PART III

CHAPTER V  The Early Historical Period
EARLY HISTORIC PERIOD

Introduction

Besides the already disused protohistoric sites the Karimnagar region is studded with a large number of early historic sites. Intensive explorations revealed early historic mounds almost at every alternate village. Evidently the region, comprising the districts of Karimnagar, Warangal, Nizamabad and Medak was thickly inhabited during the Satavahana period and it may be possible in the near future to find out the political nucleus of this region. This view is strengthened-corroborated by the accounts Yuan Chwang who noted that he travelled southwards from Kosala for about 150 miles (900 Li) to An-to-lo¹ or Andhra, the modern Karimnagar region with its capital 'Ping-Ki lo' which M. Julian transcribes as Vinghila. But Alexander Cunningham identifies it with Elgandal² about 8 km. from Karimnagar(Of course, this was the position of the region in the year 639-40 A.D.). Elgandal has now a late medieval fort at the top of a precipitous hill. Nowhere in the vicinity the traces of an early historic town could be seen.

As we have already seen in the earlier chapters that the Dravidians who possessed a high degree of civilization might have drifted to South India and settled down there permanently. The name of South India as Dakshinapatha occurs for the first time in the Rigveda which referred to it as the home for the exiled. It was beyond the frontiers of the Aryan world. Dakshinapatha was mentioned by Boudhayana coupled with Sourastra. In the Nalopakhyana of the Mahabharata Dakshinapatha
was placed beyond Avanti (Ujjain) and the Vindhya and to the south of Vidarbha and Kosala.

The janapadas situated to the south of Vidarbha (Vatsagulma) and South Kosala were known as Assaka and Mulaka. We find from Assaka Jataka that a king by name Assaka was ruling in Potali under the kingdom of Kasi. According to Suttanipatha, Assaka was situated on the banks of Godavari. In Chulla Kalinga Jataka, it is stated that when Kalinga was reigning in the city of Dantapura in the Kalinga country, Assaka was the king of Potali in the Assaka country. Evidently both the regions were once contiguous. The Assaka janapada existed in the time of the monarchs Renu and Dhataratha (Dharita Rashtra). It was ruled by Brahmadatta, king of the Assaka as a contemporary of Satabhu, king of Kalinga, Vessabhu, king of Avanti, Bharata king of Souvira, Renu, king of Vedeha, Dhataratta, king of Anga and Dhataratta, king of Kasi.

In Vayupurana Assaka and Mulaka were mentioned as scions of the Ikshvaku family. The Mahabharata speaks of the royal sage Assaka (Asmaka name rajarshi) as having founded the city of Podana. Panini makes mention of Asmaka which was in the interior of the Deccan watered by the Godavari. The commentator Bhattaswamin identifies Asmaka with Maharashtra.

We learn from the Nasik record of queen Goutami Balasri that her son destroyed the Sakas, Yavanas, Pahlavas and that his dominion extended not only over Asika, Assaka (Asmaka)
on the Godavari and Mulaka but also over Surata, Kakura Aparanta, Anypa, Vidarbha and Akara Avanti. It is believed that the Mulaka country extended in the south eastern direction of Andhradesa. Parts of Cuddapah and Guntur districts and the Medak district are referred to in the inscriptions and the Telugu literature until the 15th century A.D. as Mulakanadu or the country of Mulakas. Rayachoudhuri identified Potana or Potali with Bodhan in Nizamabad district, but this identification may not be correct. Phonetically the word Podana or Potali is nearer to Paithon. Moreover it was mentioned specifically that it stood on the banks of Godavari, whereas Paithan actually stands on the river. In Karimnagar region there is one village by name Mulugu, and its namesake is a taluk headquarters in Warangal district. A set of Andhra brahmins who drifted to the coastal region from Telangana in the past are still known as Mulakanadu brahmins, a sub-sect of Telanganyas. It is evident that Paethan was the real Potali or Podana, the capital of the Asaka country and in all probability the present Karimnagar region was known as Mulaka region.

In the fourth century B.C., the Magadhan empire was greatly expanded under the powerful but unpopular dynasty of the Nandas, who according to puranic accounts conquered all rival monarchs and became the sole emperors of the whole of India. The inclusion of Kalinga in the Nanda empire appears to be confirmed by the famous Hathigumpha inscription of Kharavela.
who ruled over Kalinga in the 2nd century B.C. in connection with construction of an aqueduct. Nanded on the upper reaches of the Godavari was sometimes identified as Nounanda Dhera indicating the extent of Nanda power into the Deccan.

There is no evidence of the Mauryan emperors who succeeded the Nandas having undertaken wars of conquest in the south, but they succeeded to the southern possessions is a matter of fact by overthrowing the imperial dynasty of the Nandas. Jain traditions affirm that when Bhadrabahu, the last of the saints prognosticated a famine of 12 years duration, the Mauryan emperor Chandragupta abdicated the Magadhan throne and migrated to the south with the saint and his pupils. According to Plutarch, Chandragupta overran and subdued the whole of India with an array of six lakh men. Kalinga was conquered by Asoka after a terrible war in which one hundred and fifty thousand were slain and many times that number wounded. No other conquest is attributed to this great sovereign. Some parts of the Deccan may have been taken by force of arms during the reign of his father Bindusara, who, according to Taranath destroyed the kings of the 16 towns and made himself master of all the territories between the Eastern and the Western seas. Asokan inscriptions were found at Maski, Koppal, Brahmagiri, Siddapura, Jatingaramesvara, Udegolam and Mittur in Karnataka and at Erragudi in Kurnool district of A.P. A considerable portion of the Deccan was indeed ruled by the vice-regal princes of Suvarnagiri and Tosali(Dhouli), the Mahamatres of Isila and
Samapa and the officers in charge of Atavi or the forest country.
The southern frontier of Asoka's empire did not extend much beyond
the locality of the southernmost group of his inscriptions
discovered at Siddapur, Jatingarameswar, and Brahmagiri.
Roughly speaking it touched the line which may be drawn along
$14^0$ Lat. Many writers believe that after the death of Asoka
and with the dismemberment of Mauryan empire, Satavahanas
established a monarchy over the entire Deccan, and seized the
imperial throne of Magadha which they held for some time.

There is a wide difference of opinion regarding the total
duration of the Satavahana rule. Among the puranas the Matsya
mentions 460 years, the Vayu, 411 years, the Brahmanda, Vishnu
and Bhagavata, 456 years. There is a general statement in the
Vayupurana that the Andhras would rule for 300 years. Smith
suggested that the Vayupurana reckons the duration of the dynasty
from the fall of Kanvas while the Matsya and Vishnu mention the
entire dynasty. In support of this view he records the dynastic
totals of 45 years for the Kanvas and 112 years for the Sungas,
added to the 300 years of the Satavahana total of the Vayu
would yield the Vishnu total of 457 years. There is a general
agreement among the puranas that there were 30 kings who ruled
for 456 years. Rayachaudhuri thinks that according to the
tradition preserved in the Vayu there were 19 kings who ruled
for 300 years while according to another tradition there were
30 kings who ruled for 400 years as the Matsya says. He quotes
the opinion of R.B. Bhandarkar who holds that the longer list
included the names of the princes belonging to all the branches of the so-called Andhra Bhritya dynasty and that the longer period represents the total duration of the reign of all the princes belonging to several branches. The period of 300 years in and 19 kings given in the Vayupurana and hinted at the Matsya refer to the main branch. Raja Chaudhuri concludes that the Matsyapurana which mentions 30 Satavahana kings includes not only the main branch but also the Kuntala line. If the main line of the Satavahana kings consisted of only 19 princes and if the duration of these was 3 centuries, there is no difficulty in accepting the puranic statement that Simuka flourished in the 1st century B.C. and his dynasty ceased to rule in the northern Deccan in the 3rd century A.D.

A large number of Satavahana coins have so far been recovered from many parts of the Deccan. But none of these coins represented Simuka, the founder of the Satavahana dynasty. Recently about 6 coins attributed to Simuka were presented by one gentleman Narahari to Parabrahma Sastry, who identified them as belonging to Simuka Satavahana. The coins have on the obverse an elephant to the left with trunk hanging down and traces of Ujjain symbol and the legend as 'Siri Chimuka Sata' and on the reverse a Ujjain symbol with double circles and a crescent on one orb. Parabrahma Sastry identified Chimuka of these coins with Simuka of the Nanaghat label inscription and the founder of the puranic list of the Satavahana dynasty. Palaeographically these coins are assignable to the last part of
the 1st century B.C. In the same paper Sastry identified a few more coins with legends Go Bhada Sa as that of Bhagabh Dutch, the 6th Sunga king. The third variety belonged to Samagopa which were identified as Samabhagha or Bhagavata, the 9th member of the Sunga dynasty. Therefore it may be reasonable to believe that the Sunga kings of the Vidisa branch had their authority over the Andhra country, the early Satavahanas being their subordinates.

Except these coins we do not have any other evidence to show that the Sungas ruled beyond Vidarbha and a stray case may not help to take a final decision. However the find of the coins attributed to Chimuka in the Karimnagar region is very interesting and it may help us to some extent to trace the origin of the early Satavahanas in the Karimnagar region.

SITES AND THEIR DISTRIBUTION:

As noted in the introduction, the whole of Karimnagar region is marked by a number of early historical sites almost in every alternate village. It is really puzzling why the early Historical sites were mainly concentrated in the Karimnagar region. It is likely that the political nucleus of the whole or a part of the Deccan must have been situated in the region, secondly the population during Satavahana period must have increased manyfold, thirdly it may be commercially very important region traversed by the ancient trade routes and fourthly, agriculture being the main occupation of the people they found a congenial abode in an area marked by arable,
Unlike the settlements of their predecessors, the people during the Mauryan and later periods, did not particularly select sites in the vicinity or major rivers. They spread far and wide into the interiors in quest of the arable land. But there is no evidence of irrigation. Probably dry crops such as maize, jowar and ragi besides rice formed their staple diet and supplemented by plenty of fauna and domesticated cattle. They already perfected the making and usage of well burnt brick and that is why they were not particular to settle in the vicinity of hills. The bricks used are as big as 50 to 55 cm. long and 25 to 28 cm. broad. It was so well burnt, that some pieces were actually fused by intense heat of the kiln and are as hard as stone. As we have noticed a perceptible change from the neolithic to the megalithic, we find a similar phenomenon at the inception of the early historic period.

**SETTLEMENT PATTERN:**

**Kondapur:**

Kondapur is situated in Medak district and is about 70 km. north-west of Hyderabad. The village is conspicuous on account of several historical mounds close by, one of which was excavated in the past by the Department of Archaeology and the erstwhile Hyderabad State. The excavated mound is adjacent to a small stream, feeding a small tank nearby. It has at an altitude of 1788 ft. above M.S.L. and 20 to 30 ft. above the surrounding ground level. Excavation at this spot in 1940 revealed some
The religious and secular buildings of the Satavahana period which are architecturally not very imposing nor even beautiful but quite efficient and skillful though somewhat plain.

**Peddabankur:**

Peddabankur (13.30 N. Lat. 79-30 E. Long) is presently a small village in the Peddapalli taluk of Karimnagar district. The historical site with an extent of 30 hectares is situated adjacent to the Karimnagar-Peddapally main road, which almost intersects the site in the north-south direction. The site is bounded by a nullah, as ancient as the cultures represented there known as Hussaini Vagu, about half a kilometer towards the west and one kilometer towards the south. It is generally dry in summer, yet the people draw water by scooping several pits in the bed. The surrounding hills are formed of granite and quartz occasionally traversed by dolerite dykes. The secondary minerals such as carnelian, jasper, chalcedony, crystal and quartz were freely available for the use of the ancient tool and ornament makers. The site and its surroundings are covered by alluvial blacksoil overlying disintegrated granite morrum. The black soil cover denuded at few places has exposed the granitic morrum capped by a microlithic industry. The excavation conducted by the Department of Archaeology and Museums at this place for several seasons under the supervision of the author revealed many brick structures, cisterns, wells and elliptical structures, besides an array of antiquities such as pottery,
iron, copper and terracotta objects which included a big collection of punch-marked silver, Roman dinari and Satavahana coins.

DHULIKATTA:

Dhulikatta also situated on the right bank of Hussainivagu is about 10 km. towards west of Peddabankur. The name Dhulikatta may be a corrupted form of Dhuli Kota which literally means a mud fort. The villagers know very well the existence of a mud fort which is popularly called the Kota area. It was deserted either due to a conflagration or due to the natural decay but the memories of the ancient glory still linger in the minds of the people. They have pointed out to the author some other areas in the proximity as Rajulakunta or Yenugula Cheruvu (Elephant's pond).

Peddabankur was a Satavahana village site but Dhulikatta promised to be a walled-town of the Andhras. As attested by Megasthanes, the Andhras have possessed numerous villages, 30 fortified towns and an array of one lakh infantry and two thousand cavalry and one thousand elephants.

The historical site with an extent of 18 hectares of land is roughly 6 mt. above the plains and enclosed by mud ramparts, raised with the earth dug out from outside the fort, and the trenches formed into a deep moat. As at Peddabankur the surrounding area of Dhulikatta is covered by fertile black soil.

About a kilometer exactly to the north of the historical mound a Buddhist stupa was discovered by the author and later
excavated. It is situated at the confluence of the above said Hussaini vagu and another nullah coming down from the north. In the vicinity, a kilometer away, is a modern village by name Vadakapura probably derived of two words - Vata Kapura, the latter, a much familiar word during the Satavahana period. As there was no anthromorphic representation of the Buddha at the above stupa and in the light of the Satavahana and other figures depicted on the ayaka slabs, the stupa may be said to belong to the Hinayana sect.

CHINNABANKUR:

The early historic mound at Chinnabankur is noticed towards the south-west of the present hamlet of Chinnabankur which is 4 km. away towards north of Peddabankur. The low mound not exceeding 2 mt. above the ground level is roughly 5 hectares in extent and littered with typical early historic pottery such as red polished, black and red and coarse red etc. The soil cover is black alluvium.

VENNURI:

The village Vennur is 2 km. away from the right bank of the Godavari river and approximately 15 km. from Anthergoan, in the interior. The village is approached by a muddy cart-track. The early historical mound about 3 mt. high above the ground level is in the middle of arable plains and mango grooves with an extent of 3 to 4 hectares. It is eroded at several places and a large number of early historical pot sherds were thrown-out. The presence of iron slag and iron ore may indicate an
indigenous iron industry.

**KAPPARPETA:**

The village is 2 km. east of Karimnagar-Laxettipet road. In the vicinity of the village, there is a hill locally known as Mulalagutta, the ascent to which is very hazardous. At the top of the hill 120 mt. above M.S.L, there is considerably spacious plain surface, marked by several early historical structures mostly of random rubble. The architectural plan of these structures is square and open towards the east. Close by these structures a few rock shelters are noticed over one of which is an early Brahmi label inscription. These rock shelters are in all probability inhabited by the Buddhist or Jain monks. The secluded place, far away from the human bustle overlooks the sandy expanse of the flood plains of the Godavari river.

**KOTILINGALA:**

Kotilingala, situated at the confluence of Peddavagu and the Godavari in the Peddapalli taluk, is about 65 km. from Karimnagar and 5 km. away from Mulalagutta. The early historical mound with a present height of nearly 6 mt. above the plains is roughly 50 hectares in extent. It is the biggest mound so far discovered. As at Dhulikatta the mound at Kotilingala is encompassed by a mud fort with several gates opening towards the cardinal directions. The entire mound is scattered with early historical pottery, beads, bricks, querns, etc. Some of the rain gullies
which cut across the mound showed the cultural strata as thick as 2 to 2 1/2 m. and marked by several habitational floors. Adjacent to the Godavary river bank the fort wall runs to a distance of more than 300 m. The bricks used for the structures measured 50 to 55 cm. long and most of them were ransacked by the villagers to be utilized for construction of their houses. In fact the entire village of Kotilingala is now built with the early historical bricks. Iron slag and ore are found in plenty. Outside the fort towards the north and adjacent to the water course of the river a long line of brick structures, some of them square in plan and some rectangular may indicate the presence of a wharf. The high mud fortification protected on the east and the west by the Mullah and the river Godavari respectively and the brick structures near the water course are reminiscent of a once commercially and politically important town. It is from this place the above said coins of Chalukya, the founder of Satavahana dynasty were collected.

On one of the stone slabs arranged as a fencing wall to a field on the way to Mumulagutta from Kotilingala, a few label inscriptions in the Brahmi character of second first century B.C. were noticed. On another sand stone pillar now lying in a paddy field about a kilometer away there is a label inscription which reads "Nagagopinikaya" in bold double lined ornamental characters of 1st century A.D. In view of the description of the river in "Gatha Sapthasathi" and the surface finds, the site must have been one of the strong holds of early Satavahanas.
KACHAPUR:

The site is situated by the side of Peddapalli-Choppadandi road, before it takes a turn towards Kachapur. At the northern extremity of the site there are low hillocks and outcrops of granite. The soil cover of black alluvium was eroded by rain gullies which exposed the ancient potteries such as red and black, red polished and coarse red, besides profuse occurrence of brick bats. The mound also is rather low compared to other sites and is about 6 to 7 hectares in extent. Iron slag was also seen.

BODAGUTTA:

It is about 9 km. from Peddapalli and situated on the foothills of Bodagutta on the Peddapalli-Ramagundam road. The area comes under the revenue jurisdiction of Kannala village. Besides the typical pottery, a fragment of an elongated neck of a sprinkler was also collected. The area extends to about 5 hectares. The soil cover is brownish in colour and fertile.

BOMPALLI:

The village Bompalli is less than 6 km. from Peddapalli. The historical site is situated between two hillocks on the left side of Peddapalli-Dharmaram road and spreads to an area of about 7 to 8 hectares. The low mound is covered by blackish-brown soil and marked by ashy patches.

RACHAPALLI:

The village is about 15 km. from Peddapalli. The site is noticed on the foot hills near the way to Paidichintalapalli from Rachapalli and is about 7 to 8 hectares in extent.
PAIDICHINTALAPALLI:

The early historical site was noticed on the right bank of Bandalavagu (near the project site) among the out-crops of granite. The soil is brown and very fertile. Exploration yielded large number of brick bats and typical pot sherds. This is also a low mound extending to about 8 hectares.

KADEEMKANAGARTHI:

The village about 9 km. from Peddapalli is a little in the interior from Peddapalli-Dharmaram road beyond Bompalli. This soil cover is black with a spread of 8 to 10 hectares. Intensive cultivation over the site threw up a good quantity of early historical pottery. Slightly away from the site are found a dozen medium sized megalithic cairn circles were also noticed.

KARNAMAMIDI:

The village Karnamamidi is about 16 km. from Laxettipet on the Laxettipet-Manchiriyal road near the north-bank of the river Godavari in Adilabad district. The site is on the left bank of a nullah to a height of 3 to 4 mt. from the surrounding plain. This is another extensive early historic site and spreads over 20 hectares. The eastern part of the mound revealed continuous habitation until the mediaeval times. Exploration at the site yielded profuse quantity of typical pottery and bricks etc. As the site is included in the flood plains of the river Godavari, much erosion is noticed. The soil is black with ashy patches. The river Godavari separates the Vemunur, Kotilingala sites of Peddapalli taluk from this site.
The present town of Bodhan in the Nizamabad District is another extensive early historical site covering an extent about 1 km. within and without the town of Bodhan. It is no wonder that some writers believed that it was once the capital of Asmaka country known as Potali or Potana. According to Suttanipath, situated on the banks of the river Godavari which is 10 km. away from Bodhan. Except the phonetic resemblance any other early historical settlement near the modern villages as Kotilingala or Karnamamidi on the Godavari river has a better claim than Bodhan to be considered as the capital of the Asmaka country.

None the less, the settlement appears to be much bigger than any of those mentioned before. The entire town is now enclosed by ancient mud ramparts to a height of 9 to 12 m. on the west of the village, a double fortification intervened by a deep moat. The inner fortification encloses a high mound where the historical citadel must have existed. On the top of the mud fortification the author has collected early historic pot sherds which may lead us to the surmise that the mud ramparts were raised in the post Satavahana period or it could also be that the early ramparts were reinforced during the medieval times and in the process digging out early historical habitation.

Bodhan was also the earlier capital of the Chalukyans of Vemulavada during the reign of Arikeśari II (930-955 A.D.). It may be recalled that in the recent past, an inscription of the time of Arikeśari II which records the name of "Pampa" the famous
author of Kannada Bharata was recovered in the vicinity of the mud ramparts.

Unfortunately the whole of the early historical site outside the town limits was cut off and levelled for wet cultivation. Even the present town of Bodhan stands over a part of the early historical mound.

**VADLURU:**

It is a small village in the Kamareddi taluk of Nizamabad district and is surrounded by a mud fortification with a height of 6 to 9 mt. The mound, enclosed by the fortification, was gradually hollowed out by the villagers, abandoning only segments of the original fortification adjacent to the village towards north.

Exploration inside the fort revealed large amount of early historic pottery, consisting of rim fragments of red polished ware, dark brown ware and dishes of black and red ware, sometimes white painted concentric rings at the base inside and sherds of dull red ware lid cum bowls etc. Undoubtedly there was a flourishing early historical settlement at Vadluru from the Pre-Satavahana times and the occupation continued till the Kakatiya period. The construction of the lake adjoining the fortification towards north may be attributed to the Kakatiyas.

The thickness of the total habitational deposit is more than 3 mt. containing many ashy pits and post-holes. Typical Satavahana brick pieces were also collected.
Kolakonda may possibly a short form of Kolanukonda, in view of its location in the vicinity of a huge lake, "Ramasamudram" and abutting a range of granite hills. The early historical site at Kolakonda is noticed in an area of about 50 hectares over the inclining plains between the Chinnagutta and nullah which is a tributary of the river "Maneri". Traces of early historical habitation were noticed up to the middle height of the hill. The surface collection included wares of black and red, red polished coarse red and all black. Besides, there is also a good collection of Neolithic stone axes. The entire mound to a thickness of more than 4 to 5 metres was covered by black alluvium most of which is now dug away by the villagers for manuring the fields. Only small chunks are left here and there.

A few trial trenches have been sunk by the Dept. of Archaeology under the supervision of the author at different places which revealed a deposit of the megalithic habitation to a considerable thickness capped by Satavahana. With the exception of a few post-holes no traces of permanent structures were noticed.

Polakonda:

The early historical site at Polakonda was noticed at the foothills of Peddagutta towards the south with an extent of nearly 10 hectares. The Dept. of Archaeology and Museums had undertaken trial excavations which revealed 3 periods of
occupation, the pre-Satavahana, Satavahana and the medieval.
The pre-Satavahana phase was marked by a majority of brown ware
besides black and red, black brown and dark brown wares with
a mix up of red polished ware. Few post holes may indicate
that house. The Satavahana phase was characterised by a brick
structure over rubble foundation. In one of the cuttings a
brick wall of 2 courses (each brick measuring 54 x 26 x 7 cm.)
was noticed. The lower courses have a 10 cm. broad offset.
The western and southern walls measured 5.10 mt. long 0.55 mt.
broad, the other walls were ruined. The bricks were well burnt
and consisted of a profuse mixture of sand, grass and small
twigs. No husk was found. In the middle of the structure, a
cistern 1.70 x 1.90 mt. was noticed. Internally it measured
85 x 75 cm. with a present depth of 60 cm. The floor was paved
with brick for making it water tight. Post-holes were noticed
over the walls at regular intervals possibly for erecting wooden
posts for supporting the roof.

From the pre-Satavahana period there is a solitary potin
coin inscribed with a early Brahma script, datable to around
2nd century B.C. The legend is not very clear but reads as
"Mahatala(vara) Sivasaka (or sabha)". In the middle there is
a beautiful figure of horse standing to left and on the reverse
nothing is visible. In this connection it may be recalled that
a terracotta seal recovered from pre-Satavahana level at
Feddbankur is inscribed with a Brahmi legend reading "Mahatala-
varasa Vijayasamikasa seva sabha". Some coins belonging to
Maharathi Vilivayakura, and "Sivalakura" were found in the Kondapur region in the past. It is now evident that this region was governed by Maharathis and Mahatavalaras either under the early Satavahanas or some others.

**ARCHITECTURE:**

**FORTS**

Kautilya in his Arthasastra envisages that a fortress known as Sthaniya shall be set up in the centre of 800 villages, a Drona Mukha in the centre of 400 villages, a 'Kuaratika' in the centre of 200 villages and Sangsahana in the midst of a collection of 10 villages. The ruins of the early historical towns in the villages in Karimnagar region are divisible into two categories, the fortified and the unfortified. The towns or villages which are politically and commercially important were provided with fortifications. The points of difference between a town and a village were that the town was protected by a ditch and a wall while the villages were not. The town was inhabited mostly by traders in addition to the king and his appurtenances, while the village was inhabited by the agricultural people. The ordinary villages do not have any protection. Some of the fortified towns were noticed in the middle of the plains or sometimes abutting hills and sometimes girdled by rivers or deep nullahs.

In the Arthasastra, we find 4 types of fortification, the water fortification (Audaka) such as an island in the midst
of a river, a plain one surrounded by low ground; a mountainous fortification such as a rocky track or a cave or desert such as a wide track, devoid of water and overgrown with thicket in barren soil or a forest fortification (Vanasurga) full of wagtail (Kajana) water and thickets. The material for raising the ramparts was always mud, dug out from outside of the settlement on all sides, the trenches thus excavated simultaneously serving as moats. The most important parts of a city were a moat (parikha) rampart (prakara) and gates (dvara) which served as the main defences.

The ancient sutra literature envisages a regular town planning. The masking out of the site of the moat, the rampart and the palace formed the preliminary part of such planning. The scheme of a fortified town, according to Samaranana Sutradyahara (Chapter X, 1-2) a late work, comprised the following five principal elements of defence.

1. Prakara, the surrounding walls
2. Parikha, the moats
3. Dvara, the gates
4. Attalakaa, towers and the turrets
5. Rathya, the chariot roads connecting the town with the country.

The Vastu Vidyacharyas or expert architects were requisitioned for testing the sites. The Arthastra prescribes that the digging of ditches (Parikha) as the first item in the
construction of forts (Durga-viṣhāna). We find in Mahābhārata that the city of Indraprastha was mapped out and measured in the presence of Dvaipāyana Vyāsa and others and that work was commenced with the digging of a series of moats, followed by the building of a high rampart, numerous gate-ways and towers (Adiparva, 209, 29-32). The moat was first built so that the earth so obtained was utilised for constructing the mud rampart (pamsū-prakara) or for moulding bricks for the city wall.

The Arthaśāstra prescribed digging of three moats round the fort, having an intermediate space of one danda (six feet) between each other. The Udaya Jataka (IV, 106) mentions three types of moats, viz., Udaka, Kadda or a water moat, a mud moat, and dry moat. Panini suggests a Devapatha or passage above the ramparts. According to Keutilya, the wide moat on the top of the parapet built along the line of battlement was called Devapatha. The height of the brick wall above the mud rampart is stated to be 36 ft, rising from ground level and the battlements were built above it. The Raghuvamsa also refers to Devapatha (XIII, 19).

GATEWAYS:

The plan of the ancient walled cities was either rectangular or square, and provided with four gates one in the middle of each wall, facing four cardinal directions. These gateways were named after the other city towards which it opens. The naming of the city gates has continued throughout up to the
present days. The Golconda fort of the Yutub Shahi period was named as *Mecca-o-Darwaja*, *Banjara Darwaja* and *Fatih-o-Darwaja* etc. Many gates built in the Moghul period derived the names in the above manner, such as *Ajiniri Darwaja* etc.

The gate-ways appear to be of the two types, the *torana* and the *gopura*. The *torana* was an ornamental gateway without a door. The *gopura* was the city gate way.

**FORTS IN KARIMNAGAR REGION:**

The mud fort at Kotilingala rises to a height of 6 to 9 mt. from the surrounding plains. It was enclosed by the Godavari river on the north and by the Kapparaopet vagu (nullah) on the east. The nullah takes a turn towards south at about a kilometre away, thus fortifying the town on both the east and the south. The main gate to the fort is noticed towards the south connecting a high-way. The fortification on the Godavari side was much ruined due to flooding and erosion. However a gate in the middle of the rampart was traced which served as an inlet and outlet for the merchandise. It must also have served to supply water from the river. At all the corners of the fortification there are bastions presently appearing like high mounds.

**BUDIGAPALLI:**

The fortification around the early historical mound appears like a bund of a tank to a height of 3 mt. from the surface. The fortress is in juxtaposition to a range of hills known as Valasagattu on one side.
The early historical mound to an extent of 18 hectares of land is enclosed by a mud embankment, once served as ramparts, with a present height of 3 to 5 mt. Four gateways were traced at the four cardinal points. Out of these, excavation was conducted at the southern gateway which brought out the plan of the guard rooms, prefaced by a gatehouse. The plan of both the buildings is problematical, as nothing more than the foundations have survived. However it appears that the guard rooms comprised two rectangular halls with a middle pathway and with an outside measurement of 15.13 mt. north south by 14 mt. east-west. There is a gap of 4.40 mt. in the middle for the pathway. While building the guard rooms, it appears large chunks of the rampart were cut off on either side of the building for accommodating the structure in the width of the rampart. The flooring inside the halls was paved with brick (56 x 27 x 7 cm.). The middle pathway was initially strengthened with rubble and veneered with morrum and silt.

The plan of the gatehouse prefacing the guard rooms is uncertain as it was not found in entirety. It constitutes a broad gateway outside and cramped in the middle which again widens towards the guard rooms. The central part of the gatehouse with space sufficient only for the pathway had casemates or ambush niches on either side. The only existing casemate on the west (1.20 x 0.90 mt.) was actually carved into the body of the wall. A flight of steps was provided to
the casemate. Evidently a room of such small dimensions with a flight of steps could only serve as an 'ambush niche' to post armed guards who would not be visible to the incoming and outgoing people. At present the 'niche' appears like a 'cistern' and is filled up at a later period with coarse red conical bowls, dishes and animal bones.

The facade of the gateway must have had one or many storeys with a terraced roof, railings and pillars. Access to these storeys might have been provided with stair-cases. The depiction of the city gates of 'Khunara' as seen in the lowest architrave of the south gateway of the Sanchi Stupa may be a replica of the city gates during the period under review.

THE MUD RAMPART:

The rampart to a height of 5 mt. was constructed of the earth dug out from outside. Traces of the trenches which once served as moats are visible. The lowermost portion of the rampart consisted of hard yellowish morrum overlaid by a layer of black soil capped by another layer of disintegrated morrum. Adjoining the mud fortification inside was traced a rubble foundation, the superstructure of which is now completely ruined. This must have been a brick fortwall as the super structure and the battlements were built above it.

The height of the brick fort wall above the ramparts was prescribed to be 11 mt. rising from ground level, but we do not have an idea of the height of the brick wall at Dhulikatta.
**Village Sites**

Kautilya has stated that the king may construct villages either on new sites or on old ruins by inducing foreigners to immigrate or by sending forth the excessive population from the thickly populated centres. Boundaries were denoted by a river, a mountain, a forest, bulbous plants, caves, artificial buildings or by trees such as Salmali, Sami and Ksheera Vruksha (Cactus) etc.

The villages were marked out by their natural boundaries such as forests (vanga), thickets (kathina) rivulets, hills, jungle etc. The settlement at Peddabankur was a village with no walls around. Interestingly three huge brick structures were revealed in course of excavation. The enclosures or prakaras appear like castles and have only a single gateway either in the north-east corner or the north-west. These were evidently occupied by wealthy individual families. We do not at present have an idea about the height of these structures but they are more than 2 mt. broad. Inside these prakaras traces of houses, wells, cisterns etc. came to light. It is likely that these were occupied by groups of families. The entrances were also very broad, sometimes more than 3 mt. intended to allow vehicular traffic. They were self-sufficient units. Some enclosures have even two to three wells most of them nearer the walls. In the first enclosure a huge brick well was noticed in the middle of the northern wall, another
well cutting into the western wall and a third smaller well adjacent to the south wall. In the second enclosure there was no well inside but it was there at the north-eastern corner outside. The used waters of the well were led out to a soak pit lined with terracotta rings.

ROAD PLANNING:

The roads and their planning form one of the most important canons of town planning. Roads have threefold functions, they are highways for traffic from region to region, secondly they constitute a vital limb in the town planning and thirdly they have sanitary value, providing arteries for free ventilation. According to Aitereya Brahmana the royal thoroughfare was called Rajapatha or Sruti whereas the national high ways were known as Mahapatha. It appears that the latter was connected with and fed by many thoroughfares leading to different parts of the country, while the former was comparatively free from dangers and its construction was better than Mahapatha. In Devi Purana it was mentioned that the royal street or highway should be made as wide as 10 Dhanus, i.e. forty cubits, so that men, horses, elephants and vehicles can have free movement without interference and congestions. Sukracharya prohibits the construction of small lanes such as Veedha and padya (foot paths) in the metropolis or large cities. In Artha Sastra we find mention, of chariot roads, royal roads, roads leading to Dronamukha and other minor forts, country parts and pasture grounds which should be four Mandas or 24 ft.
in width. Roads leading to military stations, burial and cremation grounds and to villages shall be 8 danda 48 ft. in width, roads to gardens, groves and forests shall be 4 dandas and roads leading to elephants stables and forests shall be two dandas.

The road through the southern gateway at Dhulikatta mud fort was paved with rubble and veneered with morrum and sand. This might be the method of constructing a road in other towns as well. The important commercial towns and villages were possibly connected by a network of roads. The region was actually traversed by ancient trade routes (Sarthavaha patha) one leading from north to south connecting Buddhist establishments and the other from east to west connecting Dhulikatta, Phanigiri, Gajulabanda, Tirumalagiri, Nelakondapalli, Nagerjunakonda and Dhanakataka. From Pauni in Vidharba region the Buddhist pilgrims might have travelled by forest roads or boat on the Wainganga river which falls into the Pranahita, a tributary of the Godavari. At the point of confluence of the Pranahita and the Godavari, the pilgrims possibly crossed the Godavari at the neighbourhood of Kaleswaran in Mahadevpur taluk in the Karimnagar district. From Mahadevpur they would reach Dhulikatta, the only Buddhist establishment in north-western Andhra Desa. The caravan route towards the west reached Tagara (Ter), Pratishtana (Paithan) on the banks of the Godavari and reached Sopara through Ellora and Nasikya (Nasik).
It was prescribed in the ancient texts that the land and the landscape for building ideal towns and surroundings must consist of hills, mountains serving as natural frontiers not to be easily crossed from the security point of view. This is an invaluable asset but this rule cannot be adhered to everywhere, especially when the towns or villages were to be built on plains. Hence fortification was needed. Practically all the ancient towns and cities on the plains were fortified and a green belt of forests where tall trees and plants full of verdure and flowers were in abundance. This was necessary not only from the point of view of healthy climate but also conducive to the growth and maintenance of the population requiring fruits, fuel and fodder. The other requirement was water without which no life can subsist and hence the rivers, lakes, ponds and tanks were indispensable for the lay-out of a town.

Town Planning:

Any town plan in ancient or medieval India must bestow sufficient attention to the rajavesa, the residential quarters of the king and his kinsmen. The Samarangana Sutradhara says that after the town has been planned all the roads both highway and the central ones together with the maharathyas, uparathyas and their auxiliary ones, the streets, lanes and by-lanes have also been planned out, the fortification in all its ramifications and component parts of the surrounding ditches,
ramparts and walls has to be completed. Then a piece of land was selected at the western side of the centre in the orientation of the north and the palace of the king should be built thereupon. The same text makes a classification of the palace into three categories viz. the jyesta, the superior madhva, the intermediate, and the kanista, the lower type.

Excavation in the middle of the mud rampart at Dhulikatta revealed a palace complex and the residential quarters which have been several phases of construction. In the earliest occupation level which was probably contemporary to the construction of the Buddhist stupa a huge enclosure wall of 26 x 30.50 mt. was raised over a single course of rubble foundation. The existing height of the wall is 2.60 mt. and 80 cm. broad. The structural plan of the buildings inside this enclosure is beyond surmise as they were all covered by buildings of successive phases, but at a depth of 1.60 mt. from the surface two parallel walls in the east-west direction were exposed. But for an entrance with a door step the remaining plan underlying the later structures could not be gleaned.

During the second phase the structures were raised over the ruins of the earlier phase over a foundation of rammed earth raised to a height of 40 cm. Part of a structure over this rammed earth foundation consisted of two rooms which seemed to have been covered with tiled roof as noticed by a debris of
fallen tiles in the vicinity. Towards the south of these rooms two store rooms, each measuring 1.05 x 0.65 mt. were uncovered. Slightly away towards the north is another rectangular room of 6.75 x 4.50 mt. On the exterior of the northern wall of the above room several vertical grooves were carved so as to hold wooden pillars to support a terraced roof. A 50 cm. broad entrance to the building was traced towards the east. The flooring of this phase was laid in lime concrete which was noticed in a fragmentary condition.

In the third phase, the structures were characterised by spacious halls with floors paved with brick, multistoryed buildings, granaries and wells provided with sewage signifying a period of prosperity.

The plan of the main building of this phase may resemble that of a quadrangular building known as Chatuasala with four rectangular halls on four sides and a central court-yard opening to the sky. The entire edifice forms into a square in plan. The eastern hall in the north-south orientation measured 9.35 x 4 mt. In many chambers chases sunk into the face of the walls mark the places where wooden beams were originally let into the masonry. The southern hall which measured 10.80 x 4.00 mt. had a platform with a flight of steps. This class of Sala houses was most common in the early historical period. At the south-west corner inside the enclosure wall of the first phase, a brick well, square in plan (1.45 x 1.35 mt.)
was exposed. Adjacent to the well to the west is a platform with two post-holes evidently for erecting pillars to support a pulley. A covered drain 70 cm. broad runs adjacent to the wall.

While removing the filling from the above well a beautiful ivory button seal inscribed with Brahmi characters reading as 'Ajanisiriya Gama Kumariya' was recorded. A little north to the well are two granaries partitioned into compartments, one measuring 1.30 x 1.35 mt. with a depth of 4 mt. and the other 1.25 x 1.35 mt. with a depth of 3 mt. The granaries were constructed with brick in the shape of an inverted pyramid tapering towards the floor. The bricks were laid in receding layers so that one can easily get-down to the floor. The filling inside the granaries consisted of two gold beads, a few Satavahana potin coins, animal bones and pottery. Another granary in the vicinity also in the inverted pyramidal shape measured 1.35 x 1.45 mt. with a depth of 1.60 mt.

In the fourth phase the buildings were plastered with lime and burnished to smooth surface. Lime concrete was used for paving the floors. The brick used for buildings of this phase seems to have been removed from the structures of the earlier phase. A soakage pit with a partition in the middle (1.25 x 1.25 mt.) is noticed at the north-east corner. Construction of granaries continued of which one was a perfect square in plan and measured 2.16 x 2.15 mt. and the other 2.50 x 300 mt.

As in the previous phases, the buildings of the fifth phase were raised over the ruins of the earlier and were much disturbed
due to constant cultivation during the later periods. Most of the bricks from the buildings were removed and carried-away by the villagers, as such, the structural plans are not clear.

During the last phase the constructional activity with brick had completely ceased, and the entire complexion of the habitation changed. Hutements sometimes square in plan and sometimes oval sprang over the ruins of palaces. The area became the habitat of artisans who eaked out their livelihood by sweat of brow. They included bead-makers, produced precious and semi-precious beads. Terracotta art flourished but ceramic art deteriorated.

The above said palace complex situated slightly west of the middle in the midst of the fortress. From the beginning of the constructional activity traceable to 3rd century B.C., the buildings were constructed with well burnt bricks with measurements 55 x 27 cm. or 60 x 25 cm. The length is always double of its breadth. The mortar was mud and the bricks were laid in headers and stretchers. The plans of the buildings were invariably rectilinear. Interestingly the structures do not have strong foundations, occasionally a single course of small rubble was used, sometimes they consisted of rammed morrum. However the buildings stood firm. In the earlier phases the floors were simply paved with small kankar and sand but it was replaced by lime concrete in the later phases. The walls were beautifully plastered with lime to a smooth surface. The entrances had flight of steps with ardhachandra shaped brick step at the floor level outside.
As described above some of the walls have grooves cut into the body at regular intervals, evidently for raising wooden pillars to support a terraced roof. Some buildings were covered by corrugated tiles perforated at one end. Many such tiles were noticed in the course of excavation. The breadth of the walls, usually 1 1/2 to 2 m, may indicate the existence of multi-storeyed buildings. The palace complex in the middle of the mud fort was enclosed by a massive brick enclosure wall with an existing height of nearly 3 m.

**FOLK ARCHITECTURE:**

After the planning of the roads, ditches, ramparts and the rajavasa, the next important item is the planning of the residential houses of the people. They were principally five kinds of towns in ancient and the early medieval period—temple cities, capital cities, and commercial towns, forts, and big villages, like Khota, Nizams corresponding to five principal needs of the civilized life, viz. worship, state craft, commerce, defence and agriculture. 30

According to caste-wise allocation in a town the Samarpana Sutraň̄a 31 recommends the following procedure:

1) The Brahmanas were allocated to the north, the Kshatriyas the south-east, the Vaisyas the south and the Sudras the west.

As already noted, the settlement at Peddabakur appears to be a village with an extent of less than 5 hectares, and without a fortification. In the course of excavation many
Residential buildings constructed of either brick or mud over rubble foundations have been uncovered. These include three enclosures or prokaras, elliptical houses, cisterns and wells, soakage pits and covered drainage.

The enclosures constructed of well-burnt bricks are squarish in plan without any adjuncts. The breadth of the walls is nearly 2 mt.

**Enclosure II - (Pl 10.6)**

This measured 16.80 x 15.80 mt. with a wall thickness of 0.65 mt. Ten courses of brick are now extant. A small entrance was seen in the middle of the southern wall. Over the top courses of the structure, post-holes at irregular intervals were noticed, evidently of a later period. Outside this enclosure at the south-western corner there is a brick well connected to a soakage pit lined with terracotta rings, each measuring 59 cm. in diameter and 37 cm. high with a thickness of 2 1/2 cm. Due to pressure of top soil, the rings were pressed down and consequently broken. A few red ware pot sherds and charcoal was scooped out of the pit. In the course of excavation in this structure, a punch marked silver coin besides a red polished globular pot impressed with a trident standing over a pedestal was noticed almost in the middle. This symbol was impressed at four places over the pot. In view of the stratum (layer-III) in which it was found constructed, this structure is datable to around 1st-2nd century B.C.
ENCLOSURE III:

About 10 meters east of the present main road another rectangular brick enclosure measuring 30 x 40 mt. was exposed, the longer axis being in the north-south direction. The trial probing work conducted by the Department before taking over the site under its protection laid bare a portion of the structure which was left uncared for resulting in the wholesale robbing of brick by the villagers. Some undamaged portions of the southern and western walls are 1.79 meters broad with three to four existing brick courses. In the remaining damaged portion only a 2 meter broad rubble basement was exposed, the size of the brick of the enclosure is 55 x 23 x 9 cm. A single 2.60 meters broad entrance was noticed at the north-easterly corner. The broad entrance was evidently intended for letting-in vehicular traffic.

ENCLOSURE-III-

The 3rd Enclosure, squarish in plan measuring 30.80 x 30.80 mt. is situated on the south of Enclosure-I, about 100 m. away. The walls are 2 mt. broad and the brick measured 54 x 21 x 9 cm. Most of the bricks were not burnt well and consequently broken to bits. This had also resulted due to pilferage of the well preserved bricks. The structure was raised over a single course of rubble which was laid bare at many places. The walls on the north-east and south are intact. The western wall was completely robbed.
It is not clear whether these enclosures were inhabited by single families or groups of families. Inside these enclosures, 2 or 3 brick wells were invariably noticed. Only in the Enclosure II, which is smaller than the other two, the brick well was noticed at the south-western corner outside and connected to a soakage pit. Inside Enclosure III are two elliptical houses raised of mud walls. But these were not contemporary, one was earlier and the other later. The plausible reason would be that they contained quadrangular halls inside, raised all along the walls with a central opening in accordance with the fashion of the age. Outside these enclosures and contemporary with them are the houses of common folk, mostly having mud-walls covered either with thatch or tiles. From inside Enclosure-II came several thousands of Satavahana coins.

The plans of the houses are either rectilinear or elliptical. No round huts are seen. For the above two types, the basement consisted of rubble.

**WATER SUPPLY:**

The fundamental necessity for a town or village was a good natural supply of water and hence the river, lakes, ponds, and tanks were indispensable prerequisites. The most potent factor giving rise to the towns in ancient India was the presence of water in abundance. Consequently all the important towns and cities rose either on the bank of a river or a nullah.
The water reservoirs were given a special treatment in many works dealing with architecture. In the later works as *Aparajita-prača*[^32] and others three main varieties of water reservoirs were mentioned *Kupa*, *Vapi* and *Tataka*. There are ten varieties of *kupa*, the well. These varieties vary in their respective dimensions i.e. *Srimukha* is to be laid-out in four hastas and the *Sankara*-type to be laid out in thirteen hastas, but all these should be laid circular.

Panini[^33] also mentions that the villages depended for their water supply on wells (*Kupas*) to which were attached *Kipanas* or water troughs from which cattle would drink. Wells were cleaned by specially trained labourers who acted as dredgers called *Udaśāhā* or *Udakaraśāhā*.

Whatever water was used by the house-holders had been drawn from wells constructed of brick and occasionally terracotta ring wells. This is the case with regard to the settlements away from the main rivers. At Peddabankur as many as 22 wells were exposed in the course of excavation. Out of these only a single well was lined with terracotta rings with a square brick casing enclosing the rings at the top course. One well of brick is exactly square in plan and the remaining 20 are round and constructed with wedge-shaped brick, the antiquity of which can be traced to the Harappan period[^34]. It was noticed that semicircular flat based (hog backed) bricks to a height of about 30 cm. were placed over the top courses of some of the
wells at the place wherefrom water was drawn in order to allow water slip inside or outside the well to avoid damage to the brick lining. In the later period when the wells were dried-up they were used as refuse pits for throwing down the garbage like broken pottery animal bones, ash and charcoal. In well (P/10.d) No. 1 constructed near the northern wall of enclosure-II inside, the filling from the well was removed down to a depth of 3 mt. It consisted of coarse-red conical bowls, globular vases, lotas, animal bones etc. All the bricks right from the top to the bottom used for steening the well are wedge-shaped which measured 33 x 20 cm. and 20 cm. long. The bricks were well burnt. Well No.10 was square in plan measuring 90 x 90 cm. The steening of brick was noticed up to the morrum level encountered at a depth of 2.45 mt. but the total depth of the well goes down to 3.55 mt. The finds inside the well were charcoal splinters, an iron rod, flakes of mica, fragmentary animal bones, iron slag, corrugated tiles, terracotta beads and pottery. Another well also steened with wedge-shaped brick had a diameter of 1.52 mt. inside. Excavation down to the last course exposed 39 courses, laid over a bed of pinkish hard morrum. The length of the brick is 30 cm. and thickness 7 cm. While exposing this well another well steened with brick was incidentally exposed just at a distance of 1.80 mt. towards the south. It has only 13 brick courses laid over a morrum bed. It appears the upper courses were removed for constructing the well mentioned above. The second well was much earlier in usage than the
former as evidenced by a layer of pot-sherds. To the west a 
deep pit was cut for leading-out the sewage. The bricks 
measured 33 cm. long and 3 cm. in thickness, wedge-shaped and 
well burnt. The diameter of this well is 1.50 mt.

Slightly towards north of these two wells, a brick drain, 
oriented east-west, came to light. It was constructed of 
bricks placed in 3 courses with a middle space of 12 cm. for 
the drain. The floor was also paved with brick. At regular 
intervals side vents were provided on both the sides to let out 
excess water presumably for avoiding bottle-necks. The drain 
was covered with brick to the full length. Due to pressure 
from the top deposits and also due to looseness of the ground 
soil the drain had sunk at several places in an undulating 
fashion. The total length of the drain is 11.15 mt. The 
starting point of the drain could not be located as it was much 
damaged. It must have been led-out from a collapsed tiled 
structure exposed nearby, which evidently was a bathroom. The 
brick of the drain measured 67 x 27 x 9 cm. It was led towards 
east to join a long ditch in north-south orientation.

As already mentioned there is only one terracotta ring 
well at Paddabankur. Each ring with a convex body measured 76 cm. 
in diameter and 38 cm. in height. There are altogether 21 rings 
upto the morrum bed. The top most ring was enclosed by a square 
coping of brick which measured 1.75 x 2.10 mt. outside and 
0.90 mt. inside which is the diameter of the well.
None of the wells have washing platforms around. The sewage was allowed to percolate inside or led to a pit in the vicinity. Only one well, found outside the Enclosure II had a soak pit lined with terracotta rings. As far as would be observed mud mortar was the only cement used to bind the bricks forming the steening of the wells. Due to lack of paved floors around the wells it could not be decided as to what height the well was projected above the floor of the court in which it was situated. The excavated trench, before it was steened with brick was much wider and the gap between the trench wall and the bricks outside the well was rammed with morrum and hard earth to prevent waste water from re-entering the well. The top portions of some of the wells appear to be displaced and the brick surface much abraded by the ropes or the drawing vessels rubbing against them. In some wells where the brick surface is well-preserved the water may have been lifted with some form of windlass as there are no marks caused on the surface by the friction of the ropes. If windlasses or pulleys have been used on any of the wells, these must together with their supports have been made of wood. In a well, found at the north-east corner, inside Enclosure II the gaps which carried such wooden poles on either side were noticed.

**Cisterns:**

Brick cisterns or troughs invariably form the essential feature of civic life during the early historical period. Many such cisterns excavated at Peddabankur were constructed of well
burnt bricks. Some of these had floors rammed with morrum and then paved with brick to prevent percolation. But some have only rammed floors. The other feature is that none of these cisterns are near the wells, but found at considerable distance.

One cistern is a perfect square in plan measuring 35 x 35 cm. and has presently only two brick courses, the bricks measuring 55 x 22 cm. In the middle of the cistern was noticed a hog backed coping brick and a broken quern by the side of the brick. Evidently the hog backed and flat based bricks was used not only for the top courses of the wells but also over the cisterns.

A second cistern was found almost in the middle of the Enclosure III. It has 6 courses of bricks and measured 80 x 75 cm. inside. The floor was first rammed with morrum and then paved with bricks. Cisterns with brick paved floors are rare. Adjoining the cistern is a washing floor bordered with brick but the floor inside was not paved. Towards the south-west of Enclosure II and 50 mt. away 3 brick cisterns at varying distances were noticed. They measured No.1, outer 1.11 x 1.11 inner 0.66 x 0.66 mt.; No.2, outer 1.10 x 1.10 mt., inner 0.60 x 0.60 mt., No.3, outer 1.10 x 1.10 mt. inner .60 x .60 mt. A well (No.6) which was steened with wedge shaped brick was found at some distance to the cisterns.

Another rectangular brick cistern with four existing courses measuring 2.37 x 1.47 mt. came to light also at Peddabanksur. The lowest course slightly projected outside and the corners have
been rounded. Adjoining and to the north of it is a flight of two steps possibly for taking-out water. The floor inside the cistern was tightly packed with morrum. Slightly away, a debris of tiles would indicate the collapsed roof of the house covered with tiles. To the north and adjoining the cistern are two more cisterns of equal dimensions (80 x 80 cm.). One is slightly at a higher level and adjoined with a brick platform studded with iron slag. In all probability the 3 troughs and a hearth (22 cm. broad) and the working platform studded with slag are the remnants of a blacksmith's workshop.

**RELIGIOUS ARCHITECTURE:**

**Brahmanical**

None of the sites excavated or explored in the Karimnagar region gave us any evidence of temples of the Brahmanical origin. A single brick cell about 100 mt. away to the west of Enclosure-III appeared like a temple without giving us any knowledge as to what deity it was dedicated to. The brick temple measured 6.30 x 4.90 mt. Chases were cut into the body of the inner surfaces of the walls, suggesting that the roof was supported by wooden poles. A small gap of one meter found at the south-west corner might have served as an entrance, or else it could be that the wall at the spot was removed in the later period.

Another structure to the east of Enclosure III and 50 mt. away is rectangular in plan and measured 2.00 x 2.50 mt.
To the west of it there is a flight of steps. While exposing
the steps a fully polished stone axe of delerite came to light.
It appears that the people had kept the relics of the past as
mementoes; otherwise no significance can be attached to the
stone axe while dealing with an age characterised by highly
developed metal technology.

**BUDDHIST:**

The other variety of religious structures which could
easily be distinguished from domestic architecture are the
Buddhist stupas. While excavating the early historical sites
at Peddabankur and Dhulikatta we were puzzled as to the
religious proclivities of the people. Notwithstanding the
occurrence of terracotta figurines of Mother Goddesses and
Yakshas etc. there was no other clue. The discovery of a
Buddhist stupa a km. north of the Dhulikatta mud fort solved
our problem to some extent. Reviewing all the available
evidences it may be presumed that the Buddhist religion was
more organised than the Brahmanical, atleast among the
common folk.

Excavation over the mound brought out a Buddhist stupa
constructed during the last quarter of the 3rd century B.C.
and was embellished with carved *ayaka* slabs during the 1st
quarter of the 2nd century B.C.

**CONSTRUCTION OF THE STUPA:**

The stupa consisted of a brick drum with a height of 2 mt.
over a single layer of rubble basement. The *anda* or the dome
rises over the garbha to a height of 5 m. and crowned by a harmika and chatra. The chatra, carved in lime stone, was recovered in fragments in the course of excavation. The 1st phase of the stupa saw the construction of a solid drum enclosed by a square platform to serve both as buttress to the garbha and as well as a pradakshina-patha. For maintaining a hemispherical shape the 'anda' was raised in several stages, in alternating courses of brick and morrum. The lowest brick course of the 'anda' above the drum slightly projects. Then a layer of morrum to a thickness of 36 cm. was laid over the first course. The second course of bricks above the morrum layer was arranged in headers and stretchers. For getting a circular shape, no wedge-shaped brick was used. Apparently these were not in vogue at the time of the construction. However, a perfect circle was obtained by filling up the gaps between the rectangular bricks by earth and brickbats. Again, over the second brick layer a 57 cm. thick deposit of a mixture of silt, morrum and brick-bats was raised. At the top of the dome there is a square brick cell which probably served as harmika.

The programme of expansion during the second phase consisted of enlargement of the drum circle by constructing a second tyre around the earlier one and then the avaka platforms were raised at the four cardinal directions. The avaka slabs were affixed to the exterior face of the enlarged drum with lime plaster.
The garbha of the stupa was bedecked with 47 carved avaka slabs, which are mostly intact. On one of the slabs the Muchilinda Naga, a five hooded cobra protecting Lord Buddha, symbolically represented by his feet, was exquisitely delineated. At the top of the five hooded Naga over the frame was inscribed a label, an early Brahmi script datable to circa 2nd century B.C. It reads as GAHAPATHINO PATHALAGA BHATHUYA SAMAYA PANAM (PLIBC). The slab was affixed to garbha with a thick plaster of lime. Interestingly, the Naga slab at the northern avaka platform is prefaced by a huge pipal tree.

In between the eastern and the northern avaka platforms there is another slab bearing the five hooded Naga slab inscribed in early Brahmi characters reading "PRITHA NANDI PUTHASA DUHUTHUYA SAINONIJA PANAM" the Naga Muchilinda on both the slabs was crowned by a chastra under the shade of a pipal tree shown in incised design. The Buddhapadagas were carved over the coiled body of the Naga. In the other panel is found a dhamachakra with the two votary couple standing on either side in anjal. Most of the slabs have the representation of stupa depicted in bas relief. As there was no anthropomorphic representation of the Buddha the stupa had remained as a bastion of Hinayana sect without any influence of the Madhyamika school. Buddha was represented symbolically by the chastra, psdakas, dhamachakra and stupa etc.
MONASTIC CELLS:

On the north-west of the stupa and just two meters away are a series of square monastic cells each measuring 3.30 x 3.50 mt. The walls of the monastery consist of two alignments of single brick courses laid separately with an intervening gap of 42 cm. filled in with a pack of waste bricks and murrum, a device evidently adopted to restrict the usage of bricks. The 90 cm. broad doors of the cells open into a verandah on the north which is one and a half meters broad and runs along the length of the rooms. The floors inside the verandah and rooms were paved with brick and the roof was covered with tiles.

At the rear of the rooms are two more walls of single brick course laid separately with a gap of 40 cm. The plan of the building constituting these walls is beyond comprehension due to limited scope of the excavation.

PHANIGIRI:

The village Phanigir is situated on the Jangoan-Suryapet road, about 60 km. away from Jangoan. An extensive Buddhist settlement, consisting of many stupas and viharas was situated on the top of a flat hill, a kilometer north of the village. There is a huge tank at the foot of the Phanigiri hill, the antiquity of which may be traced back to that of the Buddhist settlement. Phanigiri must have been situated in the ancient caravan and Buddhist pilgrim route from the Vidarbha-Kosala region towards Dhanakataka. In the vicinity, other Buddhist settlements are noticed at Gajulabanda, about 5 km. towards
east and Thirmaligiri about 30 km. towards south-east.

As stated by Khaja Mohd. Ahmed there are ruins of 30 stupas most of them circular in plan, and raised over rectangular stone basements. Most of the stupas are noticed over the western proclivity of the main vihara, and constructed in different tiers.

In the middle of the main vihara are found many brick constructions, square in plan, and appear like cells possibly occupied by the Buddhist monks. As the establishment was raised over the hill the constructions were supported by buttresses in the shape of boxes in order to stop erosion due to rain and eroding.

Many perforated tiles as noticed in other Andhra sites were found here among the ruins. It is likely that the structures had terraced roofs covered with the tiles. The bricks in the ruins, measured 55 x 27 x 8 cm. Many carved friezes on lime stone have been found. The artistic wealth though quantitatively small yet represents a highest artistic tradition. Besides the stone sculpture, few coins of Satavahanas (and Ikshvakus?) and Eastern Kshatrapas were also recorded.

GAJULABANDA:

Gajulabanda is about 5 km. east of Phanigiri. The Buddhist settlement is noticed near a huge tank on the outskirts of a small village by name Bitoor, in the Suryapet taluk of the Nalgonda district. A trial excavation by the Department of
Archaeology revealed the existence of stupa, vihara complex and chaitya, of which the farmer indicated two phases of constructional activity with marked variation in plan and conception. The earlier plan of the stupa, comparatively small in size, was engulfed by the later accretions resulting in an elevated 16 spoked stupa simulating the examples at Amaravati and Nagarjuna-konda. The speciality of the stupa lies in its simplicity and convenient location. It is noteworthy that the stupa is devoid of ayaka platforms in contrast to those found in other parts of Andhra Desa.

A full wing consisting of 8 cells of a three winged monastery came to light. A rectangular Verandah running in the east-west direction was added to the vihara complex. The chaitya griha is at present devoid of stupa-chaitya or the anthropomorphic representation of the Buddha. The rich collection of antiquities constituted stucco figurines such as moulded lions, petalled lotuses, volutes, creepers, cord patterns and animal figures such as makaras and yalis etc. Two sculptured lions carved on lime stone were also recovered. The pottery included conical bowls, sprinklers, decorated pot sherds carrying lotus designs etc., made of well levigated clay and turned on fast wheel. A fine variety of black polished ware was also associated. The abundance of sculptures made in stucco indicate that the builders had taken pains to embellish the structures and more so it speaks volumes for their ability to plan such a comprehensive monastic complex in all its essentials within a restricted place.
THIRMALOIRI:

The village is about 70 km. from Jangaon towards Suryapet. A huge Buddhist stupa was noticed to the west of the village, which is now totally ruined. The entire area which was once hallowed by the presence of a Buddhist stupa is now occupied by recent hutments. The entire court yard of one house, a bath-room of another and a cattle-pen of the third could find enough space over the dilapidated drum of the extensive stupa. A few beautifully carved pieces of lime stone such as dharma-chakra, a fragment of a narrative sculpture of a Jataka story are now embeded in the mud walls of a carpenter's house.

MATERIAL LIFE

PROFESSIONS:

Agriculture:

Panini mentions agriculture as 'krishi' derived from the root 'krish', to plough. Katyayana and Patanjali have an interesting discussion that 'krishi' denotes not only ploughing but includes collectively all other operations of agriculture such as the supply of seeds, implements, animals and human labour. The husbandman was known as krsinwala.

Agriculture was the main occupation even of the Vedic Aryans and they devised ways and means of improve the methods of cultivation. Plough and bullocks or sometime buffalos were indispensable for the purpose of cultivation. In Rigveda we find mention of sasya (food grain) krsi (Cultivation)
yava (barley) etc. A person called Prthi Vainya is credited with the origin of ploughing in Atharvaveda (Av.8-10-24). The Satapatabrāhmaṇa mentions the different process of agriculture as "ploughing, sowing, reaping, threshing, and tilling the plants" etc. The brāhmaṇa texts record that paddy which was sown in the rains ripened in autumn. We also find references to two harvests a year.

Cowdung was used as manure for the lands. The Satapata-brāhmaṇa says "cowdung surcharges the earth with sap and hence cow-dung is collected" (SB.2-1-1-7). Even from the Vedic times the cows and bullocks were regarded as prized possessions for manure and ploughing. The cow was held in high esteem and addressed as the Goddess Aditi. The Satapatabrāhmaṇa says Iyam vai Vasa, Pranin (the cow is the veritable earth). Cattle means prosperity or nourishment, goods mean cattle and riches mean cattle and cattle means food, says the Satapatabrāhmaṇa (PASAVO HI ANNAVAM).

Kautilya39 ordains that the Superintendent of Agriculture should possess the knowledge of the science of agriculture dealing with the plantation of bushes and trees, or assisted by those who are trained in agricultural sciences (Krishi tantra). The superintendent shall in time collect the seeds of all kinds of grains, flowers, fruits, vegetables, bulbous roots etc.

In Brhatsphīta40 the agricultural operations were dealt with quite elaborately. Fields were marked off from one another by
means of artificial boundary lines. There were two main crops, purvasasya and aprasasya.

The early historical settlers in the Karimnagar region as in other regions had attained a very high degree of civilisation characterised by fortified towns, palatial buildings, subterranean-sewārge, well-laid out roads, a good water supply and metallurgy. Their economic life was a combination of agriculture, animal husbandry and probably hunting. Many of the towns and villages were raised in the middle of arable plains of black-soil. Some of the lands on the outskirts of Kotilingala mud fort had a fencing of stone slabs. Some of the slabs were inscribed with brahmi characters of 2nd-1st century B.C. One stone pillar now lying in a paddy field about a kilometer away from the fortress bears a label inscription which reads as NAGA GOPI NIKAYA, nikaya may mean an assemblage, or a group probably of lands.

The selection of cultivable plains by the early historical people would indicate their devotion to agriculture. It is likely that while the towns were inhabited by the kings feudal chiefs and their entourage besides those in commercial professions, the villages were mostly occupied by husbandmen.

In the course of the excavation at Peddabankur a terracotta sealing incised around the perimeter of a black and red ware rounded potsherd with brahmi characters as "VİJAYAPURA HARA KASA RATTASA". In accordance with the level it was found the sealing
was dated to 1st century B.C. In the middle of the circular inscription a figure of plough was incised with a yoke and two pegs on each side, evidently for fastening the leather thongs around the neck of draught animals. The inscription may mean that it pertains to one Batta of the Ahara of Vijayapuri. They may suggest that the profession of the individual was cultivation as indicated by the plough. In one of the inscriptions of Virapurushadatta, the Ikshvaku king of Vijayapuri it was stated that his father Chamthamula donated thousands of ploughs in order to promote agriculture. Hala may indicate both a plough or an extent of land that could be cultivated with a single plough.\(^4\) The area actually brought under the plough was known as halya and sitiya.\(^4\) Halya was the unit of land cultivated with a single plough as may be inferred from the examples, dvihalya and trihalya, stated in Kasiki (IV.9.47). In Rig Veda (IV.57.6) Sita or Farrow was personified and addressed as a deity. In Atharva(III.17.5.107 Veda Sita was worshipped as deity to bless, bestow prosperity and bring fruits (of land) abundantly.

There is another terracotta seal, also from Peddabankur, incised with a yoked plough in the middle and flanked by the so called Ujjain symbol and a spoked wheel on either side. The Ujjain symbol as suggested in the previous chapter may indicate the four cardinal directions or the deities presiding these quarters. The spoked wheel is a symbol of the Sun god. The presence of the yoked plough in between the two auspicious symbols may suggest that the yoke was also worshipped or regarded as a
sacred object. In Rig-Veda the two agricultural deities Suna and Sira were venerated for sprinkling the earth with water. The Suna Sira mentioned in Rig Veda are the dual gods of whom Suna according to Saunaka is the deity of the Sky i.e. Indra and Sira is Vayu. In Atharva Veda (III.17.8.107) a sacrifice was offered to Suna and Sira to make the plants give abundant produce. In the Yaska's Nirukta, Suna was identified as Vayu and Sira with Aditya and in ordinary parlance Sunasira is a name of Indra.

Shoeclearing operations of the jungles for making the land suitable for cultivation were carried out with the help of flat celts of iron hafted to wooden handles. The weeds were removed with the help of weeders. A large number of sickles found in the excavations were in all probability used for harvesting. The so called hoes found at Peddabankur and other places were not hoes as suggested by some scholars but are really plough-shares. The implement from Peddabankur has a thick curved cutting edge and the flaps at the butt were folded inwards to form into a socket. The uncertainty regarding the nature of the object would disappear if the curved cutting edge and the heavy weight of the implement are taken into consideration.

There is one more interesting object, also from Peddabankur, which is a spade or scraper with a 15 cm. long and 9 cm. broad blade and a flat (14 cm. long) tang. It must have been used as a spade or scraper for levelling the fields.
The extensive use of oxen in agricultural operations for heavy traction or prolonged draught work is attested by some peculiar characteristics revealed in the osteological studies. A bone of a cattle found at Peddabankur is ankylosed fairly extensively, a condition usually noticed in animals subjected to heavy operational drafting. The hind legs are prone to heavy pressure in the heavily worked animals either for plough or draft purpose.

In addition to the agricultural operations many varieties of animals were domesticated for food requirements. They consisted of cattle, buffalo, sheep, goat, dog, swan and rodent. There is also a skeleton of a horse found dumped in an early historic brick well. The swine population either wild or domesticated appears to be unusually low at Peddabankur.

HUNTING:

Besides domestication of animals, some of the people practised hunting of wild animals as indicated by a large number of iron arrow-heads, lances and spear-heads. Kautilya cites Pisuna as saying that among the vices hunting and gambling, hunting is a worse vice. Game shooting was done with arrows provided with barbs (patra) and such arrows according to Panini caused extreme pain (Panini V.4.61) In connection with shooting barbed shafts he refers to two kinds of arrows viz. sapatra and nishpatra barbed and unbarbed. Hunting is often referred to as lubdha Yoga and the hunter was called margika, one who shoots mrigas and a
bird trapper pakshika or sakunika. Among the hunted animals included deer, pig, turtle and a large variety of birds.

**Carpentry:**

The carpenter enjoyed an important position in the society. Panini mentions three important village artisans known as gramaśilpaśa viz. the village carpenter, potter and barber. Pathanjali dilates the list as that in each village there were five artisans viz. the potter, black-smith, carpenter, barber and washerman. The carpenter was variously known as takaśan and vardhaka. Vatsayana includes wood carving (takṣana) in the list of 64 arts.

The chief concern of the carpenter was the selection of trees for suitable wood to be employed in fabricating it. Varahamihira throws ample light on the selection of wood. The timber of trees near cremation grounds, the river confluences, in the vicinity of a temple, by the road side, of those withered at the top, entwined by creepers, thorny, those possessing nests and beehives and those that collapsed due to thunderstorm or by elephants or those fallen down in a southerly or westernly direction are prohibited.

The criterion in the selection of appropriate trees is that only those trees should be selected which have sufficient strength for bearing the load of structures and super structures of buildings. Most of the architecture in the ancient period related to pillars, beams, lintels, door-frames and the entire structure of the roof all made of timber.
The following types of trees were commonly selected:
1) Khadir, 2) Bija, 3) Sala, and 4) Madhuka, 5) Saka
6) Sinaipa, 7) Sarja, 8) Arjuna, 9) Anjana, 10) Asoka, 11) kedara

Among the carpenter's implements, the axe, adze, chisel saw blade, are commonly noticed. Many kinds of iron nails such as flat-headed, bent-headed, round topped may be included in his tool kit. Some of the nails are as long as 20 to 25 cm, suggesting that much thick wood was utilised. There are also a good number of rivets from Peddabankur and Dhulukatta. These rivets consist of nails of square cross-section rivetted to squarish plates on either side. Some of the rivets are 12 to 15 cm long. There are also many staples.

METALLURGY:

Metal industry had reached a high water mark of development during the early historical period in the Karimnagar region. The commonly worked metals are iron (loha), copper (tamra), gold (survarna), lead (sisaka), bell metal (kamsya), glass (kacha).

MINING:

The knowledge of iron smelting and its forging was known in the peninsular India from the beginning of the first millennium B.C. if not earlier. There are many references in literature to numerous iron ore producing centres throughout the Deccan which yielded high grade iron. The iron ore was found and smelted at Warangal, Konasamudram, Dindurti, Komarapalli,
The iron ores were collected from the above places and turned into fine steel known as 'wootz' at the famous steel producing centres like Konasamudram, Yelgandal, Ibrahimpatnam, Kanapur, Chintalpet and Gudkole. The steel produced at Konasamudram, was of a very high quality which attracted traders not only from the different parts of India but also from far off countries like Persia.53

SMELTING OF IRON:

The actual method of smelting iron is not clear from the available evidences though it may be possible to draw certain broad inferences. Rami Reddy54 suggested that many of the ash mounds noticed in south Andhra Pradesh and adjoining Karnataka districts were possibly resulted due to iron smelting. He suggested that the cow-dung cakes were arranged like a dome and iron ore lumps were placed in the middle of the heaps. The heap was then covered with green, semi-green and dried cactus twigs which were largely available on the hill slopes. The roof of the dome was finally covered with earth and fire was lit. Then all the corners of the heap took fire quartz and feldspar pieces were thrown into the fire. The heap was allowed to burn overnight. The heap would thus yield partially vitrified ash lumps. Further the iron ore lumps would melt to form into iron.

But this modus operandi appears to be local and does not seem to have penetrated to other regions. In Karimnagar region
no ash mound has been noticed so far nonetheless, iron technology was as old as any other place. The method suggested by Banerjee may hold good in this region which consisted in laying several alternate courses of charcoal and iron ore and daubing the entire pile thickly with clay to prevent heat from escaping. The kiln, circular in plan, must have been provided with passages for intake of air and escape of gases and outlets for molten iron. The collected molten iron was first cooled off by inserting it into water and then hammered out for the removal of charcoal. In course of hammering the charcoal was absorbed into the iron giving it the properties of steel.

The other method of manufacturing steel was to cut out blocks of iron obtained in a malleable state, into cubes each about one pound in weight. These small cubes were put in crucibles of various sizes according to the purpose for which the steel is to be employed. The fire is then kept up for more than 24 hours, with dried branches of teak, bamboo and green leaves (Cactus) of various shrubs. It is then allowed to subside and the crucible is placed on the ground to cool-off. When it is opened a cake of great hardness is found weighing about a pound and a half which is half a pound more than the original cube placed in the crucible. The cakes thus prepared were used for the manufacture of Damascus sword-blades, daggers, knives, spears, arrow-heads, and such others.

Interestingly a crucible of iron 16 cm. in diameter, was found at Dhulikatta excavations. Lot of charred wood, leafy
material and mud besides a big well-burnt terracotta cake adheres to the concave crucible. The encrustation outside and inside may suggest that it was burnt under a huge pile of wood. In the vicinity of the crucible a squarish cake with a middle core of solid iron overlaid with quartz (crystals) pellets and burnt clay may go to prove that iron and steel metallurgy was practiced as a home industry.

As regards the method of forging adopted in the early historical period the excavation at Peddabankur yielded a terracotta forge slightly ovoid in shape measuring 20 cm. in diameter at the broader axis and 12 cm. at the shorter. The uneven wall is to a height of 19 cm. and is 2 to 2 1/2 cm. in thickness. It has an oblique hole for introduction of nozzle of bellows. The inner surface of the wall around the nozzle hole has a lot of encrustation of slag. Associated with the forge there is a rectangular brick cistern (2.37 x 1.42 mt) of four courses, the lowest course projecting outside and the corners on the exterior are rounded. Two small brick steps adjoined the cistern to the north. The floor of the cistern was packed with morrum with a veneer of tiles. In juxtaposition to the main cistern are two more smaller troughs of bricks (0.80 x 0.80 mt.) The working floor near the forge was thickly embedded with fragments of iron slag. The other antiquities included an iron ring, revet, iron nails, a sickle, an iron knife constituting the finished products of the blacksmith.
There is a vast assemblage of iron objects found in the early historical sites particularly at Peddabankur and Dhulikatta which are categorised mainly into weapons of war or defence, tools and implements for agriculture purpose, carpentry and household.

**WEAPONS OF WAR AND CHASE FROM LITERATURE:**

Various types of weapons and missiles were used even from the Vedic period. The Aitereya Brahmana speaks of "chariots yoked with horses, armours, bows and arrows". These were the weapons of a Kshatriya. In Satapatha Brahmana we find reference to thousand-spiked hundred-edged thunderbolt. According to the same authority an arrow measured five span in length. The 'Suadhithi' as mentioned in the same text may refer to a carpenter's chisel, the chopping knife and razor. For slaughtering the horses in the aswamedha sacrifice, the knives were made of gold, iron and copper respectively to serve different purposes. A crooked or curved knife was known as parava. The sword (asa), scimitar (asa), staves (danda), sharp shovel (abhiri), bows, armour were mentioned in the Brahmanas. The axe or parasu was used to cut fire wood and used in battles as well. In the Sukla Yajurveda the God Rudra carries heti (weapon of fire) pinaka (bow) abhanu (small bow) isi (arrow) vajra (thunderbolt) khadga (scimitar) asa (sword), nicanga (sabre), isudhi (quiver) sara (thin arrow) etc.
In Artha Sastra it is ordained that canals should be constructed inside forts for holding weapons (hiding). In those canals there should be collected stone (to be used as missiles), spades, axes, staffs, cudgel, hammers, clubs, discus, machines and such weapons as can destroy hundred persons at once, together with spears, tridents, bamboo sticks with pointed edges made of iron and explosives etc. In Buddhist sculptures from Amaravati, Sanchi, Mathura etc. we notice the mace, club, hammer, spear, lances, trident, bows, arrows, swords, shields, battle-axe, thunder-bolt, daggers and chakra.

WEAPONS FROM THE EXCAVATIONS:

(a) Spear Heads (pl II, a-g-d)

The weapons of war or chase from Poddabankur included spear heads, lance-heads and arrow-heads. All the three types of weapons are both tanged and socketed. The longest spear head has a 20 cm. long cutting-edge with a pointed tip. This has a socket of 1 1/2 cm. in diameter for introducing a long shaft. The second spear is tanged, with one concave side and the other, straight. The tip is broken. The tange with a square cross section is 11 cm. long. The third spear, also tanged, has concavity on both edges and widens upwards to form into a pointed tip. The fourth also tanged, of square cross-section, is leaf shaped.
(b) **Lance Heads (11. c. bottom row)**

Three solid lance heads have the pointed ends squarish in cross-section. Of these, one is socketed with its diameter widening downwards. The fourth is also socketed and has a short leaf-like cutting blade. The fifth, with a tang of square cross-section is slightly damaged at one side. The leaf shaped spear heads are also found at Maski, Sisupalgarh, Taxila, Kausambi and Nasik.

There are two more interesting lance heads, one is lenticular in shape with a 8 1/2 cm. long blade with a tang; the other almost looks like an arrow-head but slightly bigger. The broad blade at the base tapers to a point at the apex.

(c) **Spike**

There is a unique spike with 23 cms. long and pointed nail broadening at the base and again tapering to a tang of rectangular section. It must have been hafted to a long wooden shaft to be used by horsemen.

(d) **Arrow heads**

There is a wide variety of arrow-heads both tanged and socketed. Only the socketed ones are barbed. The cutting blade is usually an isosceles triangle with 4 cm. long sides but the base is concave, to be hafted into the clefted socket. Among the socketed ones there are also arrow-heads with convex base; in that case they do not have barbs.
Barbed arrow heads are previously recorded at Hastinapur, Kausambi and Navdatoli. The second variety is the tanged ones, which are sometimes as long as 9 cm. An arrow-head with such a long tang has a narrow cutting blade about 1 cm. broad and 3 cm. long. These tangs would be inserted into the clefted wooden shafts. There is another unique variety of tanged arrow-head with a leaf-shaped lengthy blade, 8 cm. long, 1.8 cm. broad blade. The clefted tang was hafted to the cutting blade to form the mid-rib. Tanged arrow-heads are commonly noticed in many early historical sites as at Sisupalgarh, Prakash, Maski, Nasik, Taxila and Navdatoli. Another arrow-head has a lenticular blade with the apex now damaged.

There is one more interesting arrow-head which is short and lenticular about 7 cm. long and 1.5 cm. broad. Both the ends of the blade are pointed. It was probably hafted at both the ends. The double tanged arrow-heads from Taxila, unlike those found at Peddabankur, have tang over the tang at the base of the cutting blade. But the Peddabankur type have points at both the ends so that they could be shot or hafted either way.

**AGRICULTURAL IMPLEMENTS**

(a) **Sickle** (pl. 14 a)

Only three types of agricultural implements could be distinguished. They are the sickle, the so called hoe and the spade. Among the sickles two varieties are noticed. One has
the cutting blade almost at right angles to the tang. The cutting blade of the other, takes a sweeping curve from the tang. There is also one more variety which is almost semi-circular. The cutting blades range in breadth between 4.5 cm. to 3.03 cm. and in length 23 cm. to 10.5 cm. The cutting blades of those which are at right angles to the tangs are usually in the shape of an arc at the outer blunted edge. The tangs are sometimes 22 cm. long, the entire length apparently could not be inserted into the handle. Only the lower part which is thinner and 8 to 10 cm. long would be hafted. Sickle is the commonest agricultural implement noticed at several places like Hastinapur\(^74\), Texila\(^75\), Kausambi\(^76\), Sisupalgarh\(^77\), Piklihal\(^78\), Maski\(^79\), Prakash\(^80\) and Pauni\(^81\). It was also found in large numbers in megalithic burials at at Brahmagiri\(^82\), Sanur\(^83\) etc. At both the places the sickles have almost semi-circular cutting ends. The specimen found at Piklihal\(^84\) from layer-2 was compared to those found in many graves of South India.

(b) **Plough Shares: \( \text{\$14} \)**

The second important implement is the so called hoe found in many excavations such as Prakash\(^85\), Sisupalgarh\(^86\) and Hastinapur\(^87\) and many other megalithic sites. It consists of a curved cutting edge about 7 cm. long. The flaps at the base were folded forward to form into a socket. In the common usage the hoe consists of a thin iron blade fixed transversely on long handle for loosening or scraping up weeds. The splayed out
cutting blade is wide enough to scrape up undulations or remove weeds etc. But the implement from Peddabankur has more than half a centimeter thick cutting blade and is only two and half to three centimeter broad. The length varied, including the socket, from fourteen to sixteen centimeters. Evidently the implement could only be plough share. There are two solid blade fragments of iron, one is 6 1/2 cm. long and the other is 6 cm. The thickness at the butt end is 1 1/2 cm. to 1 cm. These are the only specimens among the entire collection which could be designated in the modern sense as plough-shares, but the small pieces could be used as wedges rather than as plough-shares. With such a large collection of sickles the absence of plough-shares can be explained by the presence of the so-called hoes which are really plough-shares.

(c) Spades: (Pl 14 < extreme left)

The third variety of implement is a spade. It is a 15 cm. long, presently damaged and 9 cm. broad cutting blade and 2 cm. broad and 14 cm. long tang, which itself might have served as handle.

Blacksmith:

Blacksmith or Kārmara (Kammari in Telugu) occupied an important place in the village economy. Panini enumerates the tools of a blacksmith as the bellows (bhastra), the sledge-hammer (gyrections), axe (druchana), tongs (kutilaka). Interestingly the Peddabankur excavation has yielded a terracotta forge,
adzes and tongs. *Avaghana* may also mean anvil but unfortunately not even one specimen came to light. There are also no sledge-hammers. Tongs (*kuttalaka*) is represented by a single specimen consisting of two limbs connected by a hinge for grasping and lifting objects from the forge. Two such tongs were found at Taxila excavation.

**Carpentry:**

The carpenter (the *taksan*) was the other most wanted artisan during the period under review. The walls of the buildings were raised with well burnt bricks but the entire superstructure was made-up of wood, whether it had a terraced or gabled roof. Timber was plentiful, cutdown from the forests which occupied very extensive tracts compared to the present day.

**TOOLS: (bl 11-6)**

The carpenter's tools included axes, adzes, chisels, drills saw-blades, etc. The axes from the early levels are simple flat celts. The axes with the shaft hole with concave sides and splayed-out cutting edge come only from the 2nd-1st century B.C. and upwards.

(a) **Flat Celts:**

There are three celts from Peddabankur, the first has slightly concave sides and large cutting edge, more than 17 to 18 cm. long and 10 cm. broad. The second object is a long celt about 18 cm. long. The cutting blade which is 5 cm. at the butt end gradually splays out to 8 cm. breadth. The third implement
is smaller than the above two, with a 6 cm. broad butt end and
9 cm. cutting end. The sides are roughly concave. The flat celts
are usually found in many other excavations such as Prakash,
Nagda, Ujjain etc.
(b) Axe with Shaft hole:

The second type which is found in the later level is an
axe with a shaft hole. It has concave sides and splayed-out
cutting edge. No shaft holed axe was noticed at Peddabankur.
The Dhulikatta axe is 10.5 cm. long and as the cutting end is
damaged the width could not be measured. Similar specimens
came from Prakash, Kausambi, Maski and Taxila.

(c) Adze:

The second and the most common tool of the carpenter is
the adze. All those found at Peddabankur have shaft holes. The
total length of an intact adze is 18 cm. including the hole, the
shaft hole having a diameter of 4 cm. The adze is three cm. thick
near the shaft hole and gradually attenuates towards the cutting
edge. Socketed adzes were also reported from Hastinapur,
Taxila and Kausambi.

(d) Chisels:

There are four chisels recovered from Peddabankur, one
has 24 cm. long and 9 cm. broad blade of square cross-section.
The butt end is thickened. The second one is 16 cm. long and
1.2 cm. broad. Pieces of the hafted wooden handle still adhere
to the butt end. The third chisel is 11 1/2 cm. long and 1 cm. broad, with prominent lugs at the butt end presumably to stop downward thrust of the handle when hit by hand. The fourth one is shorter than the above three but broader. It is 9 cm. long and 2 cm. broad. The tang is broken. Chisels are common in early historical levels, analogies of which come from Hastinapur¹⁰⁰ Taxila¹⁰¹ Sisupalgarh¹⁰² Prakash¹⁰³ Nasik¹⁰⁴ Kausambi¹⁰⁵ and Maski¹⁰⁶.

(e) Nails: pl 14 d科普arew

Among the other objects of carpentry mention may be made of nails, rivets and staples or loops.

The nails are mainly of two types - round headed and flat-headed. A nail about 23 cm. long from Peddabankur suggest the thickness of timber used for buildings etc. It has a round head pointed at the top and of round cross-section. Other nails are mostly square in cross-section. Some nails have flat heads. After driving into the timber, it was bent for rivetting.

(f) Rivets: pl 14 d科普arew

There is a large collection of rivets both from Peddabankur and Dhulikatta. It consists of a nail of square or rectangular cross-section riveted to 3 to 3 1/2 cm. square plates in either side. A rivet from Dhulikatta has two nails rivetted to two long plates on either side. The plates measured 14 cm. long and 2 1/2 cm. broad and the nail is 5 cm. long which would be the thickness of the timber to which it was rivetted.
The staples are thick nails of rectangular section with loop at one end and pointed at the other to be driven into the timber. Two staples are found at Peddabankur, one is 12.5 cm. long including the loop with a diameter of 2.5 cm. The nail portion of the second staple is broken. The loop is 3 cm. in diameter. Staples were also noticed previously at Sisupalgarh. 107

**DOMESTIC IMPLEMENTS:**

Peddabankur and Dhulikatta have yielded a rich crop of domestic implements, constituting choppers, knives, razors, tongs or fork, lamps, ladles, domestic trowels, balancing rods, keys, stylus or engraver, antimony rod, finger or toe rings, balancing rod and ferrules.

(a) **Choppers:** PL/3.a

There is a single big chopper with a 22.5 cm. long and 5 cm. broad blade and straight cutting edge. The blunted back splays out to the apex where the blade becomes broader. It has a 10 cm. long tang which tapers down.

A similar chopper found at Taxila 108 has a sheath at the corner for handling.

The second type of chopper, also from Peddabankur, has both, the cutting edge and blunted back, take an upward curve to meet at the pointed apex. The blade is 27.5 cm. long and at the tang 4 cm. broad.
In the third variety the cutting edge takes an upward curve from the middle while the blunted back broadens from the middle and then takes a downward curve to meet the cutting edge at the apex. Usually the blade becomes broader from the middle upwards and downwards thus maintaining concavity below the middle. It is 26.5 cm. long from the tang up to the tip and 3.5 cm. broad above the middle. The 5 cm. long broken tang is rectangular in cross-section and tapers down.

The cutting edge of the fourth one is concave above the tang and takes downward curve above the middle and then abruptly curves upward to meet the straight blunted back at the backward curving tip. The sharp curved tip or apex is useful for paring off skin from the flesh. The blade which is widest below the pointed apex would give sufficient momentum to the knife to strike hard.

The fifth type must have functionally served the same purpose as the previous type. But in this case, the blade is concave below the middle and takes a downward curve to meet the blunted back at the pointed apex.

The sixth is smaller than the above knife with concave sides near the tang. Both the cutting edge and the blunted back take wider curves to meet at the pointed apex which is in a straight line with the tang. The knife blade measured 16 cm. long up to the tang which is broken. This shape is typical of the spear heads, the only difference being that the latter has both sides sharpened whereas the former is blunted at the back.
(b) Knives

The type of knife from Peddabankur is usually found in a vegetarian kitchen. The 2 cm. broad blade gradually tapers upwards to the pointed apex to take a backward curve. There are only two specimens of this type, the rest twenty which are chopping knives may pertain to the non-vegetarian kitchen.

The next type, smaller than the above has almost a straight cutting edge. The blunted back curves downwards to meet at the sharp edge at the pointed apex. This is quite handy to cut smaller fish for the table.

The other type is little smaller with a 10 cm. long and 2.3 cm. broad blade. The sharp edge takes an upward curve towards apex to meet the straight blunted back. The square sectioned tang is broken and presently measured only 3 cm. in length. This knife is commonly used for killing the fowl by cutting its neck or removing gills of fish.

The last type which comes from Dhulikatta has its curved cutting edge taking a backward sweep like an arc and form into a hook at the apex. The tang has a loop evidently to suspend the knife with a thread. The present day shepherd community carry this kind of knife in the waist belt for cutting twigs, leaves and green seeds of acacia etc. for the sheep.

(c) Razors I - (P 13·G-)

Of the three razors found at Peddabankur one is bigger and the other two smaller. The cutting edge of the bigger knife takes a backward sweep and widens at the curved top. The tang
is 3 1/2 cm. long. The other razor is a damaged at the top and has 1.5 cm. broad cutting blade. The razors of this type, but for their occurrence at Taxila, are rare.

The bronze(?) razors found at Mohenjodaro have two holes at one end to be rivetted to a handle which was set at right angles to the blade as suggested by Mackay. But it could also be set vertically to the cutting blade. The other razor also from Mohenjodaro looks like a miniature battle axe but described as razor.

An iron object from Taxila was described as straight edged knife about 10 cm. long. It has a side-tang parallel to the blunted back. Functionally it must have served as razor than as a knife as the side tang is parallel to the blunted edge. When hafted to a wooden handle it would be more convenient to be used as razor.

(d) Forks

There is a single specimen from Peddabankur which is of doubtful identification. It consists of two prongs rivetted together at the butt end and separated below. The prongs are thick and cannot be pressed together as to be used as tweezer. Apparently the implement could only be used as fork.

(e) Lamps

There are two varieties of lamps at Peddabankur. The first type has a shallow dish about 4 1/2 cm. in diameter with
a vertical handle bent backwards at the top for suspension. The other lamp had a bigger dish about 7 cm. in diameter but the handle is broken. The other variety of lamp is a solid dish with an out-curved lip. The dish was riveted at the base to a horizontal handle. This kind of lamps were possibly used for religious purposes for offering lamp to the deity.

The lamps found at Taxila\textsuperscript{111} with a vertical handle was described as ladle. A similar object found at Nasik\textsuperscript{112} with a vertical hand was described as lamp or ladle.

(f) \textit{Ladles: \textit{p}e\textsuperscript{13} c}

There are two ladles from Dhulikatta. One of them has a deep cup and a horizontal handle. The cup is 6 cm. in diameter and 2 1/2 cm. deep. The handle is broken at the middle. The other ladle has a very shallow cup like that of a lamp with a diameter of 4 1/2 cm. and 0.5 cm. deep. The 18 cm. long handle has a square cross section. Analogies of ladles are noticed at Taxila\textsuperscript{113}, Pauni\textsuperscript{114} and Nasik\textsuperscript{115}

(g) \textit{Domestic trowels: \textit{p}e\textsuperscript{13} d \textit{w}e\textsuperscript{24} 3}

Out of the kitchen repertory mention may be made of the domestic trowels. There are two types of which one comes from Peddabankur and the other from Dhulikatta. The trowel from Peddabankur has concave sides and a splayed out cutting edge. But for the tang at the middle of the base, the object could as well be designated as battle axe from the shape of which it had perhaps evolved. The other type is a common
trowel with a splayed and straight cutting edge. The sides gradually taper to the tang.

(h) **Locks and Keys:** PL/3 L-

Unfortunately no lock has survived. But two objects which could be easily distinguished as keys came to light. One key with a disc handle has its nail-end missing. The other key has a round disc handle. A small round plate was rivetted at the other end.

The keys found at Taxila\(^{116}\) have ringed handles and a set of teeth at the other end.

(i) **Ferrules:**

There is a large collection of rings used as ferrules or casings. There are two cylindrical rings of equal height of 4.5 cm. This is still commonly used as the hub of a wheel which rotates along with the wheel around the axle. The other type of rings are simple ferrules used for strengthening the ends of mullers of pestles. One such specimen has a diameter of 5 1/2 cm. with a wall height of 1.5 cm. Another smaller ring with a diameter of 2 1/2 cm. could be used as a ferrule for a walking stick or such other purpose.

(j) **Finger or toe rings:**

There are 3 rings perhaps used as finger or toe rings, with a diameter of one and half to two centimeters. Out of these, two are spiralled and one is bezelled. Spiralled finger rings have been noticed in the cist burials with passages at Peddamarur. Several iron beads formed of small strips of iron coiled up like a volute spring were found in a cist grave at Kodidhasinur\(^{117}\).
near Karaimadai R.S. in Coimbatore district.

(k) **Stylus**

There is a single 12.3 cm. long specimen of a stylus. The thickened middle portion is square in cross-section and tapers to both the pointed ends. Similar styli with square section was recorded at Hastinapur and Brahmagiri.

(l) **Antimony rod**

A single 14.5 cm. antimony rod or pin comes from Pediabankur, one end is thickened and rounded, the other tapering end pointed. Copper antimony rods were more common than iron rods. As iron antimony rod found at Peddamarur in Mahbubnagar district occurred in the megalithic context.

(m) **Balancing rods**

There are seven balancing rods of iron, five longer and two shorter. The longer ones have an average measurement of 36 cm. rounded allover end thickened in the middle. The smaller ones measured 26 cm. long both are being equal in length. As there are no perforations to strings of pans, it appears they were simply tied at the two ends. In the Buddhist sculptures at Nagarjunakonda we find the representation of a balance from a panel illustrating the Sibi Jataka. There is single sealed balance consisting of a horizontal rod with a weighing pan at one of its ends. The pan appears suspended by means of three or more strings. A close study shows that the beam is graduated
by small incised marks all over at regular intervals towards the pan-end. At Amaravathi also the sculptures illustrating the Sibi Jataka revealed single panned balances.

(n) **Snake: pl. 12 e**

One more interesting object is a iron figure of a snake with an 'S' curve at the head and a straight body below. It is 58 cm. long, from the end of the curve. Two holes were perforated near the top of the head at the place of the eyes and one hole below intended to represent the mouth. These perforations could also used for rivetting to the door or wall with nails. There is one more perforation at the end of 'S' curve, also intended for rivetting. The back of the figure is flat and the front is round. The horizontal stripes of the snake are represented by bands of parallel incisions at four places over the body.

**COPPER OBJECTS:**

There is a considerable number of copper antiquities from Peddabankur and Dhulikatta which included antimony rods, styli, finger rings, ear spools, bangles, ladles, amulets, ankle rings pins etc.

(a) **Antimony rods: pl. 23 d**

The antimony rod is thickened at both ends. The sizes vary from 16 1/2 to 11 cm. The second variety have one end thickened and the other end thin and pointed like a needle. A needle measured 8 cm. and has one end pointed, the other is thickened. This could be used as a sewing needle, or stylus.
(b) Sewing needle:

This is a semi-circular pin pointed at both the ends like a suturing needle of a surgeon, but is very thick in the middle. It must have been used for sewing leather pouches etc.

(c) Tooth Pick:

There is a small pin about 4 cm long with a loop at the thickened end and other end thin and pointed. It may have been used as a tooth-pick or to remove thorns from the soles.

(d) Ear cleaner: 

There is a small pin with one end flattened like the head of a snake and the other pointed.

(e) Finger rings: 

The finger rings are mainly two varieties one is a coiled circlet and the other with bezel, sometimes inscribed with the name of the owner or incised with designs. Among the coiled ones a few rings have 7 to 8 coils and some have only two. There is also a simple wire ring. Among the wire rings some are thick, others are thin or flat.

There are three rings with bezels, one is plain the other is inscribed and the third incised with designs. The bezels are either rectangular or almond shaped or oval. One ring with a circular bezel is inscribed with four brahmi letters at the four cardinal points of the circle reading as 'ARALASA'.

One ring has double grooved incised design in the shape of eye over the bezel. It is a favourite design usually represented to ward of evils.
(f) **Bangles and anklets**: \( \text{pl} 23 \alpha \)

The bangles are plain without any ornamentation. An anklet of thin wire has one end coiled and looped and the other end hooked.

(g) **Amulets**: \( \text{pl} 23 \text{ d bottom row} \)

There are three amulets; one is cylindrical, the other is a square hallow box, and the third is a square plate. The frontside of the square one is stamped with the figure of a deity with his back foot raised and resting on the toes, the front firmly placed on the ground and the two hands upraised. The head is animal like but the other traits resemble those of the Monkey god. The figure is embossed inside and a square box of incised lines.

(h) **Ear spools**: \( \text{pl} 23 \text{ c} \)

The spools are of two types one is hallow with concave body and the drums decorated with concentric grooves. The other is a solid spiralled strip of copper. Both are perforated at the middle of the drums.

(i) **Spoon**: \( \text{pl} 23 \text{ d} \)

There is a shallow spoon with the cup measuring 3.8 cm. in diameter and has a 6 1/2 cm. long handle of square section. This may be useful for the apothecary for mixing ingredients or herbs etc.

(j) **Stylised palm (?)**: \( \text{pl} 23 \text{ b bottom row b, c} \)

There are three indistinct objects in the shape of stylised palm with 4 or 5 spikes over a flat circular rim. The rim is
sometimes decorated with a beaded design over concentric lines. One such palm has four spikes and the other one has 6 spikes with little tines in the shape of antler of a deer. With our present knowledge we can only describe them as finger guards worn while sewing with needle. On one of the pot sherds at Hastinapur122 a similar design was stamped probably to represent a cult object.

(k) Jewel Box:

Mention may be made of a jewel box which consisted of a shallow dish and a knobbed lid. The dish has a prominent cord at the rim to hold the lid. There is an embossed circular cord over the base inside. The rim of the lid is decorated with stepped mouldings and a prominent cord around the knob. The box was perhaps used for keeping valuable ornaments etc. Similar jewel boxes (abharana samudraka) are represented in the sculptures. At Nagarjunakonda123 the jewel box is represented in a panel illustrating "Prince Siddhartha in the pleasure garden". A female attendant is shown carrying a rectangular box in her head. The Jataka124 tales refer to such boxes, but they are generally made of costly material like ivory etc. In the Jaina125 literature it is mentioned that the round caskets were used for keeping oil or anjana. In the Sanchi126 sculptures a round casket similar to the Peddabankur type is shown hanging from the branch of a tree.

(1) Copper Rattle: Pl 23,d

The rattle found at Peddabankur in the Satavahana level was beautifully moulded in the shape of a frog-like animal, with two circles having central pellets representing the two eyes and a beaded line in the middle. There are also two prominent bands
across the forehead. The rattle has a loop for suspension. It has a clefted mouth and a small ball of copper was put into the hollow body for producing rattling sound.

The common kind of rattles found at Taxila are made of terracotta in the shape of a bird. Other rattles from Sirkap area take a quasi-human or animal form to simulate the pomegranate fruit or vases. A copper rattle from Maski is simple without any form and has double loops for suspension.

(m) Bronze or copper figure

Dhulikatta excavation yielded a bronze or copper figurine of the mother and the child (Ahadhatri). The mother is seated on a pedestal with legs dangling down. She holds a baby in her left hand while the right hand rests on her knee. The baby flexes its left hand to touch the left breast of the mother. The hair, eyes, mouth and ornaments such as ear rings, torque around the neck, another broad necklace, armlets, bracelets, waist band and another headed mekhala were crudely made in applique. On grounds of stratigraphy the figure may be dated to circa 2nd century B.C. The crude modelling of the figure is in conformity with the archaic terracottas found in the same level.

Mother with child in her arms may probably represent the fertility cult but strangely enough its representation in the Mauryan and Sunga art is extremely rare. It becomes common in the Satavahana and Kushana art in stone sculptures and terracotta figures. In Gupta period numerous plaques of the mother and child come from various sites in the Gangetic valley.
The standing woman holds the child in her left arm but in some cases the child touches the breast of the mother with its right hand. Agrawala\textsuperscript{130} has classified the figures with the similar theme into three types namely \textit{kshiradhatri}, a woman with a suckling baby in arms, \textit{kridadhatri}, a woman with a child in the left arm and a ball or rattle in the right hand. There is also one \textit{ankadhatri} figure from Yeleswaram\textsuperscript{131} excavation from the Ikshvaku level. The mother holds the baby in her left hand and her right hand simply resting over the thigh. It appears the figure was made of a single mould.

\textbf{LEAD OBJECTS:}

Pliny\textsuperscript{132} says that India had neither brass nor lead but exchanged precious stones and pearls for those metals. According to Periplus\textsuperscript{133} lead, copper and tin were imported into Barygaza, Muziris and Nelcynda. We may infer that the Karimnagar region as the other parts of India was not sufficiently producing those metals in the early historical period but depended on the imports from Rome and other western countries\textsuperscript{134} such as Spain and even Britain.

Lead was chiefly imported together with copper for the coinage and it was also made into thin sheets for providing foils in the manufacture of mirrors\textsuperscript{135}.

The excavation at Peddabankur has yielded many coiled strips of lead, the purpose of which is puzzling. These coils appear like spools with concave body. Some coils have small perforations in the middle. Among the copper objects a similar spool with
concave sides and decorated with concentric circles was described as an ear spool. Similarly the lead spools with concave sides might have served as ear spools. The perforation in the middle may suggest that they were as well used as pendants.

Bead and bangles:

Among the other lead objects is a concave barrel shaped bead with bulla drums on either side having a transverse perforation. A bangle 4 cm. in diameter is decorated with peripheral serrations like the cogs of a wheel.

GOLD AND SILVER SMITHY:

Pliny\(^{136}\) distinctly states that the gold from Ganges was exported to the Roman Empire. It would be the alluvial gold of the rivers in the Chotanagapur\(^{133}\) plateau probably found in the dust form.

Goldsmith or suvarnakara was always patronised by the wealthy sections of the society. Gold appears to have been a rare metal in this region and possibly imported from the mines of Karnataka as no gold mine is so far reported in the neighbourhood.

There are very few objects from Peddabankur which are mostly beads, made of thin foils of gold. There are also two short octagonal beads. The gold beads of thin foils are sometimes decorated with radiating lines around the string hole, enclosed by dotted oblique bands. The periphery was decorated with gadroons. As the foils are very thin and the bead is hallow
it is not known whether they were plated over lac or provided with some metallic support inside. However, it is noticed that a cylindrical turquoise glass bead was set inside against the perforations so that the bead would not be squeezed together with threading and usage. Another designed foil of a bead was found in small fragments. It was stamped with design of a beaded circle enclosed by dotted oblique lines and elliptical cusps.

There is a necklace of 34 beads (24 of amethyst, 7 of lapislazuli and 2 of gold and one of jasper. The amethyst and lapislazuli beads are irregular spheroid in shape and the two small gold beads are multifacetted. The hāra or necklace must have had 24 beads which makes up the archa-suchaha as prescribed by Kautilya.138

The depth of the precious metal is manifest from the objects found at Dhuilkatta as well. They include a ring with eleven spirals. The rest are beads, among which there are three tabloid, three spherical (small and big) and two are gadrooned one with beaded double bands. The gadroons join two small rings on either side serving as string holes.

**SILVER OBJECTS:**

Silver is comparatively very rare and represented only by a waist band of beads. These beads, 21 in number, are tabloid with lugs on either side. Each bead is 2.3 cm. in diameter and 3 1/2 cm. long. They are hollow inside and made of thin sheet of silver.
Besides metal smiths the artisans of bone, shell and horn had a very flourishing profession. It appears the above three types of material was used for different purposes. The horn objects mainly consisted of arrow-heads and beads, the bones objects are game-dice and the shell objects included ornaments such as ear-rings, finger-rings beads and bangles.

**Arrow heads:**

Besides arrow-heads of iron there are a good number of horn-arrow heads. It was a cheaper and easily available material. The flesh of the hunted animals such as deer, goat, etc. was consumed while the horn was converted as objects of daily use. We find references in Rigsveda about arrow-heads of bone and iron (R.V. IV 75 pp.4-17).

The horn arrow-heads are mainly of two varieties - one is pointed at one end and the other is faceted by chiselling. The other arrow-head is pointed at both the sides. One arrow-head pointed at one end and faceted at the other, measured 10 cm. long. The other arrow-head measured 6.5 cm. One arrow-head was incised with parallel grooves at the faceted end for holding the strings of the thread while hafting. There are two specimens of horns directly used perhaps as arrow-heads without smoothening the middle portion. Both ends were chiselled. One such antler arrow-head measured 11 cm. long and the other 9.5 cm. Similar object found at Hastinapur was doubted as stylus. But a stylus needs no chiselling at the butt-end.
Arrow-heads made of bone, ivory, and horn were noticed at Kausambi excavations, their main concentration being in the N.B.P. Ware Culture.

Bone points or arrow-heads noticed at Nasik in the Anihra levels are of two types; viz; double ended points and tanged or chiselled points.

All the points from Peddabankur were made of horn. The double pointed specimens could also be used as styluses or pins. In the vicinity of a potter’s kiln recovered during excavations at Peddabankur a bone point was also included among other objects. It must have been used by the potter for making decorative incisions on the pots.

The other objects of horn included two handles of, possibly, mirrors. One is decorated with mouldings of torus and reed beautifully turned on lathe. The other object, probably of ivory, decorated with mouldings of torus is much smaller and may have been used as a handle for antimony rod etc, as suggested by Sankalia.

**Bone objects: play a**

In Rigveda, dicing is referred to as *aksha dvuta*. In the Asthadhyayi of Panini the *akshadyuta* was elaborately dealt with. A player of dice, according to Pathanjali was known as *akshika* and a gambler as *akshakita* (Pathanjali *Bashya*-1–390). *Kitaya* or a gambler was an old vedic word. (Vedic index-I.156-7). Kautilya refers to the Superintendent of Gambling who supplied
aksha and salaka to the players at the rate of kakari as hire per pair. The akshas seem to have been cubical and salakas are oblong pieces marked on the sides with circles or points. In the Taittiriya Brahmana (Tait. Brah. I.7-10), 5 dice are referred. The pieces are called aksharaṇa, krita, trṇa, dvapara and kali (Vedic index-I.7) The circles with dots commonly noticed on the dice are probably known as ekapari, dvapari, tripari and chatuspatri. Pari or paridhi literally means a circle.

In Bharhut sculptures the akshas are shown as little cubes. In the scene of the Līti Jataka at Bharhut the game-board (dhvapalaka) has 26 squares. The number of cubicle dice visible is six. Another illustration of a similar game is seen at Bodhgaya. The square board has 8 squares on each side and therefore the game seen here may be identified as the attapada game of the Vinaya texts. A game board of dice incised on one of the slabs of bathing ghat at Nagarjunakonda has eight squares in each wing. Krishna Murthy identified the same as attapada as referred to by Buddhaghosa. The game boards on the flooring slabs of the 48 pillared hall near the Ikshvaku burning ghat have two, three or five rows and each board is having the same number of squares respectively in each of its rows.

The bone objects mainly constituted game-dice of two types. One is oblong and the other cubical, majority of them being oblong. Each of the four facets consisting of one circle with a middle dot on one side, two on the other, three on the
third and four on the fourth. Some times the side with four circles has on the opposite side three circles and sometimes two. But in many cases the even number circles are opposite to even numbers and odds against odd numbers i.e. the face with four circles has two circles on the opposite side and the one with three circles has one circle on the opposite. The dice are of various sizes, one big die measured 8.4 cm. long and 2 cm. broad. A cubical die has 1.8 cm. broad sides. A die of horn measured 3.5 x 1 cm. Among the dice found at Yeleswaram and Nasik there are two or three concentric circles with a dot in the middle. In Taxila a good number of dice have been reported from the Indo-Greek and Saka-Sarthian levels.

SHELL OBJECTS:

While the rich people were wearing bangles and other ornaments of gold, the common folk resorted to shell ornaments such as bangles, finger rings, ear rings etc. The shell bangles usually do not have any decoration and most of them were found in fragments. An ear ring measured 2.4 cm. in diameter and the tyre measured 0.6 cm.

BEAD INDUSTRY:

Artha Sastra mentions several kinds of gems and their colours. The gem which has a pleasant colour as that of a red lotus flower or that of pari jatha flower or of the rising sun was known as saucandhika. It is possibly a variety of carnelian. The gem which has the colour of blue lotus flower
or of sīrisha or of water or of fresh bamboo or of the colour of the feathers of a parrot was known as the vaidurya. The pushyaraṣa, gomatraka and gomadhika are the other varieties of the same. The indrani̤la or sapphire is characterised by blue lines or is intensely blue, or as blue as clouds. Mandaka, sravanamadhya, sitavṛṣṭi or sunyakantha (sun stone) are the other kinds of gems. The colour of a diamond may be like that of a cat's eye, or of the flower sūrisha (acacia sūrisha) the urine of cow, the bile of a cow, like alum (sphatika) or the flower of malathi etc.

Bead making was a prosperous industry in the early historical period. The common semi-precious stones used for beads are carnelian, agate, banded agate, garnet, blood stone, beryl, jasper, amethyst, quartz, crystal lapis lazuli besides, glass, terracotta and shell. There are also etched beads of both carnelian and agate.

(a) Etched Beads:

Among the semi-precious stones there are two varieties that invite special notice viz. the etched carnelian and agate. There are three etched carnelian beads, all are truncated barrel in shape. Two beads have white painted designs of chevrons with marginal bands on either side. The second variety has a middle band of horizontal strokes enclosed by double bands on either side. The etched agate bead is also truncated barrel in shape and decorated with double chevrons enclosed by double marginal bands.
The beads with chevrons inside marginal bands are very common among many south Indian megalithic burials. It appears that the pattern continued in the Satavahana period as well. Those from the megaliths are usually barrel shaped but plain cylinders\textsuperscript{149} seem to have been preferred in the Satavahana period. They are distributed over a very large area and are known to have been found at Nilgiris, Chandravalli, Kondapur, Kolhapur Maski, Pithan, and Sanganakallu.\textsuperscript{150}

The antiquity of etched carnelian beads may be traced from Mohenjadaro\textsuperscript{151} and Harappa\textsuperscript{152} dating from 3rd millennium B.C. The etching of these beads in which the pattern appears white on the natural colour of the stone is produced by drawing the pattern on the stone with carbonate of soda or some other alkali and heating it until red hot. A chemical change is thus produced in the material and the soda enters the surface in the form of opaque white spot. In the case of the rarer types of beads in which the pattern was made in black on a white background the effect was produced by first whitening the whole surface with an alkali and then drawing the pattern with a mitrate of copper or iron and refiring the stone.\textsuperscript{153} One carnelian etched bead from Peddabankur seems to have been simply painted without etching but etching is visible in the black painted white agate bead.

(b) Carnelian (plain): \textit{pls. 6}

The plain types of carnelian are spherical, square cylindrical, barrel shaped, tabloid, biconical, hexagonal and pentagonal, of varying sizes. There is a single yellowish
carnelian or sard tabloid bead. Among the chalcedony-quartzes
the most abundant were the carnelian and next comes those of
sard. Pliny remarks that no gem was commoner than the sard.
India has always been the most plentiful source of the finest
red sard which comes chiefly from the Deccan traps.

The second favourite material was rock crystal, the shapes
included biconvex hexagonal (brilliant cut) standard truncated
and convex quadrangular. These two varieties were noticed in
the iron age context at Prakash. The others are hexagonal
barrel, tabloid, spherical, biconical truncated hexagonal and
barrel shaped round etc.

Regarding the opaque blood stone and the translucent
heliotrope or red-marked green chalcedony, Pliny refers only
India as the main source which is usually found among the
Deccan traps.

There are 12 beads of blood-stone of dark-green colour,
which included mainly of two shapes, spherical and tabloid.
There is single tabloid bead and the remaining are spherical of
varying sizes. The tabloid bead is 2 cm, in diameter with a
thickness of 0.3 cm.

Beryl is represented by a single bead of truncated
pentagonal in shape. No perforation was made. The jasper beads
are dark-brownish in colour. One is spherical and other is
tabloid. The spherical bead has an etched circle by the side of
the perforation but no pigment was inlaid.
Some beads of lapis lazuli are rectangular with a square cross-section and the rest are either spheroid or tabloid. It is not clear whether lapis lazuli was produced in India or imported. The chief sources are Persia, Tibet, China and Scythia. The occurrence of large number of beads from several early historical sites may suggest that it was a local product. Beads of lapis lazuli are recorded at Nasik, Maski, Kondapur, Kaundinya pura and Taxila.

Next comes amethyst which included cylindrical spheroid and hexagonal tabloid. A single bead of long barrel hexagonal comes from Kaundinya pura and a single ovoid bead from Nasik. The lonely bead from Hastinapur is truncated hexagonal. Another bead from Maski is standard convex lenticular. There are 12 beads from Taxila of hexogonal barrel, flattened hexogonal barrel, and triangular biconical and elliptical barrel.

Among the quartzes the agates are more particularly known as moss agate, banded agate or simply agate. It was a common and cherished material for beads, because of the variegated colours such as all black or pure white or with beautiful bands. Even large figures in round used to be carved in agates. Pliny and Philostratos draw special attention to the Indian agates of large size. The Romans must have obtained the best and largest agates from India which are still abundant in the Deccan and the Rajmahal traps of Bengal and Jabalpur. The mossagate and veinied-agate comes from the Godavari, Krishna and Tungabhadra river beds and valleys.
A single tabloid bead of banded agate, which is beautifully banded in white, black, and dark brown colours is the most elegant bead in the entire collection. A long barrel round bead with brown and pink bands comes next. The collection also included an etched white agate bead black painted with double chevron patterns between marginal bands. The other agate types constituted a spheroid with black patches, an all black-spheroid and a single cylindrical black bead. There is also an all black biconvex round piece without perforation.

Garnet (deep red and translucent) appears rare and is represented by four spheroid beads. There is one button shaped seal with an ovoid bezel inscribed with Brahmi characters as KA MA SA, datable to circa 3rd century B.C. Garnet sometimes known as ruby was used in rings and jewellery.

Glass Beads included tabloid, luged tabloid, short barrel lugged, cylindrical, square cylindrical, spheroid, grooved cylindrical etc. The collection also included pulley shaped spools of deep blue glass with perforation in the middle. These spools have concave sides with diameters ranging from 2.5 to 3 cm. Mention may be made of a blue glass cylindrical bead with double torus mouldings over the body and multiple transverse gadroons along the body. The torus gadrooned glass beads appear to be popular in the Satavahana levels as indicated by their occurrence at Kollapur. All the glass beads are either blue or light green (cobalt) in colour.
The collection from Peddabankur also included a good number of shell, horn, lime-stone, mother of pearl (Oyster), etc. The shapes are tabloid, biconical, short cylindrical etc.

**Jasper:**

There are only 4 beads of jasper in the entire collection. All of them are dark brown in colour. The shapes are octagonal, lugged tabloid, tabloid, and spherical.

A hoard of pinkish vitrified glass beads was found in the excavations. These beads were cut-out of long tubes and are short cylindrical in shape.

**Terracotta: pl. xx c 2 49 4**

The largest collection of beads are of terracotta of different shapes, viz. pear shaped, spherical, gadrooned, rudraksha, along cylindrical and grooved, star-shaped wheel shaped etc. The gadrooned are tabloid and the entire perimeter of the tablet vertically grooved. There is only single specimen of rudraksha type with dotted bands in between marginal concentric lines. The third variety is a long cylindrical and horizontally grooved bead. Some of them have collars at both the ends and do not have perforations. A star shaped bead has seven arms radiating from a common disc which has a big perforation in the middle. A wheel shaped bead has collared hubs on either side.

The dotted design between bands is of common occurrence in the Satavahana period. Two such beads were found at
Kaundinyapura, one is spheroid and the other is cylindrical but the bead from Peddabankur is exactly in the shape of *rudraksha*. The cylindrical bead with multiple grooves has its analogy at Brahmapuri.

The arecanut or pear shaped bead has a universal distribution and found at a large number of early historic sites such as Nagarjunakonda, Yelesvaram, Kondapur, Taxila, Brahmagiri, Maski, Pithan, Nasik and Jorwe, etc.

**ART:***

Like architecture the sculpture also reached a very high degree of consummation. The Buddhist stupa at Dhulikatta was decorated with forty seven carved *ayaka* slabs found mostly in tact in course of the excavation. The carved slabs of the northern *ayaka* platform consisted of a five hooded Muchilinda Naga protecting the feet of the Lord Buddha. On both the flanking slabs are two ladies standing, the lady on the left holds a lotus bouquet in her raised left hand while the right one dangles down. She wears squarish ear ornament stamped with a beautiful lotus medallion, the profuse hair made into a side knot, a broad necklace of several strings a broad waist belt with a middle band of lugged tabloid beads (similar beads of silver are noticed at Peddabankur). She also wears series of bangles and a beaded wristlet with a squarish jewel in the middle and anklets of massive rings.

The lady on the right holds a flower in her upraised right hand and the left hand kept in akimbo over the left hip. Her flowing hair is made into a left side knot. She too wears squarish
ear ornaments stamped with rosettes, a broad necklace consisting of several bangles, ring-like armlets, series of bangles enclosed by ringed bracelets, a beaded mekhala (similar to above), the diaphanous undergarment secured by a knot below the navel and thick ringed anklets below a series of spiralled wire ornaments. She stands in a graceful feminine gait with her upper body slightly bending forward, the left leg firmly placed on the ground while the right one loosely resting on the toes.

On the right side pilaster of the Naga slab the head of an Yaksha was depicted enclosed by a lotus medallion. The hair of the Yaksha is made into a top-knot. The Yaksha inside a lotus medallion may probably represent the Sun god. There is another figure of an Yaksha represented as lifting, with his two upraised hands, a slab on which an ardhapadma is depicted. His ears, hands and legs are similar to the ears and legs of an elephant. He squats on the ground and the loincloth covering his genitals, shown in incised vertical lines, flows downwards. In this aspect the Yaksha may represent Airavata who is considered as Indra or Sakra's Vahana elephant and considered as the proto-type of the elephant species and the supporter of the east-quarter. It may be the personification of Indra's elephant Airavata. The slab on which the Yaksha is depicted aptly faces east.

Another pilaster has a relief carving of the "Miracle of Sravasti" in which Buddha is shown as a 'pillar of fire' beseeching over a heap-like mass of water and tongues of flame are shown as incised lines curving inwards like the two side-prongs of a
'Mandipada'. This is possibly an early representation of the Mandipada datable to 2nd century B.C.

Besides the solemn religious scenes the panels also display some sportive themes where a man, his genitals also prominently shown, holds the tail of fleeting tiger. Behind is the continuation of the scene in which a man is urging an elephant with his right hand while his left hand stretched out. It looks as though he is chasing an elephant.

In the rock-cut caves of Pitalkhora two similar Yaksha are represented with their hands carrying the weight of the balustrade. Both are dwarfish and pot-bellied and have foreheads wrinkled apparently due to top heavy weight, bulging eyes and flat noses etc. These Yakshas appear earlier than their massive counterparts in front of Cave-3 of Nasik.

**Phanigiri:**

The artistic representation at Phanigiri is quantitatively less, yet qualitatively represents the highest tradition. In course of scraping operation at Phanigiri a beautiful limestone sculpture of Yaksha came to light. He is shown with bulbus eyes and an aquiline nose. In the elongated ear lobes there are some ring-type ornaments. He wears a turban around the head. On a pilaster the figure of a dwarfish Yaksha, probably Kubera, with a protuberant belly was represented in shallow relief. He wears chakrakundalas, a round torque, broad bangles and a turban with a middle knot etc. He holds a long staff, in his left hand. In another panel there is a representation of
a fleeting bull chased by an elephant. The elephant thwarted by a man standing in the middle of the two animals by showing his stretched hand towards the elephant.

**TERRACOTTA OBJECTS:**

The excavation at Peddabankur and Dhulikatta have yielded many terracotta figurines of human beings and animals. Some of them are hand-made and others are cast from double moulds. The crude figurines of bovine animals such as bull etc. are characteristic of the proto-historic period, but stylistically they cannot be attributed to any particular phase. Some of the archaic terracottas may be compared with those found at Bhita, Kausambi, Pataliputra, Ahichchatra, Mathura, Yeleswaram, Nagarjunakonda etc. As already noted two methods of modelling the terracottas were noticed, one by hand and the other, employing a double mould. The hand made figures are made out of a single lump of clay pressed by hand to divide the lump into three parts. The top portion showing the head is made into a round mass without retouching. Sometimes the nose was pinched and the eyes executed in applique. The hands, the legs, and breast were drawn out like pointed spikes.

The moulds were possibly made of both terracotta and wood. But the Indian climatic conditions would not allow any wood specimen to survive. Yeleswaram excavations recorded a large number of terracotta moulds from both Satavahana and Ikshvaku levels. They included a double mould of a ram, mother goddess, a
scythian soldier, besides moulds for making designed miniature pots and moulds for stamping on bigger pots.

There are two methods of manufacture of clay figurines by double mould, by pressing the two moulds on a solid lump of clay and paring off the surplus clay with a sharp instrument. The other method is to press the wet clay into two different moulds of the front and back portion separately so as to form hollow shells. After detaching the casts from the moulds the two halves were luted together by pinching or applying clay with water.

The double mould of ram from Yeleswaram is hollow at the base. The two moulds of the rear and front portions must have been tied with a thread outside and wet clay was pressed in through the hollow which is wide enough to allow the thumb inside to press the clay over the negative. The moulds of human figures also have holes at the base but are narrow and insufficient to insert clay with fingers. The terracotta moulds of Yeleswaram were made of finely levigated clay and well fired to red colour. The backs of the moulds were smoothened with hand by application of water.

FINISHING:

After detaching the casts and luting them together the figures were retouched in order to deepen the grooves and incise designs. Occasionally the figures were dipped in a thin slip or alternately the slip was applied with a brush made of some fibre.
The terracottas were baked in a closed or open kiln but the heat was never applied directly. The objects to be baked were kept in an earthen vessel which was covered from outside with charcoal and husk. The outlets provided at the bases of the figures would allow the gas to escape.

**Archaic Terracottas:**

The archaic terracottas were found at Peddabankur in large numbers in the Mauryan and Satavahana levels. They comprise of human and animal figurines. The figures are hand-made by modelling the clay to the desired shape, but the similarity of the shape and sex (female), of many figures may indicate that they represent fertility cult. The heads of many figures are broken. The hands are pinched like pointed masses, the breasts protruding and pointed, the attenuated waist line with or without a navel broadens towards the hip. No genitals are shown. The face is just a featureless mass occasionally with a halo-like dressing. The back is flat. This kind of figures have a wide distribution as noticed at Yeluswaram, Nagarjunakonda, Nelakondapalli, Dhulikatta and Peddabankur. The figures from Dhulikatta Peddabankur and Nelakondapalli appear to have been cast on the same mould. Apparently these figures were manufactured at a place and exported to other places.

**The Figures:**

**Male figures:**

This type consists of crudely made figures of a male
deity with hands and legs shown as tapering masses, pinched nose, the eye socket filled-in with applique eye balls. The head tapers to a point and has a prominent band at the top. The waist-band is shown with incisions. The second figure, also a male deity, with similar hands and legs but the feet curve forward. The third figure has flattened ears and pinched nose, pointed hands and legs.

**Female Figures:**

Among the female figures one has its head and hands slightly curved forward, breasts indicated as a single protuberant mass. The other figure, also a mother goddess, with head shown as a thin trefoil mass has pointed hands and prominent breasts, but the body below the breasts is broken. This figure comes from pre-Mauryan level. There is another figure of Mother Goddess with head shown as a prominent mass like a round halo at the back, and breasts pointed. The hands and body below the waist is broken. The head of the Mother Goddess, with a halo or the head itself shown as an inverted crescent is exactly similar to the Hittite Goddess reported from Alaca Hhyuk of the early Bronze Age which was dated to circa 3000 B.C.

**Archaic Figures of Birds and Animals:**

The collection also included a few birds and animals which were crudely modelled and defy proper identification. The animal figurines are mostly humped bulls. There are a few
bovine animals with hump. There is a figurine of a cock, 6.5 cm. long made of well levigated clay and backed to a buff colour. It has prominent crest, pointed ears and the bill is broken. There is another bird appearing like a sparrow which is slightly broken at the back. The third is a nondescript bird with open bill. The body below the neck is broken. The object was perhaps used as a knob of lid.

There is only one specimen identified as an elephant among the archaic types, with its head and legs damaged. A figure of a she-boar with head and legs broken has its sex indicated. A figure of a cow has a slightly curvacious snout. The udder and the tail are shown. Another bovine animal similar to above is also shown with teats and a small tail. A bull figure is depicted with horns and hump. The snout is shown like a pointed mass and the eyes pinched. The figure of a ram has a pointed snout and horns are shown like discs. A small figure of a dog has a pinched snout and prominent ears. The head of an elephant with a lifted trunk and torso, broken is found in the pre-Satavahana levels.

**TERRACOTTA AND KAOLIN FIGURES FROM DOUBLE MOULDS:**

The figures cast-out of double moulds include three types of Mother Goddesses. The first type is a figurine with outstretched hands and arms lifted. She wears a double makara-type headdress secured with a band in middle. She is decorated with a necklace, waist band (mekhalā) of a wavy design and beaded
kankanās. The flowing hair is made into a back-knot. This type is commonest in the late Satavahana and Ikshvaku levels at Yeleswaram, Nagarjunakonda and elsewhere. We find a similar figure found in the rock carvings of proto-historic period noticed at Mudumala in Naktal taluk of Mahboobnagar district, which appears to be the arch-type. It may be recalled here that a Phoenician Mother Goddess Baal or Astarte dated to 1300 B.C. carved on an ivory plaque found at Beida in Syria is now exhibited in Lourve Museum at Paris. She is shown with her two arms upraised and carrying in her hands sheaves of fodder baiting two goats on either side. The Phoenicians brought elephant tusks from India or from Punt via the Red Sea for the carvings in ivory. The Goddess from Paddabankur with her hands upraised but without any fodder bait may represent the Goddess of Plenty. Some of the figures with out-stretched legs have genitals indicated. In that case she may represent the Goddess of Fertility and Plenitude.

The second type of Mother Goddess from Paddabankur is made of kaolin which has universal distribution among the early historical sites. The head, the right leg and back portion of the figure are missing. Her left hand simply rests on the thigh. A parrot perching on the right arm is nudging the breast of the Goddess with its bill. The goddess holds a bunch of fruit in her right hand. She is profusely decorated with a broad necklace ending in a locket above the prominent naval,
the bangles, a beaded waist-bend of double rows and kevuras above the feet. Nudity is also indicated. In another figure of the same Goddess, she wears a beaded yajnopavita and a beaded necklace with leaf pendants. The left breast is partially covered with the leaf (pipal) pendant. Here the parrot is shown with its head bent below the breast of the Goddess. Nudity is indicated.

Parrots are domesticated in the early periods usually to convey messages between lovers, as the bird was stated to be the vehicle of the God of Love, Manmatha. In Meghaduta of Kalidasa the Yaksha suggests that his beloved would be engaged in conversation with the pet parrot in the cage, interrogating the bird whether it remembers its master who loved it so well.

In one of the ivory cartings from Bagram dated to 2nd-3rd century A.D. we find a beautiful lady speaking to a pet parrot. Similarly one of the Yakshis from Bhutesar near Mathura speaks to pet parrot on her shoulders. The parrot is shown nibbling her locks. The Yakshi carries a cage in her right hand. In one of the imprecatory verses of Ramayana the Goddess Vagdevi or Saraswathi is described as holding a rosary and a book, a lotus and a white parrot.

There is a beautiful ivory sealing from the Dhuliani excavation inscribed with brahmi characters as "AJAN SIRIYA GAME KUMARIYA". It is emphatically stated in Artha Sastra that
in the centre of the parapets of a fort, an abode of the Goddess Kumari (Kumaripuram) should be constructed. Dhusikatta being a fortified town, a temple or abode dedicated to the Goddess Kumari must have been situated therein. Then who would be this Goddess Kumari? Kumari literally means one who is unmarried. Kumari is the Goddess who bestows children. Parrot being one of the attributes of the Goddess Kumari, the above mentioned nude Goddess with a parrot may be the Goddess Kumari.

The third type of Mother Goddess is found at Dhusikatta. It is made of finely levigated clay. The back portion and body below the breasts are missing. The Goddess holds her prominent breasts with her hands from below. She wears a beaded yajnopavita passing over the left shoulder through the middle of the breasts, a torque (kanthi or grivovaka) around the neck, crescentic ear ornament (chandra karnika), a beaded fillet over the forehead with a crest jewel and beautifully combed hairs towards right (probably made into a side-knot). The ornaments such as the kankana, keyurak and the lalatika (crest jewel) are in a pleasing harmony with the smiling expression of the benign Goddess with parted lips, narrow eyes and bulbous cheeks.

We find similar Mother Goddesses from Babylonian, Elamite and Neo-Babylonian civilisations dated from 2nd millennium B.C. where the Goddesses hold their breasts with hands. It may possibly represent the Goddess as giving milk or life juice. These figures have been ascribed to the Bronze Age and dated to circa 2500 to 1200 B.C. The Babylonian Mother...
Goddess, Nana or Ishtar is not only the source of Fertility but also the Gracious Mother of Mankind and the Goddess of Love. In that aspect she is the Aphrodite of Babylonia. The Goddess Ishtar was sometimes identified with Venus "the daughter of Sin".

On one of the ivory mirror handles from a tomb on the hill of Juno, Carthage, a Phoenician Goddess is represented as holding her two breasts from below. The Goddess is shown standing and has a long decorated girdled robe which reaches to the feet.

This type is very similar to the nude female figure with hands doubled up to touch the breasts as cited by Ananda Coomaraswamy which is said to have come from the Peshawar district. The figure of Mother Goddess from Mathura of the Kushana period dated to 2nd century A.D. now displayed in the National Museum, New Delhi is identified as Sri Lakshmi which apparently is correct. The Goddess holds her right breast with her left hand while the right hand points towards the sex.

Among the Peddabankur figures there is a kaolin figure of a boy with a turban-like headdress. He wears heavy kundalas resting over the shoulders and the right hand simply kept over the thigh. The figure is devoid of other ornamentation. As such, it may be the representation of a commoner boy of the early historical period.

There is also one dome-shaped terracotta figure which is (6 cm. high) hollow inside. It was represented at the top of the dome with the head of an Yaksha. He wears a broad beaded
fillet over the forehead, hairs shown in ringlets, bulbous eyes and parted thick lips. The elongated ear lobes carry chakrakundalas. The head of the Yaksha is enclosed in tongues of flame shown as a circle of loops. The body below the loop circle is incised with a lotus design. The Yaksha heads with the turban etc. enclosed by lotus medallions are found in Bharhut sculptures. On one of the ayaka slabs of the Buddhist stupa at Dhuslikatta dated to early second century B.C. there is an Yaksha figure inside a lotus medallion. The face of the Yaksha with rayed circle enclosed in a lotus medallion may be a representation of the Sun God. In Rigveda Agni is sometimes spoken of as the Lord of the Yakshas (Yakshadhyaksha).

There are a few animal figurines such as squatting elephant with an ornamental strap, a caparisoned horse and a ram among the figures cast out of double moulds.

From Dhulikatta there is a hand-made red-slipped and polished figure of probably a male (48-5 cm. long) wearing a hat-like head-gear. The head-gear has a prominent brim with a jewel attached to the right. The eyes and ears (with discular ear ornaments) are made in applique. The figure seemingly, is the mouth of a water jar with parted lips to simulate a laugh. The mouth is wide open to let out water. There is a hole at the top of the hat probably to insert an ornamental flower. This is altogether a unique figure without any parallel so far in the Indian terracottas. Similar figure but of a lady with a different head-gear carved on ivory was reported
from Nimrud known as "the lady of the well" dated to 8th century B.C. The specimen from Dhulikatta was possibly modelled as the head of a spout of a jar, to draw out water through the mouth of the figure.

**TERRACOTTA SEALS AND SEALINGS: PL 16**

The excavations at Peddabankur and Dhulikatta yielded three inscribed seals in brahmi, two button seals, and some ornamental seals. One terracotta seal is inscribed in brahmi as "**MAHA TALAVARASA VAJASAMIKASA SEVA SABHA**". A beautiful horse, without trappings, was stamped in the middle of the inscription. At the back of the seal is an impression of threads. The brahmi characters are datable to 1st century A.D.

During the Mauryan, Satavahana and Ikshvaku periods the title Mahatalavara was borne by high dignitaries of the state. Some of the Mahatalavaras bear metronymics similar to those of the kings. The Mahatalavaras were feudatories under the Mauryas and later Satavahanas. The feudatory, Talavara may be an officer with judicial functions like Kothwala of the Moghul period. Vaja or Vaji may literally mean war-house, and sami (Swami) is the head. Seva Sabha may mean a guild or union in the service of the general in charge of the cavalry of the whole kingdom or a part of it. These sabhas or guilds were possibly entrusted with the maintenance of a fixed number of horses to be supplied during times of war. The practice of maintaining of the cavalry and supplying to the king continued uptill the Vijayanagara period.
There is a seal incised in a circle on a black and red ware rounded pot-sherd in brahmi characters reading as "Vijaya ((filag.) Puraharakara Rattasa). The seal was found in a level datable to 1st century B.C. In the middle of the inscription the figure of a plough with a yoke was incised. The yoke has two pegs on each side for fastening the leather thongs round the neck of the draught animals.

During Satavahana period the empire was divided into ahara such as Soparahara Govardhanahara, Mamalahara Satavahanihara etc.

These ahara were governed by amatya (amacas), who were far inferior in status to Maharatis. The Maharathis appear to be the hereditary governors of the provinces. Satavahanihara, Pallava rastra and Vaingeyaka vishaya would probably denote a territorial division not bigger than a modern district. In Asokan inscriptions the Rastrikas have been specially mentioned in the group of Bhojas and Pettanikis. In Anguttaranikaya, rashastrikas were hinted as a board of elected leaders. If ratasa may mean rastrika the sealing may belong to a chieftain of Vijayapurahara. But a chieftain may not be so destitute as to inscribe his seal on a rounded pot-sherd. Moreover the plough in the middle is a pointer to the nature of his profession. He may not be a rastrika as such but a common cultivator similar to a modern Reddy.

In Hastinapur excavation, a terracotta seal was found bearing the inscription in brahmi as Thi (?) Kaputraan Jayasikara
The word Boddisa may be parallel to the modern Reddis of the Deccan whose profession is agriculture.

Now the problem is to find out the location of Vijayapuri. So far, we have one Vijayapuri at Nagarjunakonda in Guntur district. It was the capital of Ikshvakus during 3rd century A.D. If share comprises a territory equivalent to a modern district, Peddabankur which is more than 300 km. away from Nagarjunakonda could not have been included in the Vijayapuri district. Moreover, the seal which is a negative would always be kept under the custody of the owner who stayed at Vijayapuri. As such, there was one more Vijayapuri round about Peddabankur or Peddabankur itself, known as Vijayapuri.

The seal already noted, has a yoked plough in the middle which indicates the agricultural profession of the owner or some sectarian affinity of the owner or the group which used the plough as their lanchna.

There is a button shaped seal of garnet (deep red translucent) and inscribed as Ka ma sa with a loop design at one end over the ovoid bezel of the seal. The design is a square with the intersecting lines at the corner's project out to form loops. The brahmi characters or similar to those of the Asoken period. As such, it may represent royalty or simply an auspicious symbol.

Pottery formed one of the most essential necessities of the daily life of the common people. Metals always being scarce
and costly, pottery occupied a very important place in the life of the people. The potter or shatakara who always worked on the wheel was also known as chakrika or shakrakara.

The entire range of pottery recovered from the early historical site is mostly wheel-made, the fabric ranges from fine to coarse. Most of the pottery whether it is a storage jar or a lota of daily use were turned on wheel. Broadly the pottery may be classified into the utilitarian and ritualistic, the former being more numerous. The types included, jars, water vessels, carinated bowls, lid-cum-bowls, lids, lotas, small bowls, or chattis, measures, lamps, lamp-stands, dishes, etc. The pottery from the early phase was marked by profuse occurrence of tan ware besides finely polished red and black and red polished wares. In the later levels, the tan ware gradually diminished and was substituted by red polished wares. The black and red ware also gradually loses its lustre and becomes drab during the Satavahana period. The coarse red ware becomes profuse in the later phases. Besides these main wares there is an occasional occurrence of all black ware and other aberrant wares.

A. Storage Jars: - Pl 14 a

The storage jars are available among the two kinds of wares i.e. the tan ware and the red polished wares. One tan ware storage jar has a rolled and out-curved rim. This pottery is well-burnt. The tan slip is burnished to high polish and still retains it. In the other jar which is a smaller than the above
the slip is lighter in colour and much abraded over the rim. This has an out-curved and grooved rim with a flange outside. The slip inside is a little darker than outside, but less burnished.

Among the red ware jars some are decorated with designs and some are plain. The first type has a thickened and a faceted rim. It has a thin red-slip and is burnished only on the exterior. The inner surface is unburnished. The second variety has a slightly out-turned rim with a squarish cross-section. It has uniformly well burnt and has a thin pale-red wash and burnished outside. No such slip or burnishing is visible on the interior. The third type has an out-curved and flanged rim. It was decorated with a wavy and finger tipped design at the flange. As the pot is much abraded neither slip nor burnishing is visible outside but the tan slip inside is visible. There is a lot of lime encrustation inside the pot suggesting that either it was filled-up with lime or was given a lime coating as a preservative for food grains. The second variety has an out-turned and elongated flanged rim and grooved internally. The slip outside is much abraded and the degraissants such as sand etc., are exposed. The next type is also a red-slipped jar with an out-turned and grooved rim. It is decorated with a finger-tip design at the flange. The slip on the exterior is completely lost. The next variety has an out-curved and grooved rim. The red slip is visible outside, but the inner surface was left unsliped. The jar is decorated
with a band of pinched triangles below concentric grooves near the neck. The other variety is a nail headed obliquely faceted rim. It is slipped both inside and outside. The storage jars may have been used for various purposes such as storing water or grain etc. A squattish jar from Yeleswaram, a unique specimen of its kind (56 cm. in diameter at the mouth and 65 cm. high inside) is decorated with an incised fish pattern at the top of the flat rim and gadrooned knobs at the edge. Over the shoulder, tree symbols were stamped in ovoid cusps. Below is another band of circular cusps bearing the figures of bull, horse, lion and Gajalakshmi. At the middle is an applique band of oblique strokes. Probably the jar must have been used for some special purpose. A storage jar from Kondapur was inscribed with brahmi letters at each of the cardinal points.

D. Smaller Jars:

The first has a beaded-rim and the sides are almost straight like a water trough. It is decorated with an applique band of finger print design. No slip is visible outside. The second type is similar to the above but smaller in size. The rim is rolled and decorated with a band of finger impressions below the rim. The third variety has an out-curved and thickened rim which is internally grooved. The jar is decorated with a band of oblique grooves at the lower end of the rim outside and a herring bone pattern at the neck. There is also a single
all black ware jar with an externally curved and flanged rim. The slipped body is burnished to smooth surface outside.

The bigger jars are to a height of 75 to 100 cm. with varying diameters of the mouth. These were probably used for storage of grains, a practice which continued till the present day in some parts of the region.

C. Water Pots: pl.19.6

The water vessels or kumbhas are usually globular in shape convenient for carrying water from rivers, tanks and wells. The rims are sometimes beaded, flanged and grooved or simply flanged or externally thickened. As they are meant for daily use much decoration is not noticed. They are sometimes tan or red-slipped but frequently the slip is abraded due to constant use and wetting while in use.

D. Carinated Bowls: pl.19.6

There is a considerably big collection of carinated bowls from all the levels, which appears to have universal distribution in the early historical period. Most of them, whether big or small, have flanged rims with an occasional decoration of concentric bands above the carination. In some cases the carination is very prominent and in others the pot is rounded. The base is sagging or rounded. The slip is light. Stoot-stains appear at the base of some pots. A few all black ware bowls are also included.

The other variant is a deep dish with an externally thickened rim and a round body. Carinated bowls were recorded
from Brahmagiri, Arikamedu, Nasik and Sisupalgarh.

E. Lid-ont-bowlai

They are mostly of matted ware. The convex-topped lid is usually ledged under side and the body below the ledge tapers to a lipped mouth. The mouth is lipped to facilitate holding. Sometimes it is decorated with double bands below the rim. In most cases no slip is visible, but there is a lone specimen of tan slipped lid. Similar lids also come from Nasik, Brahmagiri and Sisupalgarh. In the ordinary lids the rim is sometimes thickened. There are also hat-shaped lids, with rims thickened under side. There are also three black and red ware lids, one has an out-curved rim and rounded base, the other is like a shallow platter with an internally grooved and curved rim. This is a tan black ware lid, black inside and tan outside. The third lid appears like a shallow dish of black and red ware with a sharply curved rim to act as a flange. They are in dull red ware.

Mention may be made of the knobed lids. The lower part is an inverted bowl joined to the knob with a solid stem. The knob consists of a solid barrel pointed at both ends fixed to the stem perpendicularly. All black ware lids with similar knobs are found in the megalithic burials at Pochampad. The second variety is an all black ware lid with a smaller knob. The exterior is not burnished and looks drab.
There is a very prolific collection of deep bowls, majority of them having slightly incurved featureless rims. The entire collection is of coarse black and red ware. Some bowls have out-curved rims and decorated with grooves at the neck. There are also many black and red ware miniature bowls. Deep bowls with featureless rims are very common in early historical sites as at Nagarjunakonda, Amaravati, Kondapur, Salihundam and Yeleswaram.

The next important type is the dish which occurs in large numbers. Most of the dishes are of black and red ware and those found in the earlier levels are highly polished. Also from the early levels there are tan and black ware dishes with incurved rims. There is no doubt that these were used as table ware, as the shape does not differ much from the modern metallic plates.

These are squatish vessels with globular or ellipsoidal body. One from Peddabankur is an all-black ware vessel with an out-turned and internally thickened rim and has an ellipsoidal body, decorated with concentric incised bands below the rim. The other also from an early level has a very fine tan slip but polished only on the exterior. It is slightly carinated at the shoulder and decorated with a single groove at the carination.
Analogy of vessels with globular bodies come from Salihundam and Brahmagiri.

I. Straight or concave sided bowls: pl. 201

These vessels have straight or concave sides and out-turned or flaring and flanged rims. As they were intended for daily use, these do not have any slip. Even the slipped vessels are much abraded. One bowl with a height of 13 cm has concave sides and a splayed-out rim. It has a light red wash and grooved decoration in the middle and at the carinated base. The second vessel is also straight sided and has a flanged rim, and probably an applique handle which is broken. It is grooved below the rim and at the bottom. A light red slip is visible. The third one has an out-turned flanged rim, carinated at the convex base. The vertical sided vessels sometimes with a concave profile and splayed out featureless rims are found in Malwa ware at Navdatoli.

J. Spherical Bowl: pl. 19.e

There is a single spherical bowl with convex sides and featureless incurved rim. The base is rounded. The fabric is very thin and has a light pinkish wash and appears to have been burnished with a spatula, which resulted in a blotchy surface. The clay is very finely levigated. We have analogies of this type in the Malwa ware from Navdatoli where the bowl occurred in a reddish cream slipped ware and was painted with irregular circles. The Peddabankur bowl has
no painting but must have been used for a similar purpose. 
Such bowls were commonly used for begging. In the Vinaya 
Texts detailed rules are given regarding their making and use. 
In a panel illustrating episodes in the career of Buddha at 
Nagarjunakonda²¹⁷ four kings are shown each holding a 
spherical or deep bowl. In the same panel a similar bowl is 
also seen in the hands of Buddha.

K. Lota: pl. 20 a

Lotas are miniature vessels with a globular body and have 
a rounded base. Some have narrow-necks and out-turned rims. 
As they were intended for carrying liquids like water or milk 
etc., the mouths are usually narrow. There are three vessels, 
one has an elongated neck and an out-turned splayed-out rim 
with a flange. It is decorated with an embossed band at the 
neck and incised circle at the shoulder. The body tapers to a 
flat base. The ten slipped surface is cracked. The second 
one is a black and red ware pot and polished outside. It 
has an ellipsoidal body with a convex base. The rim is slightly 
out-turned for grip. The third is matt red lota and has an 
ellipsoidal body. The splayed-out rim is grooved inside. 
Similar lotas are found at Taxila²¹⁸ and Salihundam²¹⁹. In 
the sculptures at Nagarjunakonda a lota with a spherical body 
is carried by a male in his left hand in a panel depicting 
Mahapadama Jataka²²⁰. The fourth one with an out-turned rim 
has a corrugated body and a convex base. No slip is visible.
The next type has an out-turned rim with a single corrugation in the middle and a convex base. The inner surface has a black slip and the outer has a light tan slip. Similar corrugated pots otherwise described as double pots were found at Jorwe\textsuperscript{221} In profile, it looks like a pot over another pot. Similar corrugated pot but smaller than the above was found in an early historical brick well at Dhulikatta.

1. **Pyriform Wine Vessels**: \(\hat{p}l\) \textsuperscript{30}.

There are three unique all black ware pyriform wine vessels. The first vessel has a very narrow neck and an out-turned flanged rim, grooved inside. The mouth is 2.4 cm. in diameter and the height of the vessel is 18 cm. From the neck downwards, the body takes a wide bulge and then tapers down from the shoulder to a flat base. The second vessel 18 cm. high, also has a narrow mouth, 2 cm. in diameter, with a similar body as above. The third, 13 cm. high vessel, is smaller than the above two and has a little more wider mouth (2.7 cm.) with a deep groove inside the flanged rim. It has also a flat base and measured 13 cm. high. Wine jars (\textit{surabhanda}) from Taxila\textsuperscript{222} are tall narrow-necked vessels of buff or buff-red clay with a porous texture to help keep the liquid cool. Sculptural representation of wine jars are noticed at Sanchi\textsuperscript{223} and Nagarjunakonda\textsuperscript{224}. The wine jars from Dhulikatta almost appear like the Roman or Greek amphorae\textsuperscript{225} but without handles. The function of the amphorae was to
contain wine or oil but it is likely that the shape is indigenous, not imported as we have the pyriform urns from Porkalam of a very similar shape.

**M. Lamps:**

There are a good number of lamps. They are shallow dishes with a lip for the wick. The sizes vary from 11.5 cm. to 6.6 cm. All are in dull red ware. The fabric of the smaller lamps is coarser than the bigger ones.

**N. Ring Stands:**

There are two ring stands, both are of tan ware. One has a wide base of about 17 cm. in diameter, ledged underside. The stem is decorated with multiple corrugations and ridges. The top portion is broken. In the other stand, the wide base is decorated with a band of finger tipped design. It is highly polished on both sides, but abraded on the exterior due to wear.

**P. Finials:**

There are two finials of terracotta, coarse red in colour with stepped mouldings and knob at the top. One finial has seven mouldings or ridges and a pointed knob at the top. Below the lower-most moulding is a hole probably for inserting some flag like object or keeping the finial in position.

In Bharat sculptures we notice short and long finials at the top of the door-ways. One tiled hut has a long finial at the top. In one of the sculptures at Sanchi the rounded gate-way has four finials at the top. We also find in
in the Nagarjunakonda sculptures/a panel depicting the "dead body scene" the rounded torana over the gateway has three finials with mouldings. Terracotta finials are commonest in many other sites in India with a variety of shapes, such as at Kolhapur, Bhita, Ramathirtham, Ujjain and Kondapur.

RITUALISTIC POTTERY:

There are very few pots to be characterised as ritualistic wares. Among them is a globular vase stamped with triratna or nandipada symbol at four places. In between the two stamped nandipadas three perforations were made, one at the top and two below which in all likelihood may represent the "visage". In one of the megalithic burials at Peddamarur in Mahbubnagar district a pot with three such perforations was found at the north-east corner inside the cist. In the Indian architecture (Vastu Sastra) the north-east corner is said to be presided over by the Goddess Lakshmi. In the visage pot at Dhulikatta it is interesting that the three perforations are noticed with nandipada. As such the pot may represent the mangalakalasa into which the Goddess was invoked (avahana).

A vessel known as bhincara (Skt. bhringara) of the Jain literature of bhinkara of the Buddhist texts was usually ornamented with triratna symbol. The word bhringara sometimes appears as an auspicious symbol. Bhringara literally means a golden pitcher used at the inauguration or coronation of a king. In the ordinary usage it may mean any pitcher or vase used for religious purposes.
b) Dishes

As mentioned previously the excavation yielded a large collection of dishes of black and red ware, made of finely levigated clay and well burnt. The interior surface of the dishes is invariably black and majority of them were used as table ware. But there are some with a white painted spiral design at the bottom inside. In the intervening space between the spirals there are white painted dots of various sizes. The dishes with spirals is a characteristic of most of the early historic sites in the Karimnagar and other regions. The spiral design is traced from the protohistoric period, not only in India but elsewhere also. We also find the design in the painted greyware at Hastinapur and on the cream-slipped Malwa ware at Navdatoli and on the early historical wares at Salihundam etc. In the protohistoric paintings at Kokapet we find a similar design painted in red ochre over a rocky boulder. We find several volutes or spirals in the Buddhist sculptures. Many ornaments such as ear finger or toe rings from chalcolithic period onwards are in the shape of spirals. Among the finger rings found at Dhulikatta majority of them are spirals. It is not clear whether the spiral design has got an religious significance, but certainly the form has evolved from the conch or sankha venerated as a sacred object from a very early period. In a semi-circular lime stone slab from Kesapalli there is a relief carving of mandipada cut-wined by creepers, lotus
medallions, fish and spirals (discs with incised concentric lines). As the spirals are found along with other symbols, viz. the fish, lotus etc., they may also represent one of the products of water, may be the conch shells. The cowrie shells formed a part of wealth during the early periods.

The dish with the spiral design may have been used for purposes of religious offerings. Salihundam excavations recorded a considerable number of dishes inscribed with the names of the donors in Brahmi. One of the dishes from Peddabankur was inscribed in Brahmi as Hanama. The offerings of flowers of such kind may pertain to one devotee by name Hema.

A pedestalled cup decorated with bands of vertical and oblique lines and tridents, might have been used as a censer or offering stand as suggested by Marshall regarding those stands found at Taxila.

Some of the pots have cord impressions in the shape of the Brahmi letter "Ma". This design is probably derived or itself a part of the endless loop-design noticed in the protohistoric levels elsewhere. Similar "MA" design over the pottery from Nasik is found between two swastikas. Sankalia suggested that palaeographically the 'Ma' letter (if it is really Ma) may belong to the pre-Christian period. But its occurrence between two swastika symbols may suggest that it is also an auspicious symbol either an abbreviated form of the endless loop noticed at Mohenjodaro, Harappa,
Several pots were stamped with the \textit{nandipada} or trident. Many variations are noticed in this design. In the first type the tips of side prongs are split into branches, each having a tip. The central prong is of equal height with the side prongs. In the second type, the side prongs are like arrow-heads but the central prong along with the lower spikes appears like a barbed arrow-head standing on a stepped base. In the third type, each side prong looks like a trident by itself and the central prong is topped by a radiating circle.

\textbf{Decorated pottery:} \textit{pl} 21. \textit{a, b, c}

Many pot sherds were decorated with various designs such as chevrons, inside marginal bands of vertical notches, oblique notches above horizontal bands; circles enclosing endless triangles; creepers emanating from the circles; lotus enclosed in serrated circle; tree symbols below concentric circles; six petalled lotuses, 12 petalled lotuses, criss-cross lines between marginal bands enclosed by notches on one side and oblique lines on the other.

\textbf{Graffiti:}

Quite a good number of graffiti marks are found over the pottery from the early historical levels. These marks include arrow, inclining triangles, plough, brahmi 'Ma, fish, circle
enclosing a cross, bow and arrow, a vertical line bisecting an arrow, 3 vertical lines intersected by a horizontal line, inverted trident, two parallel lines bisected by another set of parallel lines etc.

COINS:

During the early historical period, coinage became universal. Even the mahasenahipatis and maharathis and sometimes mahatalovaras were issuing coins in their names besides the coins of imperial dynasties. In all the countries the common measures have been derived from the natural objects such as the measures of length from fingers, palms, feet etc. Weight from seeds such as "washa" etc. The Indian "pana" may probably mean a handful or "anjali" i.e., a handful of cowry shell, usually reckoned as eighty. The "pana" was also a copper coin equivalent to 80 rathias in weight and 80 cowries in value. Four "panas" make one "tanaka", a word probably derived from the sound of the coin when hit against a stone.

THE EARLIEST COINAGE:

As early as the Rigveda we find mention of nishkas as a sort of currency. Satapata Brahmana mentions nishka as a gold coin. Mahabarata refers to two classes of wealthy people or wealth consisting of one hundred and one thousand nishkas. There is another denomination "suvarna" but it is not possible to indicate their relative weights. In Satapatha Brahmana the nishkas offered by Uddalaka Aruni to his learned rival "Svaidyana" was of gold. Kautilya mentions a coin by name "karna" which is equal to 10 "panas".
The silver coin was known as 'aatamana'. In Satapatha Brahmana it is stated that satamana was also a gold coin. In the Vedic literature the mana was a measure equivalent to 'kriashna' or 'raktika'. According to Manu, the silver satamana is equivalent to ten dharana or 320 rathia in weight, which is equivalent to 560 grains. But the silver punch marked coin was usually known as the 'karakshapana' or 'purana'. The Phoenician unit, a small coin of 56 grains or 1/4 of Hebrew shekel may have definite connection with the old Indian karshapana which is also 56 or 57 grains. The copper coins was known as pana or karshapana. According to Manu one karsha is equivalent to 80 raktikas in weight. Pana, as already noted, is equal to a handful of cowries numbering 80.

Coins from Karimnagar Region:

Previously about 418 punch marked silver coins were discovered from an unknown place in the Karimnagar region and now exhibited in the State Museum, Hyderabad. Later in 1952 a hoard of 2 coins came from Nustulapur about 15 km. from Karimnagar. The Nustulapur hoard is of great importance because of its association with 3 Roman coins belonging to Pontiff Augustus Caius Julius Octavius (27 B.C. to 14 A.D.) and Tiberius Claudius Nero (14 to 37 A.D.). Peddabankur excavation yielded two hoards of silver punch marked coins, one consisting of 168 and the other of 30.

Srinivas classified the previous hoard from Karimnagar on the basis of the fabric of the coins into 5 categories.
Class A consisted of rectangular small, thick and clipped coins. Class B slightly larger and clipped, Class C, small thick but not clipped. Class D, slightly larger and unclipped. Class E, circular. Subsequently Gupta studied the coins and classified them into 4 periods. Period one are of thin and broad fabric equated with the big Bhir Mound hoard. Coins of Period II are of thin or medium fabric and are square dumpy or circular types. These coins were dated to the pre-Mauryan period. Period III are of dumpy fabric square and globular. Regarding the date he suggested that this group is earlier of the series. Period IV are of dumpy fabric for which no date has been specifically mentioned.

The coins of two Peddabankur hoards can be broadly divided into rectangular and round. Among the rectangular types there are two variations, clipped and unclipped. Likewise among the round type there are two types, the rounded and ovoid. The rounded are dumpy whereas the ovoid are thin. The weights of the most of the coins range between 3.32 to 2.4 grams (51 to 35.12 grains). Most of the coins have uniformly five symbols, varying from coin to coin but the solar symbol with sixteen rays around a circle with conspicuous dot in the centre is invariably seen in all the coins. Only the other four symbols vary.

DIE CAST COINS:

Next to the punch marked silver coins come the earliest copper coins which are as early as 5th century B.C. They were
cast by pouring the molten metal into a cavity formed by joining two moulds together. This must have been a very ancient practice in India. These coins are for the most part anonymous. We find cast coins issued at the close of the 3rd century by the kingdoms of Kausambi, Ayodhya and Mathura, some of which bear the names of the local kings in the brahmī script. A hoard of 1600 lead coins, similarly moulded, were recently found at a Buddhist site at Mandalur in Cuddapah district. These coins bear on the obverse a horse to right and a tree in railing and a wavy line below. Some coins bear some illegible legends.

The earliest die struck coins with device on one side of the coin are assigned to the end of 4th century B.C. Some of them having a lion device appear to have been issued at Taxila. Other coins bearing various Buddhist symbols such as Arhat tree, svastika may belong to the time of Asoka. In the die struck coins of Eran we have an illustration, as Rapson says, of the development of the punch marked system into die system. These coins are of rectangular copper pieces and the device on each, consists of a collection of symbols like those appearing in punch marked coins such as the elephant, the lion, ujjain symbol and tree etc.

Before discussing the coins of the Satavahanas, it is necessary to have a knowledge of some minor dynasties or feudal chiefs under some unknown imperial dynasties. The coins
of Sivalakura were catalogued by Smith as Andhra coins. There are two types known so far. They are the coins of "Raja Mathari putasa Sivalakurasa". Along with this legend, a bow and an arrow pointing upwards on the obverse and chaitya with four tiers surmounted by a crescent, with a tree in railing on the reverse. The second coin bears the legend "Raja Gautami putasa Vilivaya Kurasa". On the reverse instead of a crescent over the arched hill, there is a swastika. Both these coins come from Kolhapur.

During the excavations at Brahmapuri uninscribed coins were found in the lower most layer of square 1. In the same square from the layer 9, a coin bearing the legend conjecturally restored as "Mulanandasa" with a tree in railing and a wavy line below on the reverse and on the obverse the above legend and a six arched hill. Gupta has ascribed these coins to 'Kura' rulers on the basis of the form of the hill. Thirteen more coins bearing the legend Maharathissa Kurasa and one coin bearing Maharathissa (Viliya) YAKURASA were found in layers 8, 9 and 10. These coins have a bow with an arrow and a legend. Evidently these coins were issued by 'Kura' and 'Vilivaya Kura'.

Seven Satavahana copper coins of YANA SATAKANISA etc. were found in layers in 3 to 6 and thereby suggesting that the Kura kings were supplanted by the Satavahana rulers in this area.
In the Chandravalli excavation the coins of SADAKANA KALALAYA MAHARATHI come from a strata 7 to 9 below the stratum in which the coins of Satavahanas were found. Ramarao has ascribed the coins of Maharathi Sadakana Kalalaya to the reign of Satakarni I as the letters 'HA' and 'MA' resemble those on the coins of Maharathi SADAKANAKALALAYA.

Mirashi published number of coins from Kondapur of one "Mahisha" dynasty. Some of these coins have legends reading as 'SEJJA PATI PUTA', RADAJI PUTASA 'SAGAMANA'. The other coin "SAGA MANA CHUTA KULASA MAHASENA PATASA RADAJA PATA".

But a similar coin with a big svastika in the middle and legend of 'Mahasena' on the obverse and an arrow and thunderbolt in a dotted square on the reverse is noticed at Peddabankur from an early level than the Satavahanas. Mirasi ascribed this coin to the post Satavahana age. He admitted that the characters on the coin are Kushana type and the svastika, an ancient symbol, noticed only on the earliest Satavahana coins.

It is now evident from the above discussion that the coins belonging to MAHARATIS and MAHESENAPATIS certainly are earlier than the Satavahana coins.

Recently, a few coins collected from surface came to the notice of Parabrahma Sastry. He identified 6 of these coins as pertaining to Simuka or Chimuka, the founder of the Satavahana dynasty. The coins have on the obverse an elephant to left with trunk hanging down and traces of Ujjain symbol and the legend as "SIRI CHIMUKA SATA", and on the reverse a Ujjain
symbol with a double circle and a crescent on one orb. Parabrahma Sastry identified CHIMUKA of these coins with SIMUKA of the Naneghat label inscription and the founder of the Puranic list of the Satavahana dynasty. Palaeographically, Sastry ascribed these coins to the last part of the first century B.C.

There is a large collection of Satavahana coins from the Karimnagar region which include the coins of Satavaha, Satakarni I, Gautamiputra Satakarni, Vasistiputra Pulamavi, Siva Sira Pulamavi, Yajna Satakarni and Rudra Satakarni.

Smith noticed that the coins of the dynasty are northern rather than southern in type and in fact have nothing in common with the peculiar coinage of the South. But it may be pointed out that the peculiar coinage of the South is evidently of a later date than the times of Satavahanas. However some of the prominent devices and symbols which occur on Satavahana coins are seen on most of the primitive issues of North India especially of Malwa with which region the early Satavahana kings appear to have been politically connected. The chief characteristic of the Satavahana coinage is the use of metals like potin and lead, the former being more predominant.

The rare silver issues of Satavahanas betray unmistakable influence of the silver coins of Saka-Satrapas of Western India with whom they had often come into conflict. About a dozen silver portrait coins of Satavahana kings came to light. These
coins belong to Vasistiputra Satakarni. Gautamiputra Sri Yajna Satakarni, Vasistiputra Pulasami. So far there are only four coins of Vasistiputra Satakarni bearing the legend "RAMO VASITHI PUTASA SIRI SATA KANISA" on the obverse and on the reverse "ARAHANAKU VA HITA HAKANAKU TIRU CAYA KANIKA". There are seven coins of Gautamiputra Yajna Satakarni. These read as "ARAHANAKU VAHITTI - HAKANAKU TIRU HAKANAKU ARAHANAKU GOTAMI PUTAKU HIRU YANA CAYA KANIKA".

On the coins of Vasistiputra Pulasami, we find on the reverse as "ARAHANAKU VASITHI PUTAKU TIRU PULAMAVIKU".

Interestingly, a single silver portrait coin came from Dhulikatta excavation pertaining to Vasistiputra Siva Siri Pulasami. The coin on the obverse has the youthful head of the king with an aquiline nose, protuberant chin and a dome-like headgear. The inscription in brahmi is in the clock-wise direction probably starting at 2'O Clock. The beginning letter 'VA' is broken. The other letters read as 'SITHI PUTASA', then a break for the neck of the king, again the inscription starts at 7'O Clock as "SIVA SIRI PULAMAVIKU.

On the reverse there is a six arched hill crowned by a crescent. On the left is Ujjain symbol and a wavy line below. The inscription starts probably at 7'O Clock but the letters upto 'PU' are damaged and then it reads as "PULAMAVIKU ARAHANAKU VAHITTI . . . . . . . ."

Two perforations were made for the coin for suspension around the neck.
Large number of Roman coins of the imperial period travelled to India, brought by the traders during the last few centuries of the Christian era. These coins have been discovered in many parts of the country. The movement of the coinage from Rome to India took place in two forms. Merchants carrying on large transactions with foreign countries, found gold coins a necessity for possession as wealth and for external commerce, while silver was essential for small change. Much of the Roman currency found in India was brought by Roman subjects to India in order to buy whatever goods they were unable to get by exchange of Roman products. Pliny says that at the lowest reckoning India, Seras and Arabia drained from the Roman empire, a hundred million sesterces.

About 47 silver coins consisting of 39 Roman dinarri and 8 punch marked coins were found at a village, Musthulapur, about 15 km. from Karimnagar. Of the 39 Roman coins, 12 are of AUGUSTUS and the remaining 26 belongs to TIBERIUS.

Peddabankur excavation also yielded 5 Roman coins and four coins of imitations made of lead plated with gold. These imitations have double perforations to be suspended around the neck. Among the 5 coins, 3 coins bear the devices as follows:

Obverse: Laureate head of Augustus:

CAESAR AUGUSTVS DIVI F PATER PATRÆ
Reverse: Caius and Lucius, standing and facing each other on either side of two shields. Behind are two spears crossed. The inscription reads:
"AV GUSTI COSIDSCI PRAECIVENT"

The other two coins belong to TIBERIUS

Obverse: Laureate head of Tiberius
TICAESAR DIVI AVG FAV GUSTVS

Reverse: Livia seated right, "PONTIF MAXIM"

All the Roman coins including the imitations were found in layer 2 associated with Satavahana coins of Satakarni, Gautami putra etc. The Roman coins belong to Augustus (29 B.C. to 14 A.D.) and Tiberius (14 to 37 A.D.). No coin of the post Tiberius period was found which may suggest that the contacts between Rome and this region must have ended by that time.

STONE OBJECTS:

The stone objects mainly consisted of querns, pestles, millers, dabbers and a small cup made on lathe with featureless rim. Most of the querns are legged and of varying sizes. A big quern which is intact measured 40 cm. long and 20 cm. broad. It has a rectangular grinding face with undulations in the middle resulted constant due to grinding. Its surface was much abraded, due to soft nature of the stone which is red sandstone. Fortunately a pestle 20 cm. long and with a
diameter of 8 cm. was found near the quern. The other querns, smaller in sizes, are of granite. In some cases yellow quartzite or dolerite were also made use of. A single completely ground stone with a knob in the middle may possibly be the lower piece of a rotary quern.

**PESTLES OR MULLERS:**

The above noted red sand stone pestle is exactly cylindrical in shape. It is commonly noticed that both the ends of the pestle were grooved and rounded to facilitate easy grip. There is another type which is cylindrical in the middle and both ends were made bulbous.

**DABBERS:**

There are two dabbers of similar shape with concave sides and rounded ends, the working end bigger than the butt end.

**WEIGHTS AND MEASURES:**

In Satapatha Brahmana the word 'prasrita' has the meaning of handful. It literally means stretched-out or expanded. Similarly the term 'anjali' is also a measure which is two handfuls. It is still known as 'dosili' in Telugu. The pane, a handful was derived from pandu the hand. The Indian pane was a handful of cowrie shells reckoned as 80 raktika seeds in weight (144 grains).

**THE BALANCE:**

The weights (pratimana) were usually made of iron or locally available stone or of such material which will not
contract when wetted nor expand when heated. A balance is called samavritta when its lever is 72 angulas long and weighs 63 palas. The balance is sometimes graduated. The scale pans according to Varahaomihira should be 6 angulas in diameter and were fashioned from linen cloth. Each of them connected to the balancing rod by means of four strings.

There are number of balancing rods of iron from Fedda-bankur excavations. The bigger rods measured 40 cm. long and the smaller ones are . . . . . . . . The rods are thickened in the middle and tapers at both ends. Many of them being incrusted, it is difficult to find out marks of graduation. The centrally thickened rods may indicate that they were of double panned balances.

The excavation yielded two recognizable weights one is cubical, made of black basalt and other is a perfect sphere of black granite. The basaltic weight measured 120 grains and is hexagonal. The base is flat and the top is convex. The second weight which is a sphere appears to be made on a lathe and weighed 70 grams. Interestingly, it was stamped with the Ujjain symbol, four circles connected by a cross. Evidently, it was issued under royal authority. It may prove that weights and measures were standardized. Kautilya specifically stated that the weights and measures should be manufactured under the royal authority (superintendent). Common people must have used riverine shingle as weights, a large number of which have been found in the excavations.
MEASURES:

The sarava or earthen pot was used as a measure of grain. Kautilya mentions that two hundred palas of grain (wage) make one drone, 18 drones make one vari or 20 drones make one kumbha and 10 kumbhas make one vaha.

GLOBULAR MEASURES:

Interestingly the excavation at Duhlakatta yielded a large number of saravas or kumbhas, half-kumbhas and quarter kumbhas. They were found from inside a brick granary inside the palace complex. The sarava with a narrow mouth and everted rim has globular body. The half sarava has a bevelled rim. The red slip of the vessels is much abraded and now visible in patches.

STRAIGHT SIDED MEASURES:

The straight sided vessels slightly tapering at the mouth with featureless rim and rounded base from Pedddabankur excavation may also have served as a cubic measures (parigana). One pot has three incised grooves, at the top, 2 cm. below the rim, in the middle, 3 cm. below and the third at the base about 17.5 cm. below. The mouth has a diameter of 13 cm. and the total height is 24 cm. Similarly cylindrical vessels made of sheet iron are commonly known as addas or manikas. Forty such addas make one gont or sackful. Half of one adda is thavva and half of thavva is sola; half of sola is gidda.
STANDARD MEASURE:

Many pots from Peddabankur and Dhulikatta were stamped with nandipada or trident. If the symbol is only of ritualistic purport, it would not occur, so commonly. It is likely that the nandipada was another royal standard mark. The symbol may represent the Mother Goddess and in this context Dhanya Lakshmi, the stamp of the same over the measures is quite appropriate.

URBANIZATION:

There are clear evidences of urbanization during the early historical period. Like the India of the present day the region during the period under discussion was marked by both urban and rural areas. Politically and commercially important towns such as Dhulikatta, Kotilingala, Vadloor and Budigapalli etc., were surrounded by mud fortifications with gate-ways at the cardinal directions. Kautilya states that on all the four quarters of the boundaries of the kingdom defensive fortifications against an enemy in war should be constructed. The fortifications were of four kinds - a water fortification (audaka jaladurga) such as island in the midst of a river, a mountainous fortification (parvatha durga), a desert (dhavana durga) such as a wild tract devoid of water and overgrown with thicket, or a forest fortification (vanadurga) full of wagtail, water and thickets. Many of the fortifications in the Kerimnagar
region were found on the plains and it is beyond our knowledge whether some of these forts to be designated as vanadurgas were surrounded by forests as most of which is denuded.

However, we have evidence of jaladurga at Kotilingala where the mud fort is situated at the confluence of the Kapparaopetavagu and the river Godavari. The 50 hectares extensive historical site is encompassed by a mud fortification with gate-ways at the cardinal directions.

The mud ramparts were raised with the earth dug out from outside the settlements and the trenches thus excavated simultaneously serving as moats. It appears that these moats were full of lotus flowers as found in the sculptural representation at Sanchi. According to Pliny, the cities were defended by marshes which served as ditches where in crocodiles are kept. They are known to have a great avidity for human flesh and prevent all access to the city except by a bridge. At Dhulikatta there are traces of a moat around the ramparts. Unlike at Kotilingala, the Dhulikatta fortification was raised in the midst of arable plains and provided with four gate-houses and the guard rooms. The gate-house has sufficient space in the middle for a pathway and provided with casemates or ambush niches on either side. The gateway must have had one or many storeys with a terraced roof, railings and pillars. The middle path-way was paved with rubble and veneered with a thick layer of sand and morram.
Wheeler's excavation at Brahmagiri also brought out a 5.30 m. broad street at the Isila town site. It is paved with rubble and the boundaries are marked by flat slabs. Similar may be the case of the important roads inside the towns of the Karimnagar region. However it appears, that the national highways were not paved.

WATER WAYS

As many of the settlements have grown up on the banks of the major and minor rivers, people may have covered distances by boats, as the journey was safer than travelling by roadways. The un-paved roads would not be useful during the rainy seasons. Further, the larger quantity of internal trade and commerce used to be carried through the rivers due to lack of all-seasonal roads. Even the existing ones passed through thick jungles infested by wild animals and highway robbers. The goods had to be transported by carts drawn by oxen or buffalo. Horses were very few and practically monopolised by the kings to be used in times of war. An inscribed terracotta seal from Peddabankur reads as "Mahatalavarasa vajasamikasa Seva Sabha". In the middle of the inscribed seal is the figure of a horse.

Elephants were also used for movement of cargo but it was a slow process. The Karimnagar region has a net work of perennial and navigable rivers. The rivers were crossed with boats. They were made of wattle and covered with animal skin for making it water-tight. These were known as bhastra.
Even horses were transported from bank to bank through these puttis during times of war. In Periplus it was mentioned that the bigger vessels, known as sangara were made of single logs bound together, but those which made the voyage to Chrys and to Ganges were called Colamia which were very large.

ROADWAYS:

The planning of roads and their construction formed an important part of town planning. According to Aitereya Brahmana the royal thoroughfare was known as rajapatha and the national highway as mahapatha. The mahapathas were connected by numerous feeder roads leading to different parts of the country. The rajapatha was well constructed and comparatively free from dangers than mahapatha. The rajapathas and roads of important towns were paved with rubble. Artha Sastra mentions chariot roads, royal roads, and roads leading to minor fort, to country parts and pasture grounds etc. But it appears that the condition of the national highways was bad. In the Periplus it is mentioned that the cargo is brought down to Barygasa from these places by wagons and through great greens without roads.

The Karimnagar region was traversed by highways from the North to the South and the East to the West. The caravans travelled from Vidarbha region to Andhra, from there to Dhanakataka, towards south-east and to Govardhana country(Nasik region) towards west. The northern route from Akara Avanthi(Ujjain),
after crossing Narmada and proceeding to the ancient town of Bahal (district East Khandesh) from where the caravan either went south to Prathishtanapura (and the Karimnagar region) or to west to Nasik. When Huen Tsang travelled from Kalinga to Kosala which is about 1800 Li, the country was surrounded by mountains and a succession of woods and marshes. The route through the Karimnagar region to Faithan was filled heavily with jungle infested with savage beasts of prey. The ox-carts would be used near each end of the journey. Much of the goods must have been carried by caravan of pack animals. Barboza (1500 A.D.) reports that "They bring their goods laden on great droves of trained oxen with pack saddles, like those of castille, and over these long sacks thrown across, in which they pack their goods, and behind them goes a drover who drives twenty or thirty oxen before him".

DRAINAGE:

The sewage from the houses and wells was lead out through covered subterranean drainage. This was evidenced by a drain of bricks placed in three courses with an intervening space of 12 cm. for the drain. The floor of the drain was also paved with brick. Much care was bestowed to see that no breakage occurs. It was provided with a series of side-vents at regular intervals to the drain on both lateral sides for letting out water to percolate into the earth, so that the drain till the end need not carry the entire sewage. At
the end of the drain a huge 'V' shaped pit excavated to let the drain water fall into it. In another case a terracotta soak well was provided to let out waste water from a brick well. Each ring of the soak pit measured 76 cm. in diameter and 38 cm. in height. But it appears none of the wells have washing platforms around. The sewage was allowed to percolate or led out to a pit in the vicinity but care was taken that the percolated water did not enter again into the well by steening the wells with brick and the gap between the brick lining and the trench wall dugout for the construction of the well was packed with morram and hard earth. At Dhulikatta it was noticed that a drainage was lined with a series of terracotta pipes by inserting one into the other. In other case a well inside the palace complex had a long covered drain which was led out to a soakage pit.

WATER SUPPLY:

The fundamental necessity for a town or a village was good natural supply of water. Most of the towns and villages were situated on the banks of the rivers or nullahs with a plentiful supply of water all throughout the year. The Kotilingala mud fort situated on the banks of the river Godavari likewise the township of Dhulikatta is on the right bank of Hussainivagu and Peddabankur is situated about 10 km. down stream on the same nullah. The nullah used to dry up during summer which necessitated construction of several brick wells at Dhulikatta as well as Peddabankur. Peddabankur excavation
exposed as many as 22 wells, most of them steened with wedge-shaped bricks. There is only one well steened with terracotta rings. Even these wells dried up in course of years and later used as refuse pits into which garbage such as animal bones, broken potsherds, charcoal and ash etc., was thrown. In one of the wells at Feddabankur a complete skeleton of a horse was found. Many other wells contained a large collection of animal bones.

**STORAGE**

Water was mainly stored in huge earthen ware jars and brick cisterns. Some of the cisterns at Feddabankur were paved with bricks over the floor but some had a flooring of hardened morrum by ramming.

**INDUSTRIES**

Unlike the present day, industries were not monopolised during the early historical period. There are no evidence of either big industries or big business. The settlements were concentrated at the places where raw-material was abundantly available, but industries were of a cottage type. They were scattered from village to village and every village or town was self-sufficient. Iron ore was collected and brought to the towns or villages where it was smelted and forged. The smelting furnaces consisted of simple terracotta or brick kilns. Even in some cases it consisted of a heap of cow-dung covered with green leaves and cactus etc. The crucible in which steel was
manufactured is not bigger than 10 cm in diameter. The occurrence of large quantities of iron slag invariably at almost all the settlements is a proof that iron smelting was practiced as a home industry. Iron ore was found at Warangal, Konasamudram in Nizamabad district, Dindurthi, Jagtial etc. About 5 km from Dholikatta the entire hill range from Tellakunta to Dongathurthi is full of iron ore. Ancient iron-working spots were noticed over a series of hills near Tellakunta. The iron ores were collected from these places and turned into fine steel known as 'wootz' at the famous steel producing centres like Konasamudram, etc. which attracted traders not only from different parts of India but also from abroad. Fine swords made of Indian steel have been famous since the time of Ctesias and the Roman trade of the Indian iron and steel was a very important one. It appears the Indians sent their steel in their own ships probably to keep the secret of production.

Next to iron, copper was an important metal required for coinage and ornaments etc. In fact, most of early coinage was in copper. The Periplus says that copper was exported from Barygaza to Oman and to the Persian Gulf. Pliny too mentions that copper, iron and red-lead were shipped from India to the Persian gulf and to the ports of Red Sea for marketing. Cosmos attested that copper was found at Kalyana in his day and even Ptolemy speaks of numerous copper mines in India. However, the
evidence of either smelting or forging of the metal is not clear. The entire coinage and many of the ornaments were made of copper.

It is certain that lead was a rare metal. Together with copper it was imported through the western marts of India from the Roman Empire. It appears that lead was imported in the form of strips as attested by a large number of coiled strips at Peddabankur. Lead was also used for making thin foils for the manufacture of mirrors. There are also some ornaments such as bangles, beads besides coins.

**Gem Industry:**

Indians have from a very early period an excellent knowledge of gems. According to Arthasastra experts were stationed at the royal treasuries for admission of gems to the royal household. The practice of collecting gems was common during the early historical period. The gem cabinet was an essential part of every rich home, but the poor used glass imitations. The gems were used in several ways such as stones for finger rings, necklaces, diadems, bracelets etc. The gems included the diamond, opal or agate, carnelian, sard, onyx, emeralds, blood stone, jasper, cat's eye, amethyst, rock-crystal, sapphire, beryl, lapis lazuli garnet etc. It appears that the rivers and their basins formed the chief source of the gems. The Indian rivers were popularly known as gem-bearing.
Commerce occupied an important place in the life of the people. We find several classes of workers prominently figuring in the contemporary records, such as kulaśikas (potters), Udāntrikas (hydraulic engineers), Tilapiakas (oil millers), Dhaunikas (corn-dealers), Kolikas (weavers), Vasakaras (bamboo workers), Kasakaras (brassers) etc. Each of these artisans had a guild or ārṇi of their own.

The ārṇi were corporate bodies wielding great influence in the state. Ārṇi-Sharma had the force of law. The special feature of these associations was the banking facilities provided by them. An epigraph of Usavadata speaks of the craftsman who were organised in powerful guilds "as those kāhāpanas have been invested in guilds dwelling at Govadha (as follows) 2000 at a (monthly) rate of padika per hundred with a guild of weavers (koliśakāya) and one thousand in another guild of weavers at the interest of 3/4 padika per hundred (9 per cent). And those kāhāpanas are not to be repaid, their interest only to be enjoyed".

The kāhāpana of the time was of good silver as proved by some of the silver coinage issued by the Satavahana kings. Most of the crafts and trades were organised into guilds. We hear of a Dhaunika Seni, a Kasakaraseni (Kamsyakara Seni) and a Pesakaraseni in Jurnar inscription. Each guild had an older man called satthī (grasthīn). There were nīgasahāna or town halls for congregation and business by the guilds.
The market towns in the interior were Paithan, Sagara, Junnar, Karshakata, Nasika, Govardhana and Vejayanti. According to Periplus, Barygaza or Bharukacha (modern Broach) was the northern most port in the Dakshinapatha. The imports and exports were graphically described by the author of the Periplus. They are the Italian, Laodecian and Arabian wine, copper, tin, lead, coral, topaz, fine and rough cloth, storax, sweet clover, flint, glass, realgar, antimony, gold and silver coins. The exports were spikenard, costus Bedellium, ivory, agate, carnelian, lycium, silk cloth, mallow cloth, long pepper etc.

The Satavahana port town of Sopara or Soparaka is a few miles to the north of Bombay but the greatest port in western Deccan was Kalyan which is the Galliene of the Periplus. In the eastern Deccan the important market town was Danakataka, and the port towns were Kantakossyla, Kodura and Allosygne in the Maisoliya region which according to the Periplus, stretched a great way along the coast before the island country.

DRESS AND ORNAMENTS;

(a) Dress— It is said that the dress and ornaments are to be used in accordance with time, region and profession. Dress and ornaments are incorporated in the catalogue of 64 subsidiary arts (anga vidyas) in Vatsyayana’s Kama Sutra. Costumes made of various kinds of fabrics must have been used such as
Karpasika, (cotton cloth), aurnika (cloth made from wool),
kutupa (cloth made from goats wool) etc. We have evidence of
dress of the period under discussion from various sculptural
representation terracottas etc. Whether it is male or female,
no upper garment was shown in most of the artistic representa­
tions. Uttariya or upper garment was a kind of scarf thrown
around the shoulders. It was worn by men especially while
observing a religious duty. The lower garment or the antariya
corresponding to the dhoti was held in position by a kamara-
bandha. In some cases a waist band was used for the purpose.
The upper and the lower garments were known as satakas.

Many of the representations of the Yakshas and Yakshis
from Dhulikatta consisted one wearing a pair of satakas,
arranged gracefully in a variety of ways. Curtius Rufus303
stated that the Indians cover their persons down to their feet
with fine muslin, are shod with sandals and coil round their
heads cloths of linen. Arrian304 also recorded, as told by
Nearchus, that the dress worn by the Indians is made of cotton.
They wear an undergarment of cotton which reaches below the
knee half way down to the ankles, and also an upper garment
which they throw partly over their shoulders and partly twist
in folds round their head.

(b) Ornamental-

It is really puzzling that the males and females represented
in art, either in painting, stone sculpture, or terracottas are
dressed scantily. This is so especially in the case of the
females. Any foreign visitor who is unaware of the subtleties of Indian art would naturally comment that the Indian women of the bygone days never knew an upper garment. But the ornamentation is so profuse as to cover up the lacunae in dress. We have a variety of ornaments worn from head to foot. Our main source for the study of ornaments of the early historical period are the antiquities excavated and ornaments represented in the sculptures of stone and terracotta.

**Maattaka Sobhana**

The head ornaments (maattaka sobhana) consist of the ornaments of jewels of the forehead, at the parting of the hair and as a decorative piece over the hair knot. We do not have any of the above ornaments from the excavation, but in the terracotta figurines from Peddabankur we find a *lalatika* or crest jewel and a fillet across the forehead. The hair is made into a top knot.

**Makarika**

The Mother Goddess made of terracotta has a fan-shaped hair dress and made into a *makarika* (mythical-crocodile) top-knot. The *makarika* is very common in the terracottas found at Yeleswaram and Nagarjunakonda.

**Chandarakarnika**

There is a large number of ear ornaments made of terracotta, glass, rock-crystal, lead and copper. Mainly there are three varieties, one is crescentic or *chandarakarnika*. This variety is entirely made of terracotta. The ornament is thick
in the middle and the two rounded horns taper upwards to form a circle with a small gap at the top for introduction into the earlobe. It is decorated with multiple grooves on both the horns.

Chakrakundalas: plan and middle row

The second type is a pulley with concave sides and a deep groove around the periphery. Some of these have transverse perforations. The pulleys made of rock-crystal have flat lateral sides (without perforation) and a groove around the periphery. One glass pulley has an encrustation of some powdery substance of multiple colours.

There are also good number of terracotta pulley-type ornaments with concentric grooves on the lateral sides and transverse perforation.

There are two types of ear ornaments in lead; one is a reel of spiralled strips, the other is a solid mass in the shape of pulley. Among the solid type, one is pulley shaped and other is reel shaped with bulbs at the lateral sides. Both have transverse perforations. The pulley is decorated with circular band around the perforation and at the periphery.

Similar is the case with copper ornaments one is a spiralled strip and the other is hallow. The spirals appear like incised concentric lines at the lateral sides. Both have transverse perforation.
Among the terracotta objects one is pulley shaped and the other is reel with bulbous studs at both the ends. The pulley is decorated with concentric lines on both the lateral sides. Some of the studs are black slipped and highly polished. Analogies of reels or pulleys with concentric circles are found at Hastinapur.306

PENDANTS: pl 24 c

The pendants are mostly made of terracotta and are simply conical masses with a transverse perforation at the tapering end.

NOSE ORNAMENT:-

There is a beautiful half moon-shaped terracotta pendant decorated along the margin with a beaded line between marginal bands on both sides. But a pendant needs no dorsal decoration. It may possibly be a nose ornament. The nose rings or toe rings are conspicuously absent in the literature or sculpture.306

NECKLACES:-

Kautilya307 mentions several varieties of pearl necklaces such as sirahaka, upasirahaka, prakandalaka, svaghatalaka and tarapratibandha. When all the strings making up a necklace or of sirahaka pattern it is called a pure-necklace or suidhahara, that which contains a gem in the centre is called ardhamanavaka, that which contains slab like gems is triphalaka. When it has five slab like gems in the centre, it is known as panchaphalaka.

Out of the many hundreds of beads found at Peddabankur or Dhulikatta, there is not even a single pearl bead. Apparently
pearl being a very fragile and perishable material the absence of it can be understood. The other beads consisted of carnelian, both etched and plain, rock crystal, blood-stone beryl, lapis lazuli, amethyst, agate, jasper, glass and terracotta. There are also beads of shell, horn and mother of pearl. The most numerous of all are of terracotta.

Among the metal beads are included gold and silver. The gold beads are made of thin foils of the metal which included tabloid and octagonal shapes. The thin foil beads are sometimes decorated with radiating lines around the string hole and enclosed by dotted oblique bands. The periphery was stamped with gadroons. The beads are very thin and it is noticed that a cylindrical glass bead was introduced into the hollow space against the perforations so that the bead would not be squeezed together while threading.

Peddabankur excavation has yielded a complete necklace of 34 beads of which 24 are of amethyst, 7 of lapis lazuli 2 of gold and one of jasper.

BANGLES - pl. 23a

Bangles are worn in the Vedic age both on hands and feet by men and women. The materials used for bangles are five of varieties; viz; copper, lead, glass, shell and terracotta. Strangely no bangle made of either gold or silver was noticed. It can only be explained by the dearth
of the precious metals. The lead bangle-like object is decorated with peripheral serrations. It is only 4 cm in diameter. There is a very large collection of shell bangles but not even one is found intact. Practically all the bangles are plain without any sort of decoration.

The terracotta bangles are broad and sometimes decorated with a beaded design between marginal bands. The glass bangles are very crude and mostly made of opaque blue glass.

RINGS: pl. 23.6 and 24. a, l

The materials used for rings are copper, iron and shell. No gold or silver rings are noticed. Among the types are spiral and bezel-shaped. The spiral rings outnumber the bezel types. The rings with bezels are sometimes inscribed and designed. One ring is inscribed with brahmi letter "ARA LA SA". These four letters at the four cardinal points of the circular bezel. One ring has a double grooved incised design in the shape of an eye which is probably an amulet type. Double grooved eye designs are sometimes incised over the toes of Buddha. As noticed at Kesamapalli.

WAISTLET: pl. 22. a & b. Hemrow

Girdles or mekala are worn by both men and women primarily to keep the lower garment in proper position and secondly as an ornament. The fashion of wearing the girdle is as old as the times of Mahabharata in which it is described as "hiranwayi mekala" (golden girdle). According to Natya Sastra yawana
means a girdle having 16 strands. Girdles are made of pearls, beads and strips of metallic plates. Their ends are clasped together at the navel.

In Bharhut sculptures, we notice girdles consisting of four to ten strings.

In Nagarjunakonda sculptures, there is an excellent example of the mekhala with circular clasps over the waists of two ladies in a sculpture depicting Mahandhata Jataka. In the ayaka slabs at Dhulikatta there are two female devotees on either side of Naga Muchilinda. These ladies have beaded mekhala over a broad strip. The beads appear tabloid and lugged at both ends. Peddabankur excavation yielded a mekhala of silver hollow beads, tabloid in shape and lugged at both ends. There are twenty one such beads made of very thin silver plate each with a diameter of 2.3 cm. and 3.5 cm. long.

Anklets-

The anklets or manjeera resembled in the earlier period, a coiled circlet. In the Ramayana (Sundara, 15.46) the anklets have been described as producing sound. For that effect small metallic rattles are usually attached to the anklet at the lower end. Such an anklet is known as as kinkini, manjeera or nupura. There are two types of anklets - one is spiralled and the other is a simple ring with or without clasp. A female votary found in the ayaka slabs of Dhulikatta represented with both the types, the spirals above and a massive
Agriculture, hunting and domestication of animals were the main basis of subsistence. Agriculture was attested to by the representation of plough on terracotta seals and the other objects found in the excavations such as, plough-shares, sickles etc. If self-preservation was the main pre-occupation during the proto-historic period, agriculture was the main criterion of the settlement pattern during the early historical period. While the towns were inhabited by the commercial classes, the villages were mainly occupied by agriculturists and artisans. As already stated, most of the settlements are found in the midst of black cotton arable plains. It appears irrigation was mostly depended upon tanks. The already existing tanks must have been renovated and many new tanks were constructed. There must have been both wet and dry cultivation. Wet lands in the low lying area must have yielded rice and the dry crops may be mainly ragi, jowar etc.

Hunting of wild animals and killing of domesticated species supplemented their food requirements. The domesticated animals included cattle, buffalo, sheep, goat, horse, dog, swine, etc. Rodents were also captured for food. The bones of the domesticated animals bear chopping marks caused by a sharp heavy object. Sometimes the cuts found on the bones are superficial which
were intended to dislodge or peel off the adhering flesh. The rough edges of the cuts indicate that they were made by a heavy sharp stone-like implements. The food habits of the Peddabankur dwellers is amply demonstrated by a large collection of bones from the excavations. The osteological study revealed that the cattle flesh mainly formed part of their diet. Sometimes the bones appear to be charred.

The excavations revealed an entire skeleton of a cow. From the position in which the bones lying, it was inferred by Alur that all of them pertain to the same animal which may be about 2 to 2 1/2 years old. It is a definite case of a burial as indicated by an earthen pot noticed towards its head. No attempt has been made to deflesh the body.

The existence of a buffalo is rarely proved in other excavations, because, the bones of both the cow and Buffalo cannot be easily differentiated. The excavation at Peddabankur yielded an entire skull of a buffalo. The horns, which help in the easy identification of the animal are available. The study of animal bones from the early historic levels at Yeleshwaram reveals the presence of bison, sheep, goat, swine, fowl, rat, tortoise, fish and crocodile. As the historical site is situated on the banks of the river Krishna at which crocodiles were commonly seen, it is not known whether the flesh of the crocodile was also consumed along with that of the other species mentioned above.
RELIGION

The evidences regarding the Brahmanical religion are not quite explicit for reconstructing a comprehensive account of the religious conditions found during the early historical period. The religious beliefs still centred round local primitive forms of worship and rituals. The early inhabitants believed in village gods and goddesses, tree and serpent cults and probably practised worship of spirit. The common people had not yet fully imbibed the religion of puranas centering round the worship of Vishnu and his emanations or Siva in his Linga form. The main sources for investigation into religious conditions are metal or terracotta figurines.

The Mother Goddess represented by a bronze sculpture found in the early levels at Dhulikatta, is of the ankadhatri type. The Goddess is seated on a pedestal with legs dangling down and holds a baby in her left hand while the right hand rests on her knee. On stratigraphical grounds the figure may be dated to 2-3rd century B.C. The figure of mother and child usually represents the fertility cult. We find similar figures from Yeleswaram in the Ikshvaku levels. There is a figure of mother and child also from Yeleswaram with a conical cap-like headdress. She is flanked by a humped bull. Siva is sometimes known as 'Babblu' or the bull and he is also the sustainer of food (annaman pathya). In the rock carvings at Mudumala we
find the early form of Srivata or nandipada flanked by a humped bull and a Mother Goddess with hands upraised. It is quite probable that the bull which ploughed the field to produce rice may be one of the earlier forms of the puranic Siva.

We have at Peddabankur two types of Mother Goddess - one with upraised hands and the other holding a bunch of fruit. A parrot is nudging her breasts. The third type comes from Dhillikatta where the Goddess holds her two prominent breasts with her hands below.

In one of the terracotta sealings an incised a figure of plough was flanked by a solar disc and the Ujjain symbol. It is possible that the plough which makes furrows in the field was also worshiped like the bull which draws it. The furrow made by the plough sometimes is known as 'Sita' in Rigveda which is later deified in the puranas.

There is also a terracotta sealing of Gajalakshmi datable to around 1st century B.C. The goddess is shown standing naked in a lotus pool and bathed by two elephants with pails in the trunks. The elephants are squatting over lotus leaves supported by long stalks. Goddess Lakshmi or Sri is probably the earliest among the Indian deities to be represented in clay. She appears on the Bharhut railing with the label "Sriima Devata". She is represented in a variety of forms at Bharhut, Sanchi, Bodhgaya, Manmoda, Nandasur etc.

Peddabankur and Dhillikatta excavations have also recorded a good number of archaic terracottas of human and animal
The Mother Goddesses are hand-made with hands like pointed masses, protruded and pointed breasts. The attenuated waist line broadens towards the hip. The face is a featureless mass sometimes with a halo. Exactly similar figures are found at Dhulikatta, Nelakondapalli, Yeleswaram etc. The figures sometimes come from far off places but appear to have been cast on the same mould. Coomaraswamy wrote that "a nude and steatopygous type occurs throughout the most ancient world, from central Europe in the neolithic times to the Gangetic valley." Quoting Goltz he said "She is the great mother, it is She who makes all nature bring forth. All existing things are emanations from Her. She is 'Madonna', carrying the holy child or watching over him. She is the mother of men and animals too. She even makes the plants grow by her universal fecundity - perpetuating the vegetative force of which she is the fountain-head."

The worship of serpent (Naga cult) is attested by a figure of a snake made of iron. The figure has two perforations at the head and one below to represent the two eyes and the mouth of the creature. The worship of Naga is as old as vedic times. In Atharvaveda the serpents are addressed as powerful supernatural beings. One of the principle Nagas is known as Takshaka and Bharatarashtra was a chief naga also called 'Airavata' who was the son of 'Iravan'.

The early Satavahana kings were followers of Vedic religion. The Haneghat inscription records a number of sacrifices by Gautamiputra Satakarni. His gifts of cows, elephants and money
as *dakshina* to the brahmans proves the great hold which the Vedic rituals had on their courts and encourage. The mention of various deities such as Dhamma, Ida (Indra), Sankarshana, Vasudeva, Chandra, the four Lokapalas, Yama, Varuna, Kubera, and Vasava show that the Deccan was passing through a transitional stage from Vedic to puranic pantheon. It is interesting to note that the name of Rudra or Siva is conspicuously absent. The invocation to Dhamma in precedence to Ida, Sankarashana etc. is clear evidence of Buddhist leanings and the equation of the same with the Brahmanic faith. Saivism was still a sect taking shape. By the time of *Gatha Saptasati* Pasupati, Gauri, Rudra and Parvathi, Lakshmi and Narayana have arrived on the scene and preceded all others.

**Buddhism**

The stupas at Dhulikatta, Phanigiri, Gajulabanda and Thimnalagiri may help us to reconstruct the history of Buddhism in the Karimnagar region from circa 4-3rd century B.C. Andhra Desa become a strong hold of Buddhism or probably that it embraced Buddhism long before the time of Asoka. For the same reason, it is possible that Andhra was not mentioned among the countries to which monks were sent by Tissa after the Third Council.

The objects of worship of the Buddhists are the stupas situated at the above places. The stupa at Dhulikatta consisted of a solid drum of bricks capped by an *anda* raised with
alternating courses of bricks and murrum to maintain a hemispherical shape to the top. There is a rectangular brick-cell at the top, which must have served as harmika and in which is installed, in the recent years, an incised figure of Sesha-sayi. The local people have completely lost the memory of the existence of a Buddhist stupa which, in course of time, became popular as the Ranganayaka temple. Some fragments of lime stone carvings littered around the place gave us an indication of the possible existence of the stupa and excavation later at the spot confirmed our conjecture. The chatra, which must have crowned the harmika, was noticed in the fragments. A relic casket of sandstone inscribed in brahmi characters over the rim was recovered, but due to the weathering nature of the stone, the inscribed label is quite illegible. Unfortunately the contents of the casket were already ransacked long before our excavation.

The stupa has seen two phases; in the earlier phase, the drum was a massive brick structure enclosed by a square platform which served both as a buttress and a pradaksinapatha. In the second phase, a second drum was raised around the original one with a gap of 1 1/2 m. filled in with brick bats and murrum. The second phase saw the enlargement of the drum and construction of the ayaka platforms and decoration of the surface of the drum with carved slabs of lime stone. The themes in the carvings over the slabs included reliefs of stupas,
Muchilindanaga, worship of Dharmačakra, Mahābhārataśramaṇa etc.
Sometimes the stupa is shown entwined by various nagas and below the stupa is the worship of Dharmačakra. The chakra has a prominent hub in the middle. It stands over a high pedestal and is flanked by the devotees, one of them holding his hands in anjali. At another place, the Dharmačakra is shown with 24 spokes radiating from a central hub to a broad tyre. The wheel is held in position at the base with a rounded top and flanked by two lions. The bottom portion of some pilasters have carvings of horses, the shaft with arthā-pada and padma, the capital with lions seated in opposite directions.

One of the slabs carved with a Brahmi inscription as "Gāhapatino pathalasa mathuya danam". In the other slab the inscription reads as "Gāhapatino Pathalasa Mathari Puthasa Ayago Danam".

Gāhapati was sometimes mentioned as merchant. According to Senart, the use of gāhapati (Gahapati) in Nasik Cave No.6 "favors the opinion that gāhapati is in the Buddhist language specially restricted to people of various castes who are included in the large class of Vaiśyas". In the Sapta Satakam we have references to the philandering of the gāhapati with a girl of the halikā sect. In the Amaravati inscriptions many a gāhapati and merchant is mentioned; yet we have only one instance of the father of a vana bearing the title gāhapati.

Gāhapati was sometimes known as the chief of vratvas and also
that of the *vratyas* in the Brahmanas. The outfit of the gahapati is described as "a turban", a goad, a *jyahmod*, a *vipatha* covered with goads, a black garment, two skins, black and white, a silver *nishka*. *Jyahmod* may mean a bow, *vipatha*, a *ratha* driven by two animals, horses or mules. *Nishka* may be a gold or silver necklace of coins. Banjerjee suggested that it is obvious that the gahapati with such an outfit was like a warrior chief, apart from his other duties, he had to participate in and supervise over ritual performances. In this manner he may be compared with the Brahmin *purishita*.

**Games and Amusements:**

The people relaxed themselves from the drudgery of routine chores by indulging themselves in various sports and pastimes which included many indoor and outdoor games and other recreations.

(a) *Game of Dice*—

The game of dice was a very ancient pastime. From the earliest known prehistoric times, it is known as *akhodayuta*. As the dice are marked with circles and pellets in the shape of an eye, it is likely the game assumed the above name. It may be similar to the present day *chaupara*. It was participated by both women and men. The game broad (*dyuta phalaka*) is represented in many sculptures of the early historical period, such as Bharhut, Bodhgaya, Nagarjunakonda etc.
From Peddabankur we have two varieties of dice, one is (pl. 24d toprow) oblong prism and other is a square cubical. Majority of the dice are oblong. Each consist of four edges marked with circles with a middle dot. The dice are made of bone and horn.

The other favourite pastime was hunting which is mentioned as lubdhavogha by Panini. It is also known as akhetaka or muktha. The weapons employed for hunting mainly consisted of bow and arrow. Sometimes hunting dogs (visva-kadru) accompanied the party for frightening the animals. Lubdhavogha may possibly mean hunting as an occupation and muktha is a sport. The various merits and demerits of hunting have been discussed by Kautilya. The animals chased included deer, hare or boar, bison, fowl, tortoise etc. We find in the Bharhut sculptures, a boar being attacked with a short spear and two hounds have been set upon it. Hunting with long spears was common from the protohistoric period.

TAMING OF BIRDS:

In the terracotta figurines, we find many figurines of birds such as sparrow, kokila (Indian cuckoo), cock, parrots, etc., were domesticated in the early periods to convey messages between lovers. In one of the figurines of Mother Goddess, made of kaolin, a parrot is on the right arm of the Goddess. In a panel of a railing pillar at Mathura, a woman is seen with a parrot. In the words of Agrawala, "the pillar shows a female figure dancing in one of her love ecstasies, after
she has received the message of love conveyed to her by a parrot which is the vehicle of the God of Love. The bird is perched on her girdle and nibbles at the binding knot. Peacock was also possibly domesticated as represented in an amulet plaque from Dholikatta.

**ANIMAL FIGHTS:**

Animal fights were popular from a very ancient period. These included fights of ram, cock, etc. The figures of ram are of very common occurrence in terracotta. Vatsyayana mentions the quail-fight (partridge), cock-fight, and ram-fight, the talk of parrots and mainas and dramatic performances as pretexts to bring a client to the residence of a courtesan. It appears that buffalo and elephant fights were also common.

**GAMES OF WOMEN:**

The games for women are mostly of indoor variety which included the game with the bell (kanduka krida). This game is very popular mainly intended for physical exercise. The girls who liked the game played it so much till they were completely exhausted and their palms became red and swollen. It is not clear as to the material with which the balls were made of. It is possible that balls of wadd or wool or flowers might have been made use of. In Karimnagar region the practice of playing with balls of
leaves of various species is in vogue. The girls collect leaves and make them into balls and secure the ball by tying with strings. The other method is to fill-up a small sack of cloth with seeds of tamarind (tamarindus indica) and custard apple (anona reticulata) and then close its mouth tightly. The other type is a dried fruit of kapitha or wood apple (Feronia Elephantum) or bilva (bel or aegle marmelos) and custard apple (Annona Squamosa). The girls used to play a number of other indoor games such as hide-and-seek and run-and-catch which are graphically described in the Kamasutra. The game of hop-scotch appears to be also popular as attested by number of rounded pot sherds in the excavations. Similar pottery discs are commonly found in almost all the early historical and proto-historic sites. Peddabankur excavation has recorded a good number of such pottery discs.

BURIAL PRACTICES:

We do not have any evidence regarding the burial practices of the people during the early historical period. The excavations at Peddabankur and Dhulikatta have not yielded any human remains in and around the sites. There are two possibilities, viz; they might have carried their dead bodies to far-off places for disposal at a common burial ground or they must have cremated the dead bodies so that even a semblance of the human remains has not remained. Even the charred bones from the pyre was collected to be immersed in the waters of the rivers specially at the places of confluence.
Some megalithic burials consisted of post-cremation charred bones besides post-excarnated remains. The burials consisting of post-cremation remains are considered to be later than the excarnated ones. In these we notice a transition from excarnation to cremation. It was succeeded in the later periods by the method of cremation only immersion of the ashes in the rivers after aryanisation. This is the nature of the evidence from some of the excavated sites where the megalithic and later cultures noticed sequentially. The characteristic black and red ware pottery and other antiquarian remains have continued to occur even during the late historical levels without much variation. The black and red ware pottery occurs even in the Ikshvaku levels dated to 3-4th century A.D. There is no perceptible gap anywhere in the cultural evolution, but the same may not be the case with burial practices. There is no evidence whatsoever that megalithism lingered on along with the occurrence of black and red ware.

An extensive cremation ground of Ikshvaku period at Nagarjunakonda is a convincing proof that the people had forgotten megalithism long back. Even some chayamatakhamba or memorial pillars eulogising the merits of the dead were erected at the cremation ground. Here we see the end of megalithism and the beginning of the cult of hero stones. Some of the hero stones were carved with the figures of the dead such as Sirichantamula, the Ikshvaku king, with an epitaph containing
a long account of the great deeds of the dead. Megalithism must have continued, not among the general public of that age, but retreated to the hilly regions or forests where indeed the primitive rites still continue among some tribal people. The practice still in vogue in the Karimnagar region is to collect post-cremation bones representing different limbs of the dead from the funeral pyre, and then keep them in a pot to be buried elsewhere. A small memorial structure is then raised over the burial. The spot where the urn is deposited is known as "Charama-stala".
The antiquarian remains and the structural finds noticed at Peddabankur pertain mainly to two phases, the pre-Satavahana and the Satavahana. Some of the objects particularly the iron and the pottery with a profuse mixture of black and red and the tan wares may go with the later phases of the megalithic period. The elliptical structures found in the earliest stratum without any use of brick, may also correspond with the same phase. As discussed above, signet button garnet seal is inscribed with three brahmi letters as "Ka Na Sa" in the Mauryan characters. Further, it is noticed that the silver punch-marked coins were found in two hoards, one consisting of 168 coins and the other 30 coins. Previously, about 480 punch-marked silver coins coming from Karimnagar region have been studied by P.L. Gupta and he classified them as belonging to four periods; Period-I was equated with that of the big Bheer Mound Hoard. The coins of period-II were dated to the Pre-Mauryan period and regarding the coins of period-III he suggested that this group is the earliest of the series. Regarding the coins of period-IV he has no date to offer. The punch-marked silver coins were current even during the Satavahana period. Some rectangular types were found in association with the Satavahana coins at Peddabankur but the above mentioned two hoards definitely come from the pre-Satavahana levels.
At Dhulikatta, the Buddhist stupa was decorated with a number of *ayaka* slabs, some of which bear legends in brahmi datable to circa 2nd century B.C. The drum of the stupa has seen two phases of construction; in the 1st phase the circular solid drum was constructed and provided with a square brick platform; in the second phase the drum of the stupa was much enlarged by raising another drum around the first and the second drum was decorated with the above said *ayaka* slabs, which may definitely be dated to 2nd century B.C. In that case the earlier drum must have been constructed during the 3rd century B.C.

Recently, we have received two carbon-14 determinations; one from the Birbal Sahni Institute and the other from Tata Institute of Fundamental Research, of the char-coal samples collected from the layers 2 and 3 at Peddabankur. Both the determinations give a date to the first century A.D. a date which could be easily arrived at even without the results of determinations on the basis of the Roman coins of Augustus and Tiberius.

Summing-up these evidences it is possible to give a date range from circa 3rd century B.C. to 2nd century A.D.
We have now completed a detailed study of various cultural phases in the Karimnagar region up till end of the Satavahana period. We may now have a brief but comprehensive account of the same. We have already seen that the region is studded with a good number of prehistoric sites. Some of the sites in the adjoining region have also been discussed for a comparative study. The early stone age site explored by the author at Amarabad in Mahboobnagar district is situated at the slopes and the foot-hills of a range of hills to the north-west of the village in Mahboobnagar district. The section cuts across the bank of a nullah known as Katravagu. It consists of the basal weathered granite rock upon which is a deposit of shingle associated with the Acheulian hand-axes, cleavers, choppers, and flakes. The shingle deposit is overlain by well cemented weathered laterite of pale brownish colour and granular in composition. This is again covered by red alluvium (recent) for a thickness of forty to sixty cm.

Typologically, the tools belong to the early and late Acheulian stages. The collection includes excellent specimens of hand-axes, cleavers, chopping tools, scrapers, points and flakes etc. The cleavers constituted more than 50 per cent of the total collection but the hand-axes are only 18 per cent. Small axes or biconvex points and scrapers accounted for three per cent and the rest are flakes or worked flakes.
In the Karimnagar region, hand-axes and flake scrapers were reported by Munn at Allur and Jangoan villages in Peddapalli taluk. In association with these artefacts, he also noticed a few fossilised bones of "Bos frontalis" and fragment of an antler of 'Cervus'. From Adilabad, Haimendorf collected a large number of scrapers and blades. Nandikeswara Rao of the Geological Survey of India reported the occurrence of early stone age tools in the Pranahita valley of Adilabad district. During the recent years Takur Raja Ram singh discovered many early and middle stone age sites near Godavary Khani, Ramagundam, Medipalli and Malkapur, all in Peddapalli taluk. The late stone age sites were discovered at Godavari Khani and Ramagundam in Peddapalli taluk near Pochemu water falls and Chittalapalli on the Suwarna river in Adilabad district. Other sites in Peddapalli taluk included Bugga near the foot-hills of Tekkellapalli range, Devunipalli, Rangapur, Gopayyapalli etc. The most prolific among the late stone age sites discovered by the author is the site near Gourigundam which yielded a large number of cores, blades, blade tools, and waste flakes. The cores found here are of three kinds, flat, pointed and obliquely based. The tools are blunted backs. A trench (3 x 3 mt.) cut to a depth of 12 cm. yielded the following material. Cores - 160, blades and primary chips -2813, tools - 416 and waste flakes -579 totalling 3988 artefacts in all.

The evidence of the neolithic sites in Andhra Pradesh was first discovered by Robert Bruce Foote in the year 1876 by the
discovery of sand stone adze near Vadamanu in Guntur district. After this discovery, over 60 sites, geographically situated in the present district of Hyderabad, Krishna, Guntur, Nellore, Kurnool, Cuddapah and Anantapur were made. In the year 1976, the author excavated a neolithic site at Polakonda in Jangoan taluk of Warangal district under the auspices of the Dept. of Archaeology and Museums, Govt. of Andhra Pradesh. Later in 1977 a minor excavation was conducted by N.R.V.Prasad at Budigapalli which is a neolithic-chalcolithic site. Many other sites were discovered and explored by the author in the region. They include Togarral, Kadambapur, Peddabankur, Budigapalli, Devarsuppala, Polakonda etc. At Togarral a prolific neolithic factory site was discovered over a granitic out crop. The collection consisted of a large number of unfinished tools and waste flakes besides many finished axes and adzes. The tools of the neolithic man invariably made on dolerite or trap rock consisted of axes, adzes, picks, spheroid rubbers, ring-stones, querns, besides microlithic blades. Among the axes, there is a wide variety of forms namely tools with elliptical, lenticular rhomboidal, rectangular and triangular cross sections. The edges are mainly of three types plano-convex, triangular and rectangular. There is another specialised form of tool with a plano-convex section which is commonly known as shoe last celt. Peddabankur excavation recorded a fine specimen of such a tool.
Inspite of the presence of very large number of neolithic tools in the Karimnagar region, but pottery appears to be rare. Only the excavation at Polakonda gave us an idea of the neolithic pottery in this region. It generally consisted of crude and coarse hand made wares along with a few burnished types. The pottery in general was well burnt to a grey, dull-brown or black colour. At Polakonda we have the evidence of a kiln in which the neolithic pottery was baked. The kiln consisted of thick walls of clay in which the pots were kept and burnt by an application of indirect heat. The neolithic ceramic assemblage noticed at Polakonda consisted of grey, pale grey, bloosky-brown, black burnished and matted wares. For most of the specimens, the clay was well levigated. The pottery from the early levels, is more gritty and distinguished by low firing, leaving black cores inside. The types included a huge jar with an elongated neck, featureless everted rim and straight sides. On the shoulder there is a thick applique band horizontally decorated with finger tipped designs. A distinct shape is a channel-spouted bowl which Foote designated as a milk bowl. There is also the huge jar with featureless splayed cut rim, concave neck and globular profile. On the shoulder, it has a thin applique band which terminates in curved ends in the opposite direction.

The physiographical and geological features have considerably contributed to the establishment of neolithic settlements in the
Karimnagar region. The neolithic folk chose open terraces at the foot of the hills wherever the natural rock shelters are available. However, they sometimes selected black soil plains and sometimes they lived on the river banks as noticed at Kadambapur, Togarrai, Polakonda etc. The post-holes, noticed in some excavations indicate the nature of hutments. They were circular in plan made of wattle and the roofs were possibly covered with some perishable material. The wood used for posts to raise the houses was of acacia or dalbergia species. Some of the rock-shelters noticed at Budigapalli and Kadambapur in the vicinity of the neolithic settlements must have been utilised by them.

The economic life of the neolithic man consisted of a combination of agriculture, animal-husbandry and hunting. They depended on, besides cultivation, hunting and fishing and whatever naturally available such as the fruits, vegetables, edible tumors etc. However the general occurrence of domestic implements such as querns, grinders etc., may suggest the limited practice of agriculture. The evidence of grain such as horse-gram (doliches biflorus) green gram (phasesolus madiatus) and ragi (eleusine cora cana africanus) from Paliampalli in Tamilnadu and other places which are not far removed either geographically or culturally from this region indicate that similar grains might have been grown or procured during the neolithic period here also.
The works of art of the neolithic people have survived in the form of rock paintings, rock bruisings, pottery decorations and terracotta figurines. The author recently chanced upon some rock paintings situated at Regonia, Budigapalli, Kokapeta, Mudumala and Ketavaram in various districts of Andhra Pradesh.

As in other places, the neolithic period was succeeded by the megalithic. The megalithic problem has previously been studied by some scholars such as Wakefield, Hunt, Taylor etc. During the recent years the Department of Archaeology and Museums conducted excavations at various megalithic sites such as Pochampad, Yeleswaram, Kadambapur, Agiripalli, Jonnavada, Peddamarur, Uppalapadu and Chagatur. In the course of explorations, the author noticed an extensive complex of dolmens at Amarabad in Mahboobnagar district.

There are about twenty to twenty five of them with intervening space upto ten to fifteen ft. The dolmens are constructed of dry masonry walls by piling up flat cut slabs. A roof was made of a roughly rectangular or circular granite slab with a thickness of 16 to 90 cm. The height of the wall between the floor which is the natural bed rock and the roof slab never exceeded 1 mt.

At Mudumala, a large number of stone circles and stone alignments were reported. These consisted blocks of stones about 4 to 4.5 mt. in height. There are 7 such rows covering
an approximate area of 75 sq.m. On the south west of the village there are some rock bruising incised over huge boulders.

A few cist burials were excavated at Agiripalli in the Krishna district under the supervision of the author. Some of the cists consisted of calcined bones and a few miniature pots of black and red ware. One cist burial was found at the floor level of another cist which contained 4 skulls and other bones such as femur, tibia etc. Slightly away from the cist, a few sarcophagi were also exposed. It is interesting to notice various burial practices such as stone cist, terracotta sarcophagus and burial urns at the same place. It is also noticed both cremation and excarnation were practised but stratigraphically excarnation was earlier.

In the Karimnagar region, a few megalithic burials have been excavated at Janampet, Dongatogu, Polichetticheru-gudda etc. In the recent years, the Dept. of Archaeology, under the supervision of the author conducted excavations at an extensive burial site, situated near a hamlet known as Kadambapur in Peddapalli taluk of Karimnagar district. Five burials have been exposed here, four of them being pit circles and one a port-hole cist. In one of the burials, a skeleton with complete articulation was noticed in the middle of the pit. On both the flanks of the skull, there were two spiralled wire
ear rings. A 28 cm. dagger was found near the collar bone. Interestingly enough, the legs were found amputated at the ankles. The truncated parts were placed over two stones. Two conch shells with their bottoms cut out and placed near the hands indicate that they were used as bangles.

The megalithic burials yielded a large variety of antiquities such as pottery, iron objects, ornaments such as beads of terracotta, semi-precious stones, gold, copper etc. Some grains of paddy and other cereals were also found. The most important among the burial offerings is the pottery which consisted mainly of the black and red, the black polished, red polished and coarse red wares. The megalithic pottery types have been classified into two groups vis., the coarse and unpolished receptacles like the burial urns, the sarcophagi etc. and the well fired often slipped and finely polished smaller vessels.

The rare types in the black and red ware included chalices or bowls on hollow pedestals the latter with or without slits. Some rare types from the megalithic burials in the Karimnagar region included deep bowls, all black ware conical lids, funnel-shaped lids with various types of knobs, hat-shaped lids, gourd shaped vessels with narrow necks and visage pots with three perforations. This is probably the rarest in peninsular burials in South India. The iron objects included a number of daggers of various sizes, a goad or ankusha, chisels,
arrow-heads, horse-bits such as stirrups, curb chains, axes with crossed fasteners, battle axes, sickles, and screw objects etc. In the megalithic levels at Polakonda, two mattocks without shaft holes were noticed. From Paddabankur megalithic habitation, an adze with crossed fasteners was collected.

The copper objects included ferrules, or casings for weapons like daggers etc., bells and cups. There are also a few copper bowls, rattles, collyrium rods, bangles and rings.

Gold objects from the megalithic burials included spiralled ear rings, cylindrical beads disc beads etc. A large variety of beads were noticed from the burials and the habitation sites. These included beads of gold, silver, copper, besides different types of semi-precious stones, such as carnelian, jasper, agate, onyx, serpentine, lapis lazuli, milky quartz, amethyst, glass, terracotta, shell and bone. Annular shaped terracotta, shell and bone. Annular shaped terracotta beads are common from Kadambapur and Pochampad burials.

The location and type of the megalithic burials depended upon the geological and geographical conditions. They are invariably noticed over rocky high ground unfit for cultivation and in close proximity to hillocks or an irrigation tank. To some extent the needs of cultivation might have dictated the situation of the burials but the availability of raw material for building such elaborate monuments might have been
the main inspiration. In the Karimnagar region, no habitation was found near some of the burial sites. The burials at Kanukula near Sultanabad were situated over plains of red sandy silt which is fertile for dry farming. At Kolakonda in Warangal district the cemetery is situated over fertile plains of red soil which is now under active cultivation, but is just 100 mt. away from a range of hills where plenty of raw material such as granite boulders and slabs are available.

Our knowledge of the domestic architecture is limited to the evidence supplied by the excavations in a few habitation sites. In the Karimnagar region we have evidences from sites like Peddabankur, Kolakonda, Polakonda, Budigapalli, Yeleswaram and Peddamarur. In any of these sites no permanent structures were noticed. At Peddabankur, excavated by the author, a number of elliptical structures exposed in the lowest strata are definitely assignable to the megalithic period. In view of the associated characteristic finds such as pottery, beads and other objects. The recently conducted excavation, by the author, at Peddamarur, revealed a few post-holes in the strata assignable to the megalithic phase. It is really interesting to note that though plenty of shale slabs were available at Peddamarur there is no evidence of its use for habitation structures.

The geological factor has a definite bearing on the sepulchral architecture of the megalithic folk. The megaliths
were invariably built of the locally available stone. When laterite or dolerite was not available for erection of the boulder circles they made use of whatever was locally available such as conglomerate boulders or sometimes the shale slab horizontally piled up into a circle around the burial. In the lateritic regions they carved underground cells for burying their dead. When any kind of suitable stone was not available they made use of terracotta urns. The entire burial site at Tenneru in Krishna district consisted of only sarcophagi burials in the shape of bath tubs.

The main basis of their economy was agriculture supplemented by hunting and domestication of animals. Various scholars have opined that the megalithic folk were responsible for the introduction of advanced methods of agriculture based on irrigation. Most of the burial sites are situated in the proximity of large irrigational tanks as at Budigapally, Torurr, Kanukula, Kadambapur, Polakonda, Rajagopalapet, Ramunipatla and Kethreddypalli. It appears that rice and ragi served as their staple food. This was supplemented by domestication of a variety of animals such as sheep, goat, swine, fowl, and cattle. The food habits of the megalithic folk at Poddabankur demonstrated that cattle formed a considerable part of their diet. The dog, wolf, hyena and horse were known to them. Their knowledge of horse and its utility are well attested.
The artistic sense of the megalithic people is well displayed in many of the rock paintings, the paintings at Budigapalli consist of horses with riders. In the paintings noticed at Regonda, two little men ride a disproportionately big horse. The paintings also consisted of tridents bisecting a circle below and simple tridents without circles. Several such tridents bisecting circles below, were indented on the orthostats of some megalithic cist burials at Chagatur.

We are at a loss to know the religious beliefs and objects of worship during the megalithic period. Some scholars have suggested that the occurrence of trident or trisula which is invariably associated with Siva and other deities might have some religious connotation. In the rock paintings at Mudumala, there is a figure of the Mother Goddess with outstretched hands and legs. This figure associated with the above mentioned trident, bisecting a circle, may be the cult figure and in all likelihood is the arch-type of the Mother Goddess figurines in terracotta noticed in the Satavahana and later levels. The orientation of the burials either in the north-south direction or in the east-west direction may be an indication that the people were sentimental about the direction and must have been worshipping the deities of the quarters. In one of the cist burials excavated by the author at Peddamarur an all black ware dish was stamped with a solar disc with radiating circle in the middle enclosed by
tongues of flame inside two concentric bands. This may be indication that they believed in Sun God as well.

Anthropometric studies of the skeletal remains from the megalithic burials reveal that some of them belonged to the autochthonous australoid type and more or less medium statured mesocranial type which is designated as Scytho-Iranian. The studies of the skeletal remains from Yeleswaram have revealed that they corresponded to brachy-cranial groups. The Tennera skulls were identified by Bhowmik as brachy-cranial. There is also an element of dolicho-cranial group.

Mortimer Wheeler suggested that the megalithic culture could be dated between 200 B.C. to circa 50 A.D. He arrived at this date range in view of the stone axe culture overlapping with the earliest megalithic level and the terminal date was fixed by the commencement of Anhira Culture dated on the basis of Roman antiquities. Fortunately, now we have a series of radio-carbon dates from various sites. Hallur gave the earliest date as 1105 B.C. (±) 105 and the latest being of Halingal which gave 30 B.C. The megalithic habitation at Takalghat was dated to 597 B.C. This was the date obtained from the middle horizon. The first phase of occupation of the earliest megalithic horizon may still be pushed back by about a century or more assigning it to circa-8-7th century B.C.

As in the other regions, the early historical period succeeded the megalithic. The whole of Karimnagar region is
dotted with a number of early historical sites. It is really tantalizing why the early historical sites are concentrated so thickly in the Karimnagar region. It is likely that the political nucleus of the whole or a part of Deccan must have been situated in the region, alternately it might have been commercially very important and the ancient caravan routes traversed through the region. Lastly, agriculture being the main occupation of the people and the area marked by extensive tracts of arable and alluvial black soil plains the people must have preferred the region. Some important early historical sites are noticed at Peddabankur, Dhulikatta, Chinnabankur, Vemur, Kapparaopeta, Kotilingala, Kachapur, Bodagutta, Bompalli, Rachapalli, Paidichintalapalli, Khadimkanagarthi, Karnamamidi, Bodhan, Vadloor, Kolakonda, Polakonda, etc. The sites may be mainly divided into two categories, fortified and the unfortified. The early historical mound at Dhulikatta is enclosed by a mud rampart. Four gateways were traced at the four cardinal points. The excavation conducted by the author at the southern gateway revealed the guard rooms prefaced by a gatehouse. The guardrooms comprised two rectangular halls with a middle pathway which is 14.40 mt. broad. The gatehouse which prefaced the guardrooms constitute a broad gateway outside and ambush niches on either side in the middle. The facade of the gateway must have had one or more storeys with terraced roof, railings and pillars. The
mud ramparts with a height of 5 mt. was constructed of earth dug out on the outside.

At Kotilingala, situated at the confluence of the Peddavagu and the Godavari, is an early historical mound enclosed by a mud fortification. The mound is roughly 50 hectares in extent, probably, the most extensive so far discovered in the Karimnagar region. At the present town of Bodhan in the Nizamabad district is another extensive early historical site to an extent of about 1 sq. km. Some writers believed that it was once the capital of Asaka country, known as Potali or Podana.

At Yadloor is another site in the Kamareddy taluk of Nizamabad district surrounded by a mud fortification to a height of 6 to 9 mt.

The villages of the early historical period were marked out by natural boundaries such as forests, thickets, rivulets, hills, etc. The settlement at Peddabankur was a village site with no ramparts around. The excavation conducted by the author under the auspices of the Department of Archaeology and Museums revealed three huge brick enclosures, two of them measuring 30 x 30 mt. and the third one measured 18.75 x 18.75 mt. The enclosures appear like small castles and have only a single gateway either in the north-east or north-west corner. These were evidently occupied by the wealthy individual families.
The roads and their planning formed one of the most important aspects of town planning. The road through the southern gateway at Dhulikatta was paved with rubble and veneered with morrum and sand. This might be the method of constructing the road in other towns as well. The important commercial towns and villages was possibly connected by a network of roads. The region was actually traversed by the ancient trade and pilgrim routes (sarthsavahapatha) leading from north to south and east to west. Probably, it was considered essential to surround the townships with hills and mountains to serve as natural barriers to obstruct the enemy forces from attacking them and also add to the effect of the landscape. Fortification was needed when the towns or the villages are built on plains. After the towns have been planned the roads both highway and the central ones together with maharathyas, uparathyas have been planned out. The excavation in the middle of the mud rampart at Dhulikatta revealed a palace complex and residential quarters which have seen several phases of construction. The plan of the main building especially of the 3rd phase may resemble that of a quadrangular building known as chatussala, with four rectangular halls on four sides and a central courtyard opening to the sky. This phase was characterised by a spacious halls with floors paved with brick, multi-storeyed buildings granaries, wells and drains connected to a network of sewage. The granaries
were constructed of brick in the shape of an inverted pyramid, tapering towards the floor. The bricks were laid in receding layers so that one can easily get down to the floor. The buildings of the fourth phase were plastered with lime and burnished to smooth surface. The most notable feature is the lime concrete-paved floors.

Whatever water was used by the householders had been drawn from wells constructed of brick and occasionally terracotta rings. Peddabankur excavation revealed as many as 22 wells. Of these only a single well was lined with terracotta rings with square brick casing enclosing the rings at the top course. It was noticed that the semi-circular flat based bricks (hog-backs) to a height of about 30 cm. were kept over the top courses of some of the wells at the place where water was drawn, possibly, in order to allow water slip inside or outside the well to avoid damage to the brick-lining.

Brick cisterns or troughs formed invariably the essential feature of civic life. Many such cisterns noticed at Peddabankur were constructed of well-burnt bricks. Some of these had floors rammed with morrum and then paved with bricks to prevent percolation.

None of the sites excavated gave us any evidence of the temples of the Brahmanical origin. But the excavation at Dhulikatta revealed a Buddhist stupa. The stupa consisted of a
brick drum to a height of 2 m., over a single layer of rubble basement. The anda or the dome rises over the garbha to a height of 5 m. and crowned with a khayaka and chhatra. The lowest brick course of the anda above the drum slightly projects and then a layer of morrum to a thickness of 36 cm. was laid over the first course. The second course of brick above the morrum was arranged in headers and stretchers. The garbha of the stupa was decorated with 47 carved avaka slabs. On one of the slabs the Muchilinda naga protecting Lord Buddha, symbolically represented by his feet, was exquisitely delineated. Another Buddhist settlement more extensive than Dhulikatta was situated on the top of a flat hill near the village Phanigir in Jangoan taluk of Warangal district. There are ruins of more than 30 stupas, most of them circular in plan and raised over rectangular stone basement. As the establishment was raised over the hill the constructions were supported by butteresses in the shape of boxes in order to prevent erosion. Gajulabanda, about 5 km. east of Phanigir, is another Buddhist settlement which is situated near a huge tank. A trial excavation by the Department of Archaeology and Museums revealed the existence of a stupa, vihara complex and chaitya. The construction of the stupa indicated two phases with marked variation in plan and execution. A totally ruined Buddhist stupa was noticed at another village by name Tirumalagiri in the Jangoan taluk. The entire area which was hallowed by the presence of Buddhist stupa is now occupied by recent hutments.
The early historical settlers in the Karimnagar region had attained a very high degree of civilisation having fortified towns, palacial buildings, sewage, well laid-out roads and a good water supply. Their economic life was a combination of agriculture, animal husbandry, hunting and metallurgy. Most of the towns and villages were raised in the middle of arable plains. The clearing operations of the jungles for making the land suitable for cultivation were carried out with the help of flat celts of iron hafted to wooden handles. In the later stages, socketed axes have arrived on the scene. A large number of sickles found in the excavations were used for harvesting. We also recovered a good number of plough-shares. The extensive use of oxen in agricultural operations for heavy traction or prolonged draught work is attested to by anchylosed bones of cattle. Besides the agriculture operations, many animals such as cattle, buffalo, sheep, goat, dog, swine etc., were domesticated. In addition to the domesticated animals they practised hunting of wild animals. The hunted animals included deer, pig, turtle and a large variety of birds.

The carpenter played an important role in the economic life of the people. The village dwellers included the carpenter, the potter, blacksmith, barber, and washerman.

The knowledge of iron smelting and forging was known from the beginning of the 1st millennium B.C. The iron ore was found
and smelted at Warangal, Konasamudram, Dindurthi, Komarapalli, Eranapalli, Tellakunta, etc. The method of smelting consisted in laying several alternate courses of charcoal and iron ore and daubing the entire pile thickly with clay to prevent heat from escaping. The kiln, circular in plan, must have been provided with passages for the intake of air and escape of gasses and outlets for molten iron. The collected molten iron was boiled off by inserting it into water and then hammered out for removal of charcoal. The method of manufacturing steel practiced in the Karimnagar region was to cut out blocks of iron into small cubes. These small cubes were put in crucibles of various sizes. The fire is then kept up with dried branches of teak, bamboo and green leaves of various species. It is then allowed to subside and when the crucible is opened a cake of great hardness is found weighing half a pound or more than the original cube placed in the crucible. One such crucible found at Dhulikatta is made of iron and measured 15 cm. in diameter.

There is a vast assemblage of iron objects from early historical sites particularly from Peddabankur and Dhulikatta. These included weapons of war and chase such as spearheads, lanceheads, spikes, and arrowheads. The agricultural implements included sickles, ploughshares, spades, etc. The tools of the blacksmith are the bellows, sledge-hammer, axe and tongs. The carpenter's tools included axes, adzes, chisels, drills and
saw-blades, nails, rivets, staples etc. There is a wide variety of domestic implements such as choppers, knives, razors, fork, lamps, ladles, domestic trowels, keys, ferrules, stylii, antimony rods, balancing rods etc. The copper objects included mainly antimony rods, sewing needles, tooth-pick, ear cleaener, finger rings, bangles, amulets, ear spools, spoons and stylised palms, jewel boxes, copper rattle etc. The lead objects are beads, bangles and spools. There are also good number of bone, shell, and horn objects. Among the horn objects are many arrow-heads mainly of two varieties; one type is pointed at one end and the other end is facetted. The other type of arrow-head is pointed at both the ends. Among the bone objects are many game-dice.

Bead making was a very prosperous industry during the early historical period. The common semi-precious stones used for beads are carnelian, agate, banded agate, garnet, blood stone, beryl, jasper, amethyst, quartz-crystal, lapis lazuli, besides glass, terracotta and shell.

Like architecture, the sculptural art also reached a very high degree of perfection. The Buddhist stupa at Dhulikatta is decorated with 47 carved ayaka slabs. Some of them display a five hooded Muchilinda Naga. The naga slab was flanked by two ladies standing with floral offerings. The ladies are profusely decorated ornamented with squarish ear ornaments, stamped with a beautiful lotus medallion, the
profuse hair made into a side-knot, a broad necklace of several strands, a broad waist belt with a middle band of lugged tabloid beads, and beaded wristlet.

Besides the solemn religious scenes, the panels also display some sportive themes where a man holds the tail of a fleeing tiger.

The excavations have yielded a large number of terracotta figurines of both human beings and animals. The collection also included some hand-made archaic figurines. Among the female figurines are Mother Goddesses with head shown as a prominent mass with a round halo at the back and the breasts, hands, and legs pointed. Among the figures made of double moulds, there are three types of Mother Goddesses; one is shown with outstretched hands and arm lifted. The second type is made of kaolin, and holds a bunch of fruits in her right hand while the left hand is simply resting on the thigh. A parrot, perching on the right arm is nudging at the breast of the Goddess with its bill. In the third type the Goddess holds her prominent breasts with her hands from below.

There are three terracotta seals inscribed in brahmi, two button seals of which one is made of ivory and the other of garnet. One terracotta seal is inscribed in brahmi as "Maha Taksavarama Vajrasamikasa Sonya Sabha". A beautiful horse was stamped in the middle of the inscription. The other seal is
inscribed with the legend "Vijaya pura bahu kasa ratasa". The ivory seal is inscribed with the legend "Ajani Siriya Gana Kumariya". The garnet seal, probably the earliest of all, is inscribed with the legend "Ka Ma Sa" on an ovoid bezel.

Pottery forms the most essential need of the daily life of the common people. The entire range of pottery recovered from the early historical sites is mostly wheel-made. Broadly, the pottery can be classified into utilitarian and ritualistic. The types include storage jars, smaller storage jars, water pots, carinated bowls, lid-cum-bowls, deep bowls, dishes, globular vessels, straight or concave-sided bowls, spherical bowls, lotas, pyriform wine vessels, lamps, ring stands, finials etc. Among the ritualistic wares is a globular vase stamped with trikuta or nandipada symbol. Some of the dishes have white-painted spiralled design on the base of the interior. In the intervening space between the spirals there are white painted dots of different sizes. A pedestalled cup decorated with bands of vertical and oblique lines might have been used as a censer or offering stand. Some pots are decorated with various designs such as chevrons, inside marginal bands of vertical notches, oblique notches above horizontal bands, circles enclosing endless triangles, creepers emanating from circles, lotus embossed in serrated circle, tree symbols below concentric circles, six petalled lotuses, twelve petalled lotuses, etc.
Many potsherds are scarred with graffiti marks such as arrow, inclining triangles, plough, Brahmī "MA", fish circle enclosing a cross, bow and arrow.

Coinage became universal during the early historical period. Even the Mahasena dipathis and the Maharatis were issuing coins in their names besides the coins of the imperial dynasty. Peddabankur excavation yielded two hoards of silver punch-marked coins, one consisting of 168 coins and the other of 30. The coins are broadly divided into rectangular and round. Among the rectangular type, there are two variations: clipped and unclipped. Among the round types are found the rounded and ovoid varieties. The weights of most of the coins range between 3.32 to 3.4 grams. A potin coin with a big asvastika symbol in the middle, with the legend of Mahasena on the obverse and an arrow and thunderbolt in a dotted circle on the reverse is noticed at Peddabankur from stratum earlier than that of the Satavahana. There is also a large collection of Satavahana coins from the Karimnagar region especially from the excavations which include the coins of Satavaha, Satakarni-I, Gautamiputra Satakarni, Vasitiputra Pulamavi, Sivasiri Pulamavi, Vajna Satakarni and Rudra Satakarni. Interestingly, a single silver portrait coin came from Dhulikatta excavation pertaining to Vasitiputra Sivasiri Pulamavi. Besides the above coins, Peddabankur excavation yielded five Roman coins and four coins made of lead plated with gold. These imitations have double perforations for suspending them around the neck. The remaining
coins belong to Augustus (29 B.C. to 14 A.D.) and Tiberius (14 to 37 A.D.).

There are clear evidences of urbanisation during the early historical period. The politically and commercially important towns were provided with ramparts with gateways at the cardinal directions. The mud ramparts were usually raised with the earth dug out from outside the settlement and the trenches thus excavated simultaneously served as moats. As most of the settlements have grown up on the banks of the major and minor rivers, people might have covered distances by boats made of wattle and covered with animal skin for making it water-tight. The region was traversed by highways from the north to the south and from the east to the west, but the routes were covered with heavy jungles full of savage beasts of prey. Most of the merchandise must have been carried by caravans of pack animals. There was also a net work of drains and water was supplied mainly by the rivers and brick-wells. Industries such as metallurgy and bead-making was scattered and every village and town was self-sufficient.

Commerce occupied an important place in the economic life of the people. Several classes of workers such as kularikas, adevantrikas, tilapisakas, dhannikas, kolikas, vasakaras, kasakaras are mentioned in the contemporary records. Each of these artisan groups had a guild or aroli of their own. The special feature of these associations was the banking facilities provided by them. There were a number of market towns
in the interior such as Paithan, Tagara, Junnar, Karahakata, Nasika, Govardhana and Vejayanti.

The people used to dress themselves in accordance with time, region and profession. We have evidence of the dress of the period from various sculptural representations and terracotta figures. The people decorated themselves with ornaments from head to foot. They were known as makuika, chandrakarnika, chakakundala, pendants, necklaces, rings, wristlets and anklets.

The evidences regarding the brahmanical religion are not quite clear. The religious beliefs still centred round local primitive forms of worship and rituals. They believed in the village gods and goddesses, tree and serpent cults and probably practised worship of the spirits. There are four types of Mother Goddesses, one is the Ankatdhatri, or the mother and child, secondly, the Goddess with outstretched hands and legs, thirdly the goddess holding a bunch of fruits and a parrot perching on the right arm nudging at the breast of the Goddess and in the fourth type, the Goddess holds her prominent breasts with her hands from below. Gajalakshmi was worshipped from a very early time. Regarding Buddhism, we have evidences of the stupas at Dhulikatta, Phanigiri, Gajulabanda and Tirumalagiri. It is likely the people believed in Gods and Goddesses as noted above and at the same time converged together from distances for the worship of Buddhist stupas.
The early Satavahana kings were staunch followers of Vedic religion. We find mention of various gods such as Dharma, Ida, Sankarshana, Vasudeva, Chandra and the four lokapalas viz; Yama, Varuna, Kubera and Vasava. The invocation to Dharma in precedence to Ida and Sankarshana etc., is clear evidence of Buddhist leanings and at the same time equality of the Buddhist faith with the Vedic religion.

The people relaxed themselves by indulging in various sports and pastimes which included many indoor and outdoor games and other recreations. The game of dice is a very ancient and popular pastime. The other favourite sports were hunting, taming of birds, animal fights etc. The games specially intended for women are mostly indoor types such as kanduka-krida or game of ball, hide and seek, run and catch and the hop-sketch.

The evidences are not explicit regarding the burial practices of the people during the early historical period. There are two possibilities viz; they might have carried their dead bodies to far off places for disposal at a common burial ground or they might have cremated their dead bodies so that even a semblance of the human remains has not remained. Even the charred bones were collected for immersion in the waters of the rivers. An extensive cremation ground of the Ikshvaku period at Nagarjunakonda is a convincing proof that the people had forgotten megalithism long back. Some of the shayatthambas erected at the burning ghat suggest the beginning of the cult of Hero-stones.
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