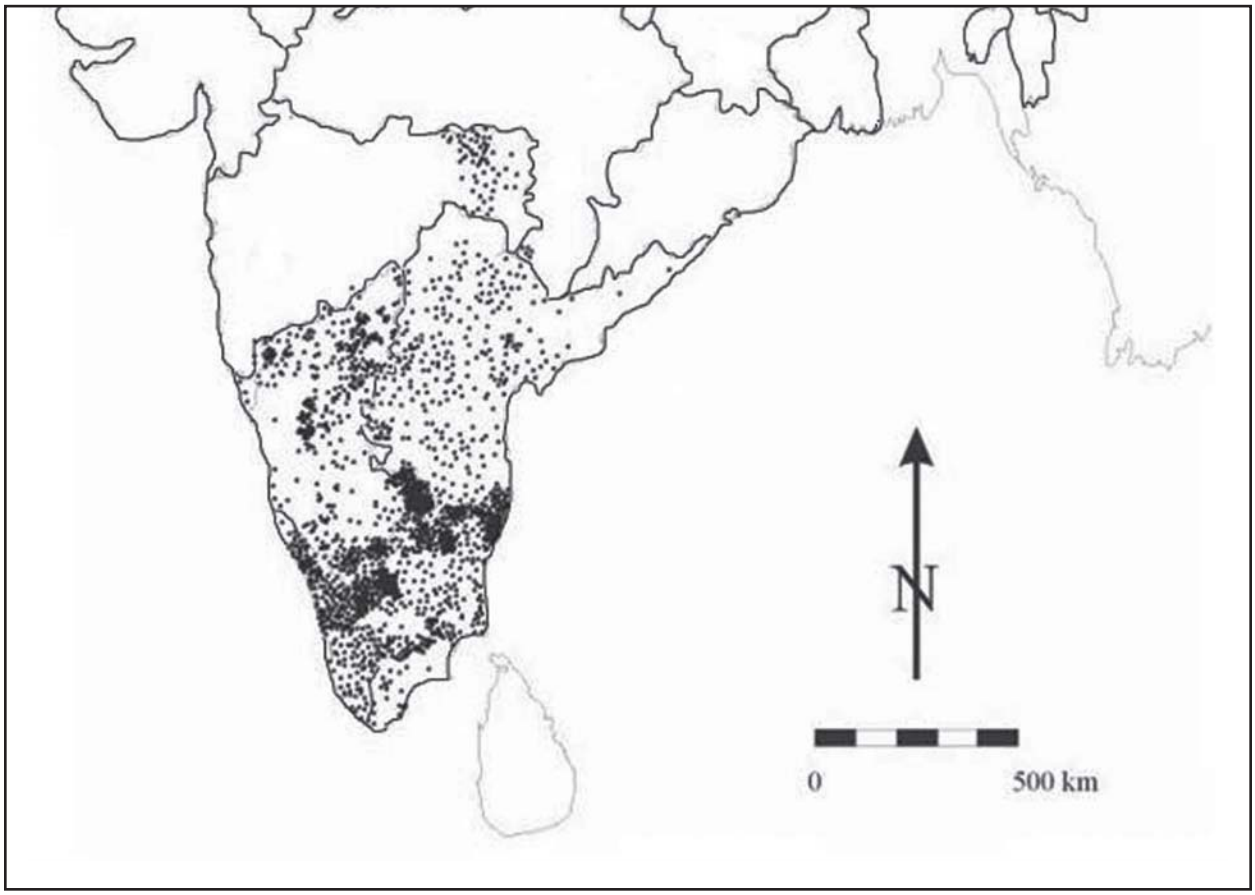
IV.2. Peninsular and Southern India

Editorial Note

[This essay is an up-to-date statement of the megalithic situation in Vidarbha and further south. It is this megalithic or basically the Iron Age base which constituted the background of the early historic developments in south India. Considering that the Brahmi script is now found to go back at Porunthal and Kodumanal to *c.* 500 BC, there is no reason to believe that the state and city development in that region is a particularly late development.]

The megalithic culture known for its characteristic mode of burial construction and ritualistic offerings is associated with the early use of iron in Peninsular India (Map 1). In 1823 T. Babington identified megalithic culture at Chattaparamba[1] in Kerala (Babington 1823). Colin Mackenzie is said to have noticed megalithic burials in south India even before Babington. His notes and sketches of megalithic monuments of peninsular India remained unpublished (Paddayya 1997). In Vidarbha, Pearse[2] excavated megalithic burials at Kamptee in 1867 (Pearse 1869). Hislop[3] first noticed and excavated megalithic burials at Takalghat[4] in 1847 (Hunter 1864:160). Hislop also dug "a few" megalithic burials at Junapani (Carnac 1879:2-3). He planned to excavate at Takalghat again in 1863 at the request of Mr. Temple, the then commissioner of Nagpur. Unfortunately, Hislop died crossing a nala while coming back from Takalghat in September 1863. Pottery and notes on Takalghat were found in the pocket of his jacket when his deadbody was found.

Many megalithic sites were excavated in peninsular India before 1947 (Mohanty and



Map 1. Distribution of Megalithic sites in Peninsular India.

Selvakumar 2002). These excavations were significant in locating megalithic burials in different geo-ecological zones, understanding typological variations and distinctive material culture of megalithic people. Various issues like chronology and 'diffusion' theory on the origin of the megalithic culture of peninsular India (Mohanty 2001, Darsana 2006) also were highlighted during this period. Wheeler's excavation at Brahmagiri (Wheeler 1948) provided the starting point of later megalithic research (Srinivasan and Banerjee 1953, Banerjee 1956, Banerjee and Sundara Rajan 1959, Das 1957, Thapar 1952, 1957, Singh 1968-69). The study of the megalithic culture was taken up by the universities and other institutions in the 1970s. (Mohanty and Selvakuma 2002). In Vidarbha S.B. Deo began work on megaliths in the late 1960s. (Deo 1970, 1973, Deo and Jamkhedkar 1982).

MEGALITHS AND MEGALITHIC CULTURE

Megaliths are funerary monuments represented by various types and sizes. The term megalith etymologically means big stones. It is a generalized definition, which is not adequate and appropriate for urn and sarcophagus burials as they are found without any surface indication of lithic appendages (Begley 1965, Gupta 1972, Leshnik 1974). At some sites urn and

sarcophagus burials are also found in association with lithic appendages. At Chingleput and Kunnattur urn and sarcophagus burials were found placed within cairns or cists made of stones slabs (Krishnaswami 1949, IAR 1955-56:23, 1956-57:31, 1957-58:37), and there are more examples from Tamil Nadu (Krishnaswami 1957, Rajan 1991, 1997) and Andhra Pradesh (Sarkar 1969) where urns and sarcophagi were found with lithic appendages such as stone circle, cist, dolmen and capstone. However, there are some arguments regarding the incorporation of the commemorative monuments of menhir and alignments in the 'megalithic culture'. Excavations of stone alignments in Piklihal and Maski revealed that they were not associated with burials. Excavation of menhirs at Panchkedi was also devoid of any cultural materials and human skeletal remains. Erection of menhirs or alignments and ritualistic offering in commemoration of dead is common among the communities practicing 'megalithicism'. Broadly, megaliths denote a socio-religious and socio-economic mode of burying the dead in a grave with or without lithic appendages. It may be said that megaliths denote monuments made of stones or where stones were used as appendages to place the dead or in commemoration of the dead. Megaliths, mainly in peninsular India, are associated with early and extensive use of iron and characteristic pottery type known as black and red ware (BRW). (Mohanty and Selvakumar 2002:313).

MEGALITHIC TYPOLOGY

There are about two thousand megalithic sites in peninsular India (Moorti 1994, Mohanty and Selvakumar 2002, appendix IV, Thakuria 2010). Many of these sites are represented by one or several types of burials. Krishnaswami (1949) offered a typology of south Indian megalithic burials : dolmenoid cist, cist, port-hole cist, dolmen, cairn circle, menhirs, umbrella stone, hood stone and rock cut caves. Cists and dolmens fall into sub-types which may be region -specific and was possibly influenced by geographical factors and availability of resource. Subsequently, many scholars tried to modify Krishnaswami's classification (Dikshit 1969, Guruajarao 1972, Leshnik 1974, Sundara 1975, 1979, Agrawal 1982, Allchin and Allchin 1983, Rao 1988, Moorti 1994). Some of these classifications were region- or site- specific (Allchin 1956, Sarkar 1969, Deo 1969, Narasimhaiah 1980, Rajan 1986, 1990, 1997, Mohanty 2005a).

U.S. Moorti (1994:1-3). classified megalithic burials in two board categories of 'sepulchral' and 'non-sepulchral'. The first category is proper burial and the later is commemorative or memorial in nature. He classified dolmen (chamber open on one side), port-holed dolmen (a closed chamber), menhir, stone alignment and avenue in non-sepulchral category. However, placing a burial in sepulchral and non-sepulchral category merely on the basis of the external appearance of the burial is ambiguous. There are examples of finding remains of burial below menhir in pit in Kerala (Sundara 1979). On the other hand, stone circles are sometime found devoid of any evidence of burial (Deo and Jamkedkar 1982, Deglurkar and Lad 1992). Moreover, secondary burials are most often devoid of complete skeletal remains. Hence, the outer morphological look of a burial may not always represent non-sepulchral category.

There is not much difference among scholars to identify basic types as chambered type, un-chambered types and monolithic erection like menhirs and alignments.

A chambered burial is a box type arrangement placing orthostats on four sides in upright position and a capstone on the top. There may be holes in one or more orthostats, which is known as port hole. If the chamber is raised on the ground it is called a dolmen (Fig 1) and a cist if it is underground (Fig 2). Besides cist and dolmen, *Topikal*, *Kodaikals* and rock-cut caves are also basically chamber burials.

There are variations in cist and dolmen types. Sometime, in case of both cist and dolmen, a gap is maintained in the one side of the orthostat and also at the entrance which is provided by a passage. The passage is also made by placing slabs. This type of variation is known as either passage cist (Fig 3) or passage dolmen. The function of the entrance is difficult to explain, but may have some ritualistic or symbolic value. Sometimes one or more holes are made in one or more orthostats. That is termed port-hole chamber. In oblong cist, two longer orthostats are kept parallel to each other and then the smaller orthostats are fixed vertically, slightly inside on the either sides to project out the longer orthostats. The main chamber of the cist is sometime found divided longitudinally or laterally by placing one or more slab creating single or multiple chambers. This type of cist is

Fig. 1. Dolmen from Mallasandram, Tamil Nadu.

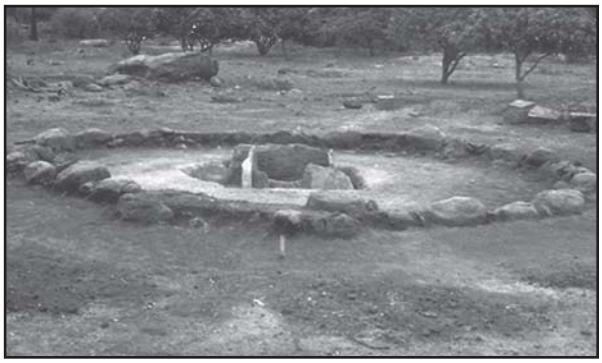


Fig. 2. A cist burial from Mayiladumparai, Tamil Nadu.

called transepted cist (Fig 4). They are noticed at Brahmagiri in Karnataka and Pudukkottai, Nattukkalpalayam, Thandikudi Porrunthal in Tamil Nadu and Irdduki in Kerala. When orthostats are found placed in swastika pattern in clockwise or anti-clock wise, the cist is called swastika cist (Fig 5). All these types of cist may or may not occur with porthole and passage. At Kodumanal a transepted cist with two subsidiary cists placed on either side of the front slab of main cist having a common passage was revealed. At Sittannavasal and Tudaiyur in Pudukottai, bench was noticed inside a cist (Rajan 2003). Twin cists entombed by a cairn circle were also found at Porunthal (Rajan 2009). Cists are also found made in combination of swastika type and transepted type in Palani hills (Rajan 1993).

Both dolmen and cists are found entombed by additional architectural elements such as cairn filling, circle of stone boulders and circle of stone slabs (Fig 6). At Palani Hills a group of dolmen was found confined within a rectangular wall (Fig 7) constructed using blocks of stones (Rajan n.d.1). Similarly, they are also found in large number at Iduki in Kerala.

Topikals and *Kudaikals* are characteristic chamber burials mainly found in Kerala. *Topikal* is made by vertically placing three stones,

Fig. 3. Cist with passage at Kodumanal, Tamil Nadu.

Fig. 4. Transepted cist with passage at Kodumanal, Tamil Nadu.

Fig. 5. A swastika cist from Porunthal, Tamil Nadu.

triangular in shape, that incline inwardly at top, and on the top a plano-convex cap stone is placed (Fig 8). *Kodaikals* are actually pit or underground chamber that is covered by a plano-convex capstone (Fig 9). Inside the pit grave goods with a large pot are placed in vertical position. The rock cut chambers are found mainly in the lateritic zones of Kerala (Fig 10) and south Karnataka. They are carved out in the lateritic deposits. They are sometime multi-chambered, pillared and provided with bench. At Ummichiipoyh, a flight of steps were cut as entrance passage of the cave. The entrance is generally covered by cap stone.

The pit burials are simplest of all megalithic burials. They are rectangular, oblong or circular in shapes containing primary or secondary skeletal remains along with offerings of grave goods. At Maski some of the pit burials are found having feeble lithic appendage (Thapar 1957). At Mahurjhari, Dhamnalinga, Vyahad and Dhavalameti rectangular pit burials are found in between stone circles (Mohanty 2002, Mohanty 2005a). In another type, pit is surrounded by lithic appendage in circular fashion without any rubble filling. A pit burial having circular lithic appendage made of basaltic boulders was

Fig. 6. Cist entombing by stone circle at Kodumanal, Tamil Nadu.

Fig. 7. Group of Dolmen with enclosure wall at Thandikundi, Tamil Nadu.

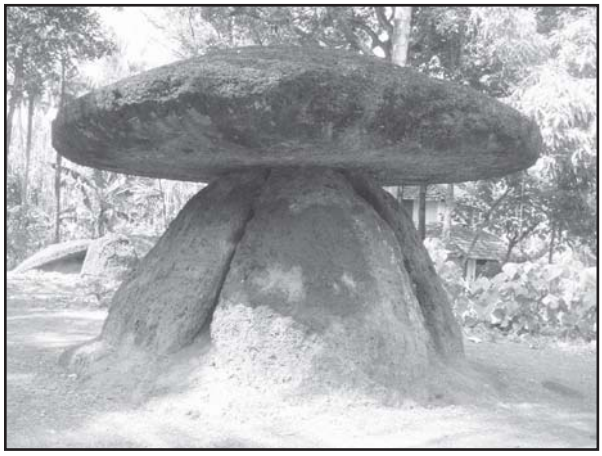


Fig. 8. A Topikal from Kerala.

Fig. 9. A Kudaikal from Kerala.

Flg. 10. Rock cut cave burial from Ummichiipoyh, Kerala.

Fig. 11. Cairn with periphery boulders from Raipur, Vidarbha.

excavated at Mahurjhari. There was no rubble filling but compactly filled with black cotton soil and silty soil in the pit (Mohanty 2005).

A pit burial is sometime covered with heaped up rubble in circular or ovaloid plan with or without periphery boulders to demarcate the circle. The heaped-up rubble without periphery boulders is known as 'cairn' and with periphery boulders popularly known as 'stone circle'. Conceptually as well as architecturally both the cairn circles with the presence and absence of the periphery boulders are same (Fig 11).

Therefore, they can be termed as cairn with periphery boulders and cairn without periphery boulders. Both are found in Vidarbha. They are also found in Tamil Nadu, Karnataka, Andhra Pradesh and Kerala. Sometimes they are found associated with cist, dolmen or menhirs. In case of Vidarbha, the central pit is dug in the centre of the cairn. Black cotton soil was first spread in the pit over which the dead along with grave goods are placed and then covered with a thick layer of black soil. Black soil preserves the skeletal remains from burrowing animals and insects. However, the expanding and contracting nature of the black soil disintegrates the skeleton into tiny pieces making it difficult to excavate and preserve. In some cases the fragile bones get so disintegrated that if not observed carefully, they look like secondary remains of the skeleton.

There is another variety known as hood stones where stone slabs are conical at top and arranged in circular fashion (Fig 12). The slabs are placed in a manner inclined inwardly. Below the super structure, inside, dead body is placed either in a pit, Urn or sarcophagus. Hoodstones are mainly found in Kerala and southern Karnataka.

Urn and sarcophagus burials are made of terracotta. They are found placed in a pit with or without any kind of lithic appendages. The lithic appendages may be cist, dolmen, and cairn with or without periphery boulders or slabs. Urn burials are common in Tamil Nadu (Rajan 1997) and Kerala. They are also found in southern Karnataka (Sundara 1975). Adichchanalur (Rea 1902, IAR 2003-04:267-68) is one of the unique and best examples of urn burial site in Tamil Nadu (Fig 13). The size of urn may vary from small pot to large tall jars. Urns of such various sizes were recovered from Chingleput (Krishnaswami 1949). Shape of an urn, especially made for burial having wide mouth, bulbous or globular body and conical or sagging base is generally called a pyriform. They often have decoration of bands on the neck.

Sarcophagi can be boat- shaped, animal shaped or legged. At present there is only one evidence of sarcophagus at Dhmanalinga in Vidarbha (IAR 2000-01: 97-107). It is boat-shaped and contains skeletal remains of a child. A ram -shaped sarcophagus has been recovered at Sankavaram in the Cuddapah district (Sarkar 1969). Legged sarcophagi are common in Chingleput district and in Coimbatore region (Fig 14). Sarcophagi placed inside stone circle were

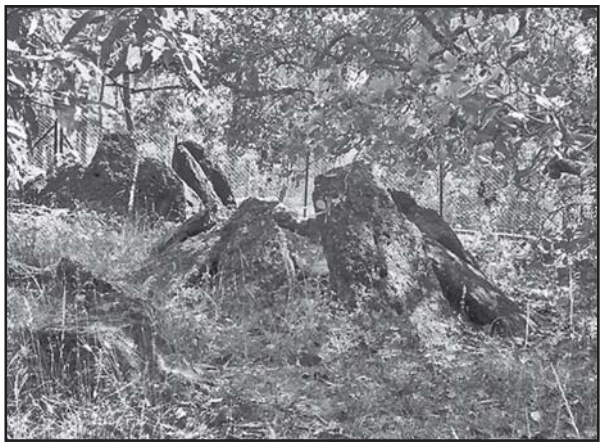


Fig. 12. Hood stones from Ceeramaangngaat, Kerala.

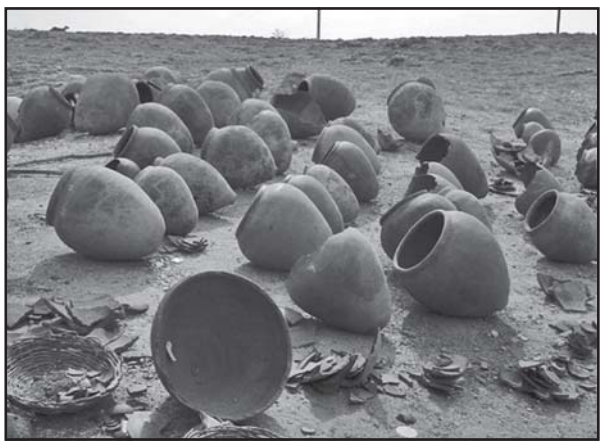


Fig. 13. Burial urns from Addichchannalur, Tamil Nadu.

Fig. 14. A legged sarcophagus, Chingleput.

reported from Perambur (Rea 1908-09:92), Kunnattur (Krishnaswami 1957:189), Pallavaram (Bidie 1887:693-695), Sittamur and Kanthadu (Rajan 1997) in Tamil Nadu. They were also found placed inside cist and dolmen from North Arcot (IAR1978-79:72-73, Richards 1954:157-65, Rajan 1991:37-52, Rajan 1994: 251-70, Rajan 1997:284). In the legged variety of sarcophagus, the legs vary from minimum two to maximum 24. At Paiyampalli a sarcophagus with maximum 24 legs was reported (IAR 1964-65:22-23, 167-68:26-30)

Menhirs are upright monolithic stones of varied height (Fig 15). In Vidarbha, menhirs are not common; only a few examples are found in Nagpur, Chandrapur and Gondia districts. Menhirs are generally devoid of any skeletal and cultural materials. However, in some cases in Kerala and southern Karnataka menhirs are found erected on pit burials (Sundara 1979: 339). There is another variety of monolithic stones known as triangular stone (Fig 16). Such triangular stones are found at several places in Tamil Nadu and Karnataka. Association of triangular stones with mortuary practice is difficult to ascertain because of lack of excavations. However, their location close to megaltihc burials suggests their association with megalithic culture.

Alignments are considered as monuments (Sundara 1979). In alignments, several monolithic stones are placed parallel in patterns of square or diagonals. One of the early discoveries of alignments near Hyderabad was made by Allchin (Allchin 1956). Alignments are found in Raichur, Gulbarga, Mahabubnagar and Nalgonda districts of Karnataka-Andhra region (Sundara 1979). At Hanamasagar in Gulbarga district an alignments was found having 1000 upright stones (Fig 17). At Maski (Thapar 1957) and Piklihal (Allchin 1960) alignments revealed no association with burial or offerings.

A unique type discovered at Katapura was 'anthropomorphic figure' carved out of single slab (Mulheran 1868: 116-18). There are several sites reported having anthropomorphic figure distributed in central Godavari Valley to Tamil Nadu[5]. They are found associated with cist and dolmen entombed by circle. Morphologically, these huge anthropomorphic figures (Fig 18) on stones have resemblance with the anthropomorphic figures of copper hoard culture.

Variation in architecture within the same type of megalithic burial is noticed at several sites. For instance, in Vidarbha it has been noticed that 'stone circles' within a site may vary in their size, nature of deposit and external architecture (Mohanty 1993-94, Mohanty 2005, Mohanty and Walimbe 1993). Furthermore, the same type may also have additional inner architectural variations. There is hardly any similarity in internal architecture, size, and deposit between different megaliths. Variations, for various reasons, may be the characteristic component of the culture in a site or a region. For example, at Khariwada burials were

Fig. 15. A menhir from Ayyampatt, Tamil Nadu.

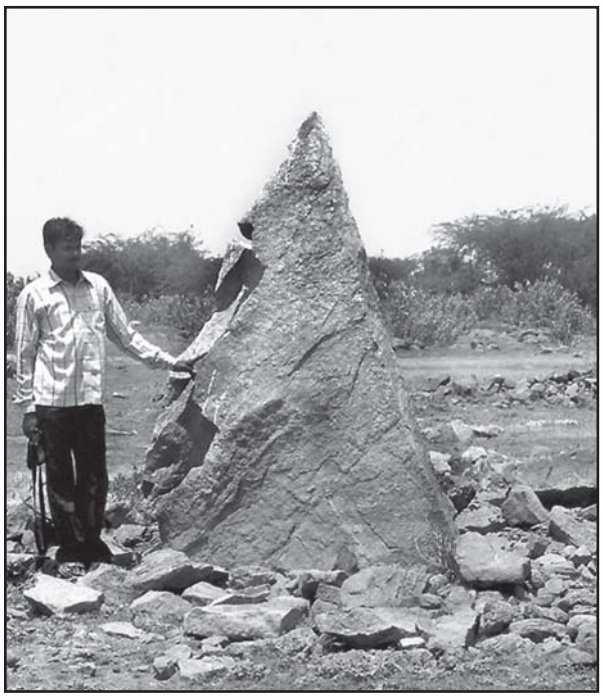


Fig. 16. Triangular stone from Kovukkalmedu.

Fig. 17. A view of a portion of the avenue at Hanamsagar from a hill on the west.

categorized architecturally in two groups—-those with pebble clay filling with a circle of boulders and those with loose pebbles piled up without use of clay within a circle of boulders (IAR 1981-82: 51-52). At Bhagimohari, funnel like pits aligned with medium sized boulders within the stone circle were noticed on the surface of a few 'stone circles' (Mohanty 1994). However, the most interesting characteristic feature is the placement of huge slab of sand stones like menhirs in slanting position within a few circles. These menhir-like stones were brought from outside, most probably from Borgaon megalithic site. Borgaon burials which are about 10km away from Bhagimohari, have used these locally available stones extensively. Similarly, Bhagimohari burials also have some non- local stones like Gondwana formation slabs/blocks placed very close to the skeletal remains and were brought from at least 35km. from the site where they are found associated with burial locations. At Raipur within a cairn circle, a cist burial was found(Deglurkar and Lad 1992). These lime stone slabs must have come from far-off place as it is not available locally. They probably suggest extension of

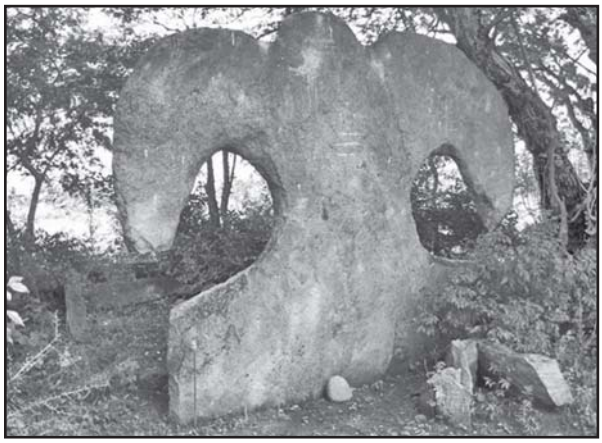


Fig. 18. Anthropomorphic figure from Mottur.

social relationship, probably by kinship or influence. At Malli[6] in Gondia district, several variations are noticed in cairn type burials. Almost all the burials are made of lateritic boulders and rubble. The common type is cairn with periphery boulders having a rectangular chamber in the centre (Fig 19). The chamber is open on one side and the top is covered by a large slab of either sandstone or basalt. The length of the chamber varies from 1 m to 1.5 m depending upon the size of cairn. The chamber is partly filled by rubble exposing the capstone. At Satana, another site close to Malli, beside circular and oval shaped cairn type of burials, oblong type of cairn with periphery boulders

Fig. 19. Cairn with periphery boulders having a rectangular chamber in the centre from Malli, Vidarbha.

and having no rubble filing but clay filling are noticed.

Despite having external variation in size and contain, the excavated burials at Raipur, Mahurjhari, Takalghat, Naikund, Borgaon, Khariwada, Bhagimohari, Dhavalameti and Vyahad in Vidarbha shows further additional internal architectures of varied types. An intensive visual physical documentation of megalithic monuments was carried out at the site of Bhagimohari and later at Mahurjhari by the first author (Mohanty 1994; 2005a). These variations of inner architecture can be described as (i) cairn with single row of periphery boulders, (ii) cairn with double rows of periphery boulders, (iii) cairn with single row of periphery boulders and a circular chamber in the centre(Fig 20), (iv) cairn with periphery boulders and a circular chamber containing a rectangular rubble filling covering the central pit (Fig 21), (v) cairn with double of periphery boulders and a rectangular chamber in the centre (Fig 22), (vi) cairn with periphery boulders and two adjacent square chamber with a common passage (Fig 23), (vi) cairn with periphery boulders and a central chamber made by placing huge boulders (Fig 24), (vii) cairn with periphery boulders and a stone trough in the centre (Fig 25), (viii) cairn with periphery boulders and a central cist, (ix) cairn with periphery boulders and a menhir in the centre. Their distribution in the burial landscape, clustering types, varied architectural manifestation are also suggestive of segregating and ever changing perspective nature of the developing community.

Megalithic burials are intentional construction that required investment of wealth and labour (Mohanty and Walimbe 1993, 1996). Hence, variations on the basic types and combinations of types may act as an important element to understand the socio-economic status

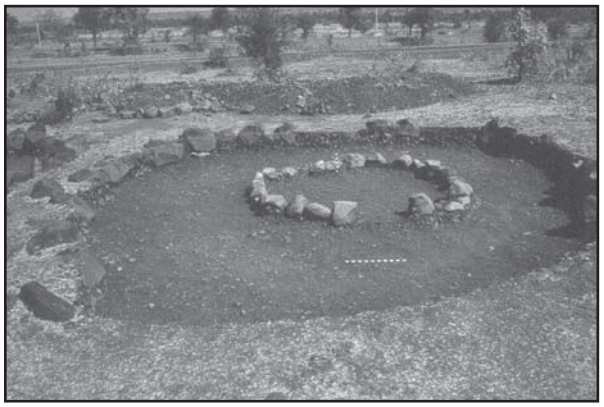


Fig. 20. Cairn with single raw of periphery boulders and a circular chamber in centre from Bhagimohari, Vidarbha.

Fig. 22. Cairn with double of periphery boulders and a rectangular chamber in centre from Vyahad, Vidarbha.

Fig. 21. Cairn with periphery boulders and a circular chamber containing a rectangular rubble filling covering the central pit from Dhavalemeti, Vidarbha.

Fig. 23. Cairn with periphery boulders and two adjacent square chamber with a common passage, Bhagimohari, Vidarbha.

of the deceased and his family. The nature or mode of construction such as size, nature of deposit and monuments constructed partly above the ground and partly buried may also have socio-economic significance. Description of types, therefore, does not mean merely morphological features, but underlie the socio-economic significance of the monument or people who made it.

SETTLEMENT PATTERN

Until recently, it was reasonably believed that megalithic people were pastoral community, because of relative scarcity of documentation of habitation deposits. Mahurjhari, which was known as an important site from the report of Hunter (Hunter 1933) and later excavated extensively by Deo (Deo 1973, IAR 1978-79: 71), was believed to be only a burial site. However, a habitation site was located and excavated at Mahurjhari(Mohanty 2002, 2005a). Habitation deposits were subsequently located in close proximity of burial sites, also at Panchkedi (Nath 2001)and Vyahad (Gupata and Ismail 2010) in Nagpur district and Malli[6] in Gondia district. Recent explorations have shown that almost all burial sites are associated with

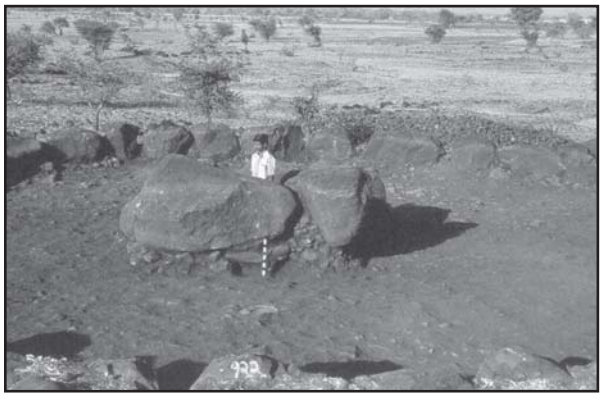


Fig. 24. Cairn with periphery boulders and a central chamber made by placing huge boulders from Raipur, Vidarbha.

Fig. 25. Cairn with periphery boulders and a stone trough in centre from Boregaon, Vidarbha.

habitation, except a few cases where substantial changes in the landscape have taken place. Cultural deposits belonging to megalithic culture may not be visible on the surface of multicultural sites like Adam (Nath 1992), Kauindinyapur (Dikshit 1968), Arni (IAR 1978-79:71-72, IAR 1984-85:52-53), Tharsa (IAR 1985-86:58-60), Chandankeda[7], Hallur (Nagarajarao. 1971), Kodumanal (Rajan 1994), Mayiladumpari (Rajan 2004) and Porunthal (Rajan 2009). At all these sites megalithic culture was overlain by thick early historic cultural deposits. Therefore, systematic survey and excavations of early historic mounds located in the region rich in megalithic remains may produce underlying megalithic deposits.

Mohanty and Joshi classified megalithic sites into three categories (Mohanty and Joshi 1996). Category A includes all the sites that directly contribute to the better understanding of the life–pattern of megalithic community of Vidarbha. Sites like Mahurjhari, Naikund, Takalghat-Kapa, Raipur, Borgaon, Bhagimohari, Vyahad, etc. which have either megalithic monuments or megalithic burials along with habitation are of Category A. In Category B those sites are placed where no trace of megalithic burials are found in vicinity, but the presence of Megalithic phase succeeded by the early historic period in stratigraphical order is found. Sites like Kaundinyapura in Amaravati and Arni in Yavatmal district are placed in this category. In Category C includes sites where evidence of Megalithic and early historic culture are found in the vicinity of megalithic burials. Another category may be added, where megalithic habitation deposit is found preceded by mesolithic or neolithic deposit, for example Mayiladumpari (Rajan 2004), Jawalapuram (Clarkson et al. 2009), Hallur (Nagarajarao 1971), and Pachkheri (Nath 2002).

Moorti commented that location of habitation sites was dependent on environment and resources both for subsistence economy and construction for burials (Moorti 1994:11-18). Therefore, megalithic sites are located in mainly resource rich areas of mineral and ore resources like iron, copper, gold and mica, biotic resources, arable land and water, raw material for burial constructions. Moorti further emphasized that some of the sites were located on the trade routes and in deltaic zones convenient for trade activity (Moorti 1994:16-17).

The observations on location of megaliths in Vidarbha suggest that almost all discovered

megalithic burial sites in the region are located either on the non-agricultural barren land on the Deccan trap or on the hill- slopes. On the other hand habitation sites are located close to water resources with abundant arable land around. Mahurjhari, Naikund, Khariwada, Bhagimohari, Takalghat, Vyahad are located either on the pools, small streams or near the tributary of Wardh-Wainganga system. It is also noticed that burials are either close to the habitation or just across the waterbody as in Takalghat, Naikund, Mahurjhari and Vyahad.

The observations made on burial-cum-habitation sites, mainly from Vidarbha, indicate combination of barren and arable land with availability of water sources for selection of habitation-cum-burial sites which also had the socio-cultural and socio-economic implications. There may be several factors which might have influenced them to stay close to the burials or cemeteries surrounding them. Certainly, respect for ancestor may be one of the major factors. Respect for the dead and preference of burying dead in close proximity of or even inside the house was prevalent from the chalcolithic period in western Maharashtra as seen at Nevasa (Sankalia et al. 1960), Inamgaon (Dhavalikar et al. 1988), Diamabad (Sali 1986) and Chandoli (Snakalia et al. 1960, Sali 1986, Dhavaikar et al. 1988). Therefore, it is logical to think that megalithic people preferred to accommodate 'dead' near the habitation instead of inside the habitation and selected barren land for burial construction for two reasons—i) need of larger space to construct elaborate burials, ii) keeping the burials safe from agricultural activity. Therefore, sites like Mahurjhari, Khariwada, Vyahad, Malli and Bhagimohari represent landscape that has combined factor of barren and arable land with plenty resources available in the surroundings.

There are no remarkable differences in material culture from excavated habitation sites, which can really be taken as evidence of site hierarchy. However, iron-smelting sites like Naikund and Kodumanal might have played some role in production and distribution system within the cultural territory. The continuous occupation at a site for a longer period, increase of population over a period of time, increase of the settlement size, number of burials erected and the amount of labour and the nature of grave good may provide clues to the dominance of a site in a regional perspective. For example, Khariwada in Vidarbha has largest number of burials(1500) and has thick habitation deposit belonging to megalithic period. Similarly Mahurjhari has large number of burials located in 11 localities with rich burial architecture and rich burial goods in comparison with other sites in Vidarbha.

EXCAVATIONS

Mohanty adopted three methods while excavating burials outside the cairn burial with periphery boulders at Mahurjhari (2005a, 2005b) to understand remains of activities during the construction of the burial. He first excavated the cairn burial following the quadrant method, and then extended the base lines towards north-south and east-west outside the periphery according to the area selected for excavation as in case of normal trenching. Thus, the extended area gets the reference point from the central peg of the cairn. Then trenches were laid in association with the periphery of the cairn following the extended base lines. In this, a larger area can be excavated outside the burial keeping relation to the center of the cairn. In the other method, the radius of the circle was extended to 1 or 2m outside the periphery boulders and excavated. The third was excavating a cluster of burials in

a locality irrespective of the size, deposit and architecture. All three have given excellent results (Mohanty 2005a)

Ismail Kellelu adopted octagonal method of excavation of cairn circle instead of traditional 'quadrant method'. The cairn was divided into eight quadrants taking reference point in the center of the circle (Fig 26). According to Kellelu, each quadrant can be extended convincingly outside the cairn periphery. Excavation was conducted at Dhmanalinga (IAR 2000-01:97-107), Vyahad (Ismail 2006) and Dhavalameti (Ismail 2008) by adopting this method that resulted in discovery of pit burials at the periphery. However, the limitation of this method is that, very less space remains inside the burial for excavation when divided into eight quadrants with baulks.

The aim of these methods of excavations was to know the activities outside the periphery that was ignored by previous excavators. Both Mohanty and Kellelu were successful in locating pit burials and evidence of ritual outside the periphery of burials that was hitherto unknown. Mohanty's excavations in the locality "A" at Mahurjhari for the first time revealed that there are many more burials, mostly primary in nature with limited burial goods similar to the contemporary culture without any lithic appendages. They are buried in a simple procedure by digging a pit within the neighbourhood and sometimes in between the space of a cluster of megalithic burials (Mohanty 2005a). These evidences provided new insight into the different burial customs, economic condition and social representation of megalithic people of Vidarbha. Brief notes on some of the recently excavated sites in peninsular India have been given below.

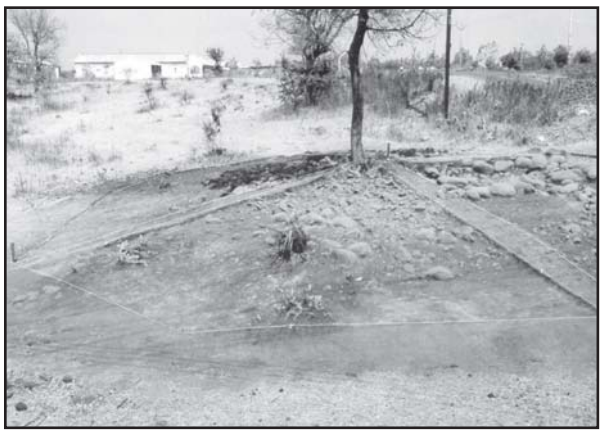


Fig. 26. Octagonal method of excavation.

Mahurjhari: Mahurjhari is located 15 km west of Nagpur city on the Nagpur Kotal road in Nagpur district. The presence of megalithic monuments at Mahurjhari village was brought to light by Hunter in 1933 during his investigation of historic antiquities (Hunter 1933). After 25 years of Hunter's notice of megalithic monuments in the village, in 1958 Banerjee from Archaeological Survey of India explored the site and recorded 300 megalithic stone circles (IAR 1958-59:21). Later, Deo excavated megalithic monuments at the site first in 1971-72 (Deo 1973) and later in 1978-79 (IAR 1978-79:71). The site was further selected for exploration and excavation by Mohanty with the aim of locating the habitation deposit (IAR 2001-02: 123-31, 2002-203:172-74, Mohanty 2003) which was located 1 km south to the Early Historic mound. Excavations at the habitation deposits revealed typical micaceous red ware, black and red ware, thick red and black slip ware of Vidarbha megalithic culture. Besides, sherds of black - painted red ware were also found. Several floor levels were exposed along with silos, hearths, roasting places, fireplaces, washing platforms made with pebbles and clay. The floor were made by ramming the black clay upon which stone chips were laid and then it was covered with a thin layer of brownish earth and sticky

fine clay paste. U-shaped earthen hearth and storage pits are the other characteristic finds. The circular post holes indicate some kind of superstructures made of wood or other perishable materials. The burnt clay clumps found with impression of bamboo and mat indicate mud plaster over the bamboo mat. Besides, artifacts like semiprecious stone beads, terracotta beads, clay tablets, pottery discs and grounded-flat-circular stones of different wrights were found along with large amount of animal bones and charred grains. The lower levels have given evidence of pottery resembling the late phase of neolithic tradition from the south along with stone blades and flakes.

There are 270 burials identified in 11 localities located in considerable distance from each other at Mahurjhari. Many burials have been completely and partially removed during mining, road-widening and land clearance. They are located on barren, less fertile, un-productive landscape and hilly tracts. Each of these localities have around 15-70 burials with different shapes, sizes with various external filling and features. Again, within the locality burials are clustered in groups separated from each other and often having personality of their own.

To testify some of the behavioural aspect of the Mahurjhari megalithic burial builders, three adjacent burials from one of the clusters in locality 'A' were undertaken for excavations. All the three burials opened in this cluster had secondary skeletal refuse along with funeral offerings and consist of iron chisels, adzes, axes, cross ring fastener axes, daggers, arrowheads, spearheads, ladles, hoes, ploughshares, knifes, nail- parers, horse-bits, copper bangles, bells and beads of semi-precious stones. Along with secondary burial scattered in different parts of the burial, the Megalithic number 10 had two primary burials, one of them inserted at a later date. The sticky black clay which covered the skeleton was mostly brought from the sediments of the nearby water-bodies, which dries up after the monsoon.The cultural materials recovered from the excavated burials are the same as previously recovered by Deo (Deo 1973). However, the finding of bead manufacturing refuse from excavated burials located close to the early historic mound at Mahurjhari is intriguing.

There were four pit burials without any surface indicators and significant stone appendages, two on either side (north and south) of the burial number 10 with similar cultural material of the period (Mohanty 2005). Discovery of pit burials outside periphery added a new piece of information.

Dhavalameti

The village Dhavalameti is located 12 km west of Nagpur on Nagpur-Amaravati road. There were 14 megalithic burials scattered in an area of 10 hectares. These are Cairns with and without peripheral boulder type. Excavation conducted by Nagpur University in 2003-04 in one of the burials revealed unique internal architectural elements not previously known in the Vidarbha Megalithic burials (Kellelu 2006). It was two circled burials having a rectangular rubble features covering the central pit. The outer circle is measured 18 m in diameter made of placing basaltic boulders. The inner circle was made of multi- coursed rubble with a diameter of 4m. Excavation of the rectangular rubble feature in the center of the inner circle yielded nothing except a few potsherds. But just outside this rectangular feature on the western side a few copper objects, parts of a horse facial ornaments were noticed. The entire inner circle was packed with black cotton soil in a small heap

and the entire space between the inner and outer circles were given a filling of *murum* and small to medium sized rubble mixture giving the entire megalith a domical shape. Material culture including iron tools like spearheads, chisels, knife, adze and copper objects were found distributed in all the excavated quadrants. But in the SE quadrant arrangement of a few micaceous red ware pots kept in a semi circular fashion on the natural *murum* floor in the middle of the outer and inner circles was noticed. Close to these pots some fragmentary human skeletal remains were also noticed. This quadrant also revealed iron tools along with black-and-red ware, red ware and black ware pottery. Another noteworthy discovery was the finding of two rectangular pit burials outside the periphery. Both the burials are secondary in nature.

Vyahad

Vyahad is habitation cum burial site belonging to megalithic culture located 24 km away from Nagpur on the Nagpur-Amaravati road. The site was excavated by Nagpur University in 2005-06 (Meshram and Kellelu 2009). The habitation mound is located on the right back of a perennial stream and burials are located on the left bank. Survey conducted at burial site located 100 cairn burials with or without periphery boulders. The diameter of the cairn varies from 8m to 20m. A burial was excavated having a filling of 80 to 90 cm. It was a double circle having a gap of 1 m between two circles. The central pit was surrounded by a rectangular chamber. The chamber was made by multicourse pebbles. Interestingly, the burial is mainly made of pebbles of varied sizes. The pebbles used in inner circle were smaller than the outer circle. The central pit contains red ware pots accompanied by black-and-red ware bowls/ dishes in all four corners. Other cultural materials found from the central pit are copper horse-face ornaments, iron bridle, stirrups, knives, lances, chisels and few fragmentary human bones were found. Outside the rectangular chamber, a few human and animal bones associated with potsherds were found. Two east-west oriented rectangular pit burials were also located on the peripheral of the excavated burial. Except a few micaceous red ware shreds nothing was found in these pits.

The habitation deposit on the right bank of the stream was also excavated to know the nature of the deposit and their cultural association with the burials located on the opposite bank. The megalithic people settled over the natural alluvial soil at the site. They made floor of rammed black cotton soil,plastered with lime. The alignment of a few postholes, some of which contain the remnants of burnt wooden posts show that the huts were either circular or oval. The floors were blackened and ashy suggesting burning activity. Several floor-levels were encountered in excavation. This has been observed also at Takalghat, Naikund, Bhagimohari, Khariwada and Mahurjhari. Except a few urns and animal bones and pottery no other antiquities were recovered from these floors. Some huts revealed U-shaped hearths full of ash. The pottery assemblage consists of micaceous red ware, black slipped ware and typical megalithic Black-and-Red ware .

Pachkheri

Pachkheri is located in Kuhi taluk of Nagpur district and was excavated by the Archaeological Survey of India (IAR 1992-93:64-73, Nath 2002). The site has menhirs and stone circles. Excavation revealed five cultural levels between the Mesolithic and the medieval. Period II is megalithic, with mainly black and red ware, red ware, black on red painted ware and black

slipped ware. Discovery of the patches of mud floor and iron rod, ring fastener and a copper bowl are some of the important finds. Excavation of the menhirs revealed that a pit was dug to erect the monolithic stone or slab. No funerary materials were found in the excavation of menhirs. One stone circle was also excavated, where a central pit was surrounded by a circular chamber made of pebbles. The funerary materials include a copper bowl, iron coiled rings, ring fastener and red ware vases.

Dhamnalinga

The site is located on the south- east and south-west banks of the Vena reservoir situated between the villages Peth and Dhamnalinga in Nagpur district. Excavation was conducted by Nagpur University (IAR 2000-01:97-107). There are about 50 burials located in three different clusters. In total 12 Megalithic burials have been excavated. All are cairns with and without periphery boulders measuring 17m to 1.3 m in diameter. Some of the excavated burials have double peripheral boulders. The inside filling varies from loose pebble-filling to compact pebble-filling with clay. In one of them, red sandstone chips were used to fill the gap between the outer and inner circles. Almost all the excavated burials produced human skeletal remains in secondary condition but buried in a proper anatomical alignment along with the burial furniture comprising pottery, ornaments and both copper and iron objects.

The significant discoveries are peripheral apsidal pit burials and a boat shaped terracotta sarcophagus. So far in Vidarbha only Dhmanalinga has given evidence of terracotta sarcophagus having post cremated bones of a child. Altogether 32 peripheral pit burials were excavated here. They are mostly in east-west direction with slight deviation. The pit were filled with *murum* and cultural materials like a few found pots and iron tools characteristic megalithic culture. Moreover, fragmentary human bones, tooth remains and skull portion were also recovered from some of the pits. Four oblong shaped rubble filled features were also excavated that produced human skeletal remains and red ware pottery.

Adichchanallur

Adichchanallur is known for the remains of urn burials. The site was excavated by Alexander Rea in 1902-03. The site was excavated recently by Chennai circle of archaeological Survey of India (IAR 2003-04:267-68). The excavation covered an area of 600 sq m that resulted discovery of 160 urn burials. Based on the urn types and nature of skeletal remains excavated, urns were divided into three phases. Phase one is dominated by primary burials. Urns of phase I invariably contain non-articulated human skeletal remains along with grave goods like pottery, iron tools and ornaments. The skeletal remains interned in urns are in crouched position. Example of double burials in the same urn was also noticed. In Phase II primary burials are fewer and urns containing secondary burials more. The third phase is dominated by secondary burials. In Phase II skeletal remains are kept in non-articulated manner.

In the secondary burials, the body was first allowed to decompose and then bones were collected for secondary burial. In Arunachal Pradesh, the Nocte tribe follows a similar type of burial system. First, they keep the dead body on a platform made of bamboo far from settlement area. Later they collect the skeletal remains to perform secondary burial ritual. In the primary burials, as evident from Adichchanallur, the fore and hind limbs of the body were folded and tied by vegetal or bark

rope and then kept inside the urn. The urn no. 83B revealed a double burial with bodies kept in such manner.

The grave goods found in the urns are mainly bowls, dishes, ring stands and lids of black and red ware, black polished ware, red ware and black ware. Besides, white pained black and red wares were also found. Other finds include axe, arrowheads, dagger and spearhead of iron and copper ornaments. Traces of rice husk and impression of cloth also noticed.

A piece of potsherd found inside an urn with human skeletal remains shows the appliquè figures of two crocodiles and a deer on one side of a standing women and a sheaf of paddy and a crane on her other side is a noteworthy discovery.

Thandikundi

The village is situated in the Kodaikanal taluk of Dindugal district of Tamil Nadu. Tamil University located around 1000 burials spreading over an area of 40 hectares on the right bank of river Marudandi (Rajan et al. 2005). The burials are mainly dolmen and cist within cairns with periphery boulders. Four such cist burials with huge capstones were excavated. All the cists show a passage constructed by placing stone slabs in front of the porthole. Two out of four excavated cists are transepted cists. All the cists revealed rich grave goods placed on the floor slab inside the chamber. Cist no I was rich in grave good in the form of pottery and iron objects. A total 41 pots was found placed below and around four urns kept in the four corners of the chamber. Besides pots like bowls, basins, dishes, four legged jars, small pots, ring stand, lids, iron objects like swords, dagger and L shapes objects were found. A dagger was found placed on two black and red ring stand. Cist no 2 yielded 296 etched carnelian beads of 'type I'. The characteristic patterns on the beads are radial lines on the periphery. Quartz beads 48 in number were also recovered from the same cist burial. No remains of skeletal remains were found from any of the burials.

Mayiladumpari

Survey in this area located more than 1000 megalithic burials (Rajan 2004). A burial located on the northern side of the burial complex was excavated. Excavation revealed a cist burial within a cairn circle.. The cist is simple in construction without having the base slab and any kind of passage. However, on the top of western orthostat an unusual 'U'-shaped port hole was located. No skeletal remains were found, but grave goods consisting of an axe and a bunch of arrow heads along with black and red ware dishes and pot with conical base were found. Distribution and occurrence of burial goods suggest two levels of ritual performances. The first was witnessed on the floor slab and the second was performed in the middle layer where a red polished pot was found .Excavation at the habitation mound revealed cultural deposit underlying the early historic cultural deposit. Evidence of mesolithic and neolithic culture beneath the megalithic culture was also recovered. There are several rock shelters that contain painting ascribed to the neolithic period.

Nedungur

Nedungur is a recently discovered and excavated burial cum habitation site located 15 km west of Karur Excavation was carried out the Tamil Nadu State Department of Archaeology in 2008 (Gurumurty 2008). The habitation deposit located on the southeastern side of the modern village is spread over an area

of 20 hectares. Close to the habitation deposits about 50 cairn burials with or without periphery boulders were located. Some of these burials have cist in the central portion. A cairn type with double circle of periphery boulders entombing a transepted cist with passage was excavated. Orientation of the transepted cist was east-west, and inside a four- legged jar, black and red ware bowls, iron spears, knifes and an adze were found.

The different localities in the habitation mound revealed black and red ware, black polished ware, red ware, red slipped ware and russet-coated ware. Besides, iron tools like sword, arrowhead, knives, copper rings, shell bangles, terracotta gamesman, pipes, lamps and spindle whorls were also found.

Porunthal

It is located 12 km southwest of Palani taluk of Dindigal district (Rajan 2009). The habitation mound is located on the left bank of the river Porunthal covering an area of 5.5 hectares. The megalithic burials are located in five localities from 4 to 1 km distance from the habitation mound. All five localities indicate a general pattern of typological distribution. The first locality, towards the south of habitation mound, represents urn burials and dolmen. Dolmen within a rectangular enclosure are also noticed in this locality. The second locality is on the either bank of river Porunthal, almost 2 km south of the habitation mound. The locality represents dolmen and cist with cairn filling without periphery boulders. The third locality is about 1.5 km southwest from the habitation mound and contains urn burials and cists with cairns marked by periphery boulders. The fourth locality contain only dolmen located 4 km away to west from the habitation mound. The fifth locality is located 2.5 km west of habitation mound and contain only cairns with periphery boulders. Excavations at the habitation mound as well as burials were excavated by Pondichery University in 2009 and 2010.

Of the four burials excavated, two are transepted cists with passage entombed by cairn with periphery boulders. The other two are twin cists entombed by cairn with periphery boulders. In the transepted cists grave goods were offered in both the chambers. Grave goods consist of four-legged jars, bowl and dishes of black and red ware, horse stirrups, arrow heads, swards, knives and beads of carnelian, quartz, agate and garnet. Grave goods are found generally placed on the floor slab of the cists which is the first level of ritualistic offerings. In the second level offering was made on a bench higher than first level offering. In one of the legged jars was found paddy. In another instance paddy was found placed on a dish. Human skeletal remains found in the burials are fragmentary. Offerings in the form of various pottery of black and red ware, black polished ware and red polished ware are found in all the burials. Graffiti marks found on some of the pots on the shoulder portion represents mostly 'U' and 'X' type of marks. Sometime two identical graffiti occurred opposite to each other.

Enormous quantity of glass beads with evidence of polishing and furnace used in polishing glass beads were found from the early historic level.

Ummichiipoyh

This is a rock cut burial site in the Kasargod district of Kerala (IAR 2002-03:140-41). A cluster of rock cut caves was noticed on the western slope of a lateritic outcrop. Two caves were excavated by Thrissur circle of Archaeological Survey of India. The caves are circular on plan. A circular hole was made on the top of the cave.

The rectangular entrance was closed by placing a slab. A steep slope was provided as passage to the entrance. No antiquity save pots of various size, bowls and lids of black and red ware and red ware were found.

Recently a rectangular rock cut burial with a pillar in the center was reported at Kodakkal in Malappuram district (Ajit Kumar 2006). Entrance was provided by a flight of steps. Inside the rectangular chamber a bench was made where pots of various sizes of black and red ware, red ware and black ware along with iron objects like tripod ring stand and swords were kept. Besides, remains of a large urn were also recovered.

CHRONOLOGY

Several Megalithic sites in Peninsular India have been dated applying absolute dating method like radiocarbon dating and thermoluminicence.[11] In Vidarbha, ^{14}C dates are available from Takalghat, Naikund, Bhagimohari and Khariwada and suggest *c.* 800 BC for megalithic culture of Vidarbha. However, dates available from the habitation deposits at Naikund, Bhagimohari and Khariwada are only from the middle layers. The lower levels of all these sites remained to date. Hence, it is possible that the date in Vidarbha can go back beyond 800 BC. Noteworthy excavations at habitation deposit at Mahurjhari have produced evidence of lithic assembles and pottery resemblance to late neolithic phase of south India (Mohanty 2005b). Dates available from other geographical areas are Rayalaseema *c.* 1880–1595 BC, upper Tungabhadra Valley *c.* 1440–930 BC, Cuddapah basin 1375–1230 BC, Tambraparni plain *c.* 905–780 BC, Javadi Hills *c.* 425/0155 BC, upper Cauvery Valley *c.* 225 BC, Krishna-Tungabhadra doab 1670 BC–AD 35, Warangal plateau *c.* 185 BC–AD 35, upper Krishna Valley *c.* 160 BC–AD 70, Kongunad upland *c.* 300 BC–AD 100. From these available dates, the beginning of the megalithic culture in peninsular India can be pushed back to around 1500 BC. The culture was prevalent during the early centuries of the christen era in different geographical pockets in peninsular India.

SUBSISTENCE ECONOMY

The opinions and arguments regarding the subsistence economy of Megalithic people are varied. These opinions suggest megalithic community as pastoral nomad (Leshnik 1967, 1974, Narasimhaiah 1980) or agrarian (Gururajarao 1972, Ramachandran 1980, Rao 1988, Kajale 1989) or combination of both (Ramachandran 1962, Soundara Rajan 1962, Deo 1985, Lukacs et al. 1989, Mohanty 2005b).

With the increasing number of discovery of habitation sites in recent years, it is now, however, somewhat difficult to think of megalithic society as pastoral nomad. Moreover, the artifact remains suggest that megalithic community comprised groups of artisans and craftsmen like potters, carpenters, cobblers, bamboo craft, lapidary, blacksmiths, coppersmiths, goldsmiths, etc. The very existence of these professional groups presupposes surplus production (Misra 1985). It is often unrealistic for a pastoral community to manage surplus of such a group of professionals and utilize them in the event of social functions. Hence, the economic system indicates towards stable surplus production and management system.

Kajale based on his archaeobotanical research suggested that megalithic people carried out agricultural activity in both seasons during Rabi and Kharif seasons (Kajale 1989). Variety of grains including rice, wheat, kodo millet, barley lentil, black gram, horse gram, common pea, pigeon pea, Indian jujube

(Table 1) were recovered from excavation at habitations[8]. Paddy husk was recovered from burial at Jadigenahalli and recently at Porunthal large quantity of paddy was found offered in a four legged jars (K. Rajan personal communication). Moreover, discovery of circular bins from the floor of houses from Bhagimohari, Naikund and Mahurjhari strongly suggests storage of food grains and agricultural economy (IAR 1982-83:61-62, Deo and Jamkhedkar 1982, Mohanty 2005b). Finding of agricultural implements such as iron hoes, sickles and ploughshares strengthens the view on strong agricultural economy.

The study on faunal remains[9] from the excavated Megalithic sites provides evidence of several species of domesticated and wild animals (Table 2). Next to cattle, sheep/ goats were the dominant domesticated animals (Deo 1984, 1985). The importance of cattle is evident from the large number of cattle bones at all the settlement sites (Thomas 1992a). It is important to note that besides cattle, sheep/goat bones are mainly recovered in maximum numbers from habitation deposits (Thomas 1992a). The economy of the megalithic people may have been influenced by stockbreeding, but this cannot be a sole criterion to suggest that megalithic people were pastoral nomads. The location of sites close to fertile arable land with water bodies and pasture land suggest that they selected landscape suitable for agriculture as well animals to graze. The recovery of wild animal bones suggests that hunting also played an important role in their diet and subsistence economy.

In addition, for the fulfilment of other social needs in domestic, technical and cultural fronts efficient infrastructure of subsidiary economic activities is essential. Other activities such as smithery, carpentry, pottery-making, lapidary, basketry and stone cutting were part of the economic activities of Megalithic society which was supported by the primary mode of surplus production within the subsistence economy of the Megalithic people.

Ritual Food Offerings of Megalithic People

'Organic Residue Analysis' is an approach of 'Molecular Biology' that identifies 'molecular markers' on pots. Residues of organic remains, especially cooked food, consumed or stored food, absorb by the pores of non-slipped and non-glazed pot, can be traced through 'Organic Reside Analysis'. Recently an attempt was made by Ghosh[10] to identify food residue on pot from a burial excavated at Mahurjhari by Mohanty. The pot was recovered from the central pit placed close to the skeleton. The analysis resulted in identifying fatty acid, amino acid and carbohydrates. The study was preliminary and more work remained to identify sources of these components of lipids. However, the result confirms that cooked food was part of burial ritual and offered in pots in burial.

Ritual Feast and Horse Sacrifice

Feast was probably part of death ritual celebrated by the megalithic people. The custom is also seen prevalent among the present societies in varying degree of celebration. The scale of affordability of the feast depends upon the socio-economic status of the deceased or his/her family members. In archaeological context, it is however known that food item was offered in the burial sometime recovered in pots, like one copper bowl found filled with chapped animal bones, probably offered after cooking. And recent 'Organic Reside analysis' of pot from Mahurjhari further supports that cooked food was offered. These evidences are however not in the direct support of feast prepared by the

megalithic people. Food in the form of whole grains or cooked were offered in the burial.

Experiment on reconstruction of a burial from Vidarbha suggests that 70 to 80 individuals were required to construct a burial having 13.5m diameter with a deposit of 80 to 85 cm. in two and half to three days without any leisure (Mohanty and Walimbe 1996). Therefore, construction of burials is not solely effort made by family members, but indeed is a community effort. Participation in construction by the community members could be social norms without any labour charge. If not by any labour charge, a feast was probably prepared to honor the labour force provided by community members. Animal was probably scarified and feast was prepared beside various other food items. Thomas suggests that horse was most likely sacrificed for feast. Horse bones were recovered from excavated burials at Naikund, Takalghat, Khariwada and Bhagimohari (Thomas1992a, 1992b, 1993). Interestingly, only the non-consumable parts i.e. skull and hoof bones of horse were found (Thomas 1992b). Presence of only non-consumable part in burial, according to Thomas, after sacrificing the horse consumable parts were eaten and non-consumable parts were buried in the grave. This is indeed an indication that feast was celebrated. In ethnographic parallel sacrificing buffalo among *Hill Soras* of Odisha and *Mithun* (*Bos Frantalis*) among tribes in Arunachal Pradesh for preparation of feast in death ritual is a still prevalent custom.

Horse was probably not an animal that everybody could afford to sacrifice. Instead, bull or other such animal might have also sacrificed for feast according to socio-economic standing in the community. Evidence of bull sacrifice is event in a Naikund burial (Deo 1985).

MATERIAL CULTURE

The material cultural assemblage of megalithic people of peninsular India can be grouped into broad categories such as ceramic, iron and copper artifacts, beads of various raw materials, gold and silver ornaments, terracotta objects, objects of art and miscellaneous objects.

The megalithic pottery is mainly wheel made. The striation marks on the pottery indicate that both fast and slow wheel technique was applied to make pottery. However, handmade pottery is also available in considerable amount. In fact, the large storage jars were found handmade. At Takalghat majority of micaceous red ware jars and pots were found handmade (Deo 1970). Micaceous red ware is characteristic of Vidarbha megalithic culture. The fabric is coarse with clay containing fine sand and flakes of mica. The mica flakes were used in large quantity that they shine on the surface of the pottery. The pottery has ill-fired core and seems that it was less durable pottery. They are found from both burials and habitation. Mica used in the pottery was quarried from the locally available source in Vidarbha. Sometime black paintings in linear pattern are found on the surface. The most common shape in micaceous type is globular pots in varied sizes with funnel-shaped mouth. Besides this, other shapes like bowls, basins, dishes and storage jars with flaring mouth are also available. In the early phase of megalithic culture mica flakes used were big and quantity was more compared to the later phase of the culture. The pottery continued to be in use in the early historic period in Vidarbha. Another type of ceramic that has regional distribution is russet coated painted ware. It is mainly distributed in the western interior region of peninsular India and Kerala.

The common pottery type of megalithic culture of peninsular India is black and red ware. The ceramic is represented by well-levigated fine fabric. It is thin in section and highly burnished. This is the most common type found from burials and habitation deposit of megalithic culture. The shapes are mainly rimless bowls of various size, dishes with convex side, globular pots with flared outer rim, ring stand, lids with or without conical top and animal figures, conical vase of different length, etc. Other associated ceramics are black slipped and red slipped ware. The shapes represent mainly bowls, globular pots, dishes, ring stands, and lids. Red-slipped ware is also represented by four legged jars. From Vidarbha, for example from Mahurjhari, black and red ware pottery is also found in white painting of parallel lines and criss cross pattern.

The graffiti found on ceramic represents both geometrical and non-geometrical symbols (Lal 1960). Graffiti representing Tamil Bramhi scripts are common from Tamil Nadu and Kerala region (Rajan 1991b). They sometime represent words that may be place name, personal name, name of clan or potter's name (Rajan 1994). A recently discovered Tamil Bramhi script on potsherds in megalithic context has been dated to 500 BC (Rajan n.d.1).

A large number of iron artifacts were recovered from excavations at burials as well as from the habitation. Occurrence of iron artefacts, especially in Vidarbha, is more in quantity in burials than recovered from habitation deposit. The entire range of iron artifacts (Fig 27) can be divided as agricultural tools, offensive and defensive tools, specialized occupation related tools such as carpentry and leather work, household appliance, toiletry, horse bits, horse ornaments, ornaments and miscellaneous. These categories can further divided according to typology and morphological variations (see Moorti 1994). It is worth mentioning that the same type of tools, for example chisels, are found in varied sizes and has morphological variations. The variability in tool morphology and size in site and intra-site level provides insight on chronological development, commonality in production, distribution, functional variation and symbolism (Thakuria et al. n.d).

Morphological variability may also reflect functionality of the tools and nature of crafts. Chisels recovered from burials in Vidarbha represent variability in types that can be described as (i) straight cutting edge with flat body, (ii) straight cutting edge with square body, (iii) spearhead type, (iv) convex and broad cutting edge, (v) square body with pointed cutting edge. The observations made with ethnographic parallel shows that variation in type and size has different functions. The type and size of the chisels as observed in traditional carpentry depends upon the nature of work to be performed. The adzes which were interpreted as cobbler tools also vary in types, sizes and shapes. The main characteristics of this tool is that it has a convex or straight cutting edge, and convex or straight edge at other end, the body is inverted biconical and sometime look like an hourglass. There is no provision to haft a handle at other end. It was assumed as a tool used for cutting leather holding the middle portion as grip. However, it looks impractical for two reasons. The holding at middle portion may cause injury to hand as it is made of thin sheet of iron. Second, cutting leather need application of presser and holding in middle is difficult to apply required pressure. The tool instead can be interpreted as tool used for splitting bamboo or bark. Bamboo screens were already known from the early neolithic period at Tekkalkota (Nagaraj rao et al. 1965).

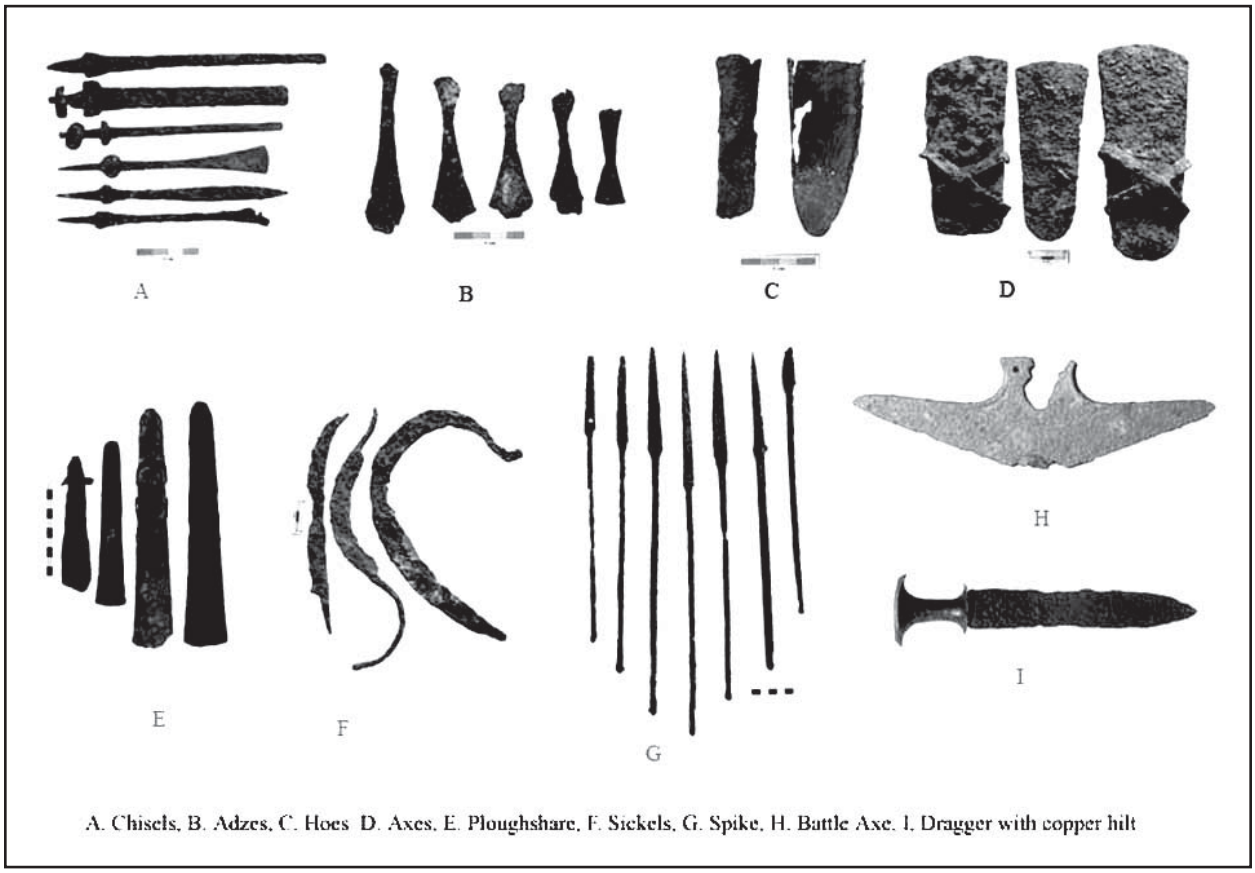


Fig. 27. Iron tools from Megaliths of Vidarbha.

Excavations at Bhagimohari and Mahurjhari revealed burnt clay lumps having impression of mat. It seems that bamboo mats or screens were used as walls and seems plastered by clay and the craft must have developed during megalithic period.

The iron axe of various sizes recovered are of cross fastened with iron ring. Shaft hole axe, which is characteristic of early historic period, is perhaps rare in megalithic period. An iron dagger with copper hilt found from Mahurjhari shows advance knowledge of combining two metals together.

The copper and high tin bronze artefacts mainly represent household appliance and ornaments. Horse ornaments made of copper are found from sites like Mahurjhari, Naikund, Raipur and Vyahad. At Porunthal a horse stirrups was from one of the excavated burial. The ornaments of copper represent mainly bangles and finger rings. Noteworthy are lids with decorative finials such as bird finials, bud finials and domical bell tops (Fig 28). A globular pot made of copper is noteworthy recovery from Mahurjhari (Fig 29). Besides, copper bowls are found from the many excavated burials in peninsular India. A figure of tiger made of copper inlayed with carnelian and sapphire (Fig 30) was found placed inside a cist at Kodumanal (Rajan 1993). Copper or bronze figures of animals like buffalo, goat, tiger, cock, elephant

and antelope were found from inside urn burials at Adichchannallur during the excavation conducted by Alexander Rea in 1902-03.

Gold and silver are mainly used for ornaments like necklace, beads and ear ornaments, Mahurjhari, Takalghat, Naikund, Raipur, Kodumanal, Arippa, Tekkalkota and many other sites produced ornaments of these materials.

Beads made of various materials like semiprecious stones, shells, steatite and terracotta are found from excavated burials and habitation sites. Shells and steatite beads are not found from excavated burials in Vidarbha. Terracotta beads are also rare from burials in Vidarbha. However, some other excavated sites in South India have given evidence of shells and terracotta beads. At Thandikundi steatite beads are found in large number from one the excavated cist burials. Semiprecious stone beads are mainly of carnelian, banded agate, jasper, quartz, lapis lazuli, amethyst, quartz and garnet. Lapis lazuli beads are found mainly in sites like Sanur (Beck 1930) and Kodumanal (Rajan 1994). Mahurjhari and Kodumanal probably were two regional bead manufacturing center during the Megalithic period supported by the circumstantial evidence (Rajan 1995, Mohanty 1999, 2008). Etched beads of various patterns

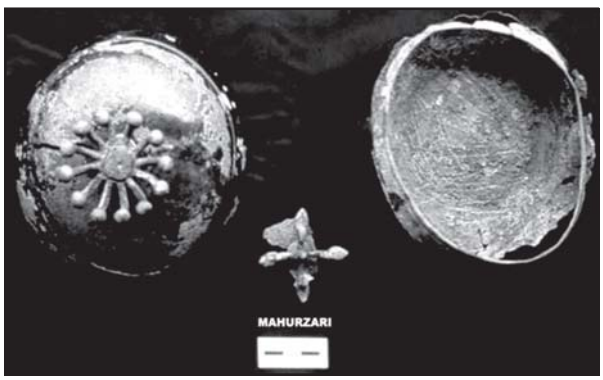


Fig. 28. Copper bowl and lid with decorative finials.

Fig. 29. A Copper pot from Mahurjhari.

like radial lines, zigzag lines, zonal bands and bands are found on beads of tablet, barrel and cylinder shaped beads (Thakuria 2010). Radial lines are found only on tablet shapes beads and are characteristic of south Indian megalithic etched beads. They were found in large number from Maski (Thapar 1957), Kodumanal (Rajan 1990, 1994) and Porunthal (Rajan 2009). Such beads are also found in Vidarbha but occurrence is less in number. An ear stud made of glass was found in sarcophagus for child burial in Dhamnalinga (IAR 2000-01:97-107)

Among the stone artefacts, a four-legged quern along with muller from Borgaon (IAR) and pounder stones from Naikund and Mahurjhari (Deo and Jamkhedkar 1982) are noteworthy. Moreover, recent excavation at Mahurjhari revealed several rounded stone pieces of various size and weight (Mohanty 2005). These stone pieces might have some significance in

weight and measure which need to be studied. A burial from Naikund has revealed a stone axe similar to south Indian neolithic tradition (Deo and Jamkedkar 1982).

Coins, mainly Roman coins, are found in some of the excavated megalithic burials from Tamil Nadu and Kerala (Das 1947, Rajan n.d.2). Finding of coins from megalithic burial has chronological significance of their continuation till the early historic period and interaction of trade.

SYMBOLIC OR RITUALISTIC OBJECTS

A tripod made by three copper rods conically on a circular base is peculiar and rare item found from the excavation during the recent excavation at Mahurjhari (Fig 31). On the all three rods, figures of dear, bird and fish were fixed on respectively on the base, middle and on the conical top. The three animals on the tripod represent three animals as on ground the dear, on air the bird and on water the fish. This item must have had some religious and ideological connotation of life or death as accepted by megalithic people. According to Mohanty, findings of such item from burial may have significance on their belief system of travelling the 'dead' through three different worlds (Mohanty 2005a).

Eye beads recovered from one of the excavated burials in Mahurjhari may have symbolic value. Eye beads are generally believed to be used for protection against the evil power (Maloney 1976, Sinha 2006). There were three banded agate beads having the pattern of eye were found placed near the human skeleton at Mahurjhari (Mohanty 2003-04). These eye beads perhaps indicate the belief of megalithic people against evil spirits.

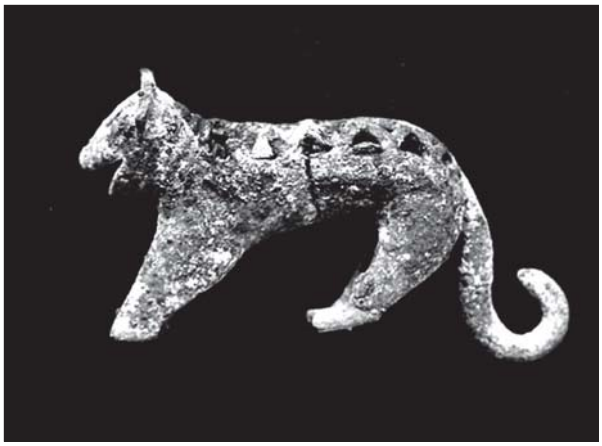


Fig. 30. A figure of tiger made of copper inlayed with cornelian and sapphire from Kodumanal.

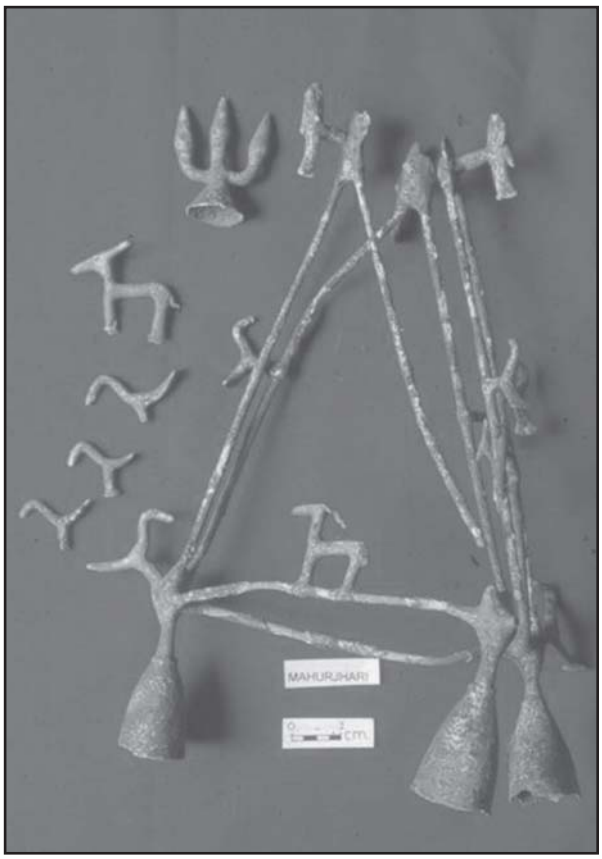


Fig. 31. Copper tripod from Mahurjhari.

MEGALITHIC METALLURGY

The knowledge of iron smelting and processing of iron was indigenous to the Megalithic people of peninsular India. The discovery of Iron smelting furnace along with tuyres, slag, cinder and iron ore from Naikund (Gogte 1982a, 1982b), Kodumanal (Rajan 1994, 1993) Banahali (IAR 1984-85:44) and Khuntitoli (Swamy 1996) provides significant evidence on technique of iron smelting and processing applied by megalithic people[10]. There are several sites in peninsular India from where evidence of iron processing was identified and several other sites are found located in ore rich area (Moorti 1994). The trace element analysis carried out on iron tools from Khapa, Mahurjhari, Gangapur and Borgaon show that the iron objects from these megalithic sites have a strong resemblance to the iron from Naikund (Gogte et al. 1985). It has been postulated from the result of the analysis that Naikund supplied iron or iron tools to the other megalithic sites within Vidarbha. Recent analysis on Naikund and Bhagimohari iron tools shows that the process of steeling iron was known to megalithic people by about beginning of first millennium in Vidarbha. They could change the properties of wrought iron by subsequent heating in charcoal for a prolonged time. Steel obtained by such method was hardened by heating and quenching (Joshi et al. 2008). Megalithic people also achieved the production of high- tin beta bronze by hammering under temperature of 586-798° c followed by quenching (Srinivasan 2006).

COMMONALITY IN ARTIFACTS PRODUCTION AND USE: CONCEPT OF 'ORGANIZED SOCIETY'

In a recent attempt, three tool categories—chisel, adz and ax—from five excavated Megalithic sites, namely Mahurjhari, Naikund, Raipur, Khariwada and Bhagimohari were analyzed using 'Principal Component Analysis' and 'Multivariate Statistical Analysis' (Thakuria et al. n.d). The aim was to identify standardization in morphology and dimension, homogeneity and deviation, uniformity in function and individuality. The result of analysis indicated homogeneity in morphology and dimension of tool categories within all five sites. Such similarity could only happen when there is congruent functional ideology commonly perceived in site and intra-site level. Commonality in social behavior and congruent functional ideology was possible in a regional level with better social organization and better co-ordination in regional level. However, in certain case deviation from standard pattern was observed, like the large axes which are not functionally suitable. This may not have any functional utility, but ceremonial symbolism.

PALAEODEMOGRAPHY

In the early stage study of megalithic skeletal remains mainly focused on establishing 'racial' or 'ethnic' identity of megalithic people where inferences were made on the basis of phenotypic variations, primary metric features, of physical characterizations as dolichocephali or brachycephalic (for detail see Kennedy 1975, 2000, Kennedy and Levisky 1984). However, some of the recent studies gone beyond such traditional study and provide insight into mortality and fertility rates, estimation of population size and density and pathological aspects.

Evidence of skeletal remains from Vidarbha and Kodumonal indicates that the optimum life expectancy of Megalithic people was 30 to 35 years (Mohanty and Walimbe 1993, Mushrif-Tripathy 2009). Infant of age between 14 and 28 months and sub-adult 5 to 9 years were also present in the skeletal series. Interestingly

skeleton of old-adult category is missing. Absences of old-adult skeleton can be hypothetically explained based on ritualistic act. The bones having fire exposure and cut marks recovered from Kaniyathirtharn (Walimbe et al. 1991), Raipur and Khariwada (Walimbe 1988) indicates exposure of the dead body to fire, perhaps evidence of cremation. Moreover, such bones recovered from secondary burials were fragmentary in nature and do not represent whole skeleton. It could be that old-adults were cremated and whatever bones remained under burnt were collected for elaborate ritualistic burial ceremony. Thus, it can be suggested that old-adults are represented only in form of secondary burial with cremated bones. However, it is certain that both the custom, i.e. cremation and burying were practiced by megalithic people. Criteria for selecting cremation or burying the dead was probably based on age, sex and nature of the death as has been observed from the ethnographic study on mortuary variability in Vidarbha (Mohanty and Walimbe 1993, 1996, Geetali 1999, Thukral 2005).

There is no marked symptom of pathologies on megalithic skeletal so far identified. Major non-specific infections and nutritional deficiencies observed include periostitis, porotic hyperostosis and anemia. The only infectious pathology identified is maxillary sinusitis from Kodumanal skeletal series. This is suspected to be occupational related pathology. As Kodumanal was iron smelting and processing center, maxillary sinusitis might have been caused by inhaling smoke produced during the smelting process. Another evidence of occupation hazard found is bilaterally asymmetrical clavicles. This could happen only because of repetitive movement of certain body parts. As evident from the artefactual remains, crafts and activates of different nature, beside the crafts on iron and bronze, like carpentry, ploughing, bamboo and basketry craft, oil crushing, stone cutting and carrying, horse riding were practiced by megalithic people. All these might have caused traumatic injuries, stress features and bone remoulding. Old age- related osteoarthritis and vertebral osteophytosis are identified on Kodumanal skeletons (Mushrif-Tripathy et al. 2011).

Mohanty and Walimbe estimated population density based on mainly life expectancy and space occupied by individuals (Mohanty and Walimbe 1996). They suggest that a settlement of 5 hectares was presumable occupied by approximately 400 to 500 individuals, if 75 to 100 individuals are assumed per hectare. They further suggest that if life expectancy is considered to 30-35 years and if the site was occupied by 10 to 15 generations for 400 to 500 years, there will be approximately 4000 to 5000 deaths. This estimation provides three postulations. First, considering the number of deaths counted discovered burials in proportion are meager. There may be other mode of disposal of the dead. This hypothesis has been proved recently by discovery of pit burials without any lithic appendage outside periphery of cairn type burials in Vidarbha. Second, burials might have been reopened for later insertion of death occurred in same family or clan. There are some excavated burials in Vidarbha, where fragmentary skeleton remains are found either close to central pit (as in Meg..28, Mahurjhari) or in the inner periphery of the cairn (as in Meg 10, both primary but one was later insertion). This indicates that same burial was used for more than one generation. Third, paucity of settlement against large number of burial may not be a valid idea. In fact, there should be more number of burials, if considered the assumption of '4000

to 5000' deaths in the occupation history of one settlement.

KNOWLEDGE OF MEDICINE AND HEALTH CARE

An adult skull from S. Pappinayakkanpatti shows deep injury penetrating the soft tissue of the brain caused by sharp metal tool such as sword or axe (Walimbe and Selvakumar 1998). Walimbe based on the lamella bone formation suggested that victim did not die immediately but survived for some period of time, anywhere between fifteen days to three months and healing was in progress at the time of death (Walimbe n.d). Survival of the victim with such deep injuries, where infection was potential, was possible with the help of medication, perhaps herbal medication. Living in ecology rich in biotic resources, and exploiting both plants and animals for food, they might have got acquainted with healing properties of certain plants either by accidental way or by experimenting with minor injuries. Minor injuries like cut or scratch of skin no doubt occurred while carrying and fixing huge stone for construction of burial monuments and craft related works. Such injuries might have been treated instantly by herbs they were acquainted with, and thus probably gained the knowledge of healing properties of certain plants and herbs. Pestles recovered from excavations might have used in grinding herbs. Application of "Molecular Biology" may help find out traces of medicinal herbs on skeletal remains or in the soil where deceased was buried.

SOCIAL DIMENSION OF MEGALITHIC PEOPLE

Understanding of social dimension of megalithic people of peninsular India has been attempted by scholars in various ways. Among many, Moorti's work is much analytical and interpretive. These studies considered artefacts from excavated burials as main tool, besides from other criteria such as burial dimension, sex and age, for estimation of social dimension of burial in individual level and Megalithic society as whole. These studies are, no doubt, imperative to the understanding of social organization postulated as "rank or status (Deo 1985:93)" and "ranked society (Moorti 1986, 1994)''. These generalizations on Megalithic society are based on data that do not represent megalithic society in whole. The situation can be best explained from the examples from Vidarbha.

Spatial distribution of Megalithic burials in Vidarbha indicates that the burials vary in size, nature and volume of filling (Mohanty 1993-94, Mohanty and Walimbe 1996)Based on recent evidence megalithic burials of Vidarbha can be classified in basic three categories.

Category I: class of people who buried their dead in cairn type burial with having peripheral boulders and varied nature of filling. Offered burial goods varied in nature and types.

Category II: class of people who buried their death in cairn type burial without having peripheral boulders. Not much information about burial goods is available.

Category III: class of people who buried their death in simple pit outside the cairn burials. Offering of burial good is negligible.

All previous analytical work on social dimension of Vidarbha Megalithic culture was based on 'Category I' burials and therefore does not represent a holistic picture of megalithic society, but present a social hierarchy within a selected group of burials.

Another difficulty is in estimation of 'social persona' based on artefact categories. Artefacts recovered from burials were taken as main tool

for interpreting or identifying social persona of a burial. Artifacts were classified according to Binford's technomic, socio-technomic and ideotechnomic category (Deo 1985, Moorti 1986). Each category again sub-divided according to functionality and utility. Then, frequency of occurrence of sub-categories was counted for estimation of social persona of each burial. The method, however, does not seems to be imperative to count social persona in individual level. There are two difficulties. First, no burial in Vidarbha yielded only a single technomic or socio-technomic sub-category of artifacts. They are in varied sub-categories and in varied degree. Hence, it is difficult to attribute the burial to any single occupational group. Instead, this reflects a multi-dimensional occupational status. Second, along with the deceased's belongings, offerings to the deceased may have been made by his family or his relatives (O' Shea 1996:10). In this case, offerings depend upon the choice and capability, economical affluence and social status of the family members and relatives. On the other hand, it reflects that offerings made to the deceased were from the people who belonged to varied social status and were engaged in different kinds of occupation. In such case, social persona of the deceased in individual level remains a mystery, but reflects collective 'social persona' and collective 'economic status'. This probably reflects that there was no rigidity in social and economic hierarchy based on occupational status. Burial goods probably were collective efforts by family, relatives or community members. Hence, the deceased lose his 'social persona' enjoyed in his life time and gain a 'collective social persona' after his death. Same is the case in analyzing the mortuary data for the estimation of megalithic society of south India. The megalithic tradition gradually declined due to various reasons. Some of the ritual and conceptual processes probably got manifested in the later erection and construction of Virgals or memorial stones in this region.

NOTES

1. Recently Darsana (Darsana 2006) pointed out that Babington did not excavate Bangala Motta Parambu which is actually a miss quote by many scholars. Babington, indeed excavated a site call Chattaparamba. Chattaparamba is located on a laterite hillock about 4 km east of Feroke in Calicut district, on the bank of river Chaliyam. Bangala Motta Parambu was excavated by Logan in 1887.
2. Pearse is generally quoted as first excavator of megalithic burials in Vidarbha at Kamptee close to Nagpur city. Pearse excavated at Kamptee in 1867. Few months before in the same year of 1867, Carnac also excavated burials in Junapani, but report was published in 1879, whereas Pearse published his report in 1869. Therefore, Perease's report was the first published report on excavation of megalithic burials in Vidarbha and quoted by scholar as first excavation in Vidarbha. Pearse was indeed third person to excavate after Hislop and Carnac.
3. Reverend Stephen Hislop was born in 1817. He arrived Nagpur in 1845 as Scottish missionary. He also devoted time for anthropological and geological studies of Nagpur. 'Remarks on the Geology of Nagpur' and 'The Geology of the Nagpur State' are two remarkable articles published by him. He also collected data on language and culture of Gonds which, after the death of Hislop, Sir Richard Temple edited and published under the title *Papers Relating to the Aboriginal Tribes of the Central Provinces, Left in MSS by the Late Reverend Stephen Hislop, Missionary of the Free Church of Scotland at Nagpur.*

4. Rev. Robert Hunter mentioned Hislop's discovery of megalithic circle at Tahalghat: "in December 1847, as Mr. Hislop, with his colleague, was passing the village of Takalghat, twenty miles north of Nagpur, he observed a circle of large unhewn stone. Further examination revealed, that there were no fewer than ninety such circles, some single, other double-all clase *together,* and speading over an area of about four miles (Hunter 1864:160)". Hunter also mentioned that Hislop excavated a circle at Takalghat with the permission of 'Nagpoor Raja' and revealed iron tools and human skeletal remains.
5. Anthropomorphic figures of various sizes are found from Katapur, Malur, Mungapet, Kaperlaguru, Kollur, Domada, Dongatogu, Tottigutta and Midimalla,Galabhagudem, Aihole, Hire Benkal, Mottur, Udaiyanattam, Uttnur. See Moorti 1994 and Rajan 1997 for bibliography.
6. The site was discovered by Mr. Virag Sontake, State Department of Archaeology and Museum, Maharashtra. There are more than 300 burials located in four localities at the site. Two adjoining habitation mounds were also located on the same bank of a nala during the 2010-11 exploration. Excavation was carried out at habitation deposit and burials to ascertain cultural relation between two. No burial goods were recovered except some fragmentary bone placed in bowl towards the periphery of northwest corner. Three more sites at Sili, Satana and Gangla located 5 to 8 km far from Malli were also discovered.
7. Chandankeda is located in Chandrapur district of Vidarbha. It is a fortified site excavated in 2009 by Nagpur University and State Department of Archaeology and Museum, Maharashtra. The site was dug by modern brick manufacturing industry at several places for soil. The early Iron Age cultural deposit at the site can be easily be identified in the exposed section of ditch made by brick industry and material scattered in the disturbed areas.
8. For detail see Vishnu-Mittre 1957, 1966, 1968, 1971, 1989, Swamy 1972, Seshadri 1960, Kajale 1982, 1984, 1989a, 1989b, 1991, 1994, 1997 and Moorti 1994.
9. For detail see Thomas 1974, 1984, 1992a and Thomas and Joglekar 1994, Deshpande-Mukherjee et al. 2010.
10. Dr. Somnath Ghosh was pioneer to conduct Organic Residue Analysis on ancient pottery in India. In fact, his analysis on Mahurjhari pot in collaboration with Prof. R. K. Mohanty is first effort of its kind in India. The unfortunate death of Dr. Ghosh is a serious setback in the growth of the discipline in its beginning itself. The report on Mahurjhari analysis was submitted to Prof. Mohanty just before his death. The report has been prepared for publication on the effort of Prof. R. K. Mohanty and Mrs. Suparna Ghosh.
11. See detail see Possehl 1988, 1994, Moorti 1994, Mohanty and Selvakumar 2002, Rajan n.d.1.

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