is a highly damaged, weathered rim sherd, with no traces of slip. In core, it is black, well grained coarse ware without any inclusions, and the texture is compact. All the body sherds have the same fabric except one sherd. All the body sherds surfaces are weathered, although the slip is visible on both sides. Only one convex-side body sherd has a fine surface with traces of red slip on the exterior and black on the interior. The fabric is red, grained coarse with a well closed texture. Very few of the body sherds have the rouletting decorations.

4.1.4.1 Red Polished Ware

Red Polished ware is a rare ceramic category so far reported from Arikamedu (Begley 1996b: 129, Figs 4.17-18), Pallavaneeshwaram and Kaveripattinam (Sundararajan 1994: 72, Fig. 17.1, bottle-necked Kushan sprinkler) in Tamil Nadu. This pottery is mainly concentrated in Gujarat
region (Orton 1991). At Satanikota, Rouletted Ware and RCP ware were introduced earlier than Red Polished ware, and is found in limited quantity (0.2% Ghosh 1986: 102). It appears at Hastinapur and at a few sites in the Ganga valley (Lal 1954-55, period iv, Fig. 20, xv, a-b). Red polished ware is also found at Anuradhapura in Sri Lanka (Deraniyagala 1992). What is reported as ‘Red Polished Ware’ at Vasvasamudram (Gurumurthy 1981: 147) does not seem to be the true Red Polished Ware, but only a coarse red ware with polished surfaces. Red Ware sprinklers found from Kanchipuram near the Stupa remains (Gurumurthy 1981: 142, Note 91) is not similar to the original Red Polished Ware. During the present survey this ware was collected only from Manikolai as surface find (Fig. 70).

4.1.4.2 Amphora

Amphora is a large conical double-handled Mediterranean wine-jar. Buff in colour and made of well-levigated clay. In India, such jars occur both in the stratified contexts as well as isolated finds. The distribution pattern of the amphora presents a contrasting picture to that of the Rouletted Ware. While most of the Rouletted Ware sites are on the east coast, the amphora sites are heavily concentrated on the west, along the coast of
Fig. 70: Manikolai- Red Polished ware
Maharashtra and Gujarat. On the basis of the associated finds (including coins) and startigraphic context (in the case of excavated sites), the import of the amphora in India has been assigned to the 1st century AD. But recent studies indicate that amphora did begin to reach Arikamedu as early as 1st century BC, if not even slightly earlier. At least two sherds from the site have been identified as fragments of Graeco-Italic jars of the 2nd century BC (Fig. 71 and 72). In addition, Arikamedu, this ware has been reported from several sites in Tamil Nadu Alagankulam, Karur (Nagaswamy 1995), Vasuvasamudram (Nagaswamy and Abdul Majeed 1978) and Pattanam in Kerala (Tomber 2005).

Unlike the Rouletted Ware, the amphora was a costly item. Only a few kingdoms that enjoyed political stability and economic prosperity, such as Satavahana, Kshatrapa, Kushan and early Tamil kingdoms, could afford to purchase the Roman wine; all the known amphorae, belong to these regions. It is of considerable significance to note that amphorae have been reported only from the urban centres of the Early Historic Tamilakam (Suresh 1992; 47). These were centres of commercial, religious and political importance with sizeable elite population engaged in cultivating exotic habits. Even in the Tamil Sangam works, there is a clear indication that
Fig. 71: Arikamedu- Fragment of Roman amphora jar

Fig. 72: Arikamedu- Fragments of amphora jars
Roman wine, known for its high quality and fragrance, was meant mainly for the kings and nobles alone (the ruling elite) (Purananura 56, 17-21).

Until recently, it was generally accepted that the amphora was mainly used to store the Mediterranean wine which was in great demand throughout India. Chemical analysis of some sherds revealed traces of a resinous substance on the interior of the jar. This was either a resin applied to the interior to reduce its porosity or it resulted from wine as a residue sticking to the inner walls of amphora. The results from the archaeo-chemical studies have been amply corroborated by the early Tamil literature which makes copious references to the import of wine in India. The Periplus also categorically states that wine was one of the chief items of import into Indian ports. But very recent studies on the amphorae finds in India have, however, definitely indicated that the amphora was used to contain, besides wine, a variety of other substances such as foodstuffs (including garum, a Spanish fish sauce), olive oil and medicines. In Arikamedu alone, for example, there are several fragments of olive-oil jars from the northern Adriatic area and a few (at least nine) sherds of Campanian wine jars of the 1st century BC and 1st century AD. Therefore the presence of amphorae does not necessarily indicate trade in wine. The amphorae in the Buddhist sites of
northern and western India may indicate a demand in the Buddhist establishments for items like olive oil (which was certainly an item of Roman export to India) rather than wine. Again, the finds of *garum* jars in Arikamedu clearly suggests that there was a Roman settlement at the site since *garum* was a prized item in the diet of the early Romans and the sauce was certainly not of interest to the Indians. In any case, there is no evidence to show that *garum* was an item of trade between the Romans and the Indians. Foodstuffs may have been brought by the maritime Romans along with them for their own consumption.

During the present survey a body fragment of an amphora has been discovered from Kottaimedu. The size of the sherd is measured to 5cm X 6cm and the thickness is 1.2 cm. the wheel marks are visible on the interior red surface. The exterior is reddish yellow with black inclusions on the medium surface. The paste is hard and compact throughout red in colour with black and white inclusions of 1 mm. size. It is identified as a knidian amphora fragment; possibly from the Greek island Knidos. The traders may have brought Knidan wine to India. This type is generally dated to 1st century BC.

Amphorae similar to Knidian are found at more sites in India, but for the moment, Knidian fragment presence at Kottaimedu coupled with strong
appearance in Egypt suggest that they have reached Kottaimedu, through Arikamedu, by the Red-sea routes.

4.1.4.3 Arretine Ware (Terra Sigillata)

Terra Sigillata (Arretine) is Mediterranean tableware, known only from Arikamedu so far in India (Slane 1996). Though there are claims of its discover from several sites, its identity is yet to be confirmed.

4.1.4.4 Conical Jar

Conical jars erroneously termed as ‘amphorae’ or ‘imitataion amphorae’ have been reported from Arikamedu (Wheeler et al., 1946, types 74 and 75), Nattamedu (Kudikudu), Vasuvasmudram (Nagasamy and Abdul Majeed 1978) (Fig. 73) and Kanchipuram (Begley 1996b: 233-234). At Kanchipuram such jars are found planted in a row on the ground level (Raman 1991). This type is restricted to northern part of Tamil Nadu and recently a few toe sherds of this jar have been found at Pattanam in Kerala (Shajan et al., 2004). This form appears to have been inspired by the amphora jar, though what can be considered as prototype is found in the megalithic fabric at Arikamedu (Casal 1949: Fig. 17).
Fig. 73: Conical jar piece from Vasuvasamudram
Unlike the genuine amphora, these handle-less jars are of very coarse fabric and are mostly dull red in colour, though the specimens from Arikamedu were reported to be grey or grayish-red (Fig. 74 and 75). The conical jars usually have a height of about 1 m and the thickness of the walls (of the jars) range from 2 to 3 cm and diameter of the conical bottom is 3 to 6 cm. At Kanchi, the jars were found buried in straight rows—probably the remnants of a wine cellar or a small bar. Smaller jars placed within bigger ones were noticed at Arikamedu and Kanchi but not at Vasavasamudram. As the conical jars, due to their very shape, had to be placed underground, smaller jars could have been fitted inside the larger ones to enhance the strength and thickness of the container. The conical jars have no slip, generally but a few examples at Arikamedu had a slip which was invariably confined to the portion above the shoulder. Another interesting feature is that, at Arikamedu, some of the jars where completely wheel-turned while others were hand-made up to a certain height from the base, above which they were wheel-turned. At Arikamedu, the conical jars occur in strata of the 1st century AD. or even slightly earlier along with the original amphora, whereas at other sites the conical jars were in vogue at a later date. It could thus be concluded that the earliest conical jars were produced and used at
Fig. 7.4: ARRELINE WARE, AMPHORA AND CONICAL JAR SITES IN TAMIL NADU
Fig. 75 Line drawing of Conical jars
Arikamedu, which was a major pottery-manufacturing centre and from here the jar, and the technique of its manufacture spread to other sites in Tamil Nadu.

During the present survey 2 bottom pieces of conical jar were discovered along the sea shore of Thirusopuram (Fig. 76), which is located about 15 km east of Cuddalore town. These pieces basically Coarse Red Ware in nature because ill fired which can be seen from the section of the jars. Both the conical jars are about 7 cm in length. The associated findings of conical jars like Black and Red Ware, Coarse Red Ware and a good number of glass beads indicate this place had some sort of contact with or acted as satellite settlement of Arikamedu.

4.1.4.5 Stamped Bowl/Cup

Bowls with flat base, diagonal sides (inverted trapezoidal in section) with stamped impressions of fish, peacock and bird motifs between multiple grooves in fine ware occur at the coastal sites of Arikamedu (Wheeler et al., 1946: Type 10), Nattamedu and Alagankulam. It has been encountered at
Berenike in Egypt (Tomer, 2000: Fig, 2, 2). The fabric of this ware is similar to Rouletted Ware, and it is not reported from Iron Age 'megalithic' context.

Bowls similar to the above but without stamp (flat base and slanting sides) are found at Arikamedu (Wheeler et al., 1946: Type 12, 12a) and present at Taxila (Ghosh, 1948: Types 4-5, Fig. 4.). A variant is seen at Taxila but with a disc base (Ghosh, 1948: 15c of Fig. 15). Though no stamped bowl/cup was discovered during the present survey, a fragment of ribbed glass bowl has been discovered on the surface of Kottaimedu in Pondicherry region. Interestingly in the excavations of Arikamedu this type of glass bowl fragments were found and some of them were published. The fragment of a transparent blue glass bowl with horizontal ridges is dated to Wheeler's pre-Arretine levels. It might have come from Arikamedu and perhaps traveled from one of the Red-Sea ports along the same route as the Knidian amphora on its way to Kottaimedu.

4.1.5 Graffiti and Inscriptions

Post-firing graffiti marks very commonly occur on the megalithic burial and habitation pottery and their significance is as yet not clear. They are considered as marks of clans or family (Rajan and Bopearachchi, 2002).
Different burials have distinct graffiti marks. The megalithic graffiti are mainly symbolic and pictorial graffiti were nearly absent in the Iron Age. During the present survey potsherds with graffiti symbol have been discovered from Parikal (Fig. 77) and Tirasu (both are located near Villupuram town). While Parikal graffiti is available on Black & red ware and Red Polished ware, in Tirasu graffiti symbols are only on B&R ware.

**Pictorial Graffiti**

There is an increase in the pictorial graffiti in the Early Historic period. At Arikamedu, human figures are found on pottery (Wheeler et al., 1946: Plate XL). A graffito of ship is found at Alagankulam (Casson, 1997; Begley n.d.). Though the exact purpose of such sketches is not known, perhaps, they were used as models or for practice by the artists, who executed these images on different media (Selvakumar 2008).

**Inscriptions**

Short inscriptions in Tamil-Brahmi and Prakrit mentioning individual names are found on pottery from several sites in Early Historic context in Tamil Nadu (Mahadevan, 2004). Many of the inscriptions are fragmentary and the complete ones read ‘Muthukuluran Akal’ (the dish of
Fig. 76: Conical jar piece from Thirusopuram

Fig. 77: Graffiti on Black and Red ware from Parikal
Muthukuluran), ‘Varuniya Akal’ (the dish of Varuni) (Kodum:anal) indicating ownership of the vessels. Sometimes they give the place name of the individual (Wheeler et al. 1946; Rajan, 1994).

Functions

Ceramics were used for various purposes such as ritualistic, storage and transportation and cooking.

Ritualistic

Burial urn with pointed base was a common receptacle used for placing the mortal remains of the dead in the Iron Age -Early Historic period. Sometimes large vessels were used as lid for covering the urns instead of capstones. Sarcophagi were used in certain contexts for burials. These forms did not seem to have changed in the early historic period. The tub-like pottery and pottery with Brahmi letter ‘Ma’ symbol might have been used for ritual purposes.
Storage and Transportation

Large storage jars resembling megalithic urns in shape are found frequently in the Early Historic period. The Early Historic specimens are well fired and sturdier.

The conical jars of Arikamedu (Wheeler et al., 1946 Types 74-75) and Kanchipuram were new types developed for storage and transportation of liquids. Probably, they were an imitation of Roman wine amphorae.

Cooking

Another innovation of the Early Historic period has been the portable oven (Arikamedu Wheeler et al., 1946: Type 148). It is not reported from Iron Age contexts. Therefore, it seems to be an innovation in the early historic period. Besides, more varieties of cooking vessels and frying pans, especially wide-mouthed, in contrast to the narrow mouthed vessels of the iron age, appear in the Early Historic context (e.g. Arikamedu: Wheeler et al., 1946: Types 24 and 95).
Table Ware

Fine, deluxe table wares appear in the Early Historic period mainly due to trade activities. Rouletted ware dishes (Arikamedu: Wheeler et al., 1946)- Types 1 and 2, fine Grey Ware of Type 6-were used for serving food. At Arikamedu a trench in Southern Sector had chicken bones on a broken Rouletted Ware dish, which appeared to be leftover of a meal (Begley et al., 2004). Perhaps it served as a sort of ‘Chinse Wares’ of the Early Historic period. Terra sigillata was a table ware. The imported terra sigillata and Roman glassware could have been used by certain restricted groups (Selvakumar 2008).

Industrial Purposes

Ceramics were used for industrial purposes in the early historic period. Traces of industrial activities are noticed at several sites in the early historic of Tamil Nadu context. At Arikamedu pottery with glass slag remains were found from surface context. Terracotta spindles used in weaving industry are found at several sites in Tamil Nadu (Rajan 1994).
4.2 Antiquities

4.2.1 Terracottas

Terracottas comprise of human and animal forms and other objects of utilitarian nature, such as toys and playthings including objects of ornamental value. Many pieces made in stucco have also been reported, which comprise of mouldings, lathe-turned devices including some with intricate patterns. As a matter of fact, more varieties have been found among utilitarian objects of day-to-day use in terracotta. Some ear-ornaments have been found bearing designs, indentations in geometric patterns and flower decorations of high artistic quality. Bangles, pendants, hair pins and rings are also reported of which some have been found with designs carved on them. All these indicate the artistic decorations on terracotta have an earlier origin and sustained continuously later mainly for the reason that they were affordable and could be made in large quantity by the use of the mould. Even though terracotta tradition was not deep rooted and had an early beginning in the Deccan and further north, the decorative devices adopted in the burial ceramics of the Iron Age times with animal headed knobs, flower motifs and other patterns have relevance in our understanding of the continuity in subsequent times. The clear cut interaction and technological
traditions adopted and the cultural outcome are of very great interest. A detailed study of the various aspects of terracotta art is yet to be attempted.

Sites that have yielded terracotta include Alagarai, Arikamedu, Appukallu, Adiyamankottai, Boluvampatti, Kanchipuram, Kaveripattinam, Korkai, Tirukkampuli, Uraiyur, etc. The objects consist of human-male and female figurines, toys and play things such as discs, hopscotch, games man, ornamental objects such as finger rings, beads, bangles, ear-discs, etc. At Kaveripattinam, the early terracotta figurines were made from moulds and later completed by hand finish. Some have early Buddhist affiliations influenced by the developments in Amaravati-Nagarjunakonda. So far no distinctive type could be separated as an independent cultural entity exclusive to this period or area. However there is an attempt to render the figures realistic which is common at other contemporary places in the Deccan for e.g. half-closed eyes, chubby faces, fleshy cheeks and natural and soft rendering of the body. The early figures are found from about the 1st century AD. At other sites, such as Tirukkampuli, Alagarai and Uraiyur though not many figures have been found from early levels, they appear to have a common source of origin. They have been prepared from moulds and then finished by hand and parts of body were affixed at leather hard stage, such a incisions made for ornamentation and other details.
Arikamedu has revealed a female figurine wearing a sari and another figurine with different dress. They appear to be made of wooden moulds. A seal impression of a male figure riding a chariot is found at Arikamedu (Sidebotham, 1996). The terracotta figurines found at Uraiyur appears to be handmade (Raman 1988: 84-92).

During the present field survey humpty numbers of terracotta figurines have been discovered from the study area. Totally twelve figurines have been recovered from Kottapakkatuveli, Thirunavalur, Tirasu and Kattuselur (Fig. 78-80). Almost all of them are human figurines and all were broken. In some of them only the bust portion is available whereas in the remaining figurines leg portion can only be seen. Bedside artistic features, the associated materials like rouletted sherds, brick bats, terracotta rings and structures attest to their early historical age.

4.2.2 Terracotta Lamps

Terracotta lamps form another major feature of the surface collections. Arikamedu has yielded at least three fragments of the Roman
Fig. 78: Terracotta figurines – Kattusellur

Fig. 79: Terracotta figurines – Kattusellur
Fig. 80: Terracotta figurines – Kattusellur
lamp, each in different circumstances. During the course of the present field study, lamps were found from Arasur, Sendiampakkam and Siruvalai (Fig. 81 and 82). In general, lamps seem to have been made for every day use.

4.2.3 Other Terracotta Artifacts

A Spindle whorl, used in spinning thread, discs of terracotta and pottery (Fig. 83 and 84), and ear ornaments are other type of ceramic artifacts (Fig. 85), discovered during exploration and are form Early Historic sites in Tamil Nadu.

4.2.4 Beads

During Early Historical period bead making was a thriving industry. Beads are predominant over other objects. Though no remains of lapidary have been traced, there is sufficient data which bear testimony to the existence of bead making centres, on the basis of density of debitage resulting from bead making process.
Fig. 81: Terracotta lamps- Arasur

Fig. 82: Terracotta lamp- Sendiyampakkam
Fig. 83: Tirasu- Hopscotchs

Fig. 84: Puvaram Kuppam- Hopscotch
Fig. 85: Lid knobs and other Terracotta objects
At some sites glass beads appear quite early (c. 3rd century BC) whereas at others a little later (c. 1st century BC) and in some places much later (c. 2nd century AD and after). It develops into a major industry from Early Medieval to late times beginning from tenth century onwards. In other words, the data emphasize continuity of glass industry from early times.

Glass bangles and beads have been found both in quantity and variety at Kaveripattinam and nearby places datable from about the 1st century BC. The colour range of glass is green, blue, black and yellow and occur in the shapes of barrel, cylinder-circular, spherical and bicone-hexagonal. Glass bangle is next in popularity in colour of blue, green, yellow and red. Not many occur at lower levels, but increase in later levels (c. 4th century AD and after). Evidence suggests possibly a local industry.

Equally rich are the finds semi-precious stones, paste, copper and terracotta at several areas of Kaveripattinam such as Kilaiyur, Manigramam, Vanagiri and Pallavaeshwaram occurring from the 2nd century BC to the 3rd - 4th century AD. made from popular shapes are barrel, spherical, cylinder, circular and hexagonal. Some belong to collared variety. Such a large quantity of their presence at the site of Kaveripattinam suggests a local
industry. Equally significant is the occurrence of a large number of beads at Kanchipuram made of semi-precious stones, paste, glass and terracotta occurring in levels of the third-second century BC. Its continued occurrence in large number in late levels is noteworthy. There were multiple centres of bead production.

At Alagarai and Thirukampuliyr a variety of beads have been found made from semi-precious stones, paste and steatite from the early levels of occupation; soapstone is the popular material at Tirukkampuliyr, agate, chalcedony, jasper, amethyst and rock crystal beads are common. They are made in shapes such as spherical, rectangular, barrel and also with faceted surface. At both places, tiny disc beads made of in semi-precious stones, particularly of which soap stone is more popular. The shapes are barrel, circular, square and elliptical. Some are collared ones. Beads occur from early levels onwards.

A variety of beads have also been reported from Alagankulam. They are made from early times made from semi-precious stones, steatite and paste. Carnelian is most preferred raw material. Pendants have also been prepared from carnelian. Similarly beads are present at Korkai and
Vasuvasamudram as well as at sites identified with burials, habitations. Appukallu, Adiyamankottai, Perur and T. Kallupatti hoards of beads occur at Early Historic levels.

Situated close to the coastal region near Cuddalore, at Karaikadu evidence of a lapidary has been found. A brick structure, and bead making supported by evidence of beads in varying stages of manufacture, including a scatter of raw material cores and lumps- all of which are ascribable to c. 1st century AD have been unearthed at Karaikadu. Such details are known for the first time.

By far the richest evidence is known from Arikamedu ever since excavations carried out by Wheeler in 1944-45. A study of the beads has revealed that the bead industry was a dominant industrial activity at the town in the heyday of its existence as an international harbour. It was a manufacturing and marketing centre for beads and bangles made of semi-precious stones and glass. Arikamedu was a bead maritime emporium where every sort of bead made from anywhere in the world could be bought and sold. A systematic documentation of the glass objects carried out at Arikamedu has revealed that it was not only a major workshop centre for
manufacture of glass objects, but also varieties of them have been traded on a large scale.

**Source for Glass**

Mediterranean glass antiquities have been discovered in a few sites in the north-west, west and south. The finds mostly belong to the period between 1st century BC and 1st century AD.

The *Periplus* contains copious references to the import of glass to India. The reference to 'several sorts of coloured glasses' in the *Periplus* (6, 7, 17) may include glass beads of various colours. References to glass in early Indian literature are, however, meager. In Tamil Sangam Literature there is no reference to 'glass objects', 'glass production' or 'glass-trade' despite its presence in various sites in Tamil Nadu. Whereas a few glass beads from the Arikamedu collection have been identified as imports from the Rome (Suresh 2004: 137). Some of these are reported to be imitation of onyx beads which were manufactured at Arikamedu and sold to Rome. Glass beads from none of the other sites in India are believed to be authentic imports from the Mediterranean region. It should however, be noted that the beads finds from many of the Indian sites, specially those in the extreme south, have not been thoroughly investigated. It is plausible that some may
have been imported from the west. Glass beads imported from Rome have been recently found in the stratified contexts at Mantai (Sri Lanka). In any case, the import of glass raw material or glass beads into India was on a small scale (Suresh: 2004; 137).

During the present survey two Early Historical sites viz. Manikolai and Thirusopuram (both in modern Cuddalore district of Tamil Nadu) have been identified where dense scatter of glass beads have been identified (pl. see fig. 46 and 50). These glass beads are of different colour green, blue, black and yellow and are of the shapes of barrel, cylinder-circular, spherical and bicone-hexagonal. Besides finished beads, both the sites have yielded unfinished beads and wastages (rough outs). These discoveries of beads and their by products reconfirm that possible presence of multiple centres of bead manufacture.

4.2.5 Shell objects

Shell objects constitute the largest among objects of adornment found from many Early Historic sites in Tamil Nadu. It is also one of the oldest industries and the very fact that many different types of shell objects found with variety of decorations in burial sites of the Iron Age indicate their early origins.
Ornamental objects prepared from shell include beads, bangles, pendants, ear-discs, circular head ornaments. Other utilitarian objects include as ladles, spoons, palettes and so on. Shell has a known religious value and is an object of sacred veneration since ancient times. Chank-shell cutting is a local industry in many sites identified with the whole range of repertoire such as chank bits, cut pieces of *columela* the plain *sankha* ready for cutting.

Major evidence of shell industry has been found at Tirukkampuliyur. Objects consist of beads, bangles and pieces of cut-shell “showing the stages in the technique of making shell bangles and objects”. Many of them found in the trench at Tirukkampuliyur-7 are considered the oldest. The beads are spherical or barrel shaped; bangles are of two types: plain and decorated; the latter done with a sharp instrument and designs consist of straight lines or criss-cross patterns. Some have channel-shaped cross sections possibly for inserting gold foils or other metal fillings for decoration. At Alagarai the largest collection consists of shell beads and bangles belonging to periods I and II (c. 2\(^{nd}\) century BC- 6\(^{th}\) century AD). Bangles show a variety of designs work mostly geometric patterns. The shapes reveal some common forms such as plano-convex and concave rectangular. Most of the objects have been known from early levels. Some have been painted in red ochre.
wash with designs and geometric patterns. In Period I at Uraiyur the shell beads are most dominant, they are associated with RCPW and Black and Red Ware, further suggesting an early origin of shell ornaments (c. 3rd century BC). Some bear decorations; one consists of incised vertical grooves and other is a floral design. Bangles have thick and thin square section, unlike those from Alagarai and Thirukkampuliyur. Korkai has also yielded objects of shell amounting to a major local industry. Shell bangle pieces and sawed conches have been found in large numbers. They occur in association with potsherds bearing graffiti. The conches are sawed in between the top and bottom portion in order to make bangles. No less significant is the finds at Alagankulam of shell objects in good number; conches for bangle manufacture have been found in various stages of making and indicate an extensive conch-shell industry. It is also well represented at Arikamedu (Fig. 86) though many of them found unfinished stages of preparation. A large number of them found are crescentic, ear-ornaments. Shell objects have been reported from many sites mixed with burial and habitation contexts taking back the existence of the industry, a few centuries earlier; for e.g. Appukallu (District North Arcot) and T. Kallupatti (District Madurai). Other historical sites from where shell objects have been reported
include Adiyamankottai (District Dharmapuri), Perur (District Coimbatore), Kambarmedu (District Thanjavur) and Kanchipuram.

Extensive shell cutting has also been identified at Karaikadu where remains of unfinished shell beads and bangles and cut shell pieces have been found in clusters. During the present survey though there is no shell objects found in any of the sites, core of shell (columella) was found at Ulakkur near Villupuram (Fig. 87).
Fig. 86: Arikamedu- Shell bangles

Fig. 87: Ulakkur- Core of shell (columella)