Study of Cultural remains in order to reconstruct settlement and subsistence patterns of Southern Neolithic sites

Brief historical development of settlement pattern studies in Archaeology

Gordon R. Willey was the first to introduce settlement pattern studies in Archaeology. He was very much impressed by the work of D.C. Steward, an ethnographer by profession who during World War II observed at different sites the deposits left by Nomadic Indian Bands of Great Basin, Western United States, by following them from place to place. This was the first step for the formation of the concept of settlement pattern studies in Archaeology. Settlement pattern studies aim at obtaining ecological, social and cultural information of ancient societies not from a single site but by studying the remains of the people from a multitude of sites. In other words, settlement pattern is a geographical concept that brings into focus the working relationship between people, their environment and their technology.

Willey, G.R. (1953) was the first to give comprehensive definitions about settlement pattern. According to him the settlement pattern is the study of “the way in which man disposed himself over the landscape on which he lived it is a strategic point for the functional interpretation of archaeological cultures, since they reflect on the natural environment, the level of technology on which builders operated and
various institutions of social interaction and central which the culture maintained”.

After Willey has published a monograph on the “Prehistoric settlement patterns in the Viru Valley, Peru” many archaeologists were attracted by Willey’s type of work and formulated their own definitions on the settlement pattern studies. Chang, K.C. (1958) described settlement pattern as “the manner in which human settlements are arranged over the landscape in relation to the physiographic, geographic environment” and community patterns as “the manner in which the inhabitants arrange their various structures within the community and their communities within the aggregate.

According to Flannery, K.V. (1976) a settlement pattern, is the pattern of sites on the regional landscape, it is empirically derived from sampling, total survey and is usually studied by counting sites, measuring their sizes and the distances among them and so on”.

Vogt, E.E. (1956) defined settlement pattern of the patterned manner in which household and community units are arranged specially over the landscape”.

A settlement pattern, according to Trigger, B.C. (1963), is the manner in which people, cultural activities and social institutions are described over the landscape”.

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Settlement pattern studies are being used as a working model by scholars to identify different activities of ancient people. While Chang, K.C. (1958) tried to identify the social patterns, Mac Neish, R.S. (1970) tried to interpret in the light of the ecosystems. Religious traditions were reconstructed by Sears, W.H. (1961) while Clarke (1968) tried at the interpretation of cultural systems.

Flanner, K.V. (1976) tried to draw out a distinction between settlement pattern and settlement system. According to him settlement pattern is the study of the distribution of sites “on regional landscape whereas the settlement system is the set of rules that generated the pattern in the first place”.

According to Rouse, I. (1972) settlement archaeology means the study and reconstruction of cultural life ways and processes of change.

Trigger, B.C. (1968) has identified three levels as the determinants of settlement patterns. Those are:

1. Individual building level: The individual structures are the first determinant factor. The construction of household depends on the environmental conditions, available technology and the status of the individual who proposed to construct it. Nomadic people prefer to have round huts as they are easy to construct and transport. Settled communities on the other hand plan for rectangular permanent
houses with more than one room. The non-availability of the building materials and proper environment makes those people living in deserts prefer tents. On the basis of the dimension and measurement of a house an appropriate estimate can be made about the persons that once occupied the house, the position of rank of the person owning it etc. The scholars who worked in this direction include Chang, K.C. (1958), Trigger, B.C. (1963), Flannery K.V. (1972) and Dhavalikar, M.K. (1977), etc.

2. Community Levels: The assortment of house constructions in an area might give a few clues about the social and economic framework of the community which was occupying them. The mode of construction of the houses also reflects the economy and subsistence pattern of the community. In this direction the scholars who worked include Chang, K.C. (1962), Adam, N.H. (1965), Clark (1972), Flannery K.V. (1976) and Dhavalikar, M.K. (1977, 1978a).

3. Zonal Pattern: Zonal pattern is a geographical concept. The factors that directly or indirectly influence the settlement pattern of any culture include nearness to perennial water supply, fertility of the soil, the availability of raw material, good grazing grounds and the stable environmental conditions to live on etc. in complex societies besides the above said factors, political organization, trade, warfare,

The study of settlement pattern requires strenuous and thorough fieldwork and mental thinking. Even then it is not fool proof and there exist a few limitations.

Settlements of the Southern Neolithic found in virtually all of Karnataka, southwestern Andrapradesh, and northern Tamilnadu are associated with the granite hill slopes and riverine settings of the region. The sites are small and many seem to be temporary, possibly forest herding camp, with a food economy based on cattle, millets, and pulses. A curious feature of some settlements is the presence of mound of dung with evidence of periodic, large-scale burning (Zeuner 1959; F. R. Allchin1963). There has been a fair amount of excavation at settlements and ash mounds of the southern Neolithic. The Neolithic people living
in the open on the flat terraces made by levelling the tops of the granite hills must have also chosen the natural rock-shelters site like Palavoy, Sanganakallu, Piklihal, Tekkalakota and Paiyyampalli, and so on. Occupation was extended to the slopes and plains at the feet of the hills as at Maski and Brahmagiri. They also lived on the riverbanks as at site like T. Narsipur and Hallur.

There is no clear picture of the plans of Neolithic houses in view of the limited nature of the excavations at the site hitherto dug in the South. Structural 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 Sanganakalu lime was also used in the making of floors. The houses were of square or rectangular plan at Piklihal. 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 occupation as there was evidence of several floors superimposed one upon the other. Recent excavations here by Prof. Sankalia (1965) 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 beast 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 Hallur.

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 Maski. 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.

4.1. Subsistence Pattern

The systematic and scientific approach towards the reconstruction of pre-historic subsistence patterns is of a recent origin and was first attempted by Clark, J.G.D. (1952) which in due course was given proper attention by scholars like Flannery, K.V. (1969), Vita-Finzi, C. (1978), Vita-Finzi and Higgs, E. (1970), Adam, N.K. (1965), Cohen, M.N. (1977) Jochim, M.A. (1976), Lee, R.B. (1968), Boaerup, K. (1965) etc. Of these Vita-Finzi and Higg’s (1970) site catchement analysis is the most important. The site catchments analysis aims at the resource potential of an individual site. The basic theme of the concept is that, the farther the exploitation area is from the settlement, the less it is likely to be exploited, unless and otherwise it is productive. In other words, if the area is away from the normal distance (Ex. 5 km) from the site, its exploitation is uneconomical since a considerable time is being wasted to reach the work spot and return to the settlement. Vita-finzi and Higgs have drawn the circles of 1,2,3, 4 and 5 km from a fixed point of the site and found at Mount Carmel that the area within one kilometres from the site was fully (i.e. 100%) exploited, between one km to two km 50% while 2-3 km 33% etc. (Vita-finze and R. Higgs 1970:7).
The model proposed by Vita-finze and Higgs was acknowledged by so many scholars. A closely connected study was conducted by Flannery, K.V. (1968, 1969) on the origins and spread of early agricultural traits on a systematic view. Flannery, K.V. (1968) could successfully highlight various interacting forces that ultimately led to the establishment of agricultural based economies. The study of hunter gathered by Jochim, M.A. (1976) and the study of agricultural exploitation by Chrisholm, M. (1979) are also works of a similar nature.

The studies of the above kind have not yet been popular enough as to become a tangible operational model in the Indian context. However, a beginning was already made in that direction and could be seen in the works of Dhavalikar, M.K. and Possehl, G.L. (1974), Dhavalikar, M.K. (1977, 1983), Possehl (1980), Mahanlal (1982) and Shinde, V. (1983, 1984).

The systematic and scientific reconstruction of the subsistence pattern of South Indian Neolithic is difficult tasks because of the collection of the ecofacts from the Neolithic sites were not proper. However, the available information on the subject indicates that the Neolithic economy was based on mixed economy, i.e., food production and food collection which are again subdivided into the cultivation of
food grains, domestication of animals, hunting, fishing and the collection of edible plant products, etc.

4.2. Food Production

The invention of food production has reaching effects on the life of human beings and since it occurred in Neolithic age, it has attained great importance. The food production is of two types i.e., cultivation of food grains and domestication of animal.

4.3. Archaeological remains

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 Neolithic stone tools is characterized by axes, adzes, wedges, picks, borers, chopper-chopping tools, scrapers, chisels, hammers, sling-stones, rubbers, querns, grooved hammer stones and mace heads or ring stones. At no single site, however, all the types are represented.

Axes from 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 Sanganakallu, Brahmagiri, Piklihal 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 Sanganakallu, Piklihal and Tekkalakota but are absent from Palavoy. Objects like rubbing stones, querns, hammer stones and slings are known from all the sites in South India. Mace heads known from several sites from the surface South India.

**Blade and Microlithic Industry**

The blade industry consists mostly of blades with secondary work. Retouched tools form found from explored and excavated sites of south India, 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, chalcedony, jasper, agate, opal and quartz. The industry is particularly common at Brahmagiri, Sanganakallu, Maski, Piklihal, Tekkalakota and Hallur and is present at T. Narsipur, Utnur and Nagarjunakonda as well. 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.

**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 I the upper Neolithic period of Piklihal. From Utnur comes a fragment of bovine long bone ground at one end to form a flattened chisel-like blade. 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 scrappers, 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.

**Grinding Grooves**

The evidence to show how the axes were ground, particularly their edges, was first noticed by Foote (1887; 1914: 92, 1916: 87) in the form of rock grooves on the ‘North hill’ of Bellary town, east of Helalagundi (Halalagondi) in Alur taluk of Kurnool district and at Pullayyagudda in the former Hyderabad state. Similar grooves were found by De Terra (1942) on a quartzite boulder at Burzahom in Kashmir, and later by Subbarao (1949: 144) at Sanganakallu the southern foot of Sanarachamma hill on an exposed boulder in the open fields. At 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.

**Pottery**

Pottery typology is a basic archaeological approach to characterising ancient “cultures” and for building relative chronology. The earliest excavations in South India lead to the identification of grey and red wares as the typical and unifying ceramics of the Southern Neolithic culture (Krishna 1943; Wheeler 1947; Subbarao 1948; Thapar
1957; Allchin 1960, 1961). Other ceramic ware groups were also present, although they played less of a role in unifying the Neolithic sites of South India. Perforated and incised pottery and cooper objects are ubiquitous in the later phase of the Southern Neolithic (mid-second millennium B.C.). However, they have recently been reported from a significantly earlier at Watgal (Deveraj et al. 1995. Blotchy grey wares has been found in the lower levels of several excavated sites in the Malwa Chalcolithic complex as far north as central India and the Kaveri Valley in the south. Blotchy grey pottery and red wares are common to both ashmounds and habitation sites which date from the first half of the third millennium to the first quarter of the second millennium B.C. While the Chalcolithic complex in central India and northern Deccan is well constrained by radiocarbon dates from the late third millennium B.C. through the whole of the second millennium B.C. (Possehl and Rissman 1992; Allchin and Allchin 1997). The typical Neolithic of southern peninsular India begins early by between 500 and 800 years (for instance Watgal and Utnur in the Raichur Doab). The ceramic industry develops further with the introduction of black-painted red wares that can be compared to the Jorwe wares of Maharashtra, although the assumption that this ceramic styles come from the Jorwe region in the north need to be reconsidered since the the growing body of radiometric evidence points to the priority of these black-painted red
wares in Karantaka and Andhra (cf. Venkatasubbaiah and Kajale 1991; Deveraj et al 1995). Given the chronological priority of the Southern Neolithic over ceramic-using cultures immediately to the north, the possibility that pottery developed independently on the peninsula needs to be seriously considered. It also must be recognised the detailed comparative studies of the fabric and the decorative styles of these black-painted red wares have not been undertaken, so that the extent to which distinct regional groupings and/or interregional influences can be reconstructed is as yet unclear.

In the later Neolithic, wheel-thrown black-and-red wares appears associated with the Iron Age.

In the paragraphs that follow brief summaries of the range of ceramic recovered from various sites or regions are given:

Neolithic pottery is mainly handmade, excepting at Maski where wheel made 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 Tekkalakota –II.

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 Piklihal 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, perforate 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 ochre wash.

The A3 ware bears red, black, chocolate or brown ochreous 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 turntable. 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 is 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 to A2 ware, is the most significant ware and is abundant at all sites in South India. 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 levels of Maski – I the pale grey ware is sometimes even absent as in phase 2 at Hallur (Nagaraja Rao 1966). 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, Nagarjunakonda, Teekalakota-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 Foote (1916:115). 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); in pale grey ware from Sanganakallu II-1 and -2 (Subbarao 1948); in A1 buff ware from Piklihal lower and upper Neolithic periods (Allchin 1960); in burnished as well as pale grey wares from the earliest levels of Tekkalakota-I (Nagaraja Rao and Malhotra 1965); in coarse grey ware from the Neolithic levels at T. Narsipur (IAR 1961-62:35); from period I at Bainapalli (IAR 1964-
and in burnished grey ware from surface in Kurnool district (Sarma 1967). From Palavoy (V.R.Reddy 1968) burnished grey, dull red and painted red wares.

Spouted bowls and vessels are known from Brahmagiri, Nagarjunakonda (IAR 1957-58), T. Narsipur (IAR 1958-59:32), Piklihal upper Neolithic period and Tekkalakota, Palavoy II though the surface of this and a few other sites in the region yielded fragments of tubular spouts 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 bowls is reported from T. Narsipur (IAR 1958-59:33) and Piklihal. A single specimen of this type closely parallel to that of Piklihal has been recovered from Palavoy excavations 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, Sanganakallu and Maski. Cylindrical handles similar to the one from Piklihal have been collected from the surface of a few sites including
Palavoy. Broad handles, ladled handles and a number of looped handles characteristic feature of 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 and from Palavoy II, Piklihal and Sanganakallu.

The next important type consists of perforated pots. So far only fragments of this type have been recovered from the excavations at Brahmagiri, Maski, Sanganakallu, Piklihal and Tekkalakota. Lids found at Maski and Piklihal have been found on surface and in the excavations at Palavoy.

Flat bases of vessels or cups of Brahmagiri, Piklihal and Utnur have turned up on surface at Palavoy.

Legged stands characteristic of A3, A4 and A5 wares and bell-shaped jars of A1 and A2 wares from piklihal are not known from any other Neolithic sites in South India including Palavoy.

At least five types of decoration occur upon the vessels of various wares in South India. They are 1) impressed, 2) incised, 3) appliquéd, 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, Piklihal and Tekkalakota (Nagaraja Rao and
Malhotra 1965: 37). Such decoration has also been found on the rims of storage jars of unburnished grey, unburnished and burnished dull red wares from other sites in South-Western Andhra Pradesh.

Incised decoration in the form of elementary herring bone or crisscross patterns and as irregular incisions on grey and buff-slipped sherds was found at Brahmagiri I culture Palavoy. Similar decoration as vertical, horizontal and oblique lines or as finger-nail incisions on an applied band below the rim is reported throughout Maski I (Thapar 1957 48). At Piklihal the designs are in the form of scratches in horizontal and diagonal bands on A1 ware sherds at at Maski or in herring bone patterns on A2 grey ware sherds as at Brahmagiri. Such decoration has also been found in the form of irregular incisions on sherds of A1 grey-brown ware at Utnur.

Appliqué decoration is rare and is known only from Piklihal and Tekkalakota. At the former site it occurs individually as well as in combination with finger-tip impressions designs. At Palavoy II appliqué decoration is seen alone and in combination with incised and red ochre painted designs.

Perforated decoration is present on the bases of grey and dull red ware pots and is reported from all Neolithic sites in South India. 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 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) at Patapadu 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 consists of simple horizontal and vertical bands, crisscross 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 Maski belongs to the lower levels of period I. The painted designs in black or chocolate colour were drawn over a red-slipped surface and consists of vertical lines below a horizontal band and oblique lines. Thapar (1957:24) thinks that the painted pottery of Brahmagiri IA and Maski I.
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. Utnur also yielded painted pottery (more than at Piklihal) of A3 ware from the Lower Neolithic period. A few sherds of painted red ware characterize Tekkalakota II. The types are globular vessels and high-necked jars, which the excavator compares with similar types, form 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. Narsipur and phase 2 (chalcolithic) of Hallur. Painted pottery is thus known I the lower levels of Brahmagiri IA, Maski I, Piklihal and Utnur Lower Neolithic period and Nagarjunakonda. At Sanganakallu, Tekkalakota, Narsipur 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, and 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 Banas Valleys. Later these objects were made indigenously out of the locally available raw material.

*Copper Objects*

Copper objects are known from the Neolithic sites of Brahmagiri, Maski, Piklihal, Tekkalakota and Hallur. They are, however, scarce in comparison to stone tools. At Brahmagiri, phase IB 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 I. A long copper chisel and two fragments of a copper bowl occurred in the upper levels at Piklihal. At Tekkalakota, a rectangular flat copper axe was recovered from the lower level of phase I and in phase II, several copper objects consisting a spiral, a bent wire, a ring, a nail-head and a non-descript 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 Utnur. 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, Sanganakallu, Tekkalakota and Palvoy 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 Tekkalakota 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.

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 ‘Bandipusala Chenu’ (meaning ‘a field of wheel-shaped beads’).

As beads, especially those of steatite, are profuse on the Harappan sites, Allchin (1960:111) thinks that itinerant pedlars brought them to the Deccan Neolithic sites from the Indus Valley. 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.
4.4. Chronology:

Radiocarbon dates for the Southern Neolithic Culture are available only from six sites. They are given below:

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<th>Sites</th>
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<tbody>
<tr>
<td>Utnur</td>
<td>2160±150</td>
<td>–</td>
</tr>
<tr>
<td>Tekkalakota</td>
<td>1780±105</td>
<td>1540±105</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1615±105</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1610±105</td>
</tr>
<tr>
<td>Hallur</td>
<td>1710±105</td>
<td>1030±105</td>
</tr>
<tr>
<td>Sanganakallu</td>
<td>1590±110</td>
<td>1585±105</td>
</tr>
<tr>
<td>T. Narsipur</td>
<td>1805±110</td>
<td>1495±110</td>
</tr>
<tr>
<td>Bainapalli</td>
<td>1485±110</td>
<td>–</td>
</tr>
</tbody>
</table>

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 Hallur puts the upper limit at 1000 B.C. The bulk of the dates put the Neolithic culture between 1800 and 1500 B.C. Painted pottery was found in the lower level at Utnur having a date of 2200 B.C. while at Sanganakallu, 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. 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, I 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 this evidence 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.

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 correlate 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.

4.5. Biological remains

Disposal of the Dead

Skeletal biology of neolithic burial remains from the excavation of T. Narasipur was carried out by K.C. Malhotra (1997). In his report of the skeletal analysis Malhotra summarised the evidence for the existence of different skeletal series in the Southern Neolithic burial assemblages in terms of ‘races’ and emphasised the presence of two distinct racial types

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however, varied from skeleton to skeleton. The Australoid population being native this region (autochthonous) and the Mediterranean the immigrant population, tending to show gradual assimilation with the autochthonous population.

At Brahmagiri (Sarkar 1960: 24) the single child skeleton could not be definitively ascribed to either of these but it betrayed characteristics similar to the Australoid type. The Piklihal evidence (2: a male and a female) was more in favour of the Mediterranean. At Tekkalakota 5 individuals (3 intact: 2 females, 3 males), Nagarjunakonda 4 individuals (3 males and 1 female). The evidence from T. Narsipur conforms to that from these sites, and the majority reveal Mediterranean features. (i) Proto-australoid or Australoid and (ii) Mediterranean, and evidence for Negrito and Veddoid racial features was absent. Malhotra found that at some sites the racial element was either completely Proto-australoid or Mediterranean and in some the skeletons betrayed a combination of these features, this admixture, however, varied from skeleton to skeleton. The Australoid population being native this region (autochthonous) and the Mediterranean the immigrant population, tending to show gradual assimilation with the autochthonous population.
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Floral and Faunal Evidences

The investigations into the floral remains of the South Indian Neolithic where excavations were conducted did not focus much on the careful collection, treatment, identification, analysis and interpretation of the cereal grains as may have been left in the layers of occupation. The floatation technique which is used in the recently excavated sites like Inamgoen (Kajale 1979) was not popular at that time and hence the traditional and conventional methods were used to pick up the floral remains which did not yield the required data. Hence, any ambitious plan to reconstruct the subsistence pattern prevalent during the Neolithic period falls short of tangible material data. Only three sites viz., Hallur, Tekkelakota and Paiyampalle have preserved the direct evidences for the practice of agriculture. Hallur has provided the evidences for Ragi
(Eleusine coracana) while Tekkelakota has yielded the remains of horsegram (Dolichoa biflorus). Both these species besides the green gram (Phaseolus radiatus) was also found at Paiyampalle in Tamilnadu. Recent archaeobotanical research has provided a picture of recurrent staples and occasional secondary crops of the Southern Neolithic (Fuller et al., 2001a, 2001b, 2004; Fuller, 2003b, 2006). The staples include two native species of millets (Brachiaria ramosa and Setaria verticillata) and two pulses (Vigna radiata and Macrotyloma uniflorum). What is known of the ecology of these species suggests that domestication occurred in a Dry Deciduous woodland zone that interfingered with savannah scrub (favoured by Macrotyloma uniflorum) and moist deciduous woodland (favoured by Vigna radiata). The millets would have occurred patchily throughout these zones. While this zone has been argued to be on the inside of the Western Ghats (Fuller and Korisettar, 2004), patches along the Eastern Ghats between the Krishna and the Godavari river are now favored on the basis of recently gathered data on wild progenitors of the Vigna pulses (Fuller and Harvey, 2006). When climatic conditions were wetter during much of the early and mid-Holocene we would expect the Moist Deciduous zones to have expanded (especially eastwards towards the central peninsula, and for the savannah/scrub zones to have been reduced by impinging dry deciduous woodlands (Fuller and Korisettar, 2004). Some of the areas that are today Dry Deciduous forests with a
significant teak (Tectona grandis) element that occur in the hills of the eastern peninsula (Eastern Ghats) would have been Moist Deciduous in character. It is such forests where we might expect former extensions of the wild mungbean, from which domestication could have occurred.

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 Vignei) and goats (Capra hircus aegagrus) 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 IB 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 tortoise form Maski, Piklihal, Utnur and Tekkalakota; rats (Rattus rattus) and invertebrates like freshwater mussels (Parreyssai sp.) from Maski and Tekkalakota

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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 deer form 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.