CHAPTER IV

STONE AGE CULTURES FROM PATNE AND ELSEWHERE IN INDIA
A COMPARATIVE STUDY

The explorations and excavation at Patne by me have thus revealed the Stone Age culture sequence as under:

- Mesolithic
- Upper Palaeolithic
- Advanced Middle Palaeolithic
- Middle Palaeolithic
- Lower Palaeolithic

It is proposed to study in this chapter the Stone Age evidence from Patne in the light of that obtained so far from elsewhere in India.

1. THE LOWER PALAEOLITHIC

The Lower Palaeolithic at Patne is represented by only one cleaver of trap recovered from a gravel exposed in the section of Bhundharkar Lavan in the course of exploration (Chapter II). The specimen is rolled and the gravel in which it was found apparently is not its true horizon. However, in view of the presence of the buried
alluvium, as stated before, in the explored area there appears every likelihood that the horizon contemporary with the cleaver under description may be present in the Patne area and the cleaver cannot alone be the only survived piece.

Technologically and typologically the cleaver belongs to the Late or Advanced Acheulian complex and is very well comparable with the advanced Acheulian cleavers from Gangapur on the Godavari (Joshi, et al., 1966).

2. THE MIDDLE PALAEOLITHIC

It is very well known now that the characteristic tools of the Middle Palaeolithic in India are scrapers, points and borers on flakes made chiefly on silicious rock material like the chert and jasper. The assemblage of tools obtained in the course of explorations along the banks of the Ad Nala from the gravel underlying the purplish silt, as pointed out before, consists of a core, a point, three borers, one burin and five scrapers on jasper (Fig. 10, 1-11) and is comparable with the Middle Palaeolithic (or Middle Stone Age or Series II) tools from Nevassa, the type-site on the Pravara, and sites in Dhule district.

3. THE ADVANCED MIDDLE PALAEOLITHIC

The Period I in the excavated trenches at Patne is represented by the Advanced Middle Palaeolithic tools. These tools, made chiefly on jasper, are comprised of
scrapers, points and borers on flakes which, as pointed out above, are the characteristic tools of the Middle Palaeolithic of India. The flakes also constitute a fairly large proportion. In addition to these the collection of this period also includes blades, a few burins and crested-ridged specimens. However, the flake element being dominating the industry has to be regarded as Middle Palaeolithic. Yet it is distinct in its blades, burins and crested-ridged specimens. The industry of Period 1 has been, therefore, regarded as representing an Advanced Middle Palaeolithic industry tending more towards the Upper Palaeolithic.

Such advanced Middle Palaeolithic industries have not been reported from many sites in India. The properly known comparable industry is the Wainganga B from the Upper Wainganga valley. In the Upper Wainganga, in Seoni district of Madhya Pradesh, Joshi (1966a, 1966b and 1978) noticed two gravel beds, Gravel I and Gravel II. In Gravel I he found a Middle Palaeolithic industry showing Late Acheulian affinities, which he designated as Wainganga A, and in Gravel II an advanced Middle Palaeolithic industry, called by him Wainganga B. Like the Wainganga A the tools of the Wainganga B are made on chert of varied colours. The implements of the latter are made on flakes, blades, cores and nodules. They include scrapers, points, borers, thick blades, knives, trancheets and burins.
This Wainganga B industry shows all the important characters of the Middle Palaeolithic. But it is distinct in its blades, burins and knives and appears to belong to a late or developed stage of the Middle Stone Age or Middle Palaeolithic suggesting Upper Palaeolithic characters (Joshi, 1966b).

In the excavation at Patne there was no direct evidence to show that the Middle Palaeolithic tool-bearing gravel lay below that yielding the Advanced Middle Palaeolithic tools of Period I. Yet the tool composition of these industries from the Upper Wainganga valley and Patne showing advanced Middle Palaeolithic characters is noteworthy.

4. **THE UPPER PALAEOLITHIC**

In India some of the lithic tool industries have been categorically designated as Upper Palaeolithic. But there are some others which have been variously termed as "Series III", "blade-and-burin", "blade-tool" and 'flake-blade' industries. Stratigraphically and typologically they all belong to the Upper Palaeolithic stage.

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In the pre-Independence days the Upper Palaeolithic element was known from three areas, viz., Billa Surgam cave in Andhra Pradesh (Foote, 1916), south-east India (Cammiade and Burkitt, 1930) and Bombay area (Todd, 1939). In the excavation of the Billa Surgam cave in 1884 and 1885 Robert Bruce Foote and his son found bone tools and animal fossils. The bone tools which comprised awls, arrowheads, spearheads, knives, scrapers, chisels, etc., were, according to Bruce Foote, similar to those of the Magdalenian Culture of France. Unfortunately, these tools were lost before they could be published. The associated fauna was ascribed to the Late Pleistocene.

In 1930 Burkitt classified Cammiade's collections from Kurnool region into four series, their Series III being equivalent to the Upper Palaeolithic. The Series III tools came from two areas: (1) Gundla Bhrameswaram south of the Krishna and (2) the eastern and western ends of the Nandi-Kanama pass. At the former tools were found in the ashy beds, about 30 cm thick, sandwiched between the laterite and the forest soil. They included long flakes some with prepared or faceted striking platforms, small discs and burins including a double-ended type. In the Nandi-Kanama pass area a succession of red clay and sand soil was observed. The Series III tools here
were found on the surface of the red clay. These tools consisted of backed knife blades of black lydian stone, core-scrapers, burins and crescents. Almost all the burins were of gouge type. The crescents link the Series III with the Series IV (Mesolithic).

The above description of the tool types from the Kurnool region seems to suggest that the Upper Palaeolithic industries from here is comparable with that of Phase II D of Patne.

In the Kandivli section at Bombay, Todd (1939) found a blade and burin industry in two horizons, viz. the junction of the Upper Gravel and the Upper Clay and in the Upper Clay. The implements from the latter horizon belong to a developed industry and included polyhedral and angle burins as well as parrot-beak type very reminiscent of the Asiatic Aurignician of Europe and the Middle East. On the surface here occurred the microlithic industry.

At Patne the developed Upper Palaeolithic industry is represented by that of Phase II D in which occur the parrot-beak type burins.

(b) **WORK SINCE INDEPENDENCE**

After the Independence, particularly from the fifties onwards, there began growing more and more evidence from various parts of the country. Yet it is
known from a limited number of sites. This is because of the fact that many areas have not yet been explored from this point of view. The industries of this cultural stage have been found both on the surface and in stratified deposits. The noteworthy evidence from the surface has come from the following sites:

- **ASSAM**

Garo Hill, Selbalgiri and Watri Abri on the terraces of the Bongram river (Sharma, 1974).

- **ANDHRA PRADESH**

Nagarjunakonda (Soundara Rajan, 1958); sites around Remigunta in Chittoor district (Murty, 1970); Betamcherla cave are in Kurnool district (Murty and Thimma Reddy, 1976); Nandipalle in Sagileru Basin (Thimma Reddy and Sundarsen 1978); Pedda Anja Falli (Rachappalli) (ref. in Murty, 1979) and Vemula (Thimma Reddy, 1970) all in Cuddapah district; Erragondapalem (Sankalia, 1974) and Kanigiri and Veligunda (ref. in Murty, 1979) in Prakasam district.

- **BIHAR**


- **KARNATAKA**

Salvadgi and Keralbhavi in Bijapur and Gulbarga districts (Paddayya 1970) and Yadwad in Belgaum district.
(ref. in Hurty, 1979).

**MAHARASHTRA**

Dhavalapuri (Sankalia, 1974) and Chirki (Corvinus, 1968) in Ahmednagar district, Bhokar (Joshi and Pappu, 1979) in Nanded district and Pitalkhora in Aurangabad district (Sali, 1965).

**RAJASTHAN**


The stratified evidence from various sites in the country is described below:

**KARNATAKA**

In the Shorapur Doab in Gulbarga district Paddayya (1970) observed the following succession of deposits and tool industries on the Humagi Nala and its tributaries to the eastern side of the Salvadgi-Keralbhavi plateau.

6) Late Stone Age industry on the surface of (5).
5) Black-brown silt with lenses of loose gravel containing blade-tool industry
4) Yellow-brown silt
3) Pebly-cobbly gravel with Middle Stone Age tools
2) Bouldery gravel containing Early Stone Age tools
1) Bed rock
The Upper Palaeolithic blade-tool industry occurring in the gravel lenses at Meralbhavi, Gulbal, Benhatti and Hunsagi within the black-brown silt, comprises fluted cores, blades, burins, points and borers. The blades are thick and broad. The burin types include polyhedral, beaked and flat, besides angle and simple. This Upper Palaeolithic industry appears to be comparable with that of Phase 11 B of Patne.

**ANDHRA PRADESH**

(1) **KURNOOL DISTRICT**

The pioneering work of Camiade and Burkitt was followed by Isaac (1960) who, in his intensive survey of the Kurnool region, discovered 35 Series III sites. He found that the tools of this industry appear first in the gravel of Terrace II in association with those of Series II (Middle Palaeolithic). In the following horizon, however, they occur exclusively. The tools, on quartz, chert, jasper and slate, are made on flakes, flake-blades and blades. They comprise points, scrapers, flake-blades, blades, burins, picks, axe-type, trapezoids, crescentic types and scaps. In the gravels of Terrace III in this region occurs a microlithic industry, called Series IV.

**EXCAVATION IN THE MUCHBATLA CHINTAMANI DAVI CAVE**

In the excavation undertaken with a view to seeing if stone tools also occur in association with
bone tools, of a cave locally known as Muchhatla Chintamani Gavi (Lat. 16°25' N, Long. 76°8' E), about 5 km south-west of Betamcherla in Kurnool district, Hurty (1974) recovered lithic tools (9.70%), bone tools (90.30%) and a large number of faunal remains (dental and osteological). The stone tool industry consists of blades, flakes, scrapers, burin (one), cores and chips. The most important are, however, what have been described as bone implements. They include scrapers, perforators, chisels, scoops, shouldered points, barbs and spatulae. Apart from these, several worked bones, bone-blanks, broken-and-cut bones and splinters were also found.

The Palaeontological studies have shown that the fauna found in the cave is the most characteristic of the Late Pleistocene. The remains belong to the species Bos, Equus, Antilope, Gazella, Cervus, Hystrix, Boselaphus, Bubalus, Viverra, Felis and Presbytis.

(2) CHITTOOR DISTRICT

In the Renigunta area of Chittoor district Hurty (1970) has found a number of blade and burin sites. One of the sites which lies away from the present Nallakalav river, is situated in the Nallagundlu area, about 1.5 km west of the village Vedullacheruvu. The sections on this rich Upper Palaeolithic and Mesolithic
factory site were scraped in about 4-meter-square area. In the cuttings the Upper Palaeolithic tools occurred up to 20 cm below surface in a sandy silt deposit. On the surface of the site lay mostly the Mesolithic tools. Stratigraphically thus the Upper Palaeolithic industry here precedes the Mesolithic.

The Upper Palaeolithic industry, chiefly made on olive green fine-grained quartzite, is dominated by blades and tools made on blades. While majority of the blades are without retouch the others have been converted into varieties of blades, points, knives, scrapers, triangles, trapezes and awls. The sub-types in the finished blades include pen-knife blades, irregularly backed blades, notched blades and shouldered blades. Besides those made on blades, the points, scrapers and awls have also been made on flakes and cores.

This is an Upper Palaeolithic industry of a highly developed form with geometric elements and is comparable with that of Phase II E of Patna.

(3) CHERAPUNJI DISTRICT

Recently Upper Palaeolithic sites were discovered by D.R. Raju of the Deccan College at Vadikalu, Beellu and Mallachen. Raju conducted a small scale excavation at Vadikalu (per. com.). The excavated material, which he kindly showed me, included blades, burins, lunates,
fluted cores anddebitage. The industry on the whole is comparable with the industry of Phase II D of Patne.

**MADHYA PRADESH**

1. **THE BANJER VALLEY**

The section studied by Ghosh (1961) at Bahmani in Mandla district on the river Banjer, a tributary of the Narmada, consists of a gravel and the overlying yellow silt. The gravel is divisible into two parts, the lower yielded a 'flake-blade' industry on jasper, chert and flint while the upper microliths on chalcedony, agate and chert. The former consists of various types of scrapers, flake-blades, one blade-cum-burin and points. The microliths include fluted cores, blades, triangles, scrapers, points and burins. "The implements of the lower portion of the gravel recall the Upper Palaeolithic types. The microliths from the loose gravels recall the implements of the Late Upper Palaeolithic" (Ghosh, 1961: 214).

2. **BHIMEDITRA**

In the excavation of cave IIIF - 23 at Bhimbetka, Misra (1977) observed the following succession.
<table>
<thead>
<tr>
<th>Cultural Evidence</th>
<th>Level Below Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Microliths and plain grey pottery</td>
<td>0-10 cm</td>
</tr>
<tr>
<td>(2) Microliths on chalcedony (Mesolithic)</td>
<td>10-25 cm</td>
</tr>
<tr>
<td>(3) Microliths and quartzite blades and flakes (Transitional phase between the Upper Palaeolithic and the Mesolithic)</td>
<td>25-45 cm</td>
</tr>
<tr>
<td>(4) Upper Palaeolithic tools on quartzite</td>
<td>45-65 cm</td>
</tr>
<tr>
<td>(5) Middle Palaeolithic tools on quartzite</td>
<td>65-95 cm</td>
</tr>
<tr>
<td>(6) Upper Acheulian tools on quartzite</td>
<td>95-140 cm</td>
</tr>
</tbody>
</table>

The Upper Palaeolithic industry consists of blades, burins, end-scrapers, side-scrapers, points and flakes. The blades are smaller and thinner. The end-scrapers are made on both blades and flakes. At times two ends of blades and flakes are transformed into end-scrapers. The end-scrapers are the most characteristic of this industry. The Upper Palaeolithic here is essentially a development of the local Middle Palaeolithic.

The Upper Palaeolithic of Bhubetka described above is comparable with the Early Upper Palaeolithic (Phase II A and II B) of Patna.

BIHAR
1. DHEKULLA

At Dhekulla, in Palamu district, Ghosh (1965-66) and his colleagues obtained a 'flake-blade' industry from
a Kankar deposit locally known as shuttering, and which overlies the yellowish brown silt. The industry, made on porcelinitic rock, comprises scrapers, points, blades, knives, burins and awls, besides cores and flakes. A noteworthy feature of this industry is its tendency towards the Mesolithic tradition.

2. SINGHBHUM DISTRICT

In Singhbhum district of South Bihar, Ghosh (1970) recovered a 'flake-blade' industry (Upper Palaeolithic) from the Upper Clay overlying the Upper Loose Gravel, the latter containing a 'flake industry' (Middle Palaeolithic). This latter industry is made on quartzite whereas that of the 'flake-blade' chiefly on agate, jasper and other silicious rock material. The 'flake-blade' industry consists of scrapers, points, blades, knives, borers, burins and cores.

UTTAR PRADESH

1. YAMUNA VALLEY

At Bariyari in Banda district Sharma (1955-56) collected fresh tools showing Upper Palaeolithic characteristics from Terrace II. In the succeeding Terrace III were found microliths.

2. BELAN VALLEY

Sharma (1975) and his colleagues (Varma 1974a) have found evidence of a succession of Stone Age industries
from the Lower Palaeolithic to the Mesolithic through the Middle and Upper Palaeolithic in the Belan valley. Of the three gravels the topmost, i.e. Gravel III, yielded tools of the Upper Palaeolithic. The succession of deposits and lithic tool industries in the Belan valley from the Gravel III upwards is as follows:

<table>
<thead>
<tr>
<th>Horizon</th>
<th>Aeolian Sub-aerial</th>
<th>Holocene Aeolian and Sub-aerial deposits</th>
<th>End of Late Fossil soil</th>
<th>Late Cemented Gravel III</th>
<th>Pleistocene Yellow Silt (Hill-Wash)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Geometric microliths with pottery</td>
<td>Geometric microliths without pottery</td>
<td>Non-geometric microliths and Upper Palaeolithic</td>
<td>Upper Palaeolithic Blade and burin industry</td>
<td>Middle Palaeolithic tools and blade tools</td>
</tr>
</tbody>
</table>

The Upper Palaeolithic industry from this valley mainly consists of blades, burins, scrapers, points and lunates. Of these the blades and burins are the
most distinctive. The blades are also found in the Belan valley in association with the Middle Palaeolithic tools. But they differ from those of the Upper Palaeolithic. The former have been generally prepared from ordinary or Levalloisian cores whereas the blades of the latter have been usually produced from cylindrical or fluted cores having prepared platforms. The blades struck off the cylindrical cores are parallel-sided. The Middle Palaeolithic blades on the other hand are broader in relation to their length and are thicker than those of the Upper Palaeolithic. The blades of the Upper Palaeolithic include obliquely retouched and backed specimens.

The burins are generally made on residual cores and core-trimings and only rarely on small thin flakes. They are of dihedral and truncated types.

The borers are made both on long thin blades and broad flakes.

The scrapers are found in large number and of various types. They are of side, end, notch, hollow and round varieties. Except round scrapers, which are made on flakes, all the varieties of scrapers are made on thick blades. Notch scrapers have been made by making a notch in the margin of the blades.

The points are made on flakes. They are heart-shaped and leaf-shaped.
The lunates are large and broad. The biggest example measured 45 x 26 mm. The width of them is more than half the length of the tool.

Apart from the above tools cores, flakes and rejuvination flakes have also been found in large number.

An interesting object of bone, a mother goddess, was collected from the eroded third gravel in the Lohanda Nala.

The C-14 date obtained from the shells recovered from the Gravel III is 19175 ± 340 B.P.

The C-14 date for the Belan Upper Palaeolithic of Gravel III is nearer to that obtained for Phase II D at Patne. The occurrence of mammoth lunates both at Patne Phase II D and Belan Gravel III is also very significant. However, the average length of the blade from the Belan is 4.5 cm as against 2.6 cm of Phase II D at Patne. There is also difference in the use of raw material, at the former it is chert and at the latter chiefly chalcedony.

3. SON VALLEY

On the river Son near Jogdah bridge, Varma and Misra (1968-69) observed the following succession of deposits and lithic tool industries.

(1) Clay deposit yielding Late Stone Age tools
(2) Uncemented gravel with Upper Palaeolithic blade industry
(3) Clayey deposit containing Middle Stone Age tools
(4) Cemented gravel in eroded condition which yielded one pebble tool
(5) Bed rock

GUJARAT

At Visadi near Pavagarh (Mrs. Allchin and Gaudie (1971) discovered an Upper Palaeolithic factory site. The industry is entirely made on quartz. The assemblage consists of blades, burins, scrapers, flakes and cores. The cores include both blade-cores and flake-cores. In the blade-cores is also present a core with a wavy ridge or a crested ridge.

According to the discoverers the unmistakable Upper Palaeolithic character of the Visadi industry seems to indicate a date of somewhere between 40000 and 12000 B.P. for it.

MAHARASHTRA

1. NEVASA AND BELPANDHARI

At Nevasa on the Pravara and Bel Pandhari on the Godavari, Sankalia (1956; also Sankalia, et al., 1960) found in Gravel III an Upper Palaeolithic industry which he had designated as Series III. The industry, made on chiefly chaledony, consists of blades and burins.
2. JHARPAT NALA

On the Jharpat Nala in the Wardha basin Srinivasan (1960-61) collected tools of a blade and burin industry from the surface of the topmost gravel yielding Series II implements. The blade and burin industry consists of blades, scrapers, burins, awls, etc. The material used is chert, carnelian, agate, chalcedony, jasper and vein quartz.

3. INAMGAON

The Upper Palaeolithic site on the river Ghod at Inamgaon in Pune district (Sali, 1974) was discovered by Rajaguru. In the extant alluvium of 15 m thickness of Inamgaon he observed the following sequence of deposits.

(1) Habitation deposit of the Chalcolithic period
   (The earliest Chalcolithic Culture - the Kalva Culture - here dates to 1600 B.C.)
(2) Black soil
(3) Brown non-kankary silt
(4) Yellow silt
(5) Gravel
(-) Unconformity
(6) Yellow-brown kankary silt alternating with fine sand
(-) Unconformity
(7) Black clay
(8) Pebbly gravel (limonite coated)
(9) Rock basalt

The lowest gravel resting upon the rock was scraped. It yielded a large number of Upper Palaeolithic tools chiefly made on chalcedony. The industry comprises backed and simple blades, burins and points on blades and fluted cores. The fresh-water shells found in association with the tools gave the following two C-14 dates.

TF 1903  21110 + 615  (21725 + 650)  = 570  = 585

TF 1177  18760 + 350  (19290 + 360)

Here again the C-14 dates are on the lines of those from the Belan and Patne. The most important aspect of this industry from Nangavan, however, is that, unlike the Belan Upper Palaeolithic, it is chiefly made on chalcedony and in size the tools also do not differ from that of Phase II D at Patne.

5. THE MESOLITHIC

In India microliths have been found in almost all parts except some unexplored tracts. But not all microliths are of the Mesolithic. Microliths are also found in the Neolithic/Chalcolithic sites. Therefore, those microlithic industries which in point of time belong to the post-Pleistocene times prior to those of the Neolithic/
Chalcolithic sites. Therefore, those microlithic industries which in point of time belong to the post-pleistocene times prior to those of the Neolithic/Chalcolithic and include geometric forms such as triangles and trapezes are regarded as Mesolithic.

While accepting the above explanation about the Mesolithic industries in India it is also necessary to bear in mind that the small size of the tools which usually tempts one to regard them as microliths, need not be considered one of the criteria to designate them as microliths of the Mesolithic. This is important in the light of the evidence from Patne where the diminutive tools occur from Phase II C of the Upper Palaeolithic which may not be later than 25,000 years in age and the maximum reduction in the size of the tools as a whole occurs in Phase II D which is datable to 20,000 years B.P. Once this is understood properly the futility of the use of the terms "geometric" and "non-geometric" microliths will also become clear. Mesolithic sites in the country are only taken into consideration in the following pages. These are Langhnaj, Adamgarh hill, the Teri sites, Bagor, Sanganakallu, Birkhanpur and Sarai-Nahar-Mai.

**Langhnaj**

Langhnaj (Sankalia, 1965) is one of the several Mesolithic sites in the sandy alluvial plains of
Northern and Central Gujarat. It has two loessic mounds and a small inundation lake. One of the mounds is locally known as Havalia—No-Timbo and the other Anshari—Timbo. The latter mound was repeatedly excavated and various methods were used for understanding the problems from 1942 when it was first excavated by the members of the First Gujarat Prehistoric Expedition under the leadership of Sankalia. A 1.80 meter thick wind-blown sand deposit was excavated here. It yielded cultural remains of three periods, I, II and III. The Period I represents Mesolithic culture.

The Mesolithic man of Period I settled on the sand dunes. The cultural remains of this period recovered from the excavation include microliths, ill-baked pottery, numerous animal bones and detailium shell beads. Out of thirteen excavated human skeletons, eleven belong to this period.

The microlithic industry of this period comprises blades, lunates, trapezes, triangles, scrapers, points, a few burners and fluted as well as amorphous cores. The lunates preponderate among the finished tools. The industry of the whole is crude and coarse. The material used is chert, agate, carnelian and only occasionally quartz.

The fauna as revealed by the bones consists of rhinoceros, wolf, grey mouse, black buck, nilgai, hog deer, chital or spotted deer, swamp deer (Bara Singh),
wild boar, fish and tortoise. The wolf with its head smashed, was found deliberately buried with the dead. The dentalium shells, which must have been brought from the sea coast, were used as beads for decorating the body.

Tiny fragments of pottery were found in Period 1. Some of the pottery is wheel-made and some hand-made. No rim fragments were found and as such the shapes of pots could not be made out. It appears that small bowls and small storage jars were made. A few potsherds are decorated with incised decorations such as criss-cross and small wedge-shaped designs. Some of the sherds also show signs of scooping.

Some of the quartzite pebbles and wedge-shaped sandstone pieces found in the excavation were used as hammers and anvils respectively in the manufacture of microliths. Huddle stones of haematite which were probably used for decorating bodies, were also obtained from the Neolithic levels.

People of Period 1 intentionally buried the dead. The dead was buried in a highly flexed posture with the knees double up and kept under the buttocks. The preferred orientation was east-west, the head lying on its right. Examination of the skeletons showed mixed Mediterranean
and Veddoid features, but not of a particular race alone.

The C-14 date for this period came to 2000 B.C.
But on circumstantial evidence it belongs to a period before 2500 B.C.

The only common aspect in Langhnaj and Patne is that the Mesolithic industry at the former and that of Phase III B at the latter are found in the loessic deposit. At the former the preceding and succeeding conditions were marked by sand dune activities, whereas at Patne they were entirely different. At Langhnaj potsherds are found but in Phase III B at Patne burnt clay pieces and lumps or clods are found, apart from the evidence of hearth which has not been reported from Langhnaj. So far there is no evidence of association of pottery with the cultural material, the tools, of Phase III B at Patne. Therefore, it appears, at least at present, that the Langhnaj Mesolithic industry is later in point of time than that of Phase III B at Patne. Whether it can be contemporary with that of Phase III C of Patne cannot be said at this stage.

**ADAMGARH HILL**

In the excavation at Adamgarh Hill near Hoshangabad a microlithic industry was found in a deposit of black clay. This clay rests either directly upon the local quartzite rock or lies unconformably over the palaeolith
bearing eroded red clays. The black clay was found on the hill due to wind action in dry climate.

Joshi (1978) has studied the Late Mesolithic industry recovered from the trench ADG-1. The tools are made on chalcedony and chert of varied colours such as red, green, yellow and their shades. A few specimens are made on quartz. None of these is available on the Adamgarh hill but they are found in plenty in the Narmada river bed. It is therefore quite apparent that man at Adamgarh hill brought the raw material from the bed of the Narmada.

In the Adamgarh Late Mesolithic industry the blades and points form the bulk of the tools. The blades are of two basic types, viz. simple and retouched blades such as backed blades and pen-knife blades. There are also some crescentic or curved-back blades similar to lunates. Some blades are notched and crudely serrated like the saw-blades.

A large number of points are made on blades, those on nodules and flakes being comparatively much less. A few of the crescents and crescentic points show ridge-back (Helwan) retouch.

Apart from the blades and points the industry contains triangles, trapezes, tranchets, lunates, borers, awls, burins and various types of scrapers, viz. side, end and concave or hollow. The burins and scrapers are
made on cores, flakes and blades.

The bones obtained from the excavation belong to 14 species. The following domesticated animals are represented. Dog, humped cattle, water buffalo, goat, sheep and pig.

The wild animals are as under.

Bos sp., barasingha, sambar, spotted deer, hare and monitor lizard.

In addition to these a few pieces of human bones were also found.

Charcoal fragments and haematite nodules also occurred practically throughout the deposit.

The pottery types found along with the Late Mesolithic microliths are deep bowls and medium-sized pots with out-curved rims. The pottery is wheel made and was uniformly fired. In the clay, from which the pots were made, were mixed fine particles of sand and mica dust. For preparing pots the clay was well levedaged.

The Adamgarh Late Mesolithic has been ascribed to 5000 B.C. on the basis of C-14 date.

Interestingly enough the Mesolithic (Late Stone Age) industry of Adamgarh, as that of Langhnaj and Phase III B at Patne, is found in a wind-borne deposit but in this case the aeolian deposit is the black clay. As the Langhnaj crude pottery is also found in associ-
ation with the tools. The occurrence of charcoal fragments throughout the deposit at Adamgarh as in the Loessic deposit of Phase III B at Patne is also noteworthy. But the lithic tool industry of the Adamgarh Mesolithic is broadly comparable with that of Phase III A rather than Phase III B at Patne, in particular the Fen-knife blades and backed points. The Adamgarh industry is Late Mesolithic and that of Phase III A is, however, Early Mesolithic.

THE TERRI SITES

On the east coast, in Tinneveli district of Tamil Nadu, Zewner and Allchin (1956) studied a group of eleven microlithic sites, known as terrī sites. Here tools were found in fossil red sand dunes locally known as terrī. The sites, Megnanapuram, Sawyerpuram, Kuttampuli, and others, are situated to the south and north of the river Tambraparni which joins the sea.

When the microlithic man inhabited the area, the sand dunes and lagoons were in the process of formation and the sea level was higher by about 6 to 9 m than that it is today. The climate at this time was dry. Afterwards the rainfall was slightly increased, the dunes got fixed, vegetation grew and the surface of the sand dunes transformed into red soil. A period of dry climate and wind activity was subsequently followed. As a result fresh sand dunes and lagoons were formed.
The microliths found in the old Teri are chiefly made on chert and quartz. The industry comprises:

1. simple, backed and obliquely blunted blades,
2. hollow, side, end and thumb-nail varieties of scrapers,
3. asymmetrical, simple, unifacial and bifacial varieties of points,
4. lunates,
5. triangles,
6. transverse arrowheads,
7. chopping tools and
8. blade-cores and discoidal cores. The distinctive feature of the industry is the occurrence of pressure-flaked bifacial points. Similar points occur in small number in Sri Lanka which is just across the narrow sea channel.

The industry has provisionally been dated to 4000 B.C. on the basis of sea-level changes which probably occurred all over the world. It has, however, been also suggested that further geological research may push the date back into the Late Pleistocene.

Again the Teri industry as that at Langhnaj, Adamgarh Hill and Phase III B at Patne is associated with wind-borne deposit. But it is a class by itself and cannot be compared with that of Phase III B at Patne.

Bagor

The village Bagor (Misra, 1976) is situated on the left bank of the river Kothari, a tributary of the Banas, in Bhilwara district, eastern Rajasthan. The
prehistoric site here lies on a large and prominent sand dune overlooking the river about a kilometer east of the village. It is locally known as Mahasati. Kiera conducted an excavation on this site and brought to light remains of three cultural phases, successively the Late Mesolithic, Chalcolithic and Iron Age.

The habitation material occurs throughout in the sand deposit thus showing that the dune was under formation when men inhabited it. No fine stratigraphy is recognizable in the sand formation. Hence the finds were recorded depthwise.

The total thickness of the habitation deposit is around 1.50 m. Of this 50 to 80 cm thick deposit has yielded remains of the Late Mesolithic culture. Microliths, animal bones, stone-paved floors and one human burial constitute the important features of this phase.

Of the above mentioned features, microliths is the most dominant. Quartz and chert have been chiefly used in their manufacture. Majority of the finished tools are, however, on chert. A vast majority of the tools are between 15 and 20 mm in their length although there are occasional examples measuring 60 mm or more in length. Besides, there are a large number of very tiny microliths measuring between 5 and 10 mm. Maximum reduction in size of tools may thus be regarded as an
important feature of the microlithic industry of Bagor.

The industry consists of (1) blades with flat retouch, blunted back blades and obliquely truncated blades; (2) scalene and isosceles triangles; (3) trapezes; (4) transverse arrowheads; (5) rhomboids; (6) crescents; (7) points; (8) scrapers and (9) burins. The last two made on flakes and cores, are very few.

The bones obtained from the excavation belong to cattle (both wild and domesticated), sheep, goat, hog deer, barasingha, wild boar, jackal, rat, monitor lizard, river turtle and fish. The presence of domesticated animals suggests that the economy during the Late Mesolithic at Bagor was a combination of hunting and gathering and animal husbandry.

Although plenty of bones are charred no evidence of hearths or fire-places was found.

In the human burial the body was laid in an extended position with lower left arm resting partly over the trunk and the head towards the west.

On the basis of the C-14 dates the duration of the Late Mesolithic Culture at Bagor has been considered as from 5000 B.C. to 2800 B.C.

The Bagor Late Mesolithic industry was found in the aeolian deposit as that at Langhraj, Adamgarh Hill, Teri sites and Phase III B at Patne. But so far as
the overall size of this industry is concerned it differs from the Late Mesolithic industries of all the above mentioned sites.

SANGANAKALLU

In the excavation at Sanganakallu in 1948 the late Subbarao found patinated flakes of trap and microliths on quartz in the lowest levels. Over this lay a sterile layer. Above the sterile layer occurred the Neolithic habitation deposit. The sterile or barren layer indicated a time-gap between the two cultural occurrences. In 1965 Sankalia (1969) undertook excavation of the site with a view to understanding the problem of this time-gap and the relationship between the microliths and patinated flakes.

A good picture of the stratigraphical relationship between the patinated basalt flakes and the microliths of quartz was obtained in the excavation of a site locally known as Sangaltola on the Bellary-Hoka road. The following stratigraphy was encountered in the trench.

Layer (1), 22 cm thick, sticky red brown soil
Layer (2), 40 cm thick, reddish murrum
Below layer (2) was solid granite rock.
In layer (1) were found quartz microliths and a few of chert along with a few patinated flakes and nodules. From layer (2) were recovered large quantities of patinated basalt flakes and nodules, quartz pebbles and nodules and a few quartzite flakes and nodules.

One of the interesting features of the excavation on the Nala is the occurrence of tools made on four different rock groups: (1) quartz, (2) quartzite, (3) chert, agate, carnelian and such rocks and (4) dyke basalt. Another interesting feature is a noticeable stratigraphical difference between the industries and the raw materials from layers (1) and (2).

When layer (1) was being formed, the man who lived there made primarily tools on quartz, agate, etc. But the predecessor of this man who lived when layer (2) was formed, used all the four rocks. The industry from this layer is predominantly a flake-blade industry with a few heavy-duty tools. It consists of incipient blade or fluted cores, flake/blades as well as large thick lunates. These comparatively large tools were gradually replaced by smaller but regular fluted cores, lunates and parallel-sided blades in the Mesolithic times. This change in the industrial equipment and consequent change in the life of the people, according
to Sankalia, was due to the change in climate and arrival of new influence, which are evident all over India, but only adequately pinpointed in time at Sangankallu.

The microlithic industry from Sangankallu has been dated to 3000 B.C.

It is not possible to compare the Sangankallu microlithic industry with that of any of the three Mesolithic industries from Fatna at this stage.

**BIRBHANPUR**

The site of Birbhanpur lies on the river Damodar in Burdwan district of West Bengal. A small scale excavation was carried out here by Lal (1955) in 1954 and 1957.

The excavation showed that over the decayed sandstone is a thick layer of mottled silty sand, believed to be weathering in situ of the underlying rock. The silty sand is capped by consolidated lateritic gravel. On the very much uneven surface of this layer settled the microlithic man of Birbhanpur. Because microliths were found in the excavation mainly at this level and in the overlying earth mixed with sand and lateritic pellets. This layer is in turn covered by light brown sandy earth.

The microlithic industry is made on chiefly milky quartz, but occasionally crystal, chert, chalcedony,
quartzite and fossil wood were also used. The industry consists of the following tool types:


Some ten holes, probably post-holes, were observed in the habitation layer.

Geochronological studies indicate that prior to the occupation of the site by the microlithic man the climate was wet and a dense forest existed in the region. The microlithic man occupied the site when the climate changed to mild and dry. The mild climatic phase was followed by a period of aridity and wind activity so that the habitation layers were covered with wind-blown sand.

This microlithic industry of Birbhanpur is thus older than the formation of eolian deposit. The rarity of geometric forms such as triangles and trapezes in the industry is also noteworthy and makes it comparable with that of Phase III A at Patne. The geochronological studies also place this industry to the beginning of the Holocene.

SARAL-NARAR-KAI

The Ganga Valley in Uttar Pradesh was considered terra-cognita with regard to the Stone Age evidence. The
work by Sharma (1975) and his colleagues have however, brought to light evidence of the Mesolithic in the districts of Pratapgarh, Allahabad and Varanasi in the Ganga valley. The striking feature of the area is the occurrence of horse-shoe or ox-bow lakes representing the abandoned meanders of the Ganga. On the banks of these lakes were discovered as many as 100 sites of the Stone Age. Out of which 95 are situated around Sarai-Nahar-Kai in an area of 600 sq. k.ms. The excavation at Sarai-Nahar-Kai (district Pratapgarh) brought to light an interesting evidence of the Mesolithic.

The site lies on the earlier Bhangar formation within a distance of 10 km from three living or partially living lakes, viz. Khulian lake, the lake near Srinagar and the one near Mandhata. The total area covered by this site is 1800 sq. meters. Besides microliths, burials and hearths were found on this site.

In all eleven burials were excavated. The dead were buried in an extended position in shallow, oblong pits with a west-east direction, the head lying towards west. Invariably one of the hands was placed along the body and the other across the abdomen. An interesting feature of the skeletons of which both the hands are preserved is that the right hand in the case of male
and left hand in the case of female is placed across the abdomen. In the grave goods are included micro-
lithics and shells. In one of the burials four skeleton-
tons were found, two of them being of male and two
of female.

All the exposed skeletons fall within the age
group of 16 to 30 years except in one case which be-
longs to a person exceeding 30 years in age. The
skeletons of persons above 25 measure 1.80 meters in
height in the case of male while the height of female
was slightly less. Of the ten skeletons where sex was
identified five are of male and five of female.

Eight hearths were excavated. They were generally
circular, oblong and irregular hexagonal on plan with
tapering sides. The dimensions of the top vary from
1.49 m to 0.70 m and of the bottom from 1.02 m to
0.45 m. Their depths vary from 0.25 m to 0.10 m. One
of the hearths was enclosed by four postholes and
later on converted by a circular floor paved with burnt
clay from the hearth. This has yielded several lithic
artifacts and bones.

From the hearths were recovered a large number
of charred, semi-charred and uncharred animal bones.
The bones belong to ox-and/or cow (Bos indicus),
buffalo (Bos bubalus and Bos gaurus), sheep (Ovis sp.),
goat (*Capra sp.*), elephant (*Elephas indica*), tortoise (*Chelonia sp.*), and fish. The study of the bones suggest that they belong to animals of much larger size than those of the present day. It is also presumed that the animals represented in the collection were of wild species. Hunting and fishing were thus the main source of food at Sarai-Nahar-Kai.

The microliths comprise scrapers, points, parallel-sided and blunted backed blades, lunates, triangles, trapeze and tanged arrowheads. They were chiefly made on chert and occasionally on chalcedony, agate, quartz and carnelian. The nodules of the raw material were obtained from Vindhyas which are situated 40 km south.

The radiocarbon date obtained on calcified bones from the site was 10,346 ± 110 B.P. or 8296 ± 110 B.C.

The microlithic industry of Sarai-Nahar-Kai may show typological affinities with the industry of Phase III A at Patne. The only other aspect which is common for Patne Mesolithic and Sarai-Nahar-Kai is that of hearth. But at the former hearth occurs in the Phase III B. If the date for Sarai-Nahar-Kai is to be relied upon the Mesolithic phase of this site may be contemporary with Phase III A of Patne.
It would be seen from the foregoing that although the Lower Palaeolithic at Patne is represented by a solitary cleaver, the specimen is very well comparable with the advanced Acheulian cleavers of Gangapur on the Godavari near Nasik. The real horizon of the Lower Palaeolithic at Patne was not exposed and the specimen collected was a derived one but sufficient to give an idea about the potentiality of the area.

There was no direct stratigraphic evidence to show that the Middle Palaeolithic industry at Patne succeeded the Lower Palaeolithic. But this can only be inferred on the basis of such an evidence from Nevasa (Sankalia, 1956) and many other sites in this country (Sankalia, 1975. 145-206).

On the basis of the composition of tools the industry occurring in the lowest deposit of the stratigraphic column at Patne, Period 1 has been termed as Advanced Middle Palaeolithic although there was no direct stratigraphic evidence to show that this industry succeeded the Middle Palaeolithic.

The Upper Palaeolithic has been represented by as many as five phases and the Mesolithic by three phases. Nowhere in the country such an evidence has been found so far in an excavation of an open-air
In the Belan valley in Uttar Pradesh there is an evidence of a succession of Lower Palaeolithic, Middle Palaeolithic, Upper Palaeolithic and Mesolithic. But here also the evidence is not from the excavation. Besides, the evidence of the Upper Palaeolithic and the Mesolithic is not so well documented as that at Patne.

If the evidence from Kandivli and Bahani be any guide then it is certain that apart from Patne there are also other sites where the evidence is represented by more than one phase within the Upper Palaeolithic. Even in the Belan, as the schematic section illustrating the development of lithic industries would suggest, we should expect one each, an earlier and later phase, preceding and following the Upper Palaeolithic blade and burin industry of Gravel III. It would be worthwhile to investigate if the so-called "non-geometric microliths" represent a late phase of the Upper Palaeolithic.

A review of the Upper Palaeolithic evidence available in different parts of the country would thus leave no doubt that there exists in India an Upper Palaeolithic stage in the Stone Age which in terms of geological time belongs to the Late Pleistocene, stratigraphically succeeds the Middle Palaeolithic and precedes the Mesolithic and the tool assemblages consist of blades.
and tools made on blades such as burins, scrapers, lunates, points as also a small percentage of flake tools. An evidence of art is represented by the mother goddess of bone from the Belan Valley whereas the Muchchatla Chintmani Gavi cave has yielded evidence of working on bone.

As we see at present from the published reports the industries exhibit differences with each other. The differences in the use of raw material are bound to occur because, this factor is dependent upon the geology of the region. So far as the size of the tools is concerned it will also be governed, to certain extent, by the raw material used in fashioning the tools. For example, at Bhimbetka the tools on quartzite are bound to be of larger size than the tools made on chalcedony or even jasper and chert. Therefore, to consider the large-sized tools of quartzite earlier than the small-sized tools of jasper may not be correct. It is quite likely that the tools of jasper smaller in size than those of quartzite from different regions may be contemporary. For example, the size of the tools of the Early Upper Palaeolithic of Patne is smaller than the Upper Palaeolithic tools on quartzite of Bhimbetka.

Similarly, just because the industry of Phase II D is "microlith-sized" it cannot be classed as "microlithic"
or Mesolithic or Epi-palaeolithic or "non-geometric microlithic".

The composition of different industries when studied may also show that in certain industries certain forms are absent or certain forms occur at a certain stage. As the Patne evidence has showed, the true lunate (a semi-geometric form) appears in Phase II D. Interestingly enough identical evidence occurs in Gravel III of the Belan Valley which is dated to the same age as that of Phase II D at Patne. More information can be had by undertaking comparative study of the excavated material from living or primary sites. Moreover a large quantity of material from a large number of sites of a particular phase will only give us a correct idea about the true composition of an industry of a particular phase. Surface collections, whether they are from large factory sites or small, give only a general idea about the nature of the industry or industries. But they do not give a correct picture even if an elaborate statistical data are worked out in respect of such collections. Because, such collections are always selective and hence not truly representative.

It would be too premature to divide the Upper Palaeolithic industries known so far in our country.
techno-typologically into (1) flake-blade, (2) blade-tool and (3) blade and burin (Murty, 1979). No Stone Age archaeologist in this country has so far handled all the collections designated as Upper Palaeolithic. This is absolutely essential because personal examination will only allow their proper assessment.

The tool industries at Patne, both of the Upper Palaeolithic and the Mesolithic include some types which have been found for the first time. For example, a variety of blade classed as truncated blade (Fig.33, 8 and Fig.37, 9, 18 and 19) has not been reported from anywhere else in this country. The blade with retouched ridge (Fig.33, 9), the backed knife with a tang (Fig.37, 13 and 15), notched arrowheads, flat burin (Fig.39, 26; Fig.35, 10) etc. are the other types of tools which have not so far been reported from any of the Upper Palaeolithic sites in India as the published reports show. It is, therefore, necessary to examine the Upper Palaeolithic tool assemblages very carefully. Besides, it has now amply become clear from the excavation at Patne that the cultural material of the Upper Palaeolithic includes varieties of tools, body ornaments, art objects, etc. There may even be more material equipment for which we have to undertake excavation of living sites.
As the Patne evidence has pointed out, there are more than one Phase within the Upper Palaeolithic and each Phase is marked by some differences. Patne cannot be the only site in Maharashtra or for that matter in India yielding evidence of so many phases within the Upper Palaeolithic. Evidence of different phases is bound to be found in other parts of Maharashtra as well as the country. The evidence from the Belan Valley, Bombay and Bahmni is a pointer in this regard. The Bhokar Industry shows to certain extent same typological affinity with the Wainganga B Industry (Joshi et al, 1979). Both these industries in turn show some affinity with the Advanced Middle Palaeolithic stage of Patne. Thus the Bhokar and Wainganga B industries at the most be classed as Advanced Middle Palaeolithic industries showing Upper Palaeolithic characters. All these thus may represent a specific Phase in the history of development of Stone Age industries in the respective areas. The Upper Palaeolithic collections will have, therefore, to be viewed in stratigraphical context. Because, whether in the Godavari basin or in the Wainganga Valley, there is bound to be an evidence of those Upper Palaeolithic industries which succeeded the Bhokar and Wainganga B industries. We want to explore the areas carefully. In such a situation the
techno-typological groupings will have no meaning.

It needs to be borne in mind that the so far available evidence has certainly proved the existence of the Upper Palaeolithic stage in India. Its further details, particularly region-wise, can only be had after sufficient data from each region are collected by way of excavations of well-stratified living or primary sites and not from the stray surface scatters. Allchin (Mrs.) (in Radiocarbon and Indian Archaeology: 506) has rightly opined that in the Indian context the term Upper Palaeolithic be understood only in a generalized way and not in the European sense. Logically speaking, why is it necessary that our Upper Palaeolithic cultural equipment should in every respect be of the same standard as that of the European Upper Palaeolithic? It is not unlikely that the trends of development within the culture may vary from region to region in a country so vast as India. Similarly, it may also be not unlikely that the Upper Palaeolithic in this country in spite of possessing all the essential characteristics of that culture may prove to be a class by itself.

The occurrence of ostrich eggshell pieces including engraved and in the form of body ornaments in association with the lithic artifacts needs also to be taken into consideration in this regard. Discoveries of ostrich eggshell pieces in the alluvial deposits of geological antiquity from Madhya Pradesh by Wakankar
(per. com.) and others and from Pune near Deccan College in the Upper Krishna Basin are important in the first instance to understand that ostrich was not confined to the region of Central Tapti Basin alone but lived in a vast region of the country. What kind of role this bird played in the life of the Upper Palaeolithic man in these parts of the country is yet to be known properly. Further research will only throw light on this aspect.

No less interesting is the find of a shell-bead made of a shell of *Olive sp.*, which is of estuarine origin, in the end phase of the Upper Palaeolithic. This is no doubt an important evidence of contacts between Patne and the West Coast region. But this evidence is baffling because of the enormous distance of 300 km between the two localities and there is no parallel evidence in India of contacts at so far away the distance of the Stone Age times. How and what for the contacts were maintained? Whether the people of the coastal area visited Patne or vice versa cannot be said with certainty at this stage. In any case the find may represent an evidence of barter. But then there may crop up the problem of the material exchanged by the Patne man in the barter.

It is also not unlikely that there may have been intermediary stations or centres between Patne
and the coastal area, particularly located in the Tapi valley through which the specimen of the shell might have reached Patne, and thus it was not necessary for the Patne man to go to the coastal area for obtaining the shell or the coastal man to go to Patne for exchanging it. In any case this find has placed before the archaeologists a problem to work upon.

There is no comparable site in India which has yielded so rich a variety of burins.

Thus, viewed in the light of the evidence so far available from different parts of the country that of the Upper Palaeolithic at Patne is unique and has provided for the first time firm guide-lines for future research in the Upper Palaeolithic cultures in India.

The excavation at Patne suggested that the Mesolithic developed from the preceding Late Upper Palaeolithic. This is very well seen in technology, the types of tools and their microlithic size. The Mesolithic of Patne is divisible into two major subdivisions, Early and Late, and consists of three Phases. There is no such an evidence at any of the known Mesolithic sites in India. The industries from Langhanaj, Teri sites, Adamgarh, and Bagor are Late Mesolithic whereas those from Birbhanpur and possibly from Sarai-Kahar-Rai appear to be of the Early
Mesolithic. The evidence from the Belan valley shows that the geometric microliths without pottery precede a phase with geometric microliths with pottery and succeeds that characterized by non-geometric microliths and Upper Palaeolithic tools. None of the so far excavated rock-shelters has provided a clear picture of the Mesolithic.

It needs to be mentioned that one of the phases of the Late Mesolithic at Patne is associated with wind-blown deposit. The Mesolithic industries at Langhnaj, Bajor, Teri sites, Adamgarh Hill are also associated with the wind-blown deposits and in point of time are Late Mesolithic. This is very significant and a further study of this particular problem needs to be undertaken simultaneously in different parts of the country.

The occurrence of aeolian deposit in association with the Late Mesolithic tools in particularly the present-day semi-arid tract of Maharashtra is very interesting. It needs to be mentioned here that earlier similar deposit was observed by me in the Tapi valley at Vakod in Jalgaon district and at Chaupala near Nandurbar in Dhule district. At Patne this deposit lies in an extensive area and this phase in relation to the preceding and the succeeding phases
can be studied systematically at this site itself. Such a study is likely to enrich our knowledge about this phase in the light of the fact that its deposit also contains, besides lithic artifacts, remains of hearth, charcoal bits, brick-red burnt patches of land surface, burnt clay lumps and possibly the post-holes.

Just like the Upper Palaeolithic the evidence of three phases of the Neolithic of Patna has no parallel in the country. Such an unparalleled evidence is the fruit of twelve or thirteen years of persistent efforts made by me to understand what lay in the area, intelligently done hard work, tremendous patience and the most systematically planned excavation carried out within Rs.2000/- only which otherwise would have required more than Rs.10,000/-.