CHAPTER IX

RELATION OF PRE HISTORIC CULTURES OF SOUTH WESTERN ANDHRA PRADESH WITH OTHER AREAS
RELATION OF THE PRE- AND PROTO-HISTORIC CULTURES OF SOUTHWESTERN ANDHRA PRADESH WITH OTHER AREAS

The non-artifactual and artifactual evidences from surface of several sites and excavations at Falavoy have shown us that three distinct cultures, namely, Late Stone Age, New Stone Age and Iron Age, flourished in the past in this region. Besides, the lower part of layer 14 at Falavoy yielded heavily patinated trap flakes, like those at Sanganakallu, which exhibit a Levallois type of technique. At Sanganakallu the upper portion of layer 14 brought to light a few microliths of chert and quartz comparable to those of late stone age of the region. However, exploration in the region did not yield to the writer any finds of early and middle stone age cultures though Robert Bruce Foote (1914: 120; 1916: 99, No. 1853, Pl. 18) had found a solitary cleaver of quartzite on the Vidupanakallu West Hill. Further researches may however yield early and middle stone age tools if smaller areas are taken up for intensive exploration.

The purpose of the present chapter is to examine to what extent the pre- and proto-historic cultures of this region are comparable to their counterparts known from other regions in and outside India.

LATE STONE AGE CULTURES:

Microliths have been found all over India excepting Assam, Indo-Gangetic plain and Kerala. The industries are either non-geometric or geometric in nature. The latter are thought to have been derived from the former as a stage of advancement in the civilization of man. Microliths in Indo-Pakistan sub-continent occur in various contexts. They have been discovered with or
without pottery. Langhnaj (Sankalia 1946; 1956: 275-84; 1965) and Panomparhi (Hunter 1935-36; Gnoah 1948) are the only sites where the excavations yielded microliths with some pottery while another excavated site, namely, Birbhanpur (Isei 1958: 4-48) in west Bengal is devoid of pottery. Microliths have also been found largely in association with pecked and ground stone tools and pottery on all the neolithic and chalcolithic sites in the southern and northern Deccan. Latter context is dealt in a different place and hence only the former is considered here in the light of the available evidence from South-Western Andhra Pradesh.

For this, the evidence for this culture from our region is viewed first. For the preparation of artifacts of late stone age of South-Western Andhra Pradesh, chert formed the chief raw material. Besides this, other rocks like chalcedony, quartzite, quartz, jasper, agate, carnelian, silicified shale, limestone, crystal, basalt and epidiorite were also employed in varying but small proportions. Fluted core technique was in vogue in making the tools. The industry is non-geometric in character. It comprises worked pieces, flake cores, blade cores, core rejuvenation flakes, chips, unutilised and utilised flakes, and blades; microliths including backed blades, obliquely blunted blades, truncated blades, lunates; and unifacial and bifacial points, borers, various types of scrapers and notched flakes. Similar artifacts but small in number were found from the upper portion of layer 14 of trenches 1 and 2, mound 1 in the excavations at Falavoy. This period called Pre-Neolithic (Falavoy I) thus provides a stratigraphical context to the late stone age evidence recorded from the surface of several sites.

In the following pages a brief description of the industries
of this culture in regard to their raw materials, techniques and tool types in various parts of India is given and against this background the evidence from our region is examined.

In the South, excepting Kerala, explorations were conducted in the States of Andhra Pradesh, Mysore and Madras. Andhra Pradesh like other states in India has been explored for the remains of early man since the time of Bruce Foote (1914 and 1916) whose endless searches resulted in finding a large number of sites with a vast collection of antiquities. Later explorations were conducted by Cammiade and Burkitt (1930: 327-39), Subbarao (1948 and 1949), Soundara Rajan (1952: 64-92), Isaac (1960); and very recently by S.N. Rao (1966: 144-58), M.L.K. Murty (1966: 267) and Thimma Reddy (1968) in the districts of Kurnool, Guntur, Nalgonda, Chittoor and Cuddapah respectively. The collections from these areas derived from surface. Besides, near Handipalli in Cuddapah district the section on the right side of Segileru river exposed three gravels each sealed by silt. The lowermost and middle gravels have been represented by artifacts of early and middle stone ages while the topmost or third gravel has yielded six artifacts of late stone age consisting of three cores and three scrapers. Thus, probably for the first time in this part of India a stratigraphical position from a river section could be recorded for the late stone age culture. The collection from the above areas when viewed together present a close homogeneity one with the other in respect of raw materials, tool types and techniques though differences do exist here and there. Thus, in the matter of raw materials chert, jasper, agate and quartz seem to be the most favoured rocks for the preparation of artifacts of this age in Andhra Pradesh though other
rocks such as rock crystal and lydiamite as in Nalgonda or only crystal as in Chittoor districts or sometimes fine-grained quartzite as in Nalgonda or shale and slate as in Kurnool district were also employed in varying proportions. This variation in the use of raw materials largely depends on their local availability in a particular area. For instance, man's preference to use only chert due to its extreme fine-grained nature might not be successful if that rock would not be available in the close vicinity of his habitation. The industries are basically non-geometric though a few geometrics like lunates and trapeze as in Kurnool or only lunate as in Nalgonda and triangles as in locality - 3 of Nallakalava in Chittoor district also occur. Of all, the last mentioned area is relatively very poorly represented by the late stone age artifacts. But all the industries belong to the non-pottery group.

In Mysore late stone age artifacts have been reported by Todd (1948: 28-30) and Seshadri (1956). Here the microlithic man like his counterpart in Chittoor had exclusively used quartz and rock crystal for making his artifacts. The industry comprises both geometric and non-geometric forms. The frequent tools are well finished lunates, triangles, points, transverse arrowheads, burins, etc.

The Teri sites of Tinnevelly district in Madras yielded the traces of microlithic man first to Robert Bruce Poote (1916: 50). After a long gap followed the works of Aiyappan (1945: 145-54) and, Seuner and Bridget Allchin (1956: 4-20). The industry like that of Mysore includes both geometric and non-geometric forms though in the matter of raw materials it differ from the latter in the use of chert and silicified wood besides quartz. The occurrence of
bifacial points made by pressure flaking and beautiful geometric forms like lunates and triangles besides many other usual forms is a mark of advancement in the economy of man.

Now let us turn to the Eastern India covering the states of West Bengal, Bihar, Orissa and Assam. Excepting the last mentioned state all the others brought to light the remains of microlithic man. The well-known microlithic site in West Bengal is Birbhanpur on the river Damodar in Burdwan district (Lal 1958: 1-48). The site has yielded microliths of non-geometric nature like those in Andhra. Quartz was the chiefly used material here though other rocks like chert, chalcedony, quartzite, crystal and fossil wood were also employed. The industry is also devoid of pottery. In Bihar, the sites of Chaibasa and Chakradharpur in Singhbhum district (Beeching 1868: 177), Songara in Manbhum district (Ray 1954: 16-19), Ranchi and some other sites in Santhal parganas yielded microliths similar to those of Birbhanpur. In Orissa a small number of these of a crude, non-geometric industry made on chert, jasper, etc. were found in the districts of Mayurbhanj, Keonjhar and Sundergarh (Mohapatra 1962: 26).

In Central India consisting of the state of Madhya Pradesh, a rock shelter in Manddeo hills (Hunter 1935-36: 31 and 127) and Bania Bari cave (Ghosh 1948: 14) both near Ranchmarhi were excavated and these excavations yielded microliths. At Adamgarh (IAR 1960-61: 13) and another site by name Navagaja near Banoh town (Joshi 1961: 5-36) microliths of non-geometric type were found. The chief raw material at these places is chalcedony.

In Western India Maharsashtra, Gujarat and Rajasthan states are considered. The cliff sections of loose kankary gravel along
Godavari and Pravara rivers in Nashik and Ahmednagar districts of Maharashtra (Sankalia and others 1960: 528) are full of microliths of milky chalcedony and agate which are locally available in the form of veins. In Bombay area at Randivli microliths were found by Todd (1950: 1-17). It is of a rich industry represented by well finished geometrics like triangles, trapezes and lunates as well as non-geometric forms. Besides, the finding of mace heads in association with microliths at this site suggests an advanced economy of men. This is the only site among the so far dealt that yielded mace heads. Next comes the state of Gujarat where Prof. Sankalia's (1942; 1946; 1955: 33; 1956: 275-84; 1965; Sankalia and Karve 1944: 1-6; 1949: 28-34; Sankalia, Karve and Aurukar 1945) devoted work brought to light a large number of microlithic sites in the sandy alluvial plains of Northern and Central Gujarat. His excavations at Langhnaj proved that the industry is purely a geometric one, though crude, in spite of fine-grained materials like chert, agate and carnelian. Microlithic people of Langhnaj were a hunter-fisher community. Sankalia tentatively dates the industry to over 2,500 B.C. In the same area the work of Zeuner (1950; 1952: 129-31), Subbarao (1952: 33-69; 1958) and Kennedy (Karve-Corvinus and Kennedy 1964) brought to light more information on the microlithic culture of Gujarat. Several late stone age sites have been explored particularly in Eastern Rajasthan (Misra 1961: 207-35; 1967: 104-123). Both in raw materials and typo-technologically the industry of this region is quite similar to any non-geometric industry in Andhra and other areas.

The last cultural zone is North India consisting of the states
of Uttar Pradesh and Punjab. Only in Uttar Pradesh some attention to discover the traces of microlithic man has been paid (Smith 1906: 185-95) followed by the work of Krishnaawami and Soundara Rajan (1951: 59) in the Singrauli Basin on the southern bank of Baila Nadi near Kota in Mirzapur district. The artifacts from this site are non-geometric in nature and the material used for their preparation is limpid quartz.

Recently Sharma’s (Misra and Mate 1965: 76-7) excavations at Lakheria, about 69 km. east of Mirzapur-Rewa road revealed a sequence of four phases of the microlithic culture: I. Heavily patinated non-geometric microliths without pottery; II. Geometrics without pottery; III. Geometrics with pottery and IV. Geometrics and other small tools associated with pottery. The above sequence indicates that microlithic man lived there from non-pottery to pottery stage and from non-geometric to geometric tool making stage. This provides stratigraphical position to the late stone age culture.

The evidence on late stone age cultures from various parts of India outlined above shows that both geometric and non-geometric industries were present and it is generally believed that the former has originated from the latter. In the matter of raw materials the variation from area to area has largely depended on the geographical location of a particular site or region.

Let us now say what picture South-Western Andhra Pradesh presents in respect of all these aspects in comparison to other regions in India. As said earlier the industry of late stone age culture of our region is basically similar to other non-geometric industries known from other areas of Andhra Pradesh, Maharashtra, Rajasthan, West Bengal, Bihar, Orissa and North India. It is older
than the geometric industries found in Tinnevelly of Madras, Mysore, Kandivli near Bombay and Langhnaj and other sites in Gujarat in the absence of geometric forms found in the latter areas. The bifacial points small in number found in this region depict a crude technique of manufacture unlike those of Teri sites. The occurrence of lunates and asymmetrical points is a common feature with this region. Burins and microburins found in Mysore, Cuddapah in Andhra, Tinnevelly in Madras and at Kandivli and Langhnaj are characteristically absent in this region excepting one specimen from Palavoy. But truncated blades and notched flakes occurred in this region are absent in other parts of India.

**OUTSIDE INDIA:**

Outside the Indian sub-continent the cultures to be broadly compared with the late stone age cultures of South-Western Andhra Pradesh have been found in West Asia; North, South and East Africa; Europe and Java. A brief description of the salient features of these cultures is given below and against this background the evidence from our region is viewed.

The Mesolithic stage in the West Asia (Garrod 1937; Garrod and Bate 1937: 30-41; Clark 1962, 1965) or the Near East brought to light industries comprising flint sickle blades with 'cornicles' which must have formed the implements for harvesting cereal grasses. This significant mesolithic culture is known by the name 'Natufian' on Mount Carmel. The people of this culture dwelling in rock shelters and hill-side terraces were fishing as well as hunting. In the advanced stages of their culture they had picked up the use of sickles to reap probably the wild emmer wheat.
The tool types of the Natufian culture include both geometric and non-geometric forms derived from the blade culture complex. The late stone age industry of South-Western Andhra Pradesh though comparable to those of Natufian is non-geometric unlike the latter and originates from the middle stone age culture.

Heluan, south of Cairo, in Egypt is a rich site of flint industry in North Africa having close similarities to the Natufian of Palestine. The characteristic tool types of this industry are 'crescents' or narrow lunates whose backs are blunted by retouch from both sides which is regarded as 'Heluan retouch'. The industry includes other microliths, small blades and tanged arrowheads with notched bases. Typologically the late stone age industry of South-Western Andhra Pradesh is similar to Heluan industry though tanged arrowheads are absent.

In South Africa the Smithfield and Wilton cultures (Lowe 1952: 95-98) can be compared to that of our region. The Smithfield culture besides microliths contains ground stone tools and pottery of a crude nature unlike the late stone age industry of our region. From this it can be inferred that the Smithfield late stone age man reached the stage of food production and permanent settlement while his counterpart of South-Western Andhra Pradesh was still in the food-gathering and collecting stage.

The Wilton culture is represented by crescents, simple or double segments of circles, trapezes, thumbnail end-scarpers, horse-shoe-shaped end scrapers and small end scrapers on the ends of blades. Other tool types include little angle burins or terminal burins, backed bladelettes, bladelettes with an oblique truncature and irregular and notched bladelettes. These small sized tools were
made from similar small cores with the help of hammer stones. The occurrence of grooved stones, palettes, stone rings, mile-stones and digging sticks is a common feature on Wilton sites. To a small measure ground stones also figure. A coarse pebble industry is another phenomenon of this culture. Pottery, which occurs in a small measure in the Smithfield industries, becomes prominent in this culture. The evidence of late stone age culture from our region widely differs from the Wilton in the absence of pottery, ground stone tools and pebble industry. The only comparable types of tools from the Wilton are crescents, scrapers, truncated blades, backed bladelettes and notched bladelettes. The cores unlike those of the Wilton show faceted platforms.

In East Africa the Kenya Wilton or the Uganda Wilton (Lowe 1952: 98-100) is another region which presents comparable evidence to Wilton and largely varying from the late stone age industry of South-Western Andhra Pradesh.

The European Mesolithic period represented by microlithic industries (Clark 1932; 1936; 1962) has retained the upper palaeolithic traditions to a large extent but keeping pace in the way of life with the changing environments. Thus the food-collecting, hunting-fishing economy persisted into the post-pleistocene (Holocene period) and disappeared with the coming in of farming economy.

These cultures greatly figure in Western Europe. The 'Sanvetterrian' and the 'Tardenoisian' located in a sandy country comprise tools like microburins and trapezes chiefly. The 'Maglemosian' and 'Azilian' are found in forest environments. The maglemosian industries characteristic of core heads, and picks of
flint are usually associated with simple microliths and points with blunted backs. The peat-bog sites yielded barbed points in bone and antler, and wooden objects are usually preserved. In Azilian industries pebbles decorated with symbolic doubs of red ochre occur. The domestication of dog took to shape at this stage. The hafting of axe-heads to use them for felling trees was known to the man of this culture. The late stone age industry of our region which originates from that of the middle stone age is not comparable to the mesolithic of Europe. In the matter of tool types only some non-geometrics are comparable to the European mesolithic culture but the latter in many respects is an advanced one unlike that of our region.

In Java (Von Heekeren 1957: 67) the mesolithic culture is represented by three kinds of industries. They are 1) Hoabinian pebble tool assemblage, 2) the Sampung bone culture and 3) the Toalean and alluvial flake and blade industries.

The Hoabinian industry is characteristic of pebble tools while Sampung culture consists of bone tools. The Toalean culture is a mixed one containing two elements: 1) the proto-Toalean with the tanged elements and 2) the northern element with barbed stone implements. The industry is rich in microliths like battered back points, trapezes, crescents and triangular bladelets. None of these cultures is similar to the non-geometric late stone age industry of South-Western Andhra Pradesh because the industry is devoid of either bone tools or pebble tools, or even the microliths found in the mesolithic culture of Java.
NEOLITHIC CULTURES:

The Neolithic Age is distinguished by the arts of domestication of animals, agriculture, pottery, pecked and ground stone and blade industries and above all sedentary settlements. The knowledge of metal became known to neolithic people at a later stage of this culture. The Neolithic Culture is distinguished by many-sided technological and economic development over the pre-existing mesolithic way of life. Childs (1956 : 66) calls this period "the Neolithic Revolution" because its beginning marked a basic change in man's way of life. By revolution he did not imply, however, that it occurred suddenly. In his own words, "the Neolithic Revolution is not a catastrophe but a process".

As pointed out by Prof. Sankalia (1963 : 152), we do not have at the present stage of our knowledge a pure form of Neolithic Culture in the Indian sub-continent - the stage known from sites like Jericho, Jarmo, Hacilar and Chatal Hüyük in the Near East. A recurring feature of the Indian Neolithic Culture is the blade and microlithic industry based on the created guiding ridge technique. The exact origin of this culture is not at present clear. A comparison of its traits from our region with those of other contemporary and earlier cultures of India and outside might throw some light on its origins. The traits compared are settlement pattern, economy, raw materials, techniques of tool manufacture, typology of tools and pottery, mode of the disposal of the dead and racial composition. The material evidence from our region is first summarised and is then compared with that of other areas.
The following picture of the Neolithic Culture in South-Western Andhra Pradesh is based on the evidence from the surface of many sites and is supported by the stratigraphical evidence from Palavoy.

The neolithic sites of our region are mostly concentrated in its northern and western parts touching the Mysore State. The people inhabited hill tops and slopes as well as the valleys and river banks. Palavoy II which revealed a floor with several circular postholes suggests that the people lived in circular and/or rectangular houses with mud walls and probably thatched roof. Remains of disintegrated wood of Acacia (‘Jumma’ in Telugu) or Dalbergia species and seeds comparable to those of *Zizyphus horida* (‘Regu’ in Telugu) indicate their use as posts in house construction. These finds also suggest an arid and dry climate of the times more or less similar to that of the present day.

Animal remains mostly of cattle and some of sheep and goat, canine and hog indicate that stock-raising was the mainstay of the neolithic economy. Wild animals like antelope and deer were hunted for their meat.

The technology is distinguished by two lithic industries - 1) the pecked and ground stone industry, and 2) blade and microlithic industry.

The raw materials for the manufacture of pecked and ground stone tools are basalts and dolerites which were available in the form of dykes and sills. The most common tool type is the pointed butt axe. Other types include chisels, adzes, choppers, scrapers, picks, flake tools, rubbing stones, hammer stones, sling stones and mace heads. Besides, numerous granite saddle querns were
noted on the surface at several sites. Similar evidence came from Palevoy II but in proportion and quantity the industry is poorly represented. Only axes, rubbing stones, saddle querns, hammer stones and slings were found.

The artifacts of blade industry - chiefly made of chert and less commonly of chalcedony, quartz, jasper, etc. - consist of blades, backed blades, obliquely blunted blades, truncated blades, lunates, trapezes, points, borers and scrapers. The created guiding ridge flakes and trapezes of this industry are absent in the late stone age of the region though both industries are similar in raw materials, techniques and to a great extent in typology. The occurrence of nearly 22 per cent of unretouched blades and a smaller percentage of finished products (11.36%) including microliths and other types emphasizes the blade-producing nature of the industry with limited use of secondary working. The blade industry of Palevoy II represented only by seven specimens comprises a fluted core, a created guide flake, an unutilised flake, two utilised blades, a lunate and a borer - all made on chert. The poverty of lithic industries in the excavations is probably, due to the small size of the area dug. The surface of the site is rich in the materials of both the industries.

The Neolithic Culture is also characterised by a rich bone industry consisting of tools like scrapers, blades and points. From the surface were also collected bone scrapers, a punch and a chisel. The bone scrapers made on bovine scapulae and morphologically similar to stone axes occurred in the neolithic levels for the first time in India.

A single copper object, probably, a fragment of an arrowhead,
also came from a late level of this period.

The ceramics, both from surface and excavations at Falavoy, mainly consist of blotchy grey and dull red wares which are divisible into several sub-wares on the basis of surface treatment. The common forms are globular vessels of various sizes with constricted and concave necks and flared rims. Other forms include spouted pots, rimless bowls, lipped pots, lugged pots, etc. The common decorations are red ochre painting, incised, impressed and perforated designs. The black-on-red ware represented by a few sherds of bowls occurred on the surface of only three sites; but it is well represented in the excavations at Falavoy. The common shapes are globular pots of various sizes with high cylindrical, narrow, short concave or constricted necks and flared mouths. Other shapes include slightly carinated pot, basin, pan, lipped bowl and ordinary bowls. All these shapes, excepting pan, are similar to those of blotchy grey and dull red wares. The painted designs, usually confined to the external surfaces of the pots, consist of simple horizontal and vertical bands, zig-zag, lattices, and sometimes chevrons and loops, the last occurring on the interior.

Ornamental objects consist only of beads, mostly of steatite and some of agate, carnelian and chert. All these are surface specimens.

Four infant burials throw light on the disposal of the dead. These were in grey ware urns of single or double pots. Burial was outside the house and no burial goods were provided.

We have outlined the salient traits of the Neolithic Culture of South-Western Andhra Pradesh from the surface finds from many
sites and excavations at Falavoy. Now we may try to examine its relationship with the neolithic-chalcolithic cultures of other areas.

**SOUTH INDIA:**

Ever since Meadows Taylor picked up the first polished stone axe at Lingaugar near Raichur, neolithic axes and associated tools have been collected in large numbers in Mysore, Andhra and Madras. The surface material, enormous though it is, is of limited cultural value. It is only through excavations that we can know about the pattern of life of neolithic people. During the last 20 years a number of neolithic sites have been excavated in the South, and these present a fairly detailed picture of the Neolithic Culture.

The excavations at Nagarjunakonda in Guntur district (Soundara Rajan 1958: 49-113) and Utnur in Mahbubnagar district (Allohin 1961) revealed the Neolithic Culture in Andhra Pradesh. In Mysore, particularly in the North Karnataka, Neolithic Culture is much better known through explorations and excavations. Among the excavated sites are Brahmagiri (Krishna 1942; Wheeler 1948), Sanganakallu (Subbarao 1949; Sankalia 1965), Maski (Thaper 1957), T. Haripur (Seahadri 1958-59), Piklihal (Allohin 1960), Tekkalakota (Sankalia 1964; Nagaraja Rao and Malhotra 1965) and Hallur (Nagaraja Rao 1966). In Madras, the site of Bainapalli in North Arcot district has been excavated by S.R. Rao (IAR 1964-65). In the districts of Tinnevelly, Madura, Trichinopoly and Salem a number of sites yielding tools of pecked and ground stone and blade industries and pottery were found by Bruce Foote (1916: 49-63). Recent explorations (IAR 1961-62: 26) have yielded neolithic celts near Kalliamman Koil in Salem district, and at Sangamedu in South
Arcot district. S.R. Rao (1965: 104-5) has reported that the Shevroy hills in Salem and North Arcot districts are rich in neolithic settlements. Though these and a few other areas in Madras State are rich in the remains of neolithic culture, no systematic work has been done after that of Bruce Foote.

On the basis of the evidence available from these areas, we shall present the main features of the Southern Neolithic Culture, and against this the evidence from South-Western Andhra Pradesh will be viewed.

**Settlements:**

The neolithic folk chose the tops of granitoid hills, where they made use of natural rock-shelters for their abode as at Sangamankallu, Piklihal, Tekkalakota and Bainapalli. The flat terraces on these hills which were sometimes made flat by levelling the ground were used for habitation. Occupation was, however, not confined to the enclosed areas within the hills but also extended to the slopes and the plains at the feet of the hills as seen at Maski and Brahmagiri. Neolithic people also lived on the river banks as at T. Narsipur and Hallur. All these types of settlement pattern have been observed in South-Western Andhra Pradesh also. At Palavoy, the neolithic people lived both at the foot and on the top of a granite hill.

So far we do not have a clear picture of the plans of the neolithic houses because the excavations at all the above sites were conducted on a small scale. Remains of wood found at Brahmagiri, Maski, Piklihal, Tekkalakota and Hallur indicate that huts were raised on round wooden posts. At Piklihal, there was evidence of walls of bamboo matting plastered with mud and floors made of
clay and dung. At Brahmagiri and Sanganakallu lime was also used in the making of floors. The houses were of square or rectangular plan at Pilklihal. Further, here there was evidence of a floor in front of a rock-shelter showing the easiest and simplest way of making houses. At Sanganakallu, the neolithic habitation was separated from the pre-neolithic by a barren layer. There was no break in the neolithic occupation as there was evidence of several floors superimposed one upon the other. Recent excavations here by Prof. Sankalia (1963) have revealed the plan of a circular hut supported on wooden posts. Within the house were found remnants of a hearth, a storage pit, a few rubbers and ground stone axes. The hill dwellers of Tekkalakota settled on flat terraces enclosed by big granite boulders. The enclosed areas provided protection from wild beasts and human enemies. The uneven surfaces were filled with reddish murum, silt, rubble and occasional boulders. Walls of mud or clay supported by wooden posts as at other sites were raised right on the murum surface. Two building phases have come to light during excavations. In the first phase, floor was levelled by rubble stones enclosed by circular row of large boulders on which appeared to have stood screens made of split bamboo. The roof of these circular houses was probably conical. Similar circular house plans with bamboo matting were found in phase 2 of the Neolithic period at Mallur.

Palavoy II brought to light only one floor with several circular postholes which yielded disintegrated wood of Acacia or Dalbergia plant showing their use in house construction. Wood remains of the same species were found at Maki. The postholes
suggest a circular to rectangular plan of the house. The floor is made of a pale brown soil mixed with sand. The debris of the layer 10 covering the floor probably fell from the thatched roof while that of layer 9 with clayey soil would be that of walls as at Sanganakallu. There was no evidence of bamboo screen. But several circular to rectangular plans of various sizes of naturally placed boulders were observed on the hill slope and top at Palavoy. These plans occurring in the form of terraces as at Piklihal confirm the evidence of house plans exposed in the excavations.

Economy:

The neolithic economy of South India was a mixed one. It included hunting, fishing, primitive agriculture and pastoralism.

Direct evidence for the practice of agriculture is provided by the discovery of charred grains of horsegram (Dolichos lablab) from Takkalakota and Ragi (Eleusine coracana) from Hallur. The large number of querns and rubbing stones found at all sites in South must have been used for pounding and grinding grain. Farming was possibly carried out by making clearings in the surrounding jungles with the help of stone axes and fire. Microliths might have been used as knives or sickles for harvesting crops.

Bones of cattle, sheep and goats, swine, dog and horse recovered from various sites show that domestication was the mainstay of the economy. Most of these bones particularly of cattle are charred and show chopping and splitting marks on their surfaces. Cattle must have been domesticated both for their milk and meat.

The principal animal species was cow/bull (Bos indicus) known from all the neolithic settlements. Buffalo (Bos bubalis)
has been reported from Maski and Nagarjunakonda only. Sheep (Ovis aries) and goats (Capra hircus) were common at all the sites; only the former species was absent at Utnur and the latter at Tekkalakota. No animal remains were found at Brahmagiri but the early stratum of period I B yielded an unbaked, roughly modelled animal figurine of pig or sheep (?)).

Swine, dog and horse were known to Hallur people alone. Some other animals comprise small vertebrates like tortoises from Maski, Piklihal, Utnur and Tekkalakota; rats (Rattus rattus) and invertebrates like freshwater mussels (Pleurobema sp.) from Maski and Tekkalakota and snails from Maski and Piklihal. Punctured decorations of a snake and a peacock on a lid from Tekkalakota indicate that these animals were also known to neolithic people. Such small animals must have formed a subsidiary item of food of the people of this culture.

Wild species comprise wavy horned antelope from Tekkalakota and Hallur, and stags or deers from Tekkalakota only. These animals were apparently hunted for their meat. The hunting of these fauna was presumably done by bow and arrow and stone missiles.

Fishing is evidenced by the finding of copper fish-hooks at Tekkalakota and Hallur.

Mat-weaving formed a part of the neolithic economy. Twilled mat impressions are seen on the bases of the burial pots at Tekkalakota.

The economic life of neolithic man of our region, based on the excavations at Palavoy, presents a close similarity to that of other sites in South.

Several terrace-like flat spaces on hill slopes and tops at
Falavoy and many other sites in South-Western Andhra Pradesh were apparently used for some kind of patch agriculture as this practice is still in vogue among the peasants of this area. But no evidence of cultivated grains was obtained at Falavoy. However, the presence of querns and rubbers at Falavoy and other sites and the proximity of these sites to Tekkalakota and Hallur would suggest that agriculture was known at Falavoy and other sites in Anantapur district as well. The seeds recovered from this period in the present excavations are those of *Zizyphus* closely comparable to those of *Zizyphus horidea*, a species common to this area. Ripe fruits of this plant are not only eaten direct but are also used in the preparation of sauces.

Stock-raising as at other sites was the chief element in the economy of Falavoy neolithic folk. *Bos indicus*, which was known at all neolithic sites was the major representative. Other species include *Bos bubalis*, sheep and goats, canines and hogs. The first of these species is significant in view of its presence at Maksi and Nagarjunakonda only. Sheep and goats are common at all other sites as well. Canine is a carnivorous animal, probably dog, and is known from Hallur. Hog might be a wild or domesticated pig unknown at other sites.

Wild animals include antelopes or deers. These are also known from Tekkalakota and Hallur.

Other activities like fishing known to Tekkalakota and Hallur people or weaving known at Tekkalakota were possibly not known to the people of Falavoy as no such evidence came from here. This might be so because no river of the kind of Tungabhadra flows near Falavoy.
TECHNOLOGY:

The neolithic technology is distinguished by pecked and ground stone and blade and microlithic industries.

Pecked And Ground Stone Industry:

The pecked and ground stone industry forms a significant trait of the Southern neolithic culture. The artifacts of this industry are made of igneous and metamorphic rocks like basalt/dolerite, diorite, granite, epidote granite, greenstone, schist, gneiss, quartz, and quartzite. Basalts and dolerites, which occur in the form of dykes, were most commonly used in the manufacture of tools. Sandstone was also occasionally used for making tools.

The techniques of manufacture consist of flaking, pecking and grinding. These were employed either individually or in combination in the preparation of a tool.

The industry is characterised by axes, adzes, wedges, picks, borers, chopper-chopping tools, scrapers, chisels, hammers, slinger-stones, rubbers, querns, grooved hammer stones and maceheads or ring stones. At no single site, however, all the types are represented.

Axes form the most common and significant group of tools in the pecked and ground stone industry. They are known from all the sites in South excepting Utnur and Maski. Axes occurred in the neolithic levels at Palavoy and on the surface of most of the sites in Anantapur and Kurnool districts.

Adze which is an uncommon type is known at Sangenakallu, Brahmagiri, Pilkhal and Tekkalakota. No specimens of this type were found in Palavoy II though there are a few in the surface
collection from the region.

Chisels are known from Sargasankallu, Piklihal and Tekkalkakota but are absent from Palavoy. However, from the surface of this and other sites in our region several specimens were found.

Objects like rubbing stones, querns, hammer stones and slings are known from all the sites in South including Palavoy.

Mace heads known from several sites in the South were collected on the surface at Palavoy and a few other sites in South-Western Andhra Pradesh.

Grinding grooves, as at Sargasankallu and Piklihal, were found at Palavoy as well and it is thought that the tools were manufactured and ground in these grooves at the site itself.

**Blade And Microlithic Industry:**

The blade industry consists mostly of blades without secondary work. Retouched tools form only a small proportion; these include serrated or blunted back blades, lunates, triangles, trapezes, points, scrapers, etc. These are made of siliceous rocks like chert, chaledony, jasper, agate, opal and quartz. The industry is particularly common at Brahmagiri, Sargasankallu, Maski, Piklihal, Tekkalkakota and Hallur and is present at T. Narsipur, Utnur and Nagarjunakonda as well. At Bainapalli, the blade industry is absent in the excavations but the surface of the site yielded a few cores.

The industry is based on the crested guiding ridge technique and is in this respect similar to the blade industry of the chalcolithic culture of the Northern Deccan. At Maski, the blades are of a very large size, obviously due to the nature of the raw material there.

The blade industry from the stratified deposits of Palavoy
though poorly represented, is identical in essential features to that of other sites in the South. The surface sites are, however, very rich in blades and blade tools.

Bone Tools:

Bone tools are known from several neolithic sites, but they are not very common. An awl with a notch at the butt end is known from Sanganakallu and a worked bone point in the upper neolithic period of Pikkilhal. From Utnur comes a fragment of bovine long bone ground at one end to form a flattened chisel-like blade. The founder, Dr. Allchin, thinks it was used for scraping bone-marrow. Tekkalakota yielded two chisel ends, one scraper and seven points. Besides, three antlers of wavy horned antelope and deer or stag with perforated branches were possibly used as handles by hunters. Phase 2 at Hallur also brought to light a few bone points.

Palavoy II is rich in bone tools like scrapers, blades, and points. The surface of the site also yielded bone scrapers, a punch and a chisel. The bone scrapers from Palavoy are made on bovine scapulae and are morphologically similar to stone axes. These are unique finds in the Neolithic Culture of South India.

Copper Objects:

Copper objects are known from the neolithic sites of Brahmagiri, Maski, Pikkilhal, Tekkalakota and Hallur. They are, however, scarce in comparison to stone tools. At Brahmagiri, phase 1B yielded two bronze objects - probably a pin and a ring and two copper objects - a circular rod and a flat axe. At Maski, a solitary copper rod was found in the mid-level of period 1. A long copper chisel and two fragments of a copper bowl occurred in the upper levels at
At Piklihal, a rectangular flat copper axe was recovered from the lower level of phase I and in phase II, several copper objects consisting of a spiral, a bent wire, a ring, a nail-head and a non-descriptive piece were recovered. At Hallur, phase 2 yielded miniature copper axes and fish-hooks. Excepting Tekkalakota (where phase I also yielded copper) copper occurs in small quantities in the late levels of neolithic culture suggesting that the knowledge of this metal was acquired by neolithic people during the latter part of the culture.

At Palavoy, a single copper object, probably a fragment of an arrowhead, came from a fairly late neolithic stratum. None of the other neolithic sites in the South has yielded a comparable object.

The presence of copper objects at all the neolithic sites including Palavoy suggests that the Southern neolithic people were in contact with the contemporary chalcolithic people of the Northern Deccan.

Ornaments:

Objects of ornament mostly in the form of beads figure at all neolithic sites excepting Utur. The commonest material is steatite, but beads of shell, terracotta, agate, amethyst, carnelian, chalcedony, coral, paste, argillite, greenstone and bone are also known. Steatite and shell beads occur on all the sites. Terracotta beads occur at Brahmagiri and Hallur while those of agate were found at Brahmagiri and Maski. Maski, Piklihal and Tekkalakota yielded carnelian beads. Beads of amethyst, chalcedony, coral and paste have been found at Maski only while those of argillite and greenstone are characteristic of Tekkalakota. Gold and bone
beads were found at Hallur alone.

Besides, at Tekkalakote two gold ear ornaments or pendants were found in the earliest levels of phase I while copper ornaments like spirals and bangles occurred in phase II.

Recent explorations in Kurnool district (Sarma 1967: 88-9) brought to light a large number of disc-shaped beads of steatite from the sites of Pusalapadu in Giddalur taluk and Ramapuram in Banganpalle taluk. This richness is also reflected in the names of the sites - 'Pusalapadu' (Pusalu = beads; Padu = heap of refuse) and 'Sandipusala Chenu' (meaning 'a field of wheel-shaped beads').

No beads or other ornaments were found in Palavoy II, though the surface of the site yielded a single crudely made specimen of carnelian. From the surface of a few other sites in the region circular beads mostly of steatite and some of agate, carnelian and chert were collected.

As beads, especially those of steatite, are profuse on the Harappan sites, Allchin (1960: 111) thinks that they were brought to the Deccan neolithic sites from the Indus Valley by itinerant peddlers. It is, however, possible that steatite beads were locally made as the limestones in Bellary, Anantapur and Kurnool districts are rich in steatite. Even agate and chert could be obtained from the Tungabhadra shingle beds.

**Pottery:**

Neolithic pottery is mainly handmade, excepting at Maski where wheelmade pottery occurred in high proportion. A part of the Piklihal pottery, particularly the A4 and A5 wares of the Upper Neolithic period are said to be turn-table made. The black-
and-red ware found with burials in Tekkalakote-II was possibly made by a similar technique.

The pottery from Falavoy II and from the surface of several sites in South-Western Andhra Pradesh is all handmade.

The pottery consists of three distinct wares - blotchy grey, dull red and black-on-red wares. It is often divided into several sub-wares on the basis of surface treatment, technique of manufacture, shape and decoration.

Allchin (1960 : 23) divides the Ritual pottery technologically into five groups designated A1, 2, 3, 4 and 5 respectively.

The A1 ware is generally black to grey in colour, but sometimes buff as well. This variety also includes a small proportion of sherds of incised, perforated and surface roughened wares. The surface of this ware is unburnished.

The A2 ware is similar to A1 ware in colour. Its surface is burnished and painted with a post-firing red ocre wash.

The A3 ware bears red, black, chocolate or brown ocreous surfaces which depend on the slip or dressing applied over them. The ware is both plain and painted.

The A4 ware has grey, buff and mottled colours. The surfaces are fused and burnished.

The A5 ware has grey, buff, olive green and black burnished surfaces approaching black-and-red ware.

The A1 to 3 wares are handmade, while A4 and A5 wares seem to have been made on a turn-table. The A1, A2 and A3 wares occur in both Lower and Upper Neolithic periods, but are more predominant in the former. The small percentage of painted sherds in A3 ware are characteristic of only the lower neolithic period.
The A1 - 3 wares have been found at Utnur (Allchin 1961: 24). From the total absence of A4 and A5 wares at Utnur, Allchin considers the Utnur neolithic as equivalent to the lower neolithic of Piklihal and other contemporary sites in the South.

The grey ware, equivalent to Allchin's A1 or A2 ware, is the most significant ware and is abundant at all sites in South including our region. It is more predominant in the early than in the late levels of this culture. However, it is regular in all levels of Maski - I. The pale grey ware is sometimes even absent as in phase 2 at Hallur (Nagaraja Rao 1966: 109). In Palavoy II, grey associated wares are in larger proportion in the upper than in the lower levels unlike at other sites. The ware occurs both with and without slip and burnishing.

The dull red ware is the next common ware of the Southern neolithic culture and has been reported from Sanganakallu-II.2, Maski-I, Nagerjunakonda, Tekkalakota-I, Hallur 2 and on the surfaces of several sites in Kurnool district (Sarma 1967: 87-8). The plain A3 red ware from Piklihal and Utnur can well go with this ware. Like the grey ware, this too occurs both with and without burnishing.

The pottery types known at Piklihal comprise shallow dishes or platters; bowls of various sizes and shapes; lipped bowls; lugged bowls; spouted bowls; channel-spouted bowls; vessels of various sizes with narrow, wide, broad and open mouths; bases; handled pots; lids; bell-shaped jars; hollow-footed cups; carinated bowls and legged stands.

Legged stands occur in A3, A4 and A5 wares but more predominantly in A3 ware. Lips, lugs and handles characteristic of A1 to 3 wares are absent in A4 and A5 wares.
The most interesting and significant types are the lipped, spouted and channel-spouted bowls, the handled pots, bell-shaped jars, the legged stands and perforated pots.

A lipped bowl of painted red ware was first found at Patapad in Kurnool district by Robert Bruce Fyfe (1916: 115, Pl. 26, No. 2605-22). Similar bowls have subsequently turned up in coarse grey, dull grey and polished brown-and-black wares in the lowest stratum of Brahmagiri IB (Wheeler 1948: 229 and 232; Fig. 21, T.44 and Fig. 23, T.77 and 78); in pale grey ware from Sanganakkallu II-1 and II-2 (Subbarao 1948: Pl. VIII, T.XVo, d and e); in A1 buff ware from Piklihal lower and upper neolithic periods (Allchin 1960 : Fl. 25, T.14a to d); in burnished as well as pale grey wares from the earliest levels of Tekkalakota-I (Nagaraja Rao and Malhotra 1965: 41-3, Figs. 15c and 19b); in coarse grey ware from the neolithic levels at T. Narsipur (IAR 1961-62 : 35); from period I at Bainaspalli (IAR 1964-65 : 57) and in burnished grey ware from surface in Kurnool district (Sarma 1967 : 87, Fig. 2, No. 19). Comparable lipped bowls have been found on surface (Fig. 13, T.12 and 14) and in the excavations at Palavoy (Fig. 30, T.9b; Fig. 35, T.55 and 56 and Fig. 37, T.78) in burnished grey, dull red and painted red wares.

Spouted bowls and vessels are known from Brahmagiri (Fig.19, T.34; Fig. 21, T.46 and Fig. 23, T.76), Nagarjunakonda (IAR 1957-58 : 6, Fig. 3), T. Narsipur (IAR 1958-59 : 32), Piklihal (Pl. 25, T.24a-b; Pl. 28, T.44a-e and Pl. 32, 55a-c) upper neolithic period and Tekkalakota (Fig. 17a, Pl. VIIb; Fig. 21h; Fig. 22a and b, Pl. VIIb). No comparable specimens of this type have been found in Palavoy II though the surface of this and a few other
sites in the region yielded fragments of tubular spouts (Fig. 14, T.15, 15a and 21; Fig. 11, T.6; Fig. 16, T.30 and Fig. 39, T.15) made of dull red and grey wares. At Brahmagiri, Piklihal and Tekkalakota these pots have been found in association with burials. However, no such pots or spouts occurred with burials at Palavoy possibly because the dead here were children while at other sites they were adults.

Channel-spouted bowl is reported from T. Narsipur (IAR 1958-59 : 33) and Piklihal (Pl. 31, T.51a). A single specimen of this type closely parallel to that of Piklihal has been recovered from Palavoy excavations (Fig. 31, T.78) also, the difference between the two being that the Piklihal specimen is in A2 (approaching A5) ware with red ochre band around the edge while that of Palavoy is in painted red ware.

Lugged bowls occurred at Piklihal (Pl. 25, T.15a and b), Sanganakalla (Pl. VII, T.XVI and XVIa) and Maski (Fig. 10, T. 2a). No specimens of this type have been found in the Palavoy excavations. However, a surface specimen of unburnished grey ware from the site of Katamadevudu Hill (Fig. 11, T.4) can be closely compared to those of the above sites.

Cylindrical handles (Fig. 11, T.5 and Fig. 38, T.3) similar to the one from Piklihal (Pl. 25, T.23a) have been collected from the surface of a few sites including Palavoy. But, none occurred in the excavations.

Broad handles (Fig. 15, T.23), ladled handles (Fig. 14, T.16) and a number of looped handles (Fig. 15, T.24; Fig. 38, T.5 and 6) characteristic of the surface collection of our region have no parallels from other sites in South India.
Fragments of bowls or vessels with carination at the belly in burnished grey and dull red wares were found on the surface of the site of Velpumadugu (Fig. 14, T.17) and from Palevao II (Fig. 31, T.18 and Fig. 35, T.50). These can be compared to more or less similar specimens from Piklihal (Pl. 26, T.33a to d and T.35 and Pl. 32, T.33e) and Sangankallu (Pl. XV, Types XVIIIg and h).

The next important type consists of perforated pots. So far only fragments of this type have been recovered from the excavations at Brahmagiri (Fig. 23, T.79), Maski (Fig. 12, 3), Sangankallu (Pl. VII, T.XII), Piklihal (Pl. 28, T.45) and Tekkalakota (Fig. 16b). At these sites, only the late levels of neolithic culture yielded these pots. Neither Palevao II nor the surface of the site yielded any fragments of this type though other sites in the region brought to light a few comparable pieces of this type (Fig. 11, D.3 and Fig. 16, D.10 and D.10a).

Lids similar to those found at Maski (Fig. 11, T.16 and 18) and Piklihal (Pl. 28, T.40a to d) have been found on surface (Fig. 38, T.2) and in the excavations at Palevao (Fig. 31, T.19).

Flat bases of vessels or cups vaguely comparable to those of Brahmagiri (Fig. 23, T.74 and 75), Piklihal (Pl. 28, T.42) and Utnur (Fig. 8, No.45) have turned up on surface (Fig. 14, T.22) and in the excavations at Palevao (Fig. 30, T.2).

Legged stands characteristic of A3, A4 and A5 wares (Pl.33 and 34, T.59a, c, d and f) and bell-shaped jars of A1 and A2 wares (Pl. 27, T.38a-d) from Piklihal are not known from any other neolithic sites in South India including Palevao.

At least five types of decoration occur upon the vessels of
various wares in South India. They are 1) impressed, 2) incised, 3) applique, 4) perforated, and 5) painted.

The first type is a finger-tip impressed decoration usually occurring on the rims of storage jars in single or double rows. It is known from Sanganakallu (Pl. VII, Type VIIu-w), Piklihal (Pl.26, No. 36a-b; Pl.27, No.36c to f and 37a to b) and Tekkalkotes (Nagareja Rao and Malhotra 1965: 37). No such decoration occurs on the pottery from Palavoy II though it is seen on an unburnished grey ware sherd (Fig. 38, D.1) from the surface of the site. Such decoration has also been found on the rims of storage jars of unburnished grey (Fig. 11, D.1-2), unburnished and burnished dull red (Figs. 14-15, D.9, 12 and 13) wares from other sites in South-Western Andhra Pradesh.

Incised decoration in the form of elementary herring bone (Fig. 18, T.24; Pl. CVII, 15) or criss-cross (Fig. 18, T.19; Pl. CVII, 11) patterns and as irregular incisions (Fig. 18, T.19 20-21 and 23) on grey and buff-slipped sherds was found at Brahmagiri IA culture. Similar decoration as vertical (Fig. 13, 2,5 and 6), horizontal (Fig. 13, 1,4 and 7) and oblique (Fig. 13,9) lines or as finger-thumb incisions on an applied band below the rim (Fig. 11, 14) is reported throughout Maski I (Thapar 1957: 48, Fig. 13, Pl. XXA). At Piklihal the designs are in the form of scratches in horizontal (Pl. 28, T.47) and diagonal (Pl. 28, T. 20x) bands on A1 ware sherds as at Maski or in herring bone patterns (Pl. 28, T.48, 49a-b) on A2 grey ware sherds as at Brahmagiri. Such decoration has also been found in the form of irregular incisions (Pl. 10A, Nos. 1-9) on sherds of A1 grey-brown ware at Utnur.
Palavoy II and a few explored sites yielded several sherds bearing incised decoration. The decoration occurs in the form of pricked triangles, diagonal lattice or criss-cross, straight parallel and diagonal lines and date palm pattern (Fig. 33, D.11 to 16) – all on burnished grey ware sherds. On dull red ware sherds the designs are horizontal and vertical parallel lines (Fig. 34, D.17-18) or mere strokes (Fig. 35, D.19). Two surface sherds of grey and dull red wares exhibit incised decoration on their rim edges in the shape of oblique cut marks (Fig. 11, D.4 and Fig. 16, D.14). The criss-cross design and vertical, horizontal and oblique lines are present in Palavoy II. Others like pricked triangles, date palm designs of our region are unknown at other sites while the herring bone pattern of other sites is absent in our region.

Applique decoration is rare and is known only from Pizimal and Tekkalakota. At the former site it occurs individually (Pl.26, No.33d and 34e and Pl. 32, No. 34p) as well as in combination with finger-tip impressions (Pl. 27, No. 37b and Pl. 32, No. 54) while the latter it is found without any other designs. At Palavoy II applique decoration is seen alone and in combination with incised and red ochre painted designs (Fig. 33, D.8-10).

Perforated decoration is present on the bases of grey and dull red ware pots and is reported from all neolithic sites in South India including our region.

Painted decoration consists of red ochre bands usually found upon rim edges, neck and shoulders of bowls, globular pots, lipped bowls, etc. of burnished grey ware. It occurs in the form of horizontal or vertical bands. This has been reported from all the excavated sites including Palavoy in South India.
Painted Black-on-Red Ware:

This ware in the form of lipped bowls with paintings in black was first discovered by Robert Bruce Foote (1916: 115, Pl. 26) at Katapadu in Kurnool district. Later, Wheeler found some sherds of this ware in Brahmagiri IA. The painted ware is buff or red-slipped. The red-slipped pottery is burnished and salt-glazed. The painting was done after firing with brownish purple coloured ochre. The decorative patterns consist of simple horizontal and vertical bands, criss-cross or lattice and highly conventionalized plant patterns. At Sanganakallu, the painted pottery is characteristic of phase II-2. The ware is represented by a small number of shapeless sherds and the designs on them are similar to those of Brahmagiri. The painted red ware from Maaki belongs to the lower levels of period I. The painted designs in black or chocolate colour were drawn over a red-slipped surface and consist of vertical lines below a horizontal band and oblique lines. Thapar (1957: 24) thinks that the painted pottery of Brahmagiri IA and Maaki I "although not remarkably similar to some Indus Valley pottery as asserted by M.R. Krishna, may, nevertheless, show vague affinities with the Harappan culture through some unidentified stages".

The painted pottery at Piklihal represented by A3 burnished ware occurs in small proportion in the Lower Neolithic period. The designs consist of horizontal bands, a number of radiating triangles, etc. drawn from a band around the neck of pots (Pl. 35, Nos. 1-8). Utnur also yielded painted pottery (more than at Piklihal) of A3 ware from the Lower Neolithic period. Here too, all sherds are fragmentary except one, which is an open mouthed vessel with strokes and a single outer band (Fig. 7, No. 25).
Tekkalakota II is characterised by a few sherds of painted red ware. The types are globular vessels and high necked jars (Fig. 20g and h) which the excavator compares with similar types from Nevasa and Jorwe. The painted designs are horizontal or vertical bands as at other sites. Nagarjunakonda yielded a solitary painted sherd, and a few sherds are known from period II (chalcolithic) of T. Narasipur and phase 2 (chalcolithic) of Hallur. Painted pottery is thus known in the lower levels of Brahmagiri IA, Maski I, Piklihal and Utnur Lower Neolithic period and Nagarjunakonda. At Sangameshulu, Tekkalakota, T. Narasipur and Hallur, painted pottery occurred in upper levels. But at all sites its incidence is small and hence it has been thought that painted pottery at Neolithic sites was derived by trade from the chalcolithic sites of the Northern Deccan.

Several sites around Patapadu in Kurnool and Cuddapah districts of Andhra Pradesh (Sarma 1967: 75-94) have yielded painted sherds. The chief type is lipped bowl. Other types include goblet bowls, wine cups and bowls with convex flaring rims, globular jars, constricted as well as high-necked vessels – all comparable to similar types of Malwa ware. The designs are geometric and sometimes naturalistic. Sarma thinks that painted pottery along with other relics like copper and gold objects and steatite beads first reached the South as imports from the Indus and Saraswati Valleys. Later these objects were made indigenously out of the locally available raw material.

The painted pottery from Palavoy II presents a very different picture. First, it occurs in larger proportion than at other sites in South India. Secondly, it is all handmade with the help of some kind of mould. The common shapes are globular pots, a
slightly carinated pots, basin, pan, lipped bowl and a few ordinary bowls. These shapes are common to blotchy grey and dull red wares. The high cylindrical-necked vessel (Fig. 36, T.62) can be compared with a more or less similar pot from Piklihal (Pl. 35, T.13). Another comparable type is a vertical narrow-necked pot (Fig. 36, T.75) which is paralleled at Tekkalakota (Fig. 20h). All other types are absent in the painted ware of other excavated sites in South India.

The painted designs from Palavoy paralleled at other sites are simple horizontal and vertical bands, criss-cross or lattice and diagonal lines (Fig. 36; D.20, 29, 33, 22, 26, 30 to 32). Other designs like zig-zag, chevrons, loops, a vertically hatched body of an animal and another complex form on the lipped bowl (Fig. 36; D. 25, 23 and 26; Fig. 37; D.34 and 39 and Fig. 37; T.78, D.36) are unknown from other excavated sites.

In view of the larger quantity, variety of shapes and designs as well as the nature of clay and technique of manufacture, it seems that the Palavoy painted pottery was of indigenous origin. This is supported by the absence of carinated bowls and spouted vessels typical of Jorwe and Nevasa.

Terracotta Objects:

The excavations at Palavoy did not yield any human or animal figurines of terracotta. The only specimen of an animal figurine, probably a bull, made of terracotta (Fig. 42, H) was found on the surface of the site. Though it typologically compares with the one from Piklihal (Pl. 40, 5 and Pl. 41b, 5) the two differ in detail. Unlike the Piklihal bull, the Palavoy specimen has a long face, small hump and a sloping back. Tekkalakota-II (Pl. Xia, 9 and
Fig. 301 and j also yielded some bull figurines but these do not show any similarity to that of Palavoy.

A potter's dabber of coarse grey fabric from Palavoy II (Fig. 42, A) shows a close affinity to similar finds from the mid-level of Naski I (Fig. 11, Nos. 16 and 18), Piklihal A1 buff ware (Pl. 28, T. 40c), Tekkalakota I (Fig. 30a).

Four edge-ground circular potsherds of burnished grey ware from the late levels of Palavoy II bear similarity to those of Tekkalakota. All these are unperforated while similar sherds in Brahmagiri IB (Pl. CIII, 1), Naski I (Fig. 9, 12) and Piklihal (Pl. 32, T. 57a and b) are perforated.

Several unbaked clay objects of various shapes and sizes and probably used as game pieces (Pl. H, No. 7) occurred in the Neolithic levels of Palavoy; but these do not have any parallels from other Neolithic sites in South India.

Disposal Of The Dead:

Evidence for the disposal of the dead at Palavoy came to light in the form of four infant burials (see pages 357-9; Pl. K, No.3; Pl. I, Nos. 3-4). All these were in grey ware urns consisting of a single pot covered with an ordinary or lipped bowl, or two pots kept face to face. The urns were kept vertically as in Brahmagiri IB (Pl. CVIII) and in Tekkalakota I and II. But unlike at these sites, the dead at Palavoy were buried only outside the house and no burial goods were provided.

Chronology:

Radiocarbon dates for the Southern Neolithic Culture are available only from six sites. They are given below:
In the light of these dates, it can be stated that the South Indian Neolithic Culture flourished between c. 2200 B.C. and c. 1000 B.C. It should, however, be noted that only a solitary date from Utnur takes the lower limit to 2200 B.C. and similarly a single date from Ballur puts the upper limit at 1000 B.C. The bulk of the dates put the neolithic culture between 1800 and 1500 B.C. C-14 dates for Palavoy II are not yet available. We may therefore see whether archaeological evidence is of any help in fixing the date.

In this connection, if it would be any guide, we shall have to consider evidences like painted pottery and copper in the light of their horizon and antiquity. Painted pottery was found in the lower level at Utnur having a date of 2200 B.C. while at Sanganskallu, Tekkalakota and T. Narsipur, it was known in the upper levels dated between 1600 and 1500 B.C. Copper also occurred in the late levels of the neolithic culture at majority of the sites though at Tekkalakota it was found at the beginning of phase I.

<table>
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<tr>
<th>Sites</th>
<th>Radiocarbon dates in B.C. for Early Levels</th>
<th>Late Levels</th>
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<tbody>
<tr>
<td>Utnur</td>
<td>2160 ± 150</td>
<td>1540 ± 105</td>
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<tr>
<td>Tekkalakota</td>
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It is thus clear that painted pottery and copper were mostly known to Southern Neolithic people between 1800 and 1500 B.C. The only site that gives an earlier date for painted pottery is Utnur. However, in radiocarbon dating, a cluster of dates is always more reliable than a solitary date and hence the period 1800-1500 B.C. for the Neolithic Culture appears to be a safer dating.

At Palavoy, painted pottery occurred in the lower as well as upper levels but was more common in the upper than in the lower. Besides, the upper level also yielded a copper object as well. Taking the common horizon and dates of these evidences from other sites in South, we tentatively may date the Neolithic Culture at Palavoy between 1800 and 1500 B.C. The more precise dating will be possible only when radiocarbon dates are received.

The lowest stratum of Palavoy II (layer 11) which yielded a rubbing stone, two fragments of querns, 55 clay objects and several animal bones, is devoid of pottery of any kind. This cannot, however, be treated as a non-pottery Neolithic phase as it is not clearly demarcated from the overlying cultural level. Further, the area dug was very small and the layer is also thin (about 9 to 15 cm thick). At this stage it is not advisable to conclude whether we have a real non-pottery horizon. To test this possibility, a larger excavation is needed. And this layer might give an earlier date than 1800 B.C. as suggested above.

To sum up, the Neolithic Culture of South-Western Andhra Pradesh closely corresponds to its counterparts in South India. However, two features of Palavoy II stand up distinctly. They are (1) the bone scrapers which recall the ground stone axes and are absent at other excavated sites, and (2) the painted pottery which
is of local origin unlike at other sites in the South. The painted pottery may be correlated to that of Eastern Andhra Pradesh, but the types like goblet-bowls, wine cups and bowls with convex flaring sides and featureless rims (Sarma 1967: 91-2) are absent in the painted red ware of Palavoy. Even the white or cream-slipped ware is unknown at Palavoy.

NORTHERN DECCAN:

A number of village settlements have been discovered in the Northern Deccan in the valleys of Godavari, Pravara, Bhima and their tributaries. Several of these have been excavated. These are Jorwe (Sankalia and Deo 1955), Nevasa (Sankalia and others 1960; IAR 1959-60, 1960-61), Bahal (IAR 1956-57), Tekwada (IAR 1956-57), Prakaash (Thaper 1967: 4-167), Daimabad (IAR 1959-60: 30 and 1960-61: 19), Bahupura, Sawalda (IAR 1959-60: 34-7), Chandoli (Deo and Ansari 1965) and Songaon (IAR 1964-65: 49).

The earliest phases are known from the site of Daimabad on the river Pravara. Here the settlers used handmade grey ware pottery which is closely similar to the grey ware of the neolithic Culture of the South. These people also used black-on-red ware pottery of the Malwa type. Besides, they used blades, blade tools and terracotta and stone beads. An extended burial is also known from this phase. At this site pointed butt axes were found on the surface but they are likely to be associated with this phase.

The second phase at Daimabad is characterised by the dominance of Malwa ware, which has also yielded channel-spouted bowls. This phase yielded terracottas of dog and bull, and evidence of burial in a specially dug pit. This phase is also known from the site of Prakaash on the river Tapti in Khandesh.
The third phase at Daimabad is distinguished by a pottery known as Jorwe ware. This is a thin-sectioned ware made of a well levigated clay and very well fired. It has a red-slipped matt surface which is decorated in black paint largely by geometric designs but occasionally also by naturalistic motifs. The typical types in this ware are carinated bowls and pots with long tubular spouts. This Jorwe Culture named after a site on the Pravara river where it was first discovered is known from several other sites like Nevasa, Chandoli, Songaon, Prakash and Bahal IS. The grey ware found in phase 1 at Daimabad continues in the Malwa and Jorwe phases as well.

Direct evidence of agriculture in this area comes from Songaon where charred grains of wheat have been found. But the evidence of querns and rubbers at all sites and the very sophisticated nature of the pottery leave no doubt that these settlements were based on agricultural economy. The domestication of cattle, sheep and goat, and pig were known throughout, and hunting also played a part in the economy.

The technology was based largely on stone blades and micro-liths but polished stone axes also formed a part of it. These along with adzes and chisels, and domestic implements have been found in the excavations at Nevasa and on the surface at Daimabad, Songaon and Chandoli. All this shows the poverty of this industry in the North as compared to that of South including our region. At Nevasa, the polished stone axes were found along with waste flakes and unfinished specimens showing clearly that such tools were made at the site and not imported.

Copper was used in this culture on a much larger scale than in the Neolithic Culture of the South. Flat copper axes are known
from Nevasa, Jorwe and Chandoli excavations, and these are similar to those of Brahmagiri and Tekkalakota in the South. Besides, from Chandoli (Deo and Ansari 1965: Fig. 58, No. 1) comes an antennae-hilted dagger which shows close affinity with similar swords from the copper hoards of the Gangetic basin.

Beads are common on all the chalcolithic sites in the North. In the words of Sankalia (Sankalia and others 1960: 336, 340 and 368), "the earliest settlers seem to have preferred steatite as decorative material to all the rest. This is as it should be, for steatite and faience were the most favourite materials all over the chalcolithic sites in India". These occur at Nevasa, Bahal IA and B, Prakash I, Diamabad, Tekwada and Chandoli. Other materials used for making beads as at Nevasa are agate, amazonite, amethyst, carnelian, chalcedony, crystal, coral, glass, shell, chalk and terracotta. Special mention may be made of copper beads from Nevasa and Chandoli (Sankalia 1963: 213, Fig. 101A, 12 and 11). Only steatite disc-shaped beads from the surface of a few sites of our region are comparable to those of the Northern Deccan.

The chalcolithic settlements in the Northern Deccan are on alluvial plains along the river banks. They lived in rectangular to circular huts whose walls were made of bamboo screen plastered with mud characteristic of Nevasa and Chandoli. At Diamabad also similar house plans came to light. The Neolithic people of the South including our region mostly lived on the hill tops, slopes and feet of granitoid hills, which are the most common physiographic features of the region. In the matter of house plans, there is a close correspondence between the Northern Deccan and South India.
C-14 dates are available only for Jorwe Culture from Kevasa (1250 ± 125 B.C. and 1255 ± 115 B.C.), Chandoli (1250 ± 70, 1300 ± 70, 1240 ± 90, 1175 ± 120 and 1040 ± 105 B.C.) and Songaon (1290 ± 95 B.C. and 1350 ± 70 B.C.). These give a dating of 1500 B.C. - 1000 B.C. for this culture. However, the beginnings of the settled villages in this area go back to an earlier period, possibly, a century or two as shown by the archaeological evidence at Deimabad, Brahak and Bahal.

It would, thus, appear that the Neolithic Culture of the South though beginning slightly earlier than its chalcolithic counterpart of the Northern Deccan was largely contemporary to the latter.

There are certain definite affinities between these two cultures. Among these are the polished stone industry, the handmade grey ware and the practice of burial in earthen pots. It is not yet clearly established as to which of these two cultures contributed more to the other. In view of the relative priority of the Southern Neolithic Culture, it would appear that the traits like grey ware, urn burial and polished stone tools might be derived in the Northern Deccan from the South. On the other hand, painted pottery and use of copper are a much more marked feature of the Deccan chalcolithic. Their scarcity in the Neolithic Culture in the South might suggest that these items were imported from the Northern Deccan into the Southern Deccan and other parts of South India. Dr. Allchin (1960 : 126-7) has suggested that the grey ware of the South Indian Neolithic Culture was derived ultimately from the Anatolian and Caucasian regions of West Asia, and he has noted the presence of grey ware in several chalcolithic.
cultures in the intervening areas. The earliest stages at sites like Daimabad and Prakash may indeed be the prototypes of the Southern Neolithic Culture. However, the problem of the exact relationship of cultural contact between these two areas will be clear only when larger excavations are carried out in the two areas and the absolute chronology of the various phases of the Chalcolithic Culture in the Northern Deccan is fairly established on the basis of radiocarbon dates. At the moment we can only guess the aerial antiquity of the first farming settlements at sites like Daimabad and Prakash.

CENTRAL INDIA:

Numerous chalcolithic sites have been discovered in Central India in the valleys of the rivers Chambal and Narmada and their tributaries, and in the valley of the Betwa during the last 15 years. The important excavated sites are Nagda (IAR 1955-56 : 11-19) and Avra on the Chambal, Maheshwar and Navdatoli on the Narmada (Sankalia and others 1958; IAR 1957-58; 1958-59 and Sankalia 1963: 197-202), Kayatha on the Kelisind (IAR 1963-64) and Eran on the Bina (IAR 1960-61 : 17-18; 1961-62 : 24-25 and 1962-63 : 11).

The earliest chalcolithic settlement is known from Kayatha, which is currently under investigation. A limited excavation carried out so far has yielded pottery which has close Indus and Pre-Indus affinities. Other finds are flat copper axes, copper bangles, steatite and carnelian beads and stylised terracotta bulls in large numbers. This phase is dated by C-14 between 1965 + 110 and 1335 + 105 B.C. No similarities can be noted between the Neolithic Culture of South-Western Andhra Pradesh and the Kayatha Culture; if we may use that expression. The Kayatha phase is
followed after a stratigraphical gap by painted black-and-red ware. This phase is also known from Nagda. At Nagda, this phase also yielded incised terracotta beads or spindle whorls. This culture too does not show any affinities with the Neolithic Culture of our region. Of course, the black-and-red ware occurs in the later phase of Neolithic Culture at Tejkala, Hallur and T. Narsipur. But the exact derivation of this ware in the Neolithic culture is not yet clear.

The black-and-red ware phase is followed by a culture which is best represented at Navdatoli. At this site four phases are recognised in this culture. The Navdatolians lived in square, rectangular or circular houses. The walls were made of bamboo screen plastered with clay similar to those of the Neolithic houses of Piklihal, Tejkala and Hallur.

The pottery is characterised by four distinct wares: the Malwa ware, black-and-red ware, white-slipped ware and Jorwe ware. The first of these wares consists of a pale red-slipped fabric with paintings in black over it. The shapes are high, narrow-necked vessels, carinated bowls, dish-on-stand and goblets. The designs are mostly geometric and sometimes naturalistic. This ware occurs throughout the chalcolithic period. The black-and-red ware painted in white is known in a small proportion, only in phase I. The white-slipped ware was confined to phases I and II, while Jorwe ware was reported in phases III and IV. On the surfaces of the last two wares, as in Malwa ware, black painted designs occur. A distinctive type is a channel-spouted bowl which also occur in grey, dull red and painted red wares of the Southern Neolithic Culture including our region. Other types like high
concave, narrow and constricted necked vessels with globular body and rimless bowls also occur in the painted red ware of our region. But one thing is clear that the channeled bowl which occurs in Malwa ware at a very late stage of this culture (phase III) was already present in the wares of the Neolithic Culture mentioned above and in painted red ware as well. This shows the chronological anteriority of the Southern Neolithic Culture including Falavoy II.

The rich blade industry based on the crested guiding ridge technique is common to both regions. The finding of copper axes, fish-hooks, etc. shows that the Navdatolians were better acquainted with copper than their counterparts in South India and South-Western Andhra Pradesh.

The discovery of grains of wheat, rice, etc. at Navdatoli shows that the people of this culture were agriculturists. The recovery of fish-hooks indicates that the people knew fishing.

The Navdatoli Chalcolithic Culture is dated by C-14 between 1829 ± 62 B.C. and 1332 ± 125 B.C.

The chalcolithic site of Eran on the Bina though broadly similar to Navdatoli has quite individual traits. For instance, the black-and-red ware of this site is very thick and of coarse variety. The shapes in it are large dinas, shallow bowls and these are painted exclusively on the interior only.

The black-on-red ware is quite different from that of Navdatoli and Sagda. The Malwa ware at Eran is thinner and better made than at Navdatoli. Besides the geometric designs, it has several naturalistic designs like the dog, antelope and scorpion. The chalcolithic settlers at Eran had fortified their settlements by a mud rampart which was further enclosed by a wide moat. The com-
munity life at Brah, therefore, appears to have had a more complex organization than is seen at any of the neolithic sites in South. The grey ware is the only common feature at Brah and in our region. The next common trait to both the areas is the steatite beads.

The earliest radiocarbon date for Brah is \( 2055 \pm 75 \) B.C., but other dates put the culture between \( 1340 \pm 70 \) B.C. and \( 640 \pm 60 \) B.C.

**Northern Neolithic Culture:**

The remains of this culture have been found at Burzahom and a few other sites in the Jhelum Valley of Kashmir (IAR 1960-61: 11; 1961-62: 17-21 and 1963-64). The excavations at Burzahom revealed a four-fold sequence, Periods I and II representing the Neolithic Culture are our concern.

The people of period I lived in circular or oval pits dug into the Karaswa deposits. These were provided by the evidence of landing steps and niches in the sides of the pit and ash deposits, etc. on the pit-floors. Traces of postholes on the periphery of the pits indicate the existence of timber superstructure. The material remains comprise axes, harvesters, polishers, pounders, chisels and mace heads. Bone tools include awls, needles, points, chisels, harpoons, etc. The pottery is handmade and bears grey, dull red, brown, buff and drab colours.

In period II, instead of pit dwellings, structures of mud and mud-bricks made on plastered floors were found. Wheelmade black burnished ware made its appearance. Ground stone and bone tools occur in larger numbers. The uppermost level of this period yielded a solitary copper arrowhead.
In the same period both human and animal burials were found in the habitational area itself. Human burials consist of extended skeletons as well as fragmentary burials. With these were found bones of domesticated dog and goat. Animal burials of dog, wolf and ibex occurred. These were either extended or fractional.

Radiocarbon dates indicate that the Neolithic Culture of Burzahom flourished between 2400 and 1600 B.C.

The ground stone axes, pounders, chisels and mace heads characteristic of Burzahom can be compared to similar tools of our region. Bone tools such as points and chisels of Burzahom were found at Palavoy as well but the specimens of the former site are finely finished than those of the latter. Bone awls, needles and harpoons of Burzahom do not find parallels at Palavoy. Similarly the ground bone tools called 'scrapers', which are morphologically similar to ground stone axes, bone blades and a punch have no analogues from Burzahom.

The handmade grey and dull red wares of period I at Burzahom are similar to those of Palavoy II and other sites in South-Western Andhra Pradesh both in technique and typology. However, the former wares are cruder than their counterparts in our region.

In both places the copper arrowhead in its fragmentary condition is a doubtful one and hence comparison is not possible.

Unlike at Burzahom only child urn burials were recovered from Palavoy excavations. However, the extended burials of Burzahom can be compared to those of Pilkhipal, Tekkalakota, etc. in the South.

The Burzahom Neolithic Culture has earlier beginnings than that of our region.
EASTERN NEOLITHIC CULTURE:

The Eastern Neolithic Culture area according to Krishnaswami (1959: 124-49 and 1960: 25-64) is represented by two culture-complexes: 1/ the Assam Culture-complex and 2/ the Bengal-Bihar-Orissa Culture-complex. The evidence for the Neolithic Culture in these areas comes from surface alone, excepting the recent excavations at Kuchai in Mayurbhanj district of Orissa and Daojali Hadong and Daojali Farbat of the United district of Sikir Hills in Assam (Sharma 1966).

A comprehensive study of the surface finds was made by Dani (1960) — whose work has been supplemented by that of Allchin (1962: 306-30).

Dani divides the Assam region into six culture zones: 1/ Sadiya Frontier, 2/ Naga Hills, 3/ Khasi, 4/ Garo, and 5/ Cachar Hills and 6/ Brahmaputra Valley in Tezpur district. The tools of the ground stone industry consist of faceted tools, shouldered tool, rounded butt axe, axe with broad cutting edge, splayed axe, tanged axe, wedge blades and grooved hammer stones. Neither pottery nor microliths were associated with these tools. However, the excavation at Daojali Hadong yielded pottery of greyish colour depicting basket-and-cord impressions on the exterior in association with ground stone tools such as celts including one of shouldered variety, hoes, corn-crushers, mullers, pestles, etc.

The only comparable type among the ground stone tools is the rounded butt axe with sub-types a) and b). Sub-type a) with plano-convex cross-section resembles the shoe-last celt from Sangansakallu (Subbarao 1948: 34, Pl. XX, 10-13). Similar axes have been found at the site of Velpumadugu (VMG) (Fig. 4, No. 9) in
Anantapur district. Sub-type b) with a bi-convex or lenticular section is common on all the neolithic sites in the South including our region. Sankalia (1963 : 234) and Allchin (1962 : 323) are of the same opinion. Allchin calls such tools and their analogues, "Indian axes and Indian axe hammers", perhaps due to their commonness.

The other comparable type is "axe with broad cutting edge" (Deni's type c) for which parallels occur in our as well as in other parts of South India. All other tool types of Assam are unknown to our region.

The Bengal-Bihar-Oriissa Culture-complex covers the Chittagong region, sub-montane zone of the Himalayas and the Chota Nagpur plateau. The first two regions yielded faceted tools of the Assam variety, while the second also brought to light round butt axes, wedge shaped axes of Assam and chisels and hammer stones. The Chota Nagpur is very rich in the remains of neolithic culture. Besides, perforated stones and shouldered celts were also found. The sites of Sonpur (IAH 1959-60 : 14 and 1960-61 : 4) in Gaya district and Tamluk (IAH 1954-55 : 19-20) in West Bengal also yielded pointed butt axes in a late context which dates them to the first millenium B.C. The rounded butt axe, chisels and hammer stones are closely related to those of our region.

The excavations at Khachai yielded sherds of a coarse grit-tempered red ware, sometimes slipped and decorated with incised or finger-tip designs and ground stone tools like rounded butt axes, faceted hoes, chisels, pounders, fragments of a mace head and a grinding stone. No evidence of metal was found.

Najjar Bhibi, in Burdwan district of West Bengal yielded black-and-red ware painted in white. Phase II of this site also yielded a doubtful axe while in phase III there were many axes besides
copper and iron. The radiocarbon date for the phase is 1012 ± 125 B.C. which corresponds to the latest phase of the South Indian Neolithic Culture. The sites of Kuchai and Daojali dating in the absence of metal are thought to be purely Neolithic in the opinion of Thapar and earlier than that of Kajari Dhibi. No evidence of black-and-red ware occurred in our region. Moreover, the Neolithic Culture of our region and other parts in the South is chronologically quite earlier than these cultures.

In North China, bronze copies of shouldered tool are reported to occur in the graves of Yin dynasty (dated between 1300 and 1028 B.C.), while stone axes occur to the South in Tong Xing in the Hang period (dated between 202 B.C. and 220 A.D.). Therefore, both Sir Mortimer Wheeler (1959) and Dani (1960) believe that the axes found in Eastern India had derived from China at a very late stage.

**BANAS CULTURE:**

Explorations in the Banas basin of South-Eastern Rajasthan have brought to light a large number of chalcolithic sites. Among these, the sites of Ahar (IA 1954-55 : 14-5 and 1955-56 : 11) and Gilund (IA 1959-60 : 41-46) in Udaipur and Chitora districts respectively have been excavated.

At Ahar, two cultural periods are known: 1) the copper using village settlement, and 2) early historic iron age. Period I has yielded animal remains of cattle, buffalo, sheep and goat, pig and dog suggesting domestication as the mainstay of the economy.

The lithic blade industry was virtually absent though a few of these were found at Gilund and other explored sites.

Both Ahar and Gilund are rich in copper objects mainly axes. The ceramics consist of painted black-on-red or cream ware, black-
and-red were painted with a white pigment, red ware and grey ware (Misra 1967). The red and grey wares are comparable to similar wares from our region. The painted black-on-red or cream ware which is characteristic of Ahar Ia and Ib does not correspond with that of Palavoy II both in technique and typology though Sarma (1967: 91) reports a few sherds of this ware at some sites in Kurnool and Cuddapah districts of Eastern Andhra Pradesh. He equates this ware with the late levels of the lower neolithic of South India. However, it requires to be proved stratigraphically since these stray unstratified sherds give no idea of their antiquity and origin.

Stone objects from these sites comprise saddle querns, rubbers and slings comparable to similar objects from our region. This shows that these objects were meant for domestic purposes and hence the people were agriculturists.

The ornaments of Aharians consist of copper bangles and rings, beads of terracotta decorated with various motifs like chevrons, rows of arcs, zig-zag arches, etc. looking like a stylised stag. Only beads of semiprecious stones and steatite are common to both regions.

Aharians used to live in stone-and-mud houses, the latter usually supported by bamboo screens. The plans seem to be rectangular. The floors were made with thick sticky black clay mixed with yellowish silt. All these features of Ahar houses differ from the simple mud-walled round houses of Palavoy II.

The Ahar Culture has been dated by radiocarbon between 1800 and 1200 B.C. showing a chronological posteriority to the Neolithic Culture of South India.
THE INDUS VALLEY CIVILIZATION:

The salient features of this culture, in brief, are an organised town-planning with streets and public drains; inscribed steatite seals mostly carved with animal figurines; stone and bronze statuettes; copper and bronze implements; beads of steatite, faience and semi-precious stones; wheel-thrown painted black-on-red pottery; brick-built spacious houses and extended burial practice of the dead. Remains of this civilization have been extended from the Indus to the Ganges in the east and the whole of Saurashtra.

Chronologically this culture is placed between 2300 and 1750 B.C. which is earlier by two or three centuries than the South Indian Neolithic Culture.

The Indus or Harappan civilization presents close similarities and at the same time dissimilarities. For instance, the Neolithic blade industry common on all Neolithic-Chalcolithic sites in the South including our region, and Northern Deccan and Central India presents striking similarities with that of the Indus sites and claims a common origin like that of the latter. The pecked and ground stone tools, like saddle querns, also show vague affinities with those of the Indus. The occurrence of a large number of copper and bronze objects is the most common feature of the Indus Civilization showing a high technological advancement while related forms occur on most of the Neolithic-Chalcolithic sites but in a very remote and crude form. One such specimen, a fragment of an arrowhead from Patalanoy II, indicates such culture contacts with the Indus Cities. The pottery of our region presents a striking difference both in technique and typology. No comparable pot types occur in both regions in anyway.
Even the perforated fragments of pots of our region do not appear to have any relation to the perforated braziers of the Indus culture. The terracotta bull of Falavoy is a very crude one while the Indus specimens are well made. The next striking affinity lies in steatite disc beads. They are common on all Indus sites as well as other Neolithic and Chalcolithic sites all over the sub-continent. The next important point is their common economy, particularly, domestication of cattle, sheep and goats, etc. Then the systematic extended burial system as at Piklihal, Tekkalinga-kota, Nagarjunakonda and related sites is known to both cultures though at Falavoy only child burials were encountered. In view of still other traits like seals, script, house plans, drainage, streets, etc., it is clear that the Indus Valley Civilization was the most advanced while the Neolithic Culture of our region and other parts of South India was still in the hunting to food producing stage.

OUTSIDE INDIA:

RUSSIA:

The remains of the Neolithic Culture of U.S.S.R. (Mongait 1961 : 102-126) have been largely found in the north of the European part of the Soviet Union and to some extent in the South. In the South of the European part of the U.S.S.R., the zone of the Dnieper and northern part of the area near the sea of Azov during the third millennium B.C. several hunter-fisher communities were living. The evidence for this culture comes from three excavated sites, namely, Mariupol near Zhdanov on the left bank of Kalmius, Nalchik in the north Caucasus and a third locality lying
about one-and-a-half km, north-west of the second site. The first two are burial sites while the third is a settlement. The tool types comprise flint knives, scrapers, arrowheads, stone axes and maces. Pottery is also known. At Malonik a few copper objects were also found. Pottery is undecorated. The dead - all adults - lay on their backs and were provided with burial furniture in the shape of bone or stone artifacts, animal teeth and shells. Animal figurines of pig and oxen made of bones (at Mariupol), rings on bones and pendants of teeth of wild boar, bear, deer, fox, etc. (at Malonik) were recovered. Both wild and domesticated animals were known at these sites.

In the South U.S.S.R. excavations at Akshahtyrskaya cave on the shores of Black Sea, Tetramite in West Georgia, a site in Transcaucasia and Janbas-Kala IV in Central Asia brought to light several flat polished axes, picks, hoes, saddle querns, pounders and flint tools like knives, scrapers, spoke-shaves and arrowheads. Pottery vessels of a red ware have pointed base and incised decoration as at Janbas-Kala IV, which is dated to the late fourth or early third millenium B.C.

In Siberia, within a radius of 500 km. around Lake Baikal several neolithic sites are known. On the basis burials found here the neolithic period has been divided into four stages of development. The stages are: I - the Khinsky named after the burial at that site dated to fifth millenium B.C. in which the bow and arrow appeared; II - the Isakovksy, 4000 B.C., polished tools and pottery appeared; III - the Serovksy, 3000 B.C., the techniques of working of bone and stone advanced, stone arrowheads, nets, harpoons, fish-hooks, carved stones representing fish occurred.
and IV - the Kitoisky - third and early part of second millenium B.C. At this stage nephrite was used for making axes.

From the forest zone of the European part of the U.S.S.R. the cultures named 'pit comb ware' are known. The representative sites are Lyalovskaya on the river Klyzma, 40 km. north of Moscow; Sunskaya on a creek on Lake Omega; Kargopol on the bank of Kinem river; Charozero, about 500 km. east of Leningrad; a peat site on the shores of Lake Tamul in Baltic area and Gorbunovo peat bog in Central Ural area. The excavations at these sites proved that they flourished between 2000 and 3000 B.C. None of these sites yielded polished stone tools though flake tools, flint arrowheads and bone tools like harpoons, fish-hooks, antler mattocks or hoes, etc. are common. The pots have pointed bases decorated with circular incisions and comb-impressions. The houses are of mud and are of circular, rectangular or quadrilateral plan.

In Ukraine and Moldavia in Southern U.S.S.R. the well-known Tripole culture is represented at more than 300 settlements. A few excavated sites comprise Kolmiischchina I on Dniepr near Kiev, Valdimirovka and Luka-Vrublevetskaya on the left bank of Dnestr. The people of Tripole culture lived in beaten clay or earth houses. Their implements consist of agricultural tools, querns, sickles, of bone or flint with wooden handle. Copper objects include fish-hooks, small rings, flat splayed axes similar to ground stone axes. Burnt grains show that the people grew flax, wheat, barley and millets. Their pottery was of a high standard in the technique of manufacture, in modelling and in firing. The shapes and decorations varied. Pots are painted in white, black or red and are comparable to those from China to Balkans. The people bred pigs.
and sheep. These cultures are dated between 3000 B.C. and 1500 B.C.

In Central Asia, the Caucasus comprising Turkmenia, Transcaucasia, and North Caucasus have been investigated for the remains of Neolithic Culture. In Transcaucasia the site of Shengavit on river Zaga, in the north-east Caucasus, Kayakent and in North Caucasus several sites in Kuban valley have been excavated. Here particularly at Shengavit, the people lived in houses of rectangular plan with conical roof. Material equipment consisted of querns, pestles, flint sickles, bone pins, arrowheads, beads and copper tools like shaft-hole axes and adzes similar to those from Mesopotamia. Pottery is black or red burnished occasionally. Grooved and applied geometric decorations were common. They knew wheat and barley. These cultures could be dated to about 3000 B.C.

The Neolithic period of U.S.S.R. is thus characterised by flaked and polished tools and pottery. The economy consisted of agriculture, stock breeding, hunting and fishing. The people were acquainted with spinning and weaving. Trade and barter developed among these communities.

The foregoing account of the U.S.S.R. Neolithic Culture reveals that the pecked and ground stone industry did not have the same place as in South-Western Andhra Pradesh. Many types like chisels, adzes, hammer stones, etc. are absent in U.S.S.R. Thus, U.S.S.R. man used flint, shale and nephrite while in our region dolerite was the most important rock. The culture is rich in bone and copper implements, while in the neolithic of our region these tools are very scarce. The ceramic industry of U.S.S.R. has fewer wares and shapes than in our region. Pointed base vessels are common in U.S.S.R. but unknown to our region. Rearing of cattle
and sheep was known to the people of both regions. Knowledge of spinning and weaving known in Russian Neolithic is not attested to in Andhra Neolithic Culture. In date, the Neolithic Culture in the U.S.S.R. is much earlier than that of our region.

WEST ASIA:

The earliest neolithic cultures are known from West Asia. Even before the invention of pottery Neolithic Cultures were well developed in this area. The earliest phases are known from the sites of Jericho in Jordan, Maccilar and Chatal Huyuk in Anatolia and Jarmo in Iraq (Wellsart 1965). The pre-pottery neolithic culture dating from the early seventh to sixth millenium B.C. has been found at a number of sites like Beidha, Sidi Shu'Ali, Tepe Munhatta, Tepe Raumad in Syria, some in Cyprus and Alikosh, Tepe Gurem near the Zagros mountains. The people of this culture domesticated goat, dog and cat and supplemented their food by hunting gazelle, ibex, partridges, etc. Their stone industry at Jericho known by the name 'Tahunian' comprises large and small arrowheads, mostly tanged and some barbed, sickle blades, borers, etc. Flint formed the most common raw material for making tools. Besides these, long oval querns used for pounding grain, limestone bowls and plates made their appearance. Their houses bore stone foundations and bricks were used in erecting walls. Racially the people belonged to proto-Mediterranean type. Crouched burial was in practice.

At Jarmo, people cultivated Emmer and eincorn wheat and two-row barley. The stone industry consisted of microliths like diagonal ended bladelets, trapezoids, triangles, crescents, side blow
flakes and scrapers, mostly of obsidian. Ground stone industry comprised polished stone axes, saddle querns and grinders, mortars and pounders, door pivots, stone balls, palettes, perforated discs, mace heads, etc. It is thus better developed than that of Jericho. Other significant finds include cups and bowls made on stone. Worked bone tools like awls, rings, beads, pendants, etc. were also found.

An aceramic neolithic culture is also known from the site of Khirokitia in Cyprus and is dated to sixth millennium B.C. The flint industry is non-microlithic and is probably derived from the Upper Palaeolithic; and the people were a round-headed (brachycephalic) type. They lived in dome-shaped round houses. The dead were buried within the habitational areas in a contracted fashion. The burial furniture consisting of stone bowls, necklaces with women, and pins and other offerings with men and children used to be kept. The presence of spindle whorls indicates that the people knew spinning. Ornaments like beads and pendants of stone were found. The ground stone industry was an advanced one. Spouted stone bowls of greenish-grey andesite and shallow dishes of various shapes were the common forms. Several stone figurines of humans as well as animals figured at the site. They raised sheep and goats, and pig.

The pottery of the neolithic culture of South-Western Andhra Pradesh is different from that of West Asia and Cyprus and the culture is chronologically younger than the latter cultures. The ground stone industry is common to both the regions. However no stone bowls, dishes or plates occur in our region. The flint industry of the above sites is comparable to the balde industry of our
region only in certain types like scrapers, points, borers, lunates and trapezes. The clay figurines of humans and animals are unknown in our region. However, a terracotta bull draped in red colour is known from the surface of Balsavoy but it is not comparable to any of the figurines from Jarmo, Jericho and other sites. In Andhra Pradesh, the dead were buried outside habitations while at Khirikaitia they were buried in the house itself.

In Syria several ceramic neolithic sites have been reported. The most notable among them are the Byblos, Amuq, Ras Shamra, etc. The culture here is dated to about sixth millennium B.C. The neolithic culture at these sites having all the usual features is characterised by rectangular houses, burials, stone industries similar to those found at aceramic neolithic sites. The pottery is dark burnished and mostly undecorated in character. Some decorations like nail or shell impressed patterns were seen. The usual forms are globular pots, bowls, etc. The pottery ranges in colour from greyish to black, brown, chocolate, red and buff.

The Jeitun culture in western Turkestan as early as or earlier than Siyalk I is characterised by neolithic flint industry and ground stone industry comparable to those of our region. Other traits like growing of barley and wheat, making of bone sickle blades, painted red-brown on cream ware, clay figurines and amulets, remarkable architecture, etc. significant of Jeitun culture are unknown to our region.

The sites of Tureng Tepe (Wilson 1932), Tepe Hissar (Schmidt 1937) and Shah Tepe (Arne 1945) - all lying in the Turkeman Steppe of North Eastern Iran show some clear affinities with the Neolithic Culture of South India. The unburnished and burnished grey ware characteristic of the neolithic culture of South India including
our region is present at all the above mentioned sites and believed to have developed in the Turkeman Steppe. The earliest evidence of this grey ware complex has been found in the chalcolithic levels at Alisher in the first half of third millennium B.C. and later it occurs in Hissar IIa at about 2500 B.C. In his excavations at Chagar Bazar Prof. Mallowan (1947; 29-30) found that grey ware replaced painted pottery. The pottery is handmade, black to grey in colour and unpainted. The usual forms as at Shah Tepe comprise globular vessels, lugged and handled vessels, spouted pots, rimless bowls, etc. which are also characteristic of our region. But at Hissar jars, cups, goblets, typical of painted ware in Hissar IA and B also occur in Hissar IC in grey ware. This shows that these forms were copied by the grey ware people from the earlier painted pottery. This also establishes that grey ware reached Hissar from outside. This ware has also been noticed in Quetta-Kalat area of Baluchistan (De Cardi 1957: 15-24). Even there is similarity in the nature of the stone industries. They comprise retouched blades, cores, scrapers, arrowheads - all made on flint. The ground stone tools comprise celts of diorite, what stones, pestles, polishers, weights, etc.

ORIGIN OF NEOLITHIC CULTURE:

According to Wheeler (1947-48: 295) the earliest food producing culture of the South distinguished by pointed butt axes has been introduced from the north east India. He (1959: 89) also thinks that the axes might have reached India from Central Asia through China.

Alishin (1960: 139-143) believes in an Iranian origin on the basis of the similarity in the pottery technique between Shah Tepe
and Fiklihal, and the occurrence at both sites of grey ware with certain common types like spouted and channel-spouted pots, and perforated vessels, and the use of tabular basalt for making axes. He believes that domestic sheep, goat and cattle were first brought to Indus valley by the pastoralists from the Iranian plateau and Central Asia from where they gradually moved to the South.

E.C. Worman (1949 : 181-201) has postulated a Chinese origin of the culture on typological grounds. He also thinks that certain Indian types of celts are earlier than the others. According to him the Eastern Neolithic Culture seems to have originated from the South and South-East Asian Culture.

Dani (1960) also traces the Eastern Neolithic Culture from South-East Asia through Burma.

Krishnaswami (1960 : 25-64) thinks that the pecked and ground stone industry of the South Indian Neolithic Culture is a locally developed one from a crude post-palaeolithic (microlithic) flake industry of the hunting stage. He also points out that the post-Harappan ribbon flakes, painted pottery and copper objects were later brought from Northern Deccan and Central India.

Sankalia also believes in an indigenous origin of this culture (1963 : 271-4). According to him, had there been folk movements from Iran their material remains such as grey ware pottery, stone axes, etc. should have occurred in the vast territory between Iran and the Deccan. Save for isolated specimens these are totally absent even in areas like Malwa and Saurashtra where fine-grained dolerite dykes occur. On account of the finding of the fossil jaws and teeth of Bos indicus dated to the
beginning of the Holocene at Nevasa on the Pravara in Maharashtra and Gonchi on Betwa in Malwa the question of bringing similar species en route Indus valley does not arise according to him.

Sarkar (1960 : 5-26) after examining eight skulls from Brahmagiri concluded that four of them belonged to Scytho-Iranian stock having similar cranial indices to those of Sialk, while the remaining four, according to him, belonged to an autochthonous race of Proto-Australoid stock. Ayer (Allchin 1960 : 143-54), who studied two skulls from the Neolithic period at Piklihal mentions that such skulls are closely akin to the present mixed so-called Dravidians of the Deccan and Southern India. From Maski also 18 skulls have been considered by Sarkar (Sen 1967 : 186) for anthropological study. He recognises three racial types among these skulls. They are 1) meso-brachy-cranic type (Scytho-Iranian ?), 2) a type with a long head, thick and heavy bone, longer cranial capacity similar to the al Ubaid type and 3) probably an autochthonous Australoid type. The skeletal remains of children from Nevasa have been studied by Sophie Erhardt (Sankalia and others 1960 : 506-22) who concludes that these resemble similar features of the existing primitive people of the jungle of the Deccan. A nice review of these and those from other sites in the North has been made by Sen (1967 : 178-205) who inclines to think that these skeletal remains with different racial elements originated indigenously with regional variations. He however considers that in the absence of sufficient data for study, no conclusions can be drawn.

Thapar (1965 : 93) also advances the theory of indigenous origin for the Southern neolithic culture. He thinks that the blade and microlithic industry has descended from a pure microlithic
industry. He opines that an aeceramic neolithic culture might have flourished in the South and from this the present state of the ceramic neolithic culture occurred.

Study of archaeological evidence alone is not enough to trace the origin of the neolithic culture. The study of the life of the primitive tribes and rural society of the region should also be made to find out common elements between archaeological cultures and surviving primitive communities.

MEGALITHIC CULTURE:

The present study is concerned primarily with neolithic culture in South-Western Andhra Pradesh; the megalithic culture of the region has been studied only marginally. During explorations attention was focussed mainly on neolithic remains, but megalithic remains found at or near neolithic sites were also included in this study.

Megalithic monuments were found at 17 places in this region. Majority of these are situated in Kalyandrug and Rayadurg taluks and some in Dharmavaram and Adoni taluks. The most common types of monuments are port-hole cists, stone circles, dolmens, and menhirs. None of the sites represents all the four types of monuments. The megalithic pottery comprises black ware, black-and-red ware, red-and-black ware, red ware, chocolate-slipped ware and coarse grey ware. The common forms are shallow dishes, rimless bowls, basins, globular pots with concave or constricted necks and beaded-out, clubbed or bevelled rims. Sometimes carinated pots and ring stands also occur. The decorations consist of incised chevrons, zig-zag, triangles, oblique strokes and impressed designs. On black-and-red ware pots graffiti occur.
Besides this surface evidence, Palavoy III (Post-Neolithic period) brought to light two iron implements - a nail and a ring along with iron ore and slag pieces, and megalithic pottery of black ware, black-and-red ware, red ware and chocolate-slipped ware confirming that the vitrified ash deposits, hitherto thought Neolithic, were the result of iron-smelting by post-Neolithic communities. Fourteen such ashmounds have been found in the region; particularly in the taluks of Kalyandrug, Uravakonda, Alur and Adoni.