CHAPTER II  THE EXPLORER SITES AND THEIR STRATIGRAPHY
EXPLORER SITES AND THEIR STRATIGRAPHY

Explorations were carried out along the rivers Sagileru, Kundair, Pennaru, Papaghi, Cheyyair and along some of their important tributaries. More attention was paid to the river Sagileru and its tributaries which have exceptionally well preserved implements from deposits. Majority of the stone age sites are found either in the modern bed or on the terrace of these rivers while a few sites are located at the foot hills (Table 1).

The location (PL–II), description and stratigraphy of the sites are as follows:

1. ADUFUR (APR)

The village is six kilometres east of Mandalur and two kilometres north of Cheyyair river. Two localities are found in this area. The tools under study are collected from locality II.

Locality I

This locality lies a few metres away north of the village. The bed of a small streamlet originating in the adjoining hillocks contains pebbles ranging from 15 cms to 30 cms in size, which include tools belonging to Early Stone Age. They are almost fresh or in mint condition.

Locality II

This is situated at about three kilometres to the west of the village and one kilometre north of the Cheyyair, at the foot of the hills. The artifacts belonging to Early and Middle Stone Age industries are collected from this locality. The Early Stone Age implements are slightly patinated to a dull grey colour, while the Middle Stone Age tools are very fresh.
<table>
<thead>
<tr>
<th>STRATIFIED DEPOSITS</th>
<th>MODERN RIVER BED</th>
<th>SURFACE TERRACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADUPUR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAKRAPET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHINNAIPALLE</td>
<td>CHINNAIPALLE</td>
<td>CHINNAIPALLE</td>
</tr>
<tr>
<td>GUDDAPAH</td>
<td>GUDDAPAH</td>
<td></td>
</tr>
<tr>
<td>DARGA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DUVAPALAE</td>
<td>DUVAPALAE</td>
<td></td>
</tr>
<tr>
<td>GODUGURURU</td>
<td>GODUGURURU</td>
<td></td>
</tr>
<tr>
<td>GOPAVARAH</td>
<td>GUNTACHIPADU</td>
<td></td>
</tr>
<tr>
<td>KANUPARTI</td>
<td>KALSAPADU</td>
<td>KALSAPADU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KONDAPETA</td>
</tr>
<tr>
<td>LSWER SAGILERU</td>
<td>LSWER SAGILERU</td>
<td>LSWER SAGILERU</td>
</tr>
<tr>
<td>PROJECT</td>
<td>PROJECT</td>
<td></td>
</tr>
<tr>
<td>MASTIREDDIPALLE</td>
<td></td>
<td>IRUDAHU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MUDUKURU</td>
</tr>
<tr>
<td>NANDIPALLE</td>
<td>NANDIPALLE</td>
<td>PUTTAIPALLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RAMAGIRI</td>
</tr>
<tr>
<td></td>
<td>REDDXYARPALLE</td>
<td></td>
</tr>
<tr>
<td>TAMBALLAPALLE</td>
<td>TAMBALLAPALLE</td>
<td>TAMBALLAPALLE</td>
</tr>
<tr>
<td>VADDAMANU</td>
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<td>VADDAMANU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VENULA</td>
</tr>
</tbody>
</table>
Quartzite is the raw material for both the industries.

2. BAKRAPET (BKP)

The village is about 12 km. from Gadapah on the way to Rajampet. A small river, known as Bakrapet Venka flows at about 200 metres away from the village. Its bed is covered with pebbles of 5 cm to 40 cm in size. Artifacts belonging to Early Stone Age and Middle Stone Age are collected in between the causeway near the village and the railway bridge. They are very crude and rolled.

Quartzite is the raw material for both the industries.

3. BOYAPALLE (BYP)

This village is about seven kilometres south of Jammalamadugu on the way to Gandikota. The site is located at one and half kilometres north of Boyapalle tank. Early Stone Age tools are collected from surface on the bank of a nallah. They are slightly weathered to a dark brown colour. Quartzite pebbles from boulder conglomerate have been used as raw material.

The section (Pl-VI-10) on the left bank of the nallah exposes boulder conglomerate one to one and a half metres in thickness overlying the weathered bed rock.

4. CHINNAIPALLE (CHP)

The village is six kilometres northwest of the Lower Sagileru project and the river Bokkineru flows at one kilometre south of the village. Tools are collected at three different points, thus making a complete survey of the river Bokkineru from its confluence with the Sagileru up to its source in the nearby hills.

Locality I

This is situated two kilometres south east of the village. Early Stone Age tools are collected from the river bed. They are slightly rolled.
The section on the left bank has a gravel, one metre in thickness overlying a loose "murrum", one to one and half metres in thickness. The murrum rests on the bed rock.

Locality II

This lies at one kilometre south of the village. The river bed is full of pebbles of varying sizes from 4 cm to 35 cm, which include finely shaped Early Stone Age tools and Middle Stone Age artifacts. The Early Stone Age tools are slightly rolled while the Middle Stone Age artifacts are almost fresh.

The river becomes narrow from this locality and does not extend beyond 10 m. to 12 m. in width.

The section (Pl. III.4) on the right bank exposes 'Gulakarayi' or a dull brown coloured calcareous nodules and chunks or kankar of one to two metres in thickness, overlying the bed rock (shale).

Locality III

This is two kilometres to the west of the village. The cliff section (Pl. III.5) on the left bank of the river, has a deposit of red gravelly sand, one to two and a half metres in thickness overlying the basal gravel. The basal gravel, about one metre in thickness, is rich in quartzite pebbles and nodules and chunks of kankar cemented by calcareous materials. No tools have been found.

The above stratigraphy is also seen in a well on the left bank at the same locality. But the dug out material has yielded tools. Middle Stone Age artifacts are collected from the red gravel while the pebbly

© The term "murrum" is used for the disintegrated or decomposed rock material throughout the description.
gravel has yielded Early Stone Age implements. The position of the Middle Stone Age artifacts could not be ascertained as the well was full of water.

5. CHINTARAMPALLE (CRPL)

This village is five kilometres northwest of Vempalle. The site lies at three kilometres southwest of Vempalle in a banjar land near a nullah called Mulavank which joins Papaguni. Early Stone Age tools are collected from the banjar land. The industry is well advanced which is evinced by well shaped bifaces and discoids. Some of the tools are broken at the tip. Quartzitic sandstone is used, at this site, as raw material.

6. CUDDAPAH (CDP)

Two sites are located near Cuddapah town; one in the river bed of Buggavanka and the other in the adjoining fields.

Locality I

This is at the railway bridge across Buggavanka. A gravel one to one and half metres in thickness, contains Early and Middle Stone Age tools. The Early and Middle Stone Age tools are slightly rolled. The river bed which is full of pebbles 4 cm to 25 cm in size, contains Early and Middle Stone Age artifacts.

Locality II

This lies about fifty metres northwest of the above site, in the cultivated fields. flakes and flake tools belonging to Middle Stone Age are lying in the fields.

7. DARGA (DRG)

This is a Muslim shrine situated at about half kilometre away from Cuddapah-Chittoor road. The site is located near the culvert, in the
bed of a streamlet by passing the shrine. The river bed is spread with full of pebbles of small to big size which include tools. An area of about 35 M x 10 M has yielded 20 artifacts belonging to Early Stone Age. They are rolled. Some of the artifacts are made of quartzitic sandstone.

3. DIGUVAPALLE (GPD)*

The village is situated on the right bank of Baluda river. Two sites are located on the left bank of the river.

Locality I

Early Stone Age tools are collected from surface on the terrace of the river about 2m, in thickness. They are slightly patinated to a dull white colour.

The section is composed of white calcareous coarse sand (weathered rock) one to one and half metres in thickness resting on the bed rock (granite).

Locality II

This is about 200 metres north east of the above locality. Middle Stone Age artifacts are collected from surface at this site.

Pinkish quartzite has been used as raw material which is not locally available. It might have been brought from the nearby outcrops of quartzite at Matli and other areas, which are 6 km to 7 km away from here.

9. DIGUVAPATHAM (DGP)

The village is six kilometres from Jammalamadugu on the way to Candikota. It is situated on the right bank of Fennuru. The bed of

* Since Diguuapatnam (DGP) was explored in the previous season, Diguuvapalle is abbreviated as GPD instead of (DGP).
a streamlet by passing this village is spread with full or pebbles, of medium to big size, which include Early Stone Age tools. They are heavily rolled. No collection of tools is made from this site.

10. GODUGUNURU (GDI)

This village is about six kilometres from Badvel. It is situated a few metres away from the Sagileru. Two sites are located in the vicinity of this village.

Locality I

This is half a kilometre from the causeway across the Sagileru on Bedwell-Sidhout road. The artifacts belonging to Early Stone Age and Middle Stone Age are collected from the banjar land lying in between the road and the river. The size of the artifacts belonging to Early Stone Age, is diminished by 3 cm to 6 cm. The dimensional reduction is due to smallness of the pebbles (10 cm in diameter). Some of them are patinated to a dull red colour while a few are weathered.

Locality II

This is situated in the river bed. The artifacts, belonging to Early and Middle Stone Ages are collected. They are rolled.

11. GOPAVARAM (GVR)

This is about three and half kilometres north of Proddatur. The site is located on the right side of the Proddatur-Rajupalem road, three kilometres from Proddatur. The artifacts belonging to Middle Stone Age are lying over a banjar land. Late Stone Age artifacts are also noticed on the surface of black cotton soil, which is at a higher level (about one metre) than the banjar land adjoining the road.
12. GUNTACHIPADU (GCP)

This is eight kilometres northwest of Mydikur. The site is situated two kilometres south of the village and on the left bank of Kundair river. Flakes and flake tools belonging to Middle Stone Age are collected from the terrace of the river. A few Late Stone Age artifacts are also found here.

Quartzite is the chief raw material for the Middle Stone Age industry while chert of various colours is used during the Late Stone Age.

The cliff section (Pl. III, 8) shows yellowish brown silty sand two to two and half metres in thickness resting directly on pinkish quartzite. On further down stream the cliff section (Pl. III, 9) has black clay, half to one metre in thickness, overlying the bed rock.

13. KANUPARTI (KNP)

This is one kilometre east of the Chennur causeway across Pennaru. The site is located about half a kilometre on the down stream from the bridge. Boulder conglomerate is exposed over the area of about 300 M X 50 M on the left side of the river bed, while the left bank cliff (3 m. high) is mostly composed of red brown silt (Pl. III, 7).

The boulder conglomerate has yielded Early Stone Age implements in a fresh condition. They are finely shaped and the technique is well advanced. The material is dark to grey quartzite.

14. KALSAPADU (KLP)

This is already reported by the previous investigators. The writer during his survey of the Sagiheru visited this place. There is no difference in the nature of artifacts from Tamballapalle.

One kilometre south of the village, another site is located in the
cultivated land. Flakes and flake tools belonging to Middle Stone Age are found at this site.

15. KONDAPETA (KPT)

This is one kilometre northeast of Cheunnur. Two sites are located here.

Locality I

This lies at about half a kilometre north of the village. Early and Middle Stone Age implements are collected from the cultivated fields here.

Locality II

This lies at the foot hills two kilometres from the village. Crude and unfinished artifacts belonging to Early Stone Age are found here.

16. KONDURU (KDR)

This village is about 16 kilometres from Badvel on Badvel-Sidhout road. The site is situated about four kilometres north of the village in the river bed of the Sagileru. Early and Middle Stone Age artifacts are found in the river bed. They are rolled.

17. KOTHAPALLE (KTP)

The site is located at about one kilometre north of the causeway across the Sagileru on Badvel-Hydakar road. The basal gravel is exposed over an area of about 100 m x 20m. The gravel contains small to medium size pebbles, at some parts cemented, which include tools belonging to Early Stone Age. A selected area of about 4 m x 3 m has yielded 60 artifacts of which 35 are waste flakes and the rest tools. The tools include pebble tools, bifaces, cleaver flakes, and retouched
flakes. They are slightly rolled.

Further down stream a terrace like formation is seen (Pl. III, 13).

18. LOWER SAGILERU PROJECT (LSP)

One kilometre south of the project a section is exposed on the left bank of the Sagileru. The stratigraphy (Pl. III, 12) is as follows. The implementiferous basal conglomerate (1/2 m thick) resting on the weathered bed rock (shale) is sealed by a brown silt one to two metres in thickness. This silt is overlain by a black silty sand (one to one and half metres thick).

Middle Stone Age tools were observed by the side of the traveller's Sunglow here in cultivated fields.

19. HASIREDDIPALLE (NRE)

The village is about one and a half kilometres south of Rayawaram and situated on the right bank of Pincha river. The Pincha and the Bahuda join at Rayawaram and then become Cheyair river.

The site is situated in the bed of a streamlet called Togurapalle vanka which joins with the Pincha river. This stream has cut through the right bank of Pincha exposing a cliff section. The cliff section has the boulder conglomerate one to one and half metres in thickness, sealed by a brown silty sand four to five metres in thickness.

The river bed is covered with pebbles which include Early Stone Age artifacts.

20. MUDDANUR (NRE)

Locality 1

This lies one and a half kilometres north of Muddanur on the right side of the Muddanur-Jammalanadugu road. It extends upto the foot hills. The area is under cultivation. Early Stone Age tools
are collected from surface. Most of the tools are small ranging from 8 cm to 10 cm in size and are slightly partinated.

Locality II

This is to the left side of the road about a half kilometre north of the above locality. The artifacts belonging to Middle and Late Stone Ages lie on the terrace of a streamlet which joins Kalmalvanka.

Quartzite and cherty quartzite are used for the Middle Stone Age industry while chert of various colours is utilised for the Late Stone Age industry. Chert, jasper and other fine grained rocks are locally available in the shape of pebbles derived from the quartzitic sandstones of papaghai series.

The cliff — section (Pl. III.21) exposed by this streamlet has the gravel one to two metres in thickness, composed of pebbles, dolerite chips, white calcareous sand and choudu (saline silty sand), overlying the weathered bed rock. Thin veins of clay — intercalate in the weathered rock, called sudda. At other place dark brown saline silty sand (Choudu) over lies the weathered bed rock while at another place red silty sand takes place of brown silty sand.

21. RYDUR (RYD)

Locality I

During the first season of the exploration one site is located, at about 300 metres from the village, on either side of the Cuddapah-Kurnool road.

The pits in the burial ground for higher castes have yielded few Early Stone Age tools.

The section exposed in the pits shows a white murrum, mixed with pebbles, which include tools, overlying the black soil. The Kankar is
a redeposition on the black soil.

On the right side of the road small mullaha in the banjar land contain pebbles and flakes in a heavily rolled condition.

Half a kilometre north of the above locality the artifacts belonging to Early and Middle Stone Ages are spread over an area of about 1/2 x 1/2 km. Most of the Early Stone Age tools are made on water worn pebbles.

22. NANDIPALLE (N.D.P.)

The village is about 500 metres south of the Badvel-Nydukur road. Two sites are located on the right bank of the Sagileru.

Locality I

This is situated in a banjar land to the left of the road and on the terrace of the Sagileru. Middle and Late Stone Age artifacts are collected from the terrace. Fine to medium grained quartzite is the chief raw material for the Middle Stone Age industry while quartz is used during Late Stone Age. Both the raw materials are locally available in the shape of pebbles.

Locality II

This is situated in a mullah called Poleramma venka which has cut through the right bank of the Sagileru. The width of the mullah, here, does not extend beyond three to four metres. This has exposed a cliff section, on both sides, running for about 50 metres. The section, on both sides, has three implement-ferous gravels each sealed by a silt.

The section measuring 2 m x 2 m has been scraped (Pl.III.1) on the right bank of the mullah which shows three distinct implement-ferous gravels each sealed by a silt deposit of white calcareous nature. The
sequence of layers is as follows:

The basal gravel (I), 45 to 50 cm in thickness, rests on a weathered bed rock (shale). The gravel is composed of sub-rounded and triangular pebbles of medium to small size, and even the chunks of schists, indicating immaturity of the gravel. A calcareous material is the cementing matrix. This gravel has yielded pebble tools, bifaces, cores and flakes, all of Early Stone Age. This gravel (I) is overlain by a coarse white calcareous sand 40 to 50 cm in thickness. A second gravel, 15 to 20 cm in thickness, overlies the coarse sand. The gravel II contains more of sub-angular percentage of triangular pebbles of quartz and quartzite etc. It is devoid of schists. The average size of the pebble is about two centimetres. The cementing material is calcareous. The gravel II is also not mature. Middle Stone Age artifacts consisting retouched and unretouched flakes are recovered from this gravel. Overlying this gravel (II) is another white calcareous coarse sand, 35 to 40 cm in thickness. This coarse sand (II) is covered by a third gravel, 10 to 15 cm in thickness. The gravel III is composed of angular to very angular chunks of quartz and some fragments of schists material. The average size of the pebble is not different from that of second gravel. Late Stone Age artifacts, made on quartz, are collected from this gravel (III). A brown silty sand, 30 to 35 cm in thickness seals the third gravel.

This is the only site known in south India where a continuous cultural sequence from Early Stone Age to Late Stone Age is known in a stratified context.

The bed of this streamlet is spread with full of pebbles up to its source. The occurrence of tools becomes less as proceeded towards the source.
23. PUTTAIPALLE (FTP)

The site is two kilometres south east of the causeway across the Sagilera on the Badvel-Sidhoat road. Early Stone Age artifacts in a rolled condition, are collected from surface on the left bank of Sagilera.

24. RAMAGIRI (RGR)

The village stands on the right bank of Penneru opposite to Jammalamadugu. Two sites are located here.

Locality I

This lies about 50 metres north of the village on the slopes of the hillock. It is a factory site. Early Stone Age tools are collected here. The tools are made on chunks and nodules of quartzite. The raw material is derived from the quartzite outcrops at the foot of the hills. Even today these are exploited by the villagers for construction of the buildings. The interesting point is that the present river bed of Penneru is full of sands and nowhere in the vicinity would water worn pebbles be found. Therefore, the only course left to the Early man, during his movement or camp, was to exploit the easily available raw material in the shape of chunks and nodules and make tools on them. Majority of the tools are fresh while a few are patinated to a brown colour.

Locality II

This is about 100 metres north of the above locality on the flood plain of the river Penneru. Middle Stone Age artifacts made on fine grained quartzite, are collected from this site. Some of them are slightly patinated to a dark brown colour while the rest are fresh.
25. REDDIVARIPALLE (RVP)

The village is on the right bank of river Mandavi and about seven kilometres north east of Rayacoti. The site is about one kilo
dre east of the village in the bed of a small streamlet which is extinct now. Early Stone Age artifacts and a few Middle Stone Age
tools are collected from here.

26. TAMBALLAPALLE (TBP)

Four sites are located in the vicinity of the village; one on the Gundleru river and three on the Kamumeru.

Locality I

Gundleru is a small streamlet joining the Sagileru on the upstream from the upper Sagileru Project. The river bed is covered with full of pebbles, ranging from 4 cm to 35 cm in size, which include Early Stone Age artifacts. The tools are very crude in workmanship and rolled.

Kamumeru

The Kamumeru is surveyed from its confluence with the Sagileru up to about 12 kilometres upstream stretching in side of the Pallamalais. Archaeological evidence is obtained at three different points.

Locality II

This is about 100 metres away on the upstream of the Kamumeru from its confluence with the Sagileru. The river bed is full of pebbles, small to big in size which include Early Stone Age artifacts. Most of the tools are made on flakes of about 15 cm to 25 cm in length. These flakes are taken out from the pebbly boulders of varying sizes from 30 x 20 cm to 45 x 30 cm. Three or four flakes are taken out one on each side, from one pebble. A few cores are also lying along with the flakes.
All the artifacts are heavily rolled. An area of about 8 m x 4 m has yielded 25 artifacts.

**Locality III**

This is about one and a half kilometres on the upstream from the above site. A section on the right bank shows a gravel one to one and a half metres in thickness. This gravel contains artifacts belonging to Early and Middle Stone Ages. A little further from here, a pit dug for drinking water has exposed a section (Pl. II.6) consisting of highly cemented basal gravel, 30 cm to 80 cm in thickness, a red silty sand, 32 cm thick, and a fine kaolinite gravel (30 to 75 cm) from bottom upwards. Early and Middle Stone Age tools are recovered from the basal gravel and kaolinite layer respectively.

**Locality IV**

This is situated in the forest about 12 kilometres from locality II. The river bed is narrow and full of pebbles and pebbly boulders which include flakes and cores. The cores which are 50 to 60 cm in length, have one to six negative flake scars. The cores are scattered all over the river bed. The noteworthy point is the occurrence of tools is less when compared to the former localities.

The above observations and the evidence obtained from Kanumera show that the ratio of core tools (bifaces) to flakes (flake tools and slightly retouched flakes ranging from big to small size) is roughly 1 : 4. The bifaces are very crude and there is no single tool worth mention of an advanced technique like Acheulian. The flakes are mostly choppers while there are few cleavers, points and scrapers. The flakes have plain and wide platforms and the angle is above 90°. The bulb is not very prominent as the material is course to medium grained quartzite. Most of them retain cortex on the dorsal.
Thus the industry is mainly a flake culture and stands against the rest of the region in the district, which is discussed elsewhere.

27. VADHAMANU (VIII)

The village is about 100 metres from the Lower Sagileru Project. Dikkleru, another important tributary of the Sagileru joins the Sagileru about 500 metres south east of the village. The archaeological evidence obtained from its upstream is already described in the previous pages. Four sites are located here. A section, on the right bank, is exposed for about 150 metres long.

Locality I

This is about 25 metres south from the bund and at the commencement of the section. Tools belonging to Early Stone Age are picked up from the basal gravel exposed in the river bed. The river has extended its width by cutting its bank further and exposing the basal gravel only.

Locality II

About 100 metres north of the confluence, the section has exposed two gravels each sealed by a silt. The section (Pl.III.2) measuring 2 m x 2 m is scraped to know the extent of the implementiferous gravels. The sequence is as follows.

The lower most deposit, one metre in thickness, is a boulder conglomerate (I). It consists of ferruginous and calcareous materials. Quartzite pebbles predominate but the pebbles of quartz, shale and schist are also not uncommon. The lower portion is highly cemented with calcareous and ferrigenous matrix. This gravel has yielded Early Stone Age artifacts consisting of cores, flakes, pebble tools, bifaces and cleavers. This gravel (I) is overlain by a brownish red colour silty sand, 100 cm to 120 cm in thickness. A second gravel, 60 cm in thickness overlies the silty sand (I). This gravel is composed of silt, more
rounded pebbles, and also pebbles of shale and schist. It has yielded Middle Stone Age artifacts consisting retouched and unretouched flakes. Finally a brown sandy silt (II) has sealed the second gravel. On the top of this silt are found Late Stone Age artifacts.

Though the evidence of the three cultures is obtained here, only Early and Middle Stone Age industries are found in the stratified deposit. The boulder conglomerate which is seen on the surface goes further deep (about 60 cm) below the river bed. Majority of the tools are fresh while there are a few tools which are heavily rolled.

Locality III.

This lies about 50 metres northwest of the above locality, situated in a nullah. This nullah has cut through the alluvial deposit on the right bank of the Bokkinera. A section (Pl.VI,3) measuring 2 m x 2 m, is scraped here. It has the Early Stone Age tools superficially struck up in the boulder conglomerate. The artifacts are heavily patinated to a white colour.

Locality IV

This is situated about 50 metres south of the village. Middle and Late Stone Age artifacts are collected from surface at this locality. Fine to medium grained quartzite is the chief source of raw material for the Middle Stone Age industry. Rare occurrence of chert is also noticed. Quartz, in the shape of pebbles, has served as raw material during Late Stone Age. Both, the raw material, size and typology differentiate the Middle and Late Stone Age industries.

It is observed that the area lying in between the Bokkinera and the adjoining hillocks is spread with tools of Early and Middle Stone Ages. They are patinated to a dull brown colour.
28. **VENULA**

Two sites which yielded Middle Stone Age artifacts are located here.

**Locality I**

This is three kilometres south of Venula and a few metres east of the tank. Middle Stone Age artifacts consisting of flakes, blades and blade flakes and cores are collected here.

**Locality II**

This is one kilometre west of the tank and at the foot of hills. Among the artifacts collected from here, fluted and flake cores belonging to Middle Stone Age are in majority.

Chert of various colours, chalcedony are the main rocks used at both the sites for this industry. They are probably, derived in the shape of pebbles, from the conglomerate hillock running for about half a kilometre adjoining the above locality. Thus this site is unlike other Middle Stone Age sites in the district where quartzite is the only chief source of raw material.

Grouping and correlation of different river deposits in the district, would give a comprehensive and coherent picture of the formations. An attempt is made to describe the character of various individual deposits and correlate them with each other. This would help to know the sequence of layers along with their associated cultures.

The lowermost deposit is in the form of gravel rests on a weathered bed rock. The bed rock is, generally, shale except in Rayachoti region where granite takes its place. Quartzite is also seen at a few places. The character of weathered material depends on the nature of the parent rock. It is, generally, light yellow or dull white. It is sticky and calcareous in nature. It is locally called 'sadda' and is used at many
places for white wash. It is devoid of gravel or any other foreign material except that of the parent rock. Its thickness ranges from 30 cm to 150 cm.

**BASAL GRAVEL (I)**

The basal gravel resting over the weathered rock is bouldery at many places such as NDP, VMN, CNP III, LSP, MRP, TBP, KNP and VMII. It is highly cemented at VMN, NDP, TBP, LSP, KNP and MRP. A calcareous material acts as matrix at all the places except at VMN where ferruginous matrix is predominant. It is composed of, usually, quartzite pebbles small to big, chunks of schists and shale and coarse sand; while quartz pebbles are also found at VMN. This gravel contains artefacts belonging to Early Stone Age at NDP, VMN, LSP, CNP II, TBP and KNP while it is devoid of tools at other places.

Gulakarayi or nodules and chunks of kankar also go with the basal gravel. These nodules are calcareous in nature and dark brown in colour. Lime is extracted from this kankar on a large scale, in this region. It is also used for construction of the buildings. The origin of this gulakarayi is an enigma. Therefore, taking its bearing on archaeological evidence at places like CNP III, etc. into consideration it is equated here with the basal gravel. It contains, at the above locality, pebbles in its lower part which include Early Stone Age tools. At certain places along the river Bokhiver it is devoid of tools but contains pebbles, medium to big in size. The thickness of the basal gravel varies from 50 cm to 150 cm.

**SAND**

The next layer sealing the basal gravel is either a dull white calcareous sand at places such as NDP and VMN IV or red silty sand found at CNP II, CNP III, LSP, MNR and TBP III or light brown silty sand at places viz., VMN II, VMII I, MRP. Its thickness ranges
from 50 cm to 250 cm. This is devoid of tools except at CNP III. But it could not be said unless the horizon of tools in the red boulder is known. Therefore it is clear, from the evidence from all the above localities, that it is devoid of any artifacts.

GRAVEL II

Overlying the sand is the second gravel. This is composed of coarse to medium grained sand with small pebbles of quartzite, schists etc. while small quartz pebbles are also found at NDP. It is dark brown at NDP and VHN II while it is red at CNP III and TEP III. The average size of the pebble is 2 cm. Its thickness ranges from 15 cm to 60 cm. Middle Stone Age artifacts consisting mostly retouched and unretouched flakes are recovered from this gravel.

SILT I

The second gravel is overlain by a dull white calcareous sand at NDP and a brown sandy silt at VHN II. It is called, here, for convenience, silt I. This is devoid of tools. Its thickness ranges from 35 cm to 120 cm.

GRAVEL III

Silt I is overlain by a third gravel. The existence of a third gravel is nowhere encountered except at NDP. This gravel is composed of coarse sand with angular to very angular chunks of quartz and some fragments of schist material. The average size of the pebble is not different from that of gravel II. Its thickness ranges from 10 cm to 15 cm. Late Stone Age artifacts consisting of cores, retouched flakes and blade flakes are found in this gravel. They are made on quartz.

SILT II

Finally a dark brown sandy silt seals the gravel III at NDP. It is 80 to 90 cm in thickness. It is devoid of tools. But on the top of this are found Late Stone Age artifacts. They are not different
from those obtained from gravel III.

Thus there are three gravel formations each sealed by a layer of sand or silt. The gravels have yielded Early, Middle and Late Stone Age artifacts from the bottom upwards.

CLIMATE

The climatic interpretation of the above deposits is very difficult. For, these deposits do not depend entirely on climate alone but on several factors such as local geology, the geomorphology of the river basin, the vegetation and the changing modes of the rivers. Unless and until all these factors are scientifically studied it would be futile to attempt to postulate any climatic fluctuations, based on the ice Ages in Kashmir Valley or Fluvial and interfluvial extended to the Central India.

Therefore, it is endowed here to describe the river stratigraphy and give, finally, a comprehensive picture of the whole deposits in the district.

As far as the dating of these implementiferous gravels, there is no direct evidence from the region. An extensive digging into the river deposits may bring forth any faunal evidence which would help date the corresponding cultures. At present it can be done only by comparing the stone tools from Cuddapah with similar lithic industries which are associated with fossil fauna in the Narmada, Godavari and Pravara basins. A brief account of the fauna and the associated cultures from the above regions may give an idea of the relative chronology of the Stone Age cultures of Cuddapah district.

NARMADA VALLEY

The sequence of layers and the associated archaeological evidence, in the Narmada Valley, is a subject of controversy among the prehistorians. The works carried out after De Terra, by Senkalia, Khatri, Sen and Ghosh
and recently by S.G. Supekar in the valley, have thrown much light on the Narmada sediments and their associated cultures. It is generally agreed now that the fossils of *Elephas namadicus*, *Bos namadicus* etc., associated with the Early and Middle Stone Age industries belong to the Middle Pleistocene and Late Middle Pleistocene — Upper Pleistocene, respectively.

**GODAVARI AND PRAVARA**

Similar fauna has been reported in association with Stone Age industries, from Nevasa in the Pravara Valley and Kalogaon in the Godavari valley by Sankalia (1956; 39 and 1062; 72).

G.C. Nijumgar and S.H. Rajguru have found a shoulder blade of *Elephas hysudricus* in the Ghod river near Chendoli, Poona district in a deposit similar in composition to the Middle Stone Age tool bearing deposits in the Pravara and Godavari valleys. Bones of *Bos namadicus* have been recently found in the river Nula at Rahuri, in a buried channel of the river. Pieces of carbonised logs of *Tamarindia Arjuna* associated with the fossils of *Bos namadicus* have given three C-14 dates: One greater than 37,000 B.C., the second 30,030±1350 B.C., and the last 30,057 ± 5,550 or 3,245 B.C. No stone implements are reported in association with these fossils. However, in the uppermost alluvium of the river a few Middle Stone Age as well as Late Stone Age tools are recovered.

Thus the above palaeontological evidence indicates that in Central India and Deccan Early and Middle Stone Age industries flourished during Middle Pleistocene, and Late Middle Pleistocene—Upper Pleistocene periods respectively. The lithic industries of Cuddapah, which can well be compared with those of Narmada, Pravara and Godavari industries can tentatively be assigned to the above periods.