PART II

CHAPTER III. The Neolithic Period

CHAPTER IV. The Megalithic Period
CHAPTER-III

NEOLITHIC PERIOD

Introduction:

For a very long time archaeologists have been puzzled by the presence of great number of stone axes noticed extensively as surface finds. The recent explorations and excavations have brought to light many neolithic settlements throughout the sub-continent. The Azile-Tardeneisean civilization may be the precursor of the Neolithic Period. The place of its origin is still an enigma but some archaeologists presume that the origin was somewhere in west Asia.

The civilization was rather a hybrid one in the sense that the archaeologists have to deal with a number of peoples brought together by a common culture of which the salient features are (1) agriculture, (2) domestication of animals (3) pottery making (4) polishing of stone implements and in the later period developing the techniques of metallurgy. All the pottery from the earlier Neolithic period was hand made. Burnishing with a dabber or spatula was probably a later development.

The habitations of the Neolithic Man in the Europe were of three kinds 1) cave 2) land and 3) lake dwellings. The cave habitation was common where lime stone hillocks were available in plenty as in England, France, Italy, Germany and Spain etc. The stalagmite formations in the lime stone caves sometimes sealed the neolithic layers below them. Land habitation is often found in the form of underground pits, covered by roofs of boughs and
twigs and the whole was made waterproof by a coating of clay. Sometimes pits had different compartments.

Self-protection was the main preoccupation in the Neolithic times which made the Neolithic Man sometimes seek a lake as his habitation. He built his home on piles in shallow water. At some distance from the shore in the lake of Zurich in Switzerland digging operation for raising the level of the reclaimed land brought-out wooden piles with pieces of stag-horns, stone hatchets and other implements. Similar discoveries were made in many other lakes North Italy as well.

In the Indian context so far no neolithic lake habitation has been noticed, though occasionally some caves as at Bethamerila in Kurnaul district have traces of Neolithic habitation. In India the Neolithic Man preferred two types of dwellings - the pits as noticed at Burzahom in Kashmir valley and Nagarjunakonda in Guntur district. The coarse pottery and some polished stone axes excavated previously at Burzahom resembles exactly antiquities dug from a site of Neolithic China. The textured pottery, rectangular knives, bone harpoons, pit houses, polished stone celts of ovoid or quadrangular section and stone rings all have direct analogies in such places as southern Siberia, Mongolia, Manchuria and northern China.

In central Deccan especially in the upper courses of the Krishna, Shima and Thungabhadra rivers a remarkable series of archaeological studies have been carried out. Following the excavations of Mortimer Wheeler at Brahmagiri, the study was
In the basal gravels of the black soil of the third aggradational phase in the Narmada Valley at Narsingpur and Heshangabad De Terra and Paterson found an industry characterised by flake blades, scrapers, burins, borers and points. They designated this industry, which is analogous with the Mesolithic culture of Syria and Africa, as the Black Soil Industry and classified it as the Proto-Neolithic. Subsequently Dr. Sankalia has brought out important evidence bearing on the stratigraphic evidence of this industry in the Pravara basin, in the Godavari, Malaprabha in Karnataka, Tapi in Khandesh and the Chambal and its tributaries in Malwa. Since this industry contained occasionally fluted corses, which are characteristic of succeeding Neolithic-Chalcolithic cultures, typologically and technologically this industry may be the precursor of the advanced Microlithic Industry of the succeeding Chalcolithic - Neolithic phase. Stratigraphically the description of the Industry as Proto-Neolithic was confirmed at Navadatoli where stone mace heads of typical hour-glass section associated with white and cream slipped pottery with black design, red ware with black painting (Black on Red) and Black and Red ware, Microliths and hammer stones were found stratigraphically succeeding the flake industry.

At Langhnaj in Gujarat three zones of microliths are found without any variation in types. In the first zone the microliths were associated with comparatively recent pottery, along with a
tanged iron dagger. In the second zone a different type of pottery with incised lattice decoration was found. The pottery is thin and red slipped over a pale brown surface. It was associated with microliths, a large quartzite mace head with an hour-glass section and pieces of two neolithic celts of schist and a copper knife. In the third zone which is purely microlithic sand stone quern fragments, microliths, ill-baked pottery have occurred. People were buried in a highly flexed posture, preferably in east-west direction within the kitchen debris.

Thus in Gujarat we have evidence of a microlithic folk being introduced into agriculture and pottery and the original mesolithic food-gatherers becoming Neolithic food producers. The evidence noted at Langhnaj in Gujarat was confirmed at Nagarjunakonda in the Krishna Valley. The clear stratigraphical evidence obtained here shows that the pre-pottery microlithic industry was succeeded by a mixed-lithic industry containing the true hunting type of microliths, along with cores, flakes of trap and quartzite made of a different technique and wheel made pottery.

At Sanganakallu Phase-I was characterised by the presence of large number of heavily patinated flakes of trap and sandstone associated with a crude microlithic industry of quartz and chert without any definite evidence of the association of pottery. Phase II is divided into two sub-periods on the basis of the relative quantitative distribution of two main
fabrics of pottery, the pale grey-ware and the coarse brown and black ware, which dominate the lower and upper levels respectively. The sub-period II of phase-II is characterised by the presence of fresh stone axes and flakes associated with a fine microlithic industry of chert and jasper with types like parallel sided blades and lunates blunted along the arc. Sub-period-I as suggested by Subba Rao corresponds to the early Neolithic Stone Axe Culture. It is characterised by coarse brown and black hand made wares and a few pieces of pale grey-ware in diminishing proportions. In this phase a few sherds with violet and purple paintings on a dull back-ground and sometimes on a dull red slip were found.

Phase-I and II were separated by a thin barren layer to which Subba Rao has suggested that the gap between phase-I and II may be filled-up by a large number of lightly patinated chipped and ground-tools. He characterised this phase as the Early Neolithic.

At Peddabankur in Karimnagar district fluted cores with pointed, flat or chisel ends along with crescents or lunates, parallel-sided blades, leaf points besides, a unique arrow-head of milky quartz were found over a thin gravel layer capping the natural morrum-bed. This implementiferous layer was sealed by a thick deposit of black cotton soil to a thickness of 45 cm. The collection was associated with a highly weathered and fragile pottery in tiny fragments. The surface of the pottery looks dull red possibly due to water logging indicated by many shells of mollusc in the sterile black cotton soil cap. Scores
of ground stone tools of trap found in unrelated strata in course of excavation may belong to the above phase which may be the early Neolithic as suggested by Subba Rao. There was no evidence of any pale grey brown or black wares typical of the Neolithic.

At Polakonda in Warangal district the total Neolithic deposit with no visible variation in soil composition is as thick as 2 mt. which is an indication that the Neolithic habitation continued for a considerably long time, unruffled by any extraneous influences. The ceramic assemblage consisted of grey, pale-grey, blotchy brown, pale red and small fragments of black burnished wares. The pottery from the early levels is more gritty and distinguished by low firing leaving a thick black core inside. No painted pottery was recovered in any of the trenches, few sherds were decorated with incised oblique slashes, chevrons, cord and finger nail impressions, etc. Neolithic phases at Polakonda may correspond to Phase-II sub-period II of Sanganakallu.

As a result of the above discussion it may now be possible to reconstruct the sequence of the Neolithic culture.

Stage-I of Neolithic is represented by Phase-II sub-period II of Sanganakallu and phase I and II of Polakonda in Warangal district. This is characterised by fresh stone axes and flakes associated with pale grey, coarse blackish grey, reddish brown and small quantities of burnished ware. No painting with red ochre or pre-firing purple painting was noticed at Polakonda. The stone blade industry is also scanty as also any knowledge of
metal. The other noteworthy feature is the absence of any floors and rarity of other antiquities such as beads etc. For the above reasons this may be designated as the Early Neolithic.

Stage II as represented at Utnoor, Miski-I, the lower Neolithic of Piklihal and parts of Brahmagiri. This is characterised by ground stone-axe industry a rudimentary flake-blade tradition, domestication of cattle, sheep and goat, etc. The pottery consisted of hand-made grey, brown-buff and lesser quantities of black or red burnished, slipped with purple painted decoration. Black on red painted ware appears for the first time on the scene. There are also few terracotta figurines of humped cattle and birds as at Piklihal, Sanganakallu, rock paintings and rock carvings. Still there is no evidence of house plans and building material. Post holes and rammed earth floors in various levels suggest that the structures were made of perishable material. Copper has already been introduced as represented by a rod of indeterminate use as found at Miski. Stone beads constituted amethyst, carnelian, agate, chalcedony, coral, shell, glass, etc. Animal remains included fresh water mussel, common rat, short horned humpless cattle, buffalo, sheep and goat. Domestication of these animals may demonstrate a pastoral economy of the settlers, tending towards food production.

Stage III as represented by Brahmagiri I-a and I-b Tekkalakota-I, T.Narsipur-I and Nagarjunakonda. This phase is marked by mud-floors and circular hutments, bronze and copper
objects, crude microliths of jasper, flint, agate, common opal and other locally available material besides, hand made pottery of coarse grey-fabric, burnished wares with types like simple globular vessels perforated vessels and spouted vessels. Occasionally painted sherds, and incised wares are also present. Burials of infants with bodies folded-up and packed into the pot, inhumation and extended burials, processes of excarnation and secondary burials and double burials represent the different modes of the disposal of the dead.

Stage IV represented by Tekkalakota-II, Payampally and Hallur-II of Period-I. This is marked by specialised types of copper implements, profuse blade industry. The pottery consisted of burnished ware, brown and black, coarse dull red and painted wares akin to the Jorwe fabric, prolific stone axe industry, blade industry marked by parallel sided blades and lunates etc. Copper objects constituted double edged axes and fish hooks. The floors were paved with locally available schist. The phases also marked by urn-burials as found at Tekkalakota, Hallur, Brahmagiri, Daimabad, Nevasa and Nagarjunakonda.

3. The Sites and their distribution:

In 1860 Le Mosurier discovered the first Neolithic tool in India and drew attention to his discovery of ground and polished stone implements in the Valley of the East Tons river in the United Provinces (now Uttar Pradesh). The evidence of the earliest Neolithic period in Andhra was discovered in 1876
by Robert Bruce Foote in the form of an adze of sand stone, at a 
place called Vadamanu in Guntur district. In the neighbouring 
state of Karnataka the first ground stone axe was recorded by 
Col. Meadows Taylor in 1852 itself, at Lingsugur in Raichur 
district. Robert Bruce Foote between 1885 and 1891 discovered 
over 50 sites which are geographically located in the present 
districts of Hyderabad, Krishna, Guntur, Nellore, Kurnool, 
Cuddapah and Anantapur. For well over half a century, no new 
investigations have come to light, after the pioneering work of 
Foote; however considerable evidence of the neolithic farming 
communities was recorded in the excavations by the Nizam's State 
Department of Archaeology which conducted excavations at Maski, 
Gordon (1945), Wheeler (1942), Subba Rao (1943) R.Subrahmanyan 
(Nagarjunakonda 1954-60) Allchin (1960) Ansari and Nagaraja 
Rao (1969 at Sanganakallu) again at Piklihal, more recently by 
Sankalia (1964) and Nagaraja Rao and Malhotra (1965) at 
Tekkalakota. Nagarajarao (1971) at Hallur, Sundara at Terdal 
(1971) Seshadri (1971) at T.Marsipur, Paddayya (1973) at Kodekal, 
Hanmantha Rao and Nagaraju (1974) at Hemmige, etc. Rami Reddy 
(1976) at Palvoy.

During the year 1976 Polakonda in Warangal was excavated 
by the author under the auspice of the Department of Archaeology 
and Museums, Government of Andhra Pradesh. In 1977 a minor 
excavation was conducted by N.R.V. Prasad at Budigapalli, a 
Neolithic,Chalcolithic,site, in 1978 Prasad has excavated 
Chagatur in Mahboobnagar district another Neolithic-chalcolithic 
site. The distribution pattern of the sites as outlined above
shows that the neolithic farmers had settlements in almost all parts of Andhra Pradesh excepting some unexplored regions.


There is no evidence of plant remains of the Neolithic times in the Karimnagar region. The ecological setting may be similar to the present day arid and dry climate characterised by thorn and scrub jungles interspersed by grass lands. But there must have been thicker vegetation and heavier rain fall. The area at which a prolific collection of stone axes possibly used for felling trees is found, is now completely denuded of any kind of forest. At Polakonda the neolithic axes and adzes were found over the sloping plains of the south face of Peddagutta hills. The area must have been thickly covered with jungle during the neolithic times. Similarly the early historical site at Peddabankur had a scatter of neolithic axes indicating the presence of a thick jungle in the past. The entire historical site at Peddabankur was covered with a thick deposit of regur or black soil over a bed of granitic morrum. At a few spots the black soil covering was washed away denuding the natural morrum. Many microlithic implements were collected over these denuded spots. At the same level under the thick black soil cover in other trenches the industry was noticed over the same morrum bed indicating that during the post-microlithic period the entire black cotton soil must have been deposited during a wet period.
Arid and dry climatic conditions during the neolithic period was evidenced by the presence of some plant remains such as acacia (thumma in Telugu) or Dalbergia and Zizyphus (ber or regi in Telugu) species from the site of Palvoy. Muzumdar and Rajaguru have proved, on the basis of their analysis of the fossil soils from the Kupgal excavation, that similar environmental conditions were present during the neolithic times. The plant remains of acacia species from Maski of teak (Tectona grandis) from Hallur and Zizyphus from Kodekal suggest a similarity of climate in Karimnagar region as well.

**Fauna:**

The animal species included cattle, sheep, goat, swan, antelope, possibly horse, gastropoda, common Indian rat, domestic humped cattle, deer, hog, wild elephant, tortoise and squirrel etc.

**Settlement Patterns:**

As in other parts of India the Karimnagar region was also a favourite haunt of the Neolithic Man. Occasionally neolithic axes were collected around late stone age sites and some times in the vicinity of megalithic burials but permanent settlements are very few. The recently discovered settlements are Thogarrai on the banks of the river Maneru, Kadambapur also on the Maneru and Peddabankur, all these sites in Peddapally taluk, Budigapalli on the banks of the Peddavagu, in Husanabad taluk of Karimnagar district; Polakonda, Kolakonda and Devaruppula in Jangaon taluk of Warangal district.
The ring of granitoid hills enclosing plains of regur, the perennial river Haneru in the neighbourhood and dolerite dikes appearing like black greenish stripes over the granite hills made a very congenial abode for the Neolithic Man. The rock shelters in the hills at a considerable height from the black soil plains gave him both protection from wild animals and a cozy shelter from the rigors of climate, the regur plains for his farming and whether he knew water storage or not the river in the vicinity supplied water all through the year. A neolithic factory site was discovered over a granitic outcrop. The collection included large number of unfinished tools besides a good number of finished adzes and axes.

Kadambapur

Kadambapur about 6 km. from Thogarrai is mainly a Megalithic burial site, where a number of neolithic stone axes were collected over the sloping plains of the hills abutting the river Haneru. Many rock shelters and caverns noticed in the hills must have been occupied by the early Neolithic Man. Number of grinding grooves were noticed over the granite outcrops. Extensive exploration had not resulted in the discovery of any permanent settlement. But a few sherds of hand made grey ware collected betwixt the river and the plains may imply that the neolithic settlement might have been eroded away by the seasonal flood of the river, as the present river bed is not more than 5 to 6 feet deeper than the plains.
Puddabankur: \(\text{pl} 24\)

The historical mound lying by the side of the Karimnagar-Paddapalli road has been excavated under the supervision of the author for six field seasons. Many neolithic stone axes were collected on the surface and in the unrelated cultural strata. The entire historical site was covered by a deposit of black soil, not more than 2 mt. in thickness at any spot. There are neither granite hills nearby for his shelter, nor dykes of dolerite for making his tool-kit. Apparently the tools must have been imported from places like Kadambapur or Thogarrai, etc. Puddabankur is an example where the Neolithic Man, instead of selecting a hilly region settled over plains possibly to serve his farming needs.

Budigapalli: \(\text{pl} 2 e\)

The entire Husanabad taluk in Karimnagar district and the adjoining Huzuwarabad taluk in Warangal district are studded with large number of Megalithic Burials. Budigapalli, a small village about 6 km. from Husnabad, is encompassed by a ring of hills locally known as Valasagattu, Sanjivarayanigattu, Venkayagattu etc. The granitic hills, the rock shelters and a nullah emanating from the hills, now cross-bunded for supplying water to a huge lake was suited for a Neolithic settlement. Dolerite rock is available in plenty. Explorations over the early historical mound girdled by a Medieval mud rampart at the foot-hills of Valasagattu yielded besides early historical pottery, neolithic stone axes, a mace head with a perforation.
of hour glass section and few sherds of hand made grey ware. The 3 main rain gullies, emanating from the hills, deeply cut the mound. At the lowest levels of the sections cut by the nullahs, at a depth of nearly 7 to 8 ft. the aforementioned assemblage was noticed.

Recent trial excavation conducted by Prasad over the early historical mound established the presence of neolithic-chalcolithic occupation at the lowest level. A few neolithic celts associated with microlithic cores, blades and lunates, few steatite beads and a hearth, grey ware hand-made pottery were the finds recovered.

Kolakonda:

Kolakonda village on the river Peddavagu in the Jangoan taluk of Warangal district is another important neolithic settlement, situated in between the granitoid hills on the east and the river on the west to a stretch of 200 square meters approximately.

Devaruppala:

It is a considerably big village near Mondrai in Jangaon taluk of Warangal district. The neolithic settlement is situated about 2 km. south of the village, over the black cotton plains near the granitic hills. In the vicinity of neolithic settlement there is an extensive megalithic cemetery consisting mostly of pit circles and few cist burials.
Polakonda in Jangaon taluk of Warangal district is about 10 km. from Devaruppala and approached from Mondrai, a small village on the road from Jangoan to Suryapet. On the north of the village and abutting the Peddagutta hill a early historical site was noticed. A good number of polished stone axes were observed over the early historical site, the plains and the sloping terraces on the south-west of Peddagutta hill.

While exploring a channel dug-out recently by the P.W. Department along the Kommulagutta hill (a northern extension of Peddagutta) few sherds of hand made grey ware of neolithic affinity were recorded. Adjoining the channel, at the find spot of the grey-ware sherds a trench was sunk which revealed a hearth of burnt clay associated with a large number of hand made neolithic pots and a broken axe. A granite rubber with a squarish profile evidently used for burnishing pottery was also found near the hearth. The rubber was finely ground on one side and pecked on the other.

The neolithic settlement over the sloping terrace at the foot of the Kommulagutta hill enclosed an area of 100 sq. mt. The soil to a depth of more than 10 ft. was covered with sandy silt brought down from the neighbouring hills by the rains in course of time. Abutting the habitation is a shallow rivulet emerging from the gorges of the hill. Though dry at present the nullah must have been much deeper during the neolithic times, else there is no other source of water in the vicinity.
Out of the material remains of the neolithic people which survived the ravages of time was the stone axe made out of igneous or metamorphic rocks such as diorite, dolerite and basalt. The other less common varieties were small tools either hafted or used as adzes, small chisels, picks, fabricators, hammer-stones and sling stones etc.

**Technique of Manufacture:**

Coghlan has postulated several stages of manufacture. According to him the neolithic tool might have developed from a palaeolithic sharp edged scraper. A lighter variety of ground axe is associated with the Solutrean and other Upper Palaeolithic Cultures of Western Europe. Foote recorded four stages of manufacture from the earliest stage of chipping till their completion as highly polished tools. Subbarao also suggested four stages. Allchin postulates the following five stages before it finely appears as a finished ground or polished tool.

1) Primary, rough flaking to block-out the tool
2) Secondary, fine flaking to regularize the form and sharpening the edge
3) Pecking or hammer dressing
4) Edge grinding
5) Over all grinding

As already noted a prolific factory site was discovered over one of the hills at Thogarrai near the source of a dolerite
Large number of axes were collected from the spot in various stages of manufacture.

The tools collected from the factory site at Thogarral appear to have been manufactured in an Acheulian factory site. All the tools have been made out of dolerite and the author collected many tools in the final stage of manufacture. The trap rock from which the tools were made is found in small handy nodules. Large number of primary flakes and chipping of the tools indicate that the neolithic man took large nodules and adopted alternate flaking method usually noticed in the Acheulian sites. This method was adopted to get a straight cutting edge on both the sides. Wherever he could not find a convenient core to get two cutting edges he adopted the method of blunting one of the cutting edges similar to that of backed blade as noticed in the Late Stone Age tools. Later the blunted edge was again flaked alternatively to get a triangular body. The alternate step flaking gives the sharp zig-zag cutting edge but with high ridges on both the sides. These high ridges, as suggested by Subbarao must have been removed with a pointed tool such as a cylindrical-type fabricator found elsewhere. The cutting edge on both the sides is made sharp by removing small neat flakes along the cutting edge.

Dr. Sankalis suggested that a nodule or pebble is fashioned into a pointed-butt axe by the block-on-block technique or direct percussion method with a spheriod or discoid hand-hammer and the resultant product looks like an Abbevellian hand axe.
In the second stage the uneven surfaces, ridges and depressions were removed with a pointed tool. This is technically known as 'pecking' or 'battering'. In the third stage the tool is ready for grinding. For this concave or basin shaped boulders were chosen and with the help of sand or similar coarse material and a little water serving as abrasive, the tool is moved up and down in the groove. Many such grooves appearing like lenticular slits, about 5 cm. deep were noticed at Polakonda and Kadambapur. As suggested by Sankalia, at a time only a small portion, usually the edge portion was ground.

Many writers including Subbarao suggested the fourth stage when the whole axe was finally polished. Foote also found on the 'north hill' in the town of Bellary well polished grooves 7" to 8" long and 1 to 1 1/2 inches deep. These grooves evidently were intended for edge grinding but not polishing. Polishing must have been done on concave surfaces as suggested by Sankalia. Only one fully ground axe was recovered from Puddabankur excavations. The pointed butt was also fully ground, later after use the tip was broken. The tools appear more like cult objects than a tool. It is possible that after the edges were blunted after a long use the axe was utilised as a grinder.

The fine grained rocks were always favoured for making the edge tools and the coarser and harder stone for rubbers, grinders and hammers etc. The axes which form more than half of the total collection were made of basalt while the hammers,
rubbers and grinders of coarser rocks such as granite, quartz, diorite and quartzite were used. Foote recorded that spheriod rubbers which he designated corn-crushers were made of pistacite (Green stone). Allchin also noted that nearly half of the spheriod rubbers were made of pistacite.

**Forms of Tools:**

Among the finished tools the commonest is the axe. The transverse (medial) cross section varies from tool to tool. They are (a) elliptical (b) lenticular (c) rhombooidal (d) rectangular and (e) triangular. The butt end is sometimes blunted, rounded or pointed.

(a) Axes with an elliptical or ovoid cross-section are comparatively few in Karimnagar region, only two tools having been recovered from Peddabankur. These have a triangular profile and were fully polished including the body and the butt end. No chipped surface is retained without polish. The sharp, some times straight or convex cutting edge was obtained by polishing on both the surfaces. The types found at Bellary have the sides rounded off and slope gently to meet at the centre leaving little or no flat medial area. The forms found at Nagarjunakonda have generally an unworked, middle portion and lateral margins absent in all the specimens. The cortex surface is retained in patches and it was considered, in view of its association with predominantly microlithic assemblage, as one of the earliest types from Nagarjunakonda.
(b) The tools with lenticular cross-section are also generally rare but one or two such types were included in the collections from various sites in the Karimnagar region. They are sometimes trapezoidal and long ovoid in shape. The lenticular section was obtained by leaving flat surfaces on both the sides converging to point at side edges. The cutting end is almost semicircular. This type of tool is generally thin and must have been used for some light type of work. A tool found at Polakondam, measured 10 cm. long with the cutting edge ground on both the sides. It is very thick towards the butt-end. The specimen from Peddabankur was unfortunately broken in the middle and only the lower portion with cutting edge is found.

(c) The tools of rhomboidal section are conspicuous by their mid-ribs on both the surfaces. In external form they are triangular with straight or convex cutting edge. A tool found from Peddabankur with similar cross-section is as long as 23 cm. (9 1/2 inches). This shape like that of pick-axe, was particularly adopted to have good grip for handling rather than for hafting, as such a lengthy tool must have been used for digging with the butt-end and as well for cutting with the opposite end.

(d) Tools with rectangular cross-section are also rare. They have broad sides, straight or slightly convex, and generally flat on both ventral and dorsal surfaces. Axes with semi-rectangular section were found in Bellary and also in Amaravati in Guntur district. This type was also reported from
Nagariunakonda which has more or less parallelogramatic cross-section with splayed cutting-edge formed by bevelling of the upper surfaces.

(e) **Triangular Cross-section**: Only two broken specimens one from Peddabankur and the other from Kadambapur were recorded. The butt-end of the first tool is blunted and the cutting edge is missing. The tool was fully ground with a straight mid-rib on the ventral side, the dorsal being flat. The specimen found at Kadambapur was unfinished but broken in the middle. It has sharp longitudinal sides and a thin almost straight cutting edge. It is possible that this tool was meant to serve as an adze rather than an axe.

**ADZES** (pl 8 & c)

These tools may be divided according to medial section into 3 types viz. (a) Planoconvex (b) Triangular (c) Rectangular cross-sections.

The adzes are comparatively rare than axes but four excellent examples have been collected, two from Budigapalli, one from Peddabankur and one from Polakonda. One tool from Budigapalli with a trapezoidal section is 18.5 cm. long. The cutting edge on the plain dorsal side is bevelled. Only the cutting edge on both the surfaces was ground. The pecked rugged surface was left unground for transverse hafting. This is one of the finest tools, a type which is not probably recorded anywhere so far.
The other specimens from Budigapalli, Polakonda and Peddabankur are smaller and the plain dorsal surface is also slightly ground. In this region adzes with triangular and rectangular cross-sections are not found. The types recorded from Nagarjunakonda\(^26\) are mostly plano-convex. There are also two examples with triangular cross-section. One specimen has a very sharp, and straight cutting edge bevelled at both the surfaces.

**Shoe-Last-Celt**

Another more specialised form of tool is the plano-convex, shoe-last-celt. The upper dorsal convex surface curves round to meet the flat under side which rises gently to meet it like the head of the fish. Peddabankur excavation recorded a fine specimen with a plano-convex cross-section. The butt end is narrower than the cutting end but not pointed. Both the ends, the flat undersurface and the top ridge were smoothly polished. The pecked lateral surfaces were left unground so as to facilitate hafting. Subbarao\(^27\) suggested that the presence of this highly specialised tool might indicate that the Bellary neolithic folk were agriculturists. He feels that the tool is hafted adze-wise to an 'L' shaped piece of wood and used as a hoe. Snakalia\(^28\) noted that some plano-convex tools were used as mullers having a flat under surface and the top convex and slightly rounded. The tool found at Peddabankur would eminently suit to mill grains etc. over a "mealing trough" described by Foote\(^29\), as the fully ground undersurface appear to be continuously rubbed over a concave surface. Both the ends
of the tool are mint fresh without any use marks by which the more probable surmise would be that it was used as a muller than as a hoe.

Another tool also from Peddabankur 9.5 cm. long (3.7 inches) with a plano-convex cross-section has a pointed butt. The cutting edge is bevelled at the underside to meet the smooth upper surface. The lateral sides from the middle of the tool to the butt end are left unground possibly for handling. This tool must have been used as a hand tool for either horizontal cutting or vertical scraping. (pl. 2 a)

Picks are generally rough and irregular tools, with narrow sharp working edge and blunted butt-end. They have sometimes a convex longitudinal profile and a flat undersurface with either a single or double cutting edge. At Piklihal two specimens were recorded; both are flaked roughly to a square section and bare traces of heavy wear upon the body and would thus seem to have been hafted.

A long specimen collected from Kadambapur has a plano-convex cross-section with a pointed butt and a sharp cutting edge, and was damaged after use. But for the cutting edge the remaining body of the tool is left unground.

Spheroid Rubbers: (pl. 2 c)

It is likely that the rubbers, either spheroid discoid or oval, were used for a variety of domestic uses, mainly as crushers, rubbers or pounders and possibly also as hammers.
There are two such tools in our collection both recovered from Polakonda excavation in the neolithic levels. The discoid rubber was found near the hearth in association with large number of handmade grey ware pot-sherds.

Allchin\textsuperscript{31} described the flat discoid grinding stones carefully flattened on both sides as pallets. He suggested that they were probably used for grinding powders etc. Such pallet found at Polakonda is much damaged on one side with battering marks, the other side well preserved. On this side also marks of battering are apparent. The other specimen made of granite is a all ground spheroid rubber found in the early neolithic level.

RING STONES: \textit{(pl. 2 c)}

These are thick, small round or rectangular tools with their surfaces smoothed by pecking and grinding, having a central hole about an inch or half an inch in diameter from both the surfaces. Sankalia\textsuperscript{32} suggested that such ring stones seem to have been used as weights for digging sticks and are thus suggestive of primitive agriculture. It is also possible, as he further suggested, that they also served as mace heads. At Bellary on the north hill, Boys\textsuperscript{33} found one such specimen, one more was found by Fawcet\textsuperscript{24} at Kupgal and by Foote\textsuperscript{35} at Kanchikeri. In the excavation at Navadar\textsuperscript{36}, 33 objects which can be classed as ring stones were found. Sankalia\textsuperscript{37} also found one ring stone in the mesolithic context at Langhnaj. Todd\textsuperscript{38} found one complete specimen on a hillock at Yerangal, near Bombay along with microliths. They were also reported from Mohenjodaro\textsuperscript{39}, Harappa\textsuperscript{40} and
Peddabankur Excavation yielded a completely ground flat stone of pink granite with a knob like protuberance on one face and the two lateral sides having depressions for a right hand grip. Evidently this may be one of the two pieces of a rotary quern, the other piece would be the above described ring stone with a hole of hour-glass section. The ring stone must have been rotated from both sides and due to continuous rotation of the knob inside the hole, it would take an hour-glass section. The rotary quern, was perhaps, used for milling grain in small quantities. The possibility of their utility as mace-heads may not altogether be ruled out but it cannot be hafted securely with a wooden handle due to the ridge in the middle of the hole.

**QUERNS:**

The querns or mill-stones with concave surfaces were usually made of granite. Two types of querns may be distinguished, a) with a circular grinding surface brought about by round ball-like millers (b) flat surfaced querns. The querns were prepared by hollowing out a roughly oblong block of granite. The hollow surface became deeper and deeper after repeated use, and in some cases the block had been turned over and the flatter underside also used. The quern made of granite from Polakonda excavation has a concave surface and a flat underside.

**BLADE INDUSTRY:**

The Neolithic culture was invariably associated with blade industries in most of the sites. At some places the industry is
very rich than the pecked and ground stone tools. It is generally non-geometric consisting of a high proportion of simple artefacts, besides much waste material. They include, primarily long and short parallel sided blades, lunates and fluted cores. Typologically they are very much different from the microlithic industry of the Late Stone Age. Foote noticed many microliths in association with stone axes in Patpadu in Kurnool district.

Subba Rao classified the microlithic industry characterised by short blades, fluted cores into three categories: 1) pointed or sharply rounded cortex 2) flat base and 3) a chisel end. Many cores have facetted platforms which is an indication that the core was prepared in advance by removing small flakes for the punch to rest firmly at the time of striking.

The implements from Brahmagiri blade industry were divided mainly into 7 types 1) double edged blade without retouch, some blades have one edge slightly serrated. 2) blades with battered back blunted by steep retouching. 3) crescentic blade with battered back 4) narrow leaf-like blade with point at both ends, and battered back 5) beaked graver (burin) 6) chisel ended blade 7) side scrapers.

At Maski the industry is mainly a flake-complex dominated by blade industry with a marked emphasis on the production of
narrow forms. Significantly some geometric forms such as trapezes and burins has also been noticed.

The industry at Nagarjunakonda in Guntur district has no impact of ribbon flake tradition as noticed at Maski, Brahmagiri and Piklihal. The blades have a tendency to become shorter in length with the advancement of neolithic culture. The tools were mainly classified into five types viz. 1) simple blades, 2) backed blades 3) lunates 4) points and 5) scrapers.

In the course of excavation at Peddabankur in Karimnagar district a large collection of microliths was recorded. The industry is mainly non-geometric but for a few pieces of triangles and trapezes. The material is chert chalcedony, cornelian and jasper quartzite and crystal is very rare. The collection included conical shaped cores with pointed base, longitudinal flake scars merging at the pointed base struck from a common platform. In some cases the cortex surface was also chipped. The point is so sharp that it can be effectively used. There are also double platform cores operated from both sides. Chisel ended cores are a rarity.

The flakes are mostly parallel sided with both edges retaining the primary flake-out without retouch. The tools are long and often thin with triangular or some times trapezoidal in cross-section when the medial edge removed by taking out another flake. The second variety of blades are leaf shaped with a concave undersurface narrowing to a distal end. The medial ridge
is often truncated and it is likely some were used as arrow-heads.

The lunates have secondary working on the margin opposite the sharp edge which is invariably the chord path. The secondary working consisted of steep, often vertical blunting and does not show any trimming. The section is very often wedge shaped.

The scrapers are made either on a flake or on re-utilised core. The thumb nail scraper is discoid in outline and trimmings all around the periphery.

The chip points were made from flakes that taper from the butt to the point or by snapping fragments obliquely from both edges of a thin flake. The butt end appears to have been truncated for hafting. There is a fine example from Thakalapalli (in Peddapalli taluk) where the point was made by snapping fragments obliquely from both edges and the butt end truncated for hafting. This is made out of a flake of triangular transverse section tapering to a point. A similar example is also found at Mashi.46

POTTERY.

Many neolithic tools have been collected from various sites in Karimnagar region but pottery is rarely found on the surface. Only the excavation at Polakonda gave an idea of the neolithic pottery in this region. The pottery generally consists of crude and coarse and hand-made ware with a few burnished types. The clay is not fine. Coarse sand was often used as degraissant.
The pottery was well burnt to a grey, dull brown or black colour, often with an unburnt core in the fabric.

The pottery is mostly plain and no decorations of any sort, either combed, incised or painted, are noticed on the pottery of this region. The clay used for neolithic pottery from Maski has been found to contain a variety of minerals such as quartz, muscovite, biotite, chlorite, kaolinite and orthoclase, which all go to form the granitic rocks. Paramasivam also notes that the clay must have been procured from lacustrine sources i.e. from tanks and ponds.

The granularity of the texture suggests that the clay was not thoroughly levigated. The presence of large particles of quartz sand is a typical feature of the potteries of thick section. Mica is also an important constituent of the clay. Some majority of the pots were turned on a wheel and the striation marks appearing on some sherds led Allchin to believe that the neolithic craftsman employed the turn-table and beater and anvil techniques. While their regular and indistinct striation marks testify the use of turn-table, the employment of the beating method is borne out by the uneven thickness of the wall. Most of the rims of the jars were perhaps prepared on a turn-table and later luted to the handmade body of the pot, which is the reason that they are thick and rough at or below the neck.

At Polakonda we have some evidence about the type of kiln in which the pots were baked. Allchin suggested that the
pottery would be fired on the ground as a mixed lot of fuel and pot in something like a bonfire kiln. But the evidence at Polakonda appears contrary to this. The kiln, though small, consisted of thick walls of clay in which the pots were kept and probably burnt by applying indirect heat. A part of the kiln with many broken sherds of pottery nearby and a discular dabber apparently used to straighten the sides of the pots were exposed.

The pottery from Polakonda, in Jangoan taluk of Warangal district, was recovered from three main cultural horizons. The top layer consisted of modern humus consisting of ashy brown sandy earth with a mix-up of rubble. The lower part is irregular and undulating due to erosion. From this layer the pottery of the late mediaeval period was encountered which is mostly greyish and well fired.

Below this stratum is a deposit of brownish sandy silt without ash, but of loose composition. The pottery of the megalithic phase consisting of red, tan, matt red and black and red wares was encountered in this stratum. The recognizable shapes are deep bowl with flanged rim, vases with flanged and beaded rims, lid-cum-bowls etc. The black and red ware shapes are mainly dishes and rimless bowls. There is also a little mix-up of hand-made burnished brown and burnished black ware sherds. This overlapping had occurred in all probability not due to continued habitation from neolithic to megalithic but due to settlement of the megalithic people over an earlier
inhabited and eroded surface. The other finds from this horizon are few objects of iron such as an arrow-head, a knife and a broken blade.

Below this stratum a thin sterile deposit of loose sandy earth and a thin gravel patch were recorded in two trenches, a trait not visible in other trenches. The total neolithic deposit with no visible variation in texture and composition than the earlier strata is as thick as 2 mt. which may go to prove that the neolithic habitation continued for a considerably long time.

The neolithic ceramic assemblage consisted of grey, pale-grey, blotchy brown, black burnished and pale(matt) red wares. The clay of many specimens was well levigated. However, in some vessels a regular admixture of sand and other refractory ingredients are noticed. No micaceous element is visible. The pottery from the early levels is more gritty and distinguished by low firing leaving a black core inside.

The entire range of pottery is devoid of the characteristic features of wheel made pottery. As suggested by Allchin two main techniques were possibly used, the turn-table method and the dabber and anvil method. A large concave sherd must have been used as a turn-table in which wet clay was kept and rotated to fashion the forms. Dabber was used during the fashioning operations. The uniformity of the body suggest the use of some sort of turn-table, but the rims were fashioned with hand.
SURFACE TREATMENT:-

Some of the wares appear to have been treated with slip without admixture of any noticeable colour. The reddish brown, matted, grey or black either of the exterior or interior must have occurred only in the course of firing. The uniformity of thickness of body may suggest that they were made on some sort of wheel, although majority of the bigger pots were hand made. Some of the rims appear to have been modelled with hand. No painted pottery was recovered from any of the trenches. A few sherds were decorated with incised oblique slashes and zig-zags, cord and finger nail impressions etc. No graffiti marks are noticed. A single sherd of pale red ware with an out turned rim has very light spongy body and floats in water.

TYPES:-

The selected types include a huge jar with an elongated neck and straight sides. On the shoulder is a thick horizontal applique band and decorated with finger-tip design. Another jar of similar body has a cord of cable design below the neck. Analogies are noticed at Tekkalakota and Hallur.

A channel spouted deep bowl had its analogies at Hallur, Hemmige and T.Narsipur. Bruce Foote discovered a similar bowl at Patpad, Kurnool district which he called it as a milk bowl. It was painted with narrow purplish lines below the edge of the lip near the spout, but in the Polakonda specimen no such painting is visible.
Small-sized bowls with featureless rims of medium to coarse fabric are quite common. Similar types occurred at Brahmagiri, Piklihal, Maski and Nagarjunakonda.

There is another huge jar with a featureless horizontally splayed out rim with a concave neck and globular or bulging profile. On the shoulder is a thin applique band pasted horizontally which terminates into curved ends in opposite directions. This type without the applique band was also noticed at Piklihal, Hallur, Nagarjunakonda, Brahmagiri and Maski. Khare describes the pot as neolithic pot-urn.

Among the brown ware are a dish-on-stand and a lugged bowl. The lugged bowl was also recorded at Sanganakallu.

**DISPOSAL OF THE DEAD**

Evidence regarding burial practices comes from Utnoor, Piklihal, Maski, Brahmagiri, Tekkalakota, Hallur, T.Narsipur, Nagarjunakonda and Palvoy. At Utnoor the skeletal remains of an infant were contained in a shallow depression in the layer-9. Only the ribs and one humerus survived unbroken and the skull was completely crushed. Due to the absence of teeth it was inferred that the skeletal remains pertains to a newly born child. At Piklihal evidence of extended burials was recorded. In all, 3 skeletons have been found. The body found in layer-6 had been buried in a extended posture in a shallow coffin shaped pit, which was covered with small stones. The body lay-on its back, the head being roughly towards north and
slightly inclined to the right. Funerary articles included a
spouted earthen ware jar to the left of the head and tall vase,
both hand made and burnished grey-ware. The third skeleton which
was an adult male comes from layer-4. The body lying on its back
but the head was oriented towards south. The grey-pit was filled-up
and large boulders were kept on the top. The grave goods
included five large chert blades, and two basaltic axes at the
feet.

At Brahmagiri, evidence for the disposal of the dead comes
from the sub-phase I-B. Two kinds of burials viz. the extended
burials in grave pits and the other of burial urns were
encountered. The adult and grown-up children were buried in
an extended position in regular grave contained the body of a
child about 10 years of age. In this case the body was oriented
in the east-west direction, the head being towards east. The body
was in fully extended condition and resting on its back. The
left hand was placed near the pelvic region. Funerary offerings
included a vessel with funnel spout near the head. Wheeler
suggested that this vessel with the cylindrical spout may have
been used to pour libation into the mouth or ears of the dead.

The other kind of burial i.e. the urn burials were
recovered from sub-phase I-B. The urns were hand made and dull
mottled grey in colour. They have globular body with wide mouth,
flared rim and rounded base. The skeletal remains contained in
the urns were invariably those of small children whose bodies
had been tightly folded to fit into the restricted space. The
urns were usually covered either with a bowl placed upright or inverted or sherds of broken urns. A lipped or a channel bowl or a deep bowl was used as a cover.

At Tekkalakota, the burials of period-I comprised of two graves embedded in the red morrura. The skulls and the long bones possibly of excarnation were buried in the N-S orientation, the head usually placed towards south. In one fractional burial remains of 3 individuals were found buried indicating possibility of a "community burial". It is more likely that it may be a family burial rather than a community one. In period-II, there was evidence of extended inhumation. As many as 12 extended burials of adults, 11 of them found in a row were exposed. The orientation of the adult burials was north-south, the head being towards north. In one case the skeleton was laid in four pots joined together, which is reminiscent of the chalcolithic practice of Deccan. The funerary offerings consisted of earthenware pots, which included bowls of black and red ware painted in white. Occasionally children were buried under the floor of the house.

Three burials have been excavated at Hallur all of them being double pot burials containing bones of children. These pots were buried mouth to mouth under rammed floors within a house. The burial furniture consisted of bowls of burnished grey-ware small bowls, with squat body and smeared with a red ochre on the interior. In another burial large storage jars were used for burial purpose. These double jars placed mouth-to-mouth ware decorated with a crude applique rope or chain.
pattern, two small knobs conical in shape were affixed.

Nagarajana has suggested that the shape of the burial urns and the typical applique knobs of the burial jars indicate symbolically that the dead was given a re-entry into the mother's womb. It is interesting to note that similar multiple pot burials have been found in the chalcolithic sites at Navasa \(^1\) Diamabad \(^2\) etc. an indication of the chalcolithic intrusion into the neolithic burial practices.

7. T'HARSIPUR:-

The single burial uncovered at T'Harsipur \(^3\) was an extended one and roughly oblong cradle shaped pit, having its major axis in the east-west direction. The body was lying on it back with the head towards east and the crossed hands placed on the abdomen. Two large grey ware pots of globular body and everted rims were kept near the head. There was also a shallow lipped bowl and a pottery neck-rest near the head.

NAGARJUNAKONDA:-

The most important evidence regarding the disposal of the dead, comes from Nagarjunakonda \(^4\) in Guntur district. The funerary remains of the neolithic people inhabiting the valley was
classified into three categories.
a) in a cemetery for adults and children
b) urns for infants within the habitation area, and
c) in a pit of an adult male

a) Cemetery: The cemetery revealed two strata of burials. The earliest stratum was associated exclusively with extended inhumation burials. The burial furniture consisted of only pottery. Graves associated with upper layer showed the predominance of secondary burials preceded by a process of excarnation. Interestingly there is a double burial of a male and female both adults showing some amount of intermingling of bones. It was suggested by the excavator that the bones of both the dead bodies were inhumed at the same time inspite of the fact that both of them might not have died at the same time. But the intermingling of bones may suggest that both the male and female were not buried at the same time. It is likely that either of the male or female who died first was buried and later when the other partner died the burial must have opened and the dead body interred. During the process of opening up of the burial and interring the second dead body the intermingling of bones might have taken place. However, this is a case of a family burial during the neolithic-chalcolithic. There is evidence that the children were also buried after excarnation. The orientation of the skeletons was invariably north-south, skull being placed approximately to the
north. Pottery mostly comprised of spouted vessels as burial furniture. Pots were kept near the lower half, below the waist, of the dead. Four spouted vessels in the case of skeleton No.10 were found right upon the femur and tibia. This practice of placing the pottery over bones continued during the megalithic period (vide Kedambapur Meg.III) as well.

Only two examples of infant burial remains deposited in urns came to light from Nagarjunakonda. Fragmentary bones were found in urns inside the habitational area. Unlike those of Brahmagiri urn-burials which involved primary processes, the urn-burials of Nagarjunakonda appear to be of secondary nature. There is no fundamental difference in the method of disposal of the dead between the infants and adults.

There is an unusual burial excavated in Pit.VIII of Site 46-A which produced a skeleton in complete articulation. The pit was covered by a cairn-heap. The long hefty body had been squeezed inside in the pit, that the middle portion of the skeleton was sagging below. The orientation was from north to south. The excavator hypothesised that there might have been a practice of leaving hearth and home by other occupants consequent to the death of some family member. When the usual practice of disposal of dead at Nagarjunakonda was inhumation preceded by excarnation, why this particular burial was of primary nature? Evidently, the kith and kin were afraid of coming nearer or handling the dead-body who died possibly of some contagious
disease. The same fear of disease and also sentimental detach-
ment in the later period possibly led to the practice of
cremation.

**PALAVOY:**

Evidence of the dead at Palavoy came to light in the
habitation area in the form of four infant burials. All these
were grey-ware urns of single pots covered with ordinary or
lipped bowls or two pots placed mouth to mouth. Unlike at
other places the dead were buried outside the house but within
the vicinity of habitation area. No burial goods came to light.

**HOUSING PATTERNS:**

The physiographical and geological features have greatly
influenced the establishment of the neolithic settlements in
the Karimnagar region as in other regions. The earliest
settlements were usually made on the tops of the granite hills,
or on the levelled terraces on the hill sides or on saddles or
plateaux between two or more such hills. It appears the neolithic
folk also chose open terraces at the foot-hills wherever the
natural rock shelters were available. Some times they selected
black-soil plains as at Peddabankur. They also lived near the
river banks at places like Kodambapur, Togarral, Kolakonda in
north western Andhra Pradesh and Chetnepalli, Nagaladimne in the
south-west.

During the second phase mud floors are in evidence and
circular hutments of wattle and daub on a wooden frame. At
Palavoy, a single floor with as many as 30 post-holes circular in plan has been traced. They ranged in diameter from 80 to 20 cm. The post holes yielded considerable quantities of disintegrated wood of acacia or dalbergia species, indicating their use as posts in house constructions. The floor was made of pale brown soil mixed with sand.

Several circular and rectangular plans of floors of various sizes enclosed by huge granite boulders were noticed on the slope and top of the Palavoy hill. Similar feature was also noticed at Piklihal, Tekkalakota etc.

The presence of several rock shelters found at Budigapalli and Kadambapur in the vicinity of the find spots of the neolithic celts or rock paintings may indicate that these were occupied by the neolithic man. The house plans in Karimnagar region may more or less agree with those noticed at other excavated sites such as Brahmagiri, Maski, Piklihal, Hallur etc. At Piklihal and Tekkalakota there was evidence of walls of split bamboo-matting, plastered with mud and supported by wooden posts. The roofs of these houses were built of some perishable material and the floors were daubed with red morrum-silt, rubble and occasional boulders. Plastering with lime or clay and dung was also noticed.

SUBSISTANCE AND ECONOMY:

The economic life of the Neolithic Man was a combination of agriculture, animal husbandry as well as hunting activities.

Bruce Foote discovered several terrace-like structures which be
designated as 'linchets' found on the summits of the hills and their slopes, these 'linchets' were used for habitation and also for farming. The clearing of natural plateau and the construction of rocky platforms as suggested by Allehin, is a distinct characteristic of the neolithic sites. He thinks that most of the neolithic settlements are found to coincide with these terrace-complexes, and thus it seems safer to see the origins of the terracing system. He suggested that the terraces served three main functions viz. habitation, cattle-penning and cultivation. According to him the tiny fields cultivated at Pitihhal even to this day often at considerable height above the plains, over terraces may have a direct bearing on the survival of a practice originated in the neolithic times.

But self-protection was the main pre-occupation of the neolithic man which made him sometimes seek his habitation over these terraces for protection from wild animals. The terracing system must have served his primary need of self-protection from wild animals and secondly to some extent cultivation. With a sparse population and plenty of food in the form of fruits, tuber and some wild grains available, his needs of cultivation might not be so pressing as in the present day. None of the excavated sites produced any evidence of cultivated grains. The neolithic man depended besides cultivation, upon hunting and fishing and whatever naturally available such as fruits, vegetables and edible grasses or tubers. However the general occurrence of

\[ t \sim \frac{56}{L^2} \]
domestic implements such as querns and grinders, may suggest some practice of agriculture. The evidence of grains such as horse-gram (dolichos fiblorus), green gram (phaseolus madiatus) and ragi (eleusine coracana) from Paimpalli in Tamilnadu, horsegram from Tekkalakota, ragi from Hallur which are not for removed either geographically or culturally from the Kerimnagar region indicate that similar grains were grown or procured during the neolithic period here. The jungles and shrubs were cleared and land made suitable for farming with the help of stone axes and also by putting fire to the thorny shrubs. Ring stones may have been used as weights for digging various types of tubers.

The tiny blades of chert etc. were perhaps used as barbs or arrow-heads and hafted to wood or bone with resins to be used as knives, sickles or blades. The nodules of chert were used for making fire, a practice enduring till the present times. The other method was to churn wood which would not be effective during wet season. Some pots with perforated bases recovered at many neolithic-chalcolithic sites must have been used for storing fire.

It was suggested that a fused bone of an ox exhibiting anchylosis resulted an account of heavy and prolonged concussion recovered from Palavoy and Hallur may be a proof that the neolithic farmer used the bull for ploughing operations or for prolonged heavy traction. Anchylosis may
not necessarily result due to carrying heavy loads but restless movement with damaged bone may also result in ankylosis.

Besides some sort of cultivation, the neolithic man depended on hunting and fishing. Cattle served his cultivation and food needs. The animal remains from various excavations reveal fresh water mussel, common rat, short-horned humpless cattle, sheep, goat, deer, ibex, wild dog, wolf, antelope, spotted deer, tortoise, swan and fowl. The common rat is still consumed by a section of the population. Horse which is a rare animal was attested to for the first time at Ballur. The spheroid or spherical stone balls were employed as missiles for killing fast moving game.

The large number of bone tools like axe heads (Ram Reddy 1976) points, chisels, blades and antlers were used for various purposes. Some bone points or needles were used for removing excess clay while making the pots or for perforating them. Many bone points found in the megalithic and early historic levels at Peddabankur indicate that they were mostly used as potter's pins as some of them were found near kilns. They were sometimes used also as sewing needles. Ramreddi suggested that the "axe heads" found in his excavation at Falavoy were employed for skinning, scraping and cutting the hides.

Ornaments:

There was no evidence of any kind of ornaments in the early neolithic settlements in the Karimnagar region. But the
neolithic-chalcolithic sites at Budigapalli and Chagatoor many steatite disc beads, terracotta beads and a few shell objects came to light. In a late neolithic face at Polakonda a single copper spiralled ring which must have been used as a finger ornament was recovered. The sites like Falavoy, Bastipadu, Velpumadugu yielded beads of steatite, agate, carnelian and chert. A large number of disc shaped beads of steatite were found at Pusalaapadu in Giddalur taluk of Prakasam district, and Ramapuram in Banaganapalli taluk of Kurnool District.

There was also a good collection of beads from other sites. They included beads of amethyst, carnelian, agate, chalcedony, coral, shell, glass and paste. Gold objects though rare in other sites but were found at Tekkalakota, in the form of a gold pendant or ear ornament with three coils in the centre and dumb-bells at both the ends. Considering the proximity of the gold mines at Hatti and Kolar their occurrence is justifiable. Nandikeswara Rao of Geological survey of India reported that there is clear indication of gold mining as evidenced by the specks of gold in the slag and gold quartz in the chalcolithic level at Narasapur in Kalyandurg taluk of Anantapur district. He also reports that the neolithic people had knowledge of diamond-bearing rocks such as kimberlite etc. Gold coils have also been reported at Diamabad.
The works of art of the neolithic people depicting the socio-cultural life of the people have survived in the form of rock-paintings and decorations on the pottery and bruisings on the rocks and terracotta objects etc. The author recently chanced upon some rock paintings situated at Regonda and Budigapalli in Karimnagar district, Kokapet in Hyderabad district, Muppalama in Mahboobnagar district, and Kothavaram in Kurnool district of Andhra Pradesh.

The paintings were found at Regonda, a small village in a low rock shelter under the ceilings. Many ancient iron working spots were also discovered there. The paintings are all of red ochre and consist a group of tall men, some vertical lines intersected by short horizontal lines at the top indicating head and hands of humans, trident with a long shaft mounted over a box and intersecting a circle below, two little men shown in lines mounted over a horse of disproportionate size, horizontally placed tridents crossing a vertical line, trident with a small shaft etc. On either side of these symbols are men or women with long curving plaited hairs.

The paintings at Budigapalli are found at the top of Valasagattu hill near Peerlagundu inside a rock shelter under the ceiling hardly about 1.50 mts. in height. Here are found two horses with riders possibly holding spheres and another horse with a rider at the back. One of the horses in the frontline has stripes like that of a zebra. In the same level
as the two horses, a man stands erect with his left hand kept akimbo and the right hand holding a long sphere resting on the ground. Slightly below the third horse is a figure looking like a circle with spokes.

At the other corner there is a trident above a circle with radiating lines and two oblique lines below the circle. The trident has a long shaft which bisects the circle and goes below to serve as a third leg in addition to the two oblique lines. By the side of the trident-cum sun disc symbol is a couch supported on legs with a reclining back.

This symbol with a trident and a circle below is a very common symbol in many proto-historic paintings in A.P. This was also found over many orthostats of megalithic cist burials at Chagatur with a little variation. Instead of the curving lines below the circle they are shown at the top of the circle and below the trident. On the clinostat of another burial, instead of a trident the thickly incised circle has two horn like projections at the top and a vertical line below. On the orthostat of a third burial the circle below the trident has not horns. In a fourth burial there are two circles one inside the other with a long vertical line bisecting both and two straight oblique lines emanating from each circle.

The most notable of all is a standing bull in a walking gait with the tail dangling away from the body. The bovine animal was fully painted, with a hefty body, short stumpy horns.
and a prominent hump. Unfortunately the painting has encrustation of black patches of fungus. In vigour and vitality the bull has parallels in Ajanta paintings only.

**KOKAPET:**

Kokapet village is about 10 km. north-west of Hyderabad near the lake of Gandipet which supplies drinking water to the city. The proto-historic paintings are noticed under the ceiling of a rock shelter, perching at a height of more than 200 ft. from the ground level over the top of granite hills. A few sherds of unburnished grey ware and polished stone axes collected in the vicinity may be a convincing evidence to date them to the neolithic chalcolithic period. There is a group of megalithic pit circles about a kilometer away towards north of the paintings in the fields of Mukundas Govindas, a gem miner and dealer of Hyderabad. These paintings consist of herds of stag with long curvaceous horns and a dog like animal thwarting the way of the stag herd.

About a kilometer west of the megalithic burials two more paintings of red ochre are noticed, one consists of multiple ciphers one inside the other. The second one is an 'L' shaped design filled-in with a wavy pattern, commonly noticed over the Malwa ware.

**MUDUMALA: (Pl.46)**

In Mudumala village in Makthal taluk of Mehdoboobnagar district groups of avenues and alignments of the megalithic origin are noticed. On the south-west of the village there are
some proto-historic rock bruisings containing a crudely incised humped bull with an upraised tail, the horns curving forward and genitals prominently shown.

There is also a human figure possibly a Mother Goddess with outstretched and upraised hands and legs apart. The breasts are shown hanging sideways. The third figure is a curvilinear trident over a circle along with the above two figures, there are three curvilinear tridents with circles, one has side prongs curving outside and the circle is slightly ovoid in the second, the side prongs are oblique and in the third the side prongs curve inwards with a perfect circle below.

ROCK PAINTINGS AT KETHAVARAM: (pl & a-b-c)

Recently a group of rock paintings were discovered in the shelters near Kethavaram village in Kurnool district. Geologically the rocks at Kethavaram are extensions of Kurnool limestones which overlie the shale bed rock. The whitish quartzitic formations at Kethavaram with plain vertical surfaces eminently served the primitive artist as a natural background. The long lines of hills, marked by deep crevices and caverns, formed into a horse-shoe shaped valley. Nowhere the hills are more than 100 ft. high. Some of them which afforded passage from ancient times to nearby villages were locally named as Chinnachittari and Pedachittari. The entire valley is scattered with Middle and Late Stone Age tools
of dark pinkish chert, agate etc. The rows of caverns at the farther northern end known as the caves of elephants require an intensive exploration.

The paintings, all of red ochre, are noticed over the front portion of the over-hanging rock shelters, and natural caverns. The principle theme depicted is the jungle life. The artist, sitting securely in his rock abode, visualised the jungle life which he had experienced and gave expression to them on the natural canvas. The untrained artist was not restrained by any particular style. Whatever passed in his mind provided the impetus to his brush. There was no confusion of colours. He chose a single colour to depict the varied species.

The people depicted were not strangers to the jungle life; they are a part of it. We find a number of little men shown in perspective, scaling a hill, or a man, with genitals prominently shown, stands up in horror and raised his arms for help at the sight of a tiger. There is a head of a tribal chief wearing a diadem and without indication of eyes. Slightly away are two rows of stags, two in each row and facing each other, which is reminiscent of the theme noticed in the pottery of cemetery-H at Harappa.

There is a man standing over the branch of a tree and below is a scaffolding. The jungle life is represented by a good number of monkeys briskly capering over rocks or woods, a bear
scaling a hill shown in triple wavy lines probably in search of honey, squatting bulls enjoying siesta, birds appearing like parrots perching over trees, a herd of stag rushing forth in terror. There are some geometric designs such as a trident shaped object, a zig-zag line tapering upwards possibly indicating the hazardous ascent of a hill, an apsidal locality having three pathways and the interior intersected by horizontal lines may perhaps resemble the plan of a cave, a thoroughfare into which minor pathways merge, an oblique line or wooden post divided by spikes at regular intervals, may be a ladder or flight of steps, series of double vertical lines intersected by smaller horizontal lines at the top, may be palm trees etc. There is a square design intersected by a vertical lines and at the top the sails and mast may probably represent a ship or boat.

There are some curious designs such as an endless loop and two vertical parallel lines intersected by two more horizontal lines and the ends of the lines connected by loops. These two designs are found in the megalithic and the chalcolithic context.

Above the paintings over the facade of the Peddabhittari cavern, there is a brahmi inscription in ornamental characters datable to around 2nd 3rd century A.D. It reads as ka na pandara suka. At the top of the cavern there is a brick structure datable to the early historic period possibly coeval with inscription.
The problem of the absolute age of the paintings is most acute. The stags facing each other and the multi-horned stags is a commonest theme of the proto-historic times and the aforesaid endless cord and the loop designs may also strengthen the conjecture. The brahmi inscription, the brick structure at the top of the hill, and an extensive early historic habitation in the vicinity are evidences of late intrusion into a jungle setting.

THE RACIAL FEATURES:

The excavation at Polakonda during the first field season gave us no clue regarding either the burial practices or the racial affinities of the early Neolithic Man. In order to fill up this lacunae I took up further excavation at Polakonda for the second field season. But unfortunately I failed even in my second attempt. Even the excavation at the chalcolithic site at Budigapalli in the neighbourhood of Polakonda conducted by Prasad, at my insistence, nothing fruitful has come out. Thus we have to fall back on the studies of the skeletal remains recovered from other sites at Nagarjunakonda, Piklihal, Maski etc. Even Sangankallu (Dr. Subba Rao 1948) which I feel can be favourably compared with the Polakonda phase has not yielded any skulls.

Nagarjunakonda, though of a late phase, is probably the nearest example with a regular cemetery of the neolithic people away from the habitation. The skulls are dolicho and
mesocranial. The studies of the skeletal remains from the sites of Brahmagiri, Piklihal and Tekkalakota revealed foreign, as well as autochthonous racial elements ranging from Scytho-Iranian to Australoid or Proto-Australoid and Mediterranean.

**CHRONOLOGY:**

So far we have nine sites in the southern neolithic which have radio carbon dates. Of these Palavoy and Utmanor are in Andhra Pradesh, Mallur, Kodekal, Sanganakallu, T. Narsipur, Tekkalakota and Terdal in the Karnataka State, and Payampalli in North-Artoot district of Tamilnadu. Of these the two earliest dates comes from Kodekal (Gulbarga district of Karnataka) and Utmanor in Mahboobnagar district of Andhra Pradesh. The radio carbon dates for the ash mound at Kodekal is 2336 B.C. and that of Utmanor is 2170 B.C. Unfortunately we do not have any date of Dr. Subba Rao's excavation at Sanganakallu. The charcoal samples collected from Polakonda is now under analysis. After getting the results it may be possible to push back the date to 3000 B.C. for the beginnings of the early neolithic. If we take the last neolithic phase into consideration as suggested by Dr. Allchin who compared it with the Jorwe phase in Maharashtra, it is possible to presume that the neolithic period had a total lease of nearly 1500 years, possibly twice affected by outside influences, once by the chalcolithic and later by the megalithic.
REFERENCES

1. Ward L. 1954 "The relative Chronology of China through the Han period" World Archaeology, Chicago, p.134

2. Deterra & Patterson, 1959 "Studies in Ice age and Associated Human Cultures" Washington pp.233-34

3. Sankalia H.D. & Sanjorjee, K.D., "Middle Palaeolithic Cultures of Karnataka, Deccan, and Central India" Journal of the Palaeontological Society of India


5. Sankalia H.D. 1965 "Excavation at Langhnaj" p.20


8. Ramreddy V. 1976 "The Prehistoric and Proto-historic Cultures of Palevoy, South India" p.114


11. Mehabale T.S. in Paddayya K. 1970 "Investigations into the Neolithic cultures of the Shorapur Deah, South India" p.70


15. Foote R.B. 1916 IPPA p.85

16. Subbarao, B. 1949 Stone Age Cultures of Bellary p.31


19. Subba Rao, B. 1948 op. cit. p.32
20. Foote R.B. 1916, op. cit. p.87
23. Subba Rao B. 1948 op. cit., p.33
25. (a) Subba Rao, B. 1948 op. cit. p.33
    (b) Chakravarti S.N.1960 "Hand book of Pre-historic antiquities Prince of Wales Museum" Pl. II
27. Subba Rao, B. 1948 op. cit. p.34
31. Allchin F.R. ibid p.91
32. Sankalia H.D. 1964 op. cit. p.86
33. Foote, 1916 op. cit. pp.91-92
34. Fawcet cited by Subba Rao, B. 1948 op. cit. p.41
35. Foote, R.B. 1914, Indian Pre-historic and Proto-historic Antiquities, Catalogue raisonne p.100
40. Mackay EFJH 1938 "Further Excavation at Mohenjo-Daro" pp.459-61
41. Mackay EFJH 1943 "Chanhudaro Excavations"p.224
42. Subba Rao B. 1948 op.cit. p.41-42
45. Sarkar H. 1975 op.cit. p.139-153
46. Thapar B.K. 1957 op.cit. fig. 31 No.25 pp.97-98
47. Paramasivam 1937 "Investigations on Ancient Pottery from Maski in Levey (1904) Archaeological chemistry a symposium, Philadelphia pp.231-52
49. Allchin F.R. ibid p.27
51. Nagaraja Rao, M.S. 1971 op.cit. fig.14; No.1 p.44
52. Nagaraja Rao M.S. 1971 ibid; p.38 fig.15 object 8
53. Nagamantha Rao N. & Nagaraju S. 1964 "Excavations at Hemmise" fig.5 obj.11 p.22
54. Seshadri M. 1971 Excavations at T.Narsipur fig.50b ob.4 p.257
56. Wheeler R.E.M. 1947 op.cit. fig.23; type.72 p.231
58. Thapar B.K.1957, op.cit. fig.11 p.44
59. Sarkar H.,1976 - op.cit. fig.57; type 16 p.117
60. Allchin F.R. 1960 op.cit. Pl. 27 No.344H pp.41-42
61. Nagaraja Rao, M.S. 1971 op.cit. fig.15 No.1 p.49
62. Sarkar H. 1975 op.cit. fig.58 type 24 p.119
63. Wheeler R.E.M 1947 op.cit. type 42 p.227
64. Thapar B.K. 1957 op.cit. fig. 12 type 29.a
66. Khare in Sarkar H. 1975 *op. cit.* fig. 8 type 84 p. 119
66. Subba Rao B. 1946 *op. cit.* pl. VIII; type XVII
67. Allchin F.R. 1961 "Uttur excavations" pl. 5 b
70. Nagaraja Rao M.S., 1971 *op. cit.* p. 29-30
71. Sankalia H.D. et al. 1960 "From History to Prehistory at Nevasa" 1954-56 Deccan college Poona" p. 23
72. Deshpande M.N. 1958-59 "Excavations at Diamabad" IAR pl. XXV p. 18
73. Seshadri M. 1971 *op. cit.* p. 9-20
74. Sarkar H. 1975 *op. cit.* p. 103-107
75. Ramireddy V. 1976 *op. cit.* p. 122
76. Ramireddy, ibid p. 115
77. Allchin F.R. 1960 *op. cit.* pp. 19-10
79. Ramireddy V. 1976 *op. cit.* p. 95 specimen 234
81. Sarma I.K. 1967 "Painted pottery from Pusalapadu - Andhra Pradesh and further exploration in the Cuddapah & Kurnool district? Indicn IV part II
82. Nandikeswara Rao, C.V. 1973 unpublished article
83. Deshpande M.N. 1958-59 IAR p. 18