

Upper Palaeolithic Cultures of India: Bhimbetka and Belan valley

Introduction

This text is an account of the Upper Palaeolithic phase of Indian Prehistory, its distribution, nature of assemblages and associated features. The discussion includes the beginning of artistic expressions of the prehistoric people in India and some results of the ethnoarchaeological research. It gives current knowledge of the culture and gaps and scope for further research.

Upper Palaeolithic Cultures: Bhimbetka and Belan valley

After the Middle Palaeolithic stage, the subsequent stage is Upper Palaeolithic period. According to Vidula Jayaswal (1978), the Upper Palaeolithic is the most controversial and least known phase of Indian prehistory which has been frequently addressed by names such as 'blade-burin' or 'blade-flake' culture, etc. Only in a few localities, the Upper Palaeolithic industries have been found in stratified deposits and the dates given to them are also very approximate. According to M.L.K. Murty and K. Thimma Reddy, the blade-and-burin industry in India are variously referred to as Series III / flake-blade / blade-tool / blade-and-burin / Upper Palaeolithic or Upper Palaeolithic-like etc. These industries are typologically / stratigraphically intermediate between the Middle Palaeolithic and Mesolithic. There are not as many Upper Palaeolithic subdivisions in the Indian subcontinent as in Europe.



Upper Palaeolithic life ways



Upper Palaeolithic life ways



Upper Palaeolithic life ways

Robert Bruce Foote was the first scholar who made the first indirect reference to the existence of Upper Palaeolithic in India by discovering a few bone implements from Billa Surgam caves in Kurnool and compared with the Magdalenian of France. K.R.U. Todd reported, one Series III assemblage from the stratified deposits at Kandivali (near Bombay), characterized by blades and burins which is said to be akin to the Aurignacian industries of Asia and similar other industries of Europe and Middle East. D.H. Gordon in his synthesis of the earlier works noted that in India there was a Late Upper Palaeolithic blade and burin industry similar to the Magdalenian of France.

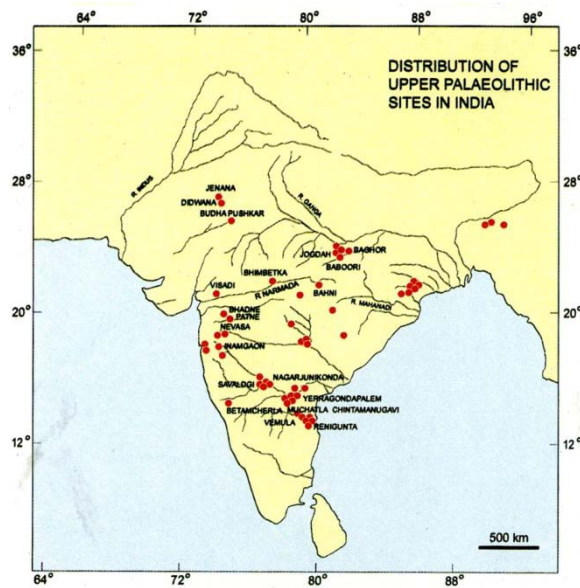


Aurignacian Artefacts



Magdalenian tools

The position of the Upper Paleolithic remained uncertain until the 1970s when discoveries of stratified sites, bone tools, art and radiometric chronology enabled its recognition. The Upper Palaeolithic in Europe and West Asia is the handiwork of *Homo sapiens sapiens*. It is dated to the Terminal Pleistocene with a time bracket of 40,000 years B.P. to 10,000 years B.P. It succeeds the Middle Palaeolithic and precedes the Mesolithic. There is a shift in technology. This includes the production of many parallel-sided blades from a prepared core and the manufacture of composite tools such as points, barbs and other tools from the blades.



Map of Upper Palaeolithic sites in India

Some of the major works on the Upper Palaeolithic stage of India are listed below:

- Nevasa in the Pravara valley by H.D. Sankalia
- Bariyari in the Yamuna valley G.R. Sharma
- Giddalur and Nagarjunakonda and its neighbourhood in the Krishna valley by K. Soundara Rajan
- Uttar Pradesh by P.C. Pant
- North central India by J.D. Clark, Williams, G.R. Sharma and J.N. Pal
- Baghor I by Mark Kenoyer, J.D. Clark, J.N. Pal and G.R. Sharma
- Santhal Parganas by D.K. Chakrabarti
- Panchmahals by V.H. Sonawane
- Upper Mahanadi valley by R.P. Pandey
- Indravati valley in Orissa by S.C. Nanda
- Hunsgi-Baichbal valleys of north Karnataka by K. Paddayya
- Bidar district, north Karnataka by R.M. Shadaksharaiah
- Tapi Basin and Patne in Jalgaon district by S.A. Sali
- Borgaon and Naikund in Nagpur district of Maharashtra by R.P. Pandey
- Studies of Upper Palaeolithic beads and other art forms by P. Francis
- Thermoluminescence dating of a fire place in the Kurnool caves by K.S.V. Nambi and M.L.K. Murty
- Intensive site surveys; detailed studies of intra- and inter-site variability and the identification of activity areas in the Gunjana valley; and Kalletivagu in Cuddapah district and site surveys in the

Nallamalais of the Eastern Ghats by D.R. Raju and K. Thimma Reddy

- Site surveys and analysis in the Tirupati valley, Chittoor district by J.S. Jayaraj
- Visakhapatnam district by K. Thimma Reddy and P.V. Prakash
- Srikakulam district by S. Krishna Rao
- Godavari valley by M. Kasturibai
- Upper Paleolithic of Andhra Pradesh by M.L.K. Murthi and D.R. Raju
- Problem of the Upper Palaeolithic in the northeast India by T.C. Sharma
- Survey of blade and blade tool assemblages from the mid-Kasai valley in Midnapur district, West Bengal by A. Datta
- Study of Upper Palaeolithic blade technology from an analysis of cores from Mehtakheri, Mahdya Pradesh by A. Ghosh
- Upper Krishna valley by J.V.P. Rao
- Nallamalai hill ranges of the Eastern Ghats by D.R. Raju, K. Thimma Reddy and N. Chandramouli

Below is outlined some of the features of the Upper Paleolithic sites of India based on the book, *Palaeohistory of India*, written by Vidula Jayaswal (1978).

Some of the important Upper Paleolithic sites of India are:

- (1) Renigunta, Erragondapalem and Vemula, Gundlakamma valley and the limestone caves in the Kurnool district, the Gambheeram valley in Visakhapatnam, and the Paleru valley in the Prakasam district in Andhra Pradesh
- (2) Shorapur Doab and Salvadgi in Karnataka
- (3) Inamgaon in Pune district, Bhokar in Nanded district, and Patne in Jalgaon district of Maharashtra
- (4) Bhimbetka cave and rock shelter sites in the Raisen district of Madhya Pradesh,
- (5) Belan valley in Uttar Pradesh
- (6) Singhbhum in Bihar

Contexts of Upper Palaeolithic Sites in India

The Upper Palaeolithic sites occur in different contexts in India. The upper Palaeolithic men were occupying different ecological niches in the river valleys in different parts of the country, sand-dune regions in Gujarat

and Rajasthan and cave areas in the hilly and forested zones of central India and Andhra Pradesh etc.

In the Ganga, Belan and Soan Valleys, Uttar Pradesh, the sites occur on terraces of small streams on silt and gravel deposits, in stratified deposits on hill slopes and foothills. The Upper Palaeolithic populations made use of chert and other silicious raw materials in the form of water worn pebbles.

In the Wainganga, Narmada and Indravati Valleys, Madhya Pradesh, the sites occur on the eroded silt and gravel deposits and also in stratified deposits in caves or rock-shelters. The stream channels were fully utilized by the Upper Palaeolithic groups for raw material for tools and suitable hunting grounds. Molluscan shells and ostrich egg-shells occur in association with lithic artefacts.



Excavations at a cave site

In the Subarnarekha, Brahmani, Mahanadi Valleys and West Bengal, the artefacts occur on the erosional terraces, slopes of hills, gravelly eroded land, gravelly hillocks, eroded gullies and exposed sections of small streams. The Upper Palaeolithic people made use of the raw material available in the form of water worn pebbles (chert, quartz).

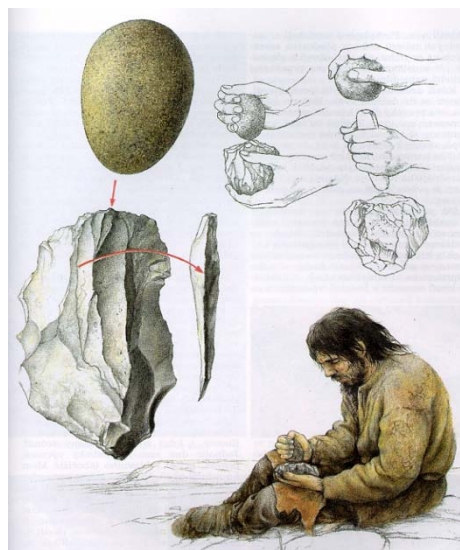
In the Tapi, Pravara, Bhima, Godavari, Krishna and Pennar Valleys in western India the occurrence of Upper Palaeolithic sites is limited. Budha Pushkar, Sojat, Janana and Didwana are the sites in which the artefacts occur on sand dunes.

Sites occur sparsely on hill slopes, foothills, gravel horizons of small streams and fluvial deposits. The limestone caves in the Kurnool district have shown evidence of stone and bone tools and Late

Pleistocene fauna. There is a concentration of sites around the Hunsgi nala and its environs in the gravel and colluvial deposits.

Typo -Technology

Blade, backed blade and burin are the predominant elements although other artifacts also form part of the industries. Blade tool technology is regularized. There is a significant increase in the occurrence of standardized blades and tools made on blades, particularly different types of scrapers. Backed blades and burins are minimal. According to M.L.K. Murty, the variations in the assemblage represent regional variants and may have little to do with chronological positions.



Blade Production by Upper Palaeolithic Man



Upper Palaeolithic Blades



Upper Palaeolithic Blades



Upper Palaeolithic Blades



Upper Palaeolithic Blades

The upper Palaeolithic industries can be divided into three major groups on typological grounds:

- (i) *The flake-blade*: The flake-blades display the inception of blade production techniques, they are relatively broad and flake-like blades preponderate, although a few regular blades also form a component. The conspicuous features are the rare occurrence of finished forms of blades and burins and a greater representation of scrapers, points, etc., on flakes and flake-blades. The representative sites are the river valley sites of Dhekulia, Pratappur and Marvania in Bihar and Maheshwar in Madhya Pradesh.
- (ii) *The blade tool*: The blade tools comprise large-to-small blades, backed blades, burins, scrapers, points and awls on flake and flake-blade. The proportion of the tool components varies from site to site, but there is a significant increase in the relative occurrence of blades. Some of the representative are: (a) river valley sites are Bariyari in Uttar Pradesh, Nevasa in Maharashtra, and Shorapur Doab in Karnataka, (b) sand-dune sites in central Rajasthan; (c) open-air and cave sites in Andhra Pradesh like Betam-Cherla in Kurnool district, and (d) cave and rock-shelter sites in Madhya Pradesh like Bhimbetka etc.
- (iii) *The blade-and-burin*: Blades and burins are characterized by a prominent blade, backed blade and burin element, while tools on flake and flake-blade also occur. Backed blades (backed points, pen-knives, etc.), scrapers on blade, flake and flake-blade and well-defined burins make a significant percentage, but there is a great variation from site to site in the frequency of these types. Some of the representative sites are: (a) river valley sites like Renigunta and Nagarjuna-Konda in Andhra Pradesh, Patne in Maharashtra, (b) sand-dune sites like Visadi in Gujarat, (c) rock-shelter sites like Basauli, Lekhania in Uttar Pradesh and Mori in Madhya Pradesh.

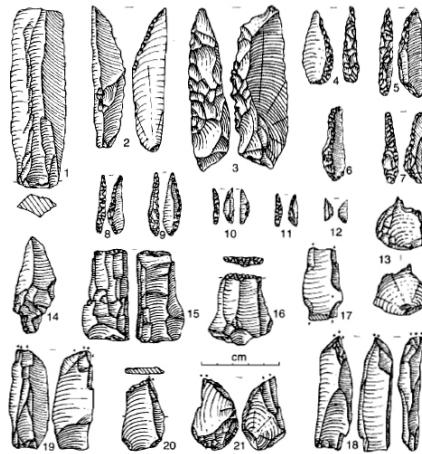


Figure 14 Upper Palaeolithic artifacts from Rallakalava Basin, Andhra Pradesh: 1–2, blades; 3, backed knife; 4–12, backed blades and bladelets; 13, borer; 14, tanged point; 15, blade core; 16, end-scraper; 17–21, burins of various forms.

Upper Palaeolithic artifacts from Rallakalava Basin

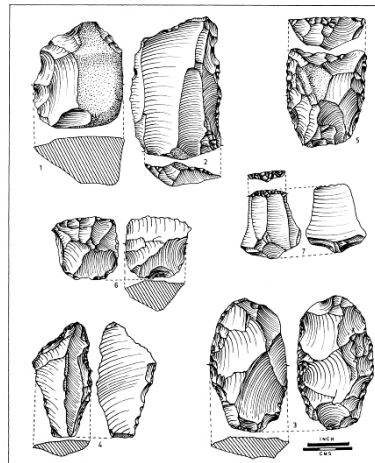


Figure 2 Artifacts of blade and burin industry from Renigunta. 1, chopper; 2–10, scrapers.

Upper Palaeolithic artifacts from Renigunta

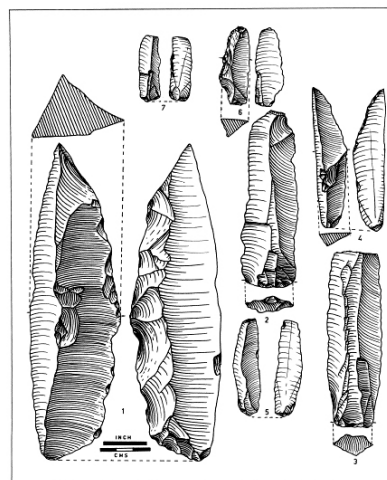


Figure 3 Artifacts of blade and burin industry from Renigunta. 1, 4, 6, retouched blades; 2, 3, 5, 7, simple blades.

Upper Palaeolithic artifacts from Renigunta

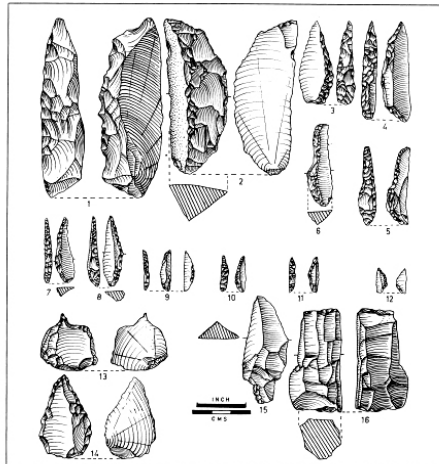


Figure 4. Artifacts of blade and burin industry from Renigunta. 1, 2, backed knives; 3, 12, backed blade and bladelet variants; 13, awl; 14, unifacial point; 15, tapered point; 16, blade core.

Upper Palaeolithic artifacts from Renigunta

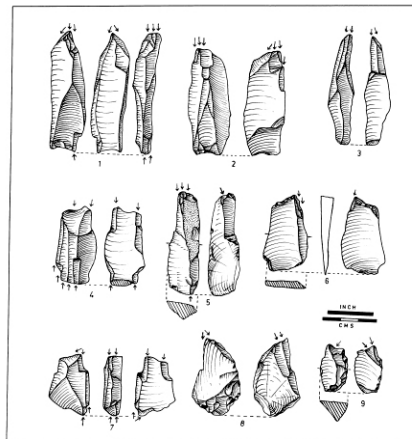


Figure 5. Artifacts of blade and burin industry from Renigunta. 1-5, burins.

Upper Palaeolithic artifacts from Renigunta

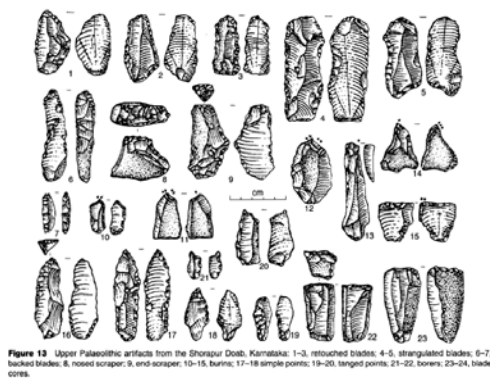


Figure 12. Upper Palaeolithic artifacts from the Shorapur Doab, Karnataka. 1-3, retouched blades; 4-6, strangulated blades; 6-7, backed blades; 8, notched scraper; 9, end scraper; 10-16, burins; 17-18, simple points; 19-20, tapered points; 21-22, borers; 23-24, blade cores.

Upper Palaeolithic artifacts from the Shorapur Doab

The finished tools comprise artefacts showing deliberate modification and /or retouch. These include:

- single side scraper: straight, convex, concave
- double side scraper: straight, straight and convex, straight and concave, biconvex, concave and convex
- end scraper
- side and end scraper
- perimetral scraper
- steep scraper
- notched scraper
- core scraper
- knife of prepared back and natural back
- denticulate
- small chopper
- burin on blade, flake and tanged core
- unilateral and bilateral points,
- unifacial, bifacial, and tanged points on flakes, blades
- backed points: straight back, curved back, crescentic
- lunate
- triangle: scalene, isocles and equilateral

The debitage comprises the artifacts resulting from the process of tool making. These include:

- complete and broken blades
- Levalloisian flakes
- plain flakes: side struck, end struck and indeterminate
- core rejuvenation flakes
- chips
- flake cores: globular, pyramidal, discoidal and amorphous
- blade cores: unidirectional, bi-directional, multidirectional
- worked nodules.

The other categories include:

- natural blocks
- nodules and cobbles used as hammer stones
- anvils
- bored stones
- flat grind stones/slabs

Medium to fine grained quartzite of different shades is the chief raw material used for tools at sites from the south-east coast, central India, some parts of Uttar Pradesh and Rajasthan. Both crystal and vein quartz is used at some sites specially the Gunjana valley in Cuddapah district and the Renigunta area in Chittoor district where black lydianite is also an important raw material. Limestone, cherty limestone and even compact shale have been used in the Kurnool cave areas. Quartz is the chief raw material in Gujarat. Porcellanite rock is reported from Dhekulia, in Palamau district, Bihar. For the sites in the rest of the country crypto-crystalline silica rocks such as chert, chalcedony, jasper and agate are used. Quartzite and quartz were mainly used for the blade industry at Budh Pushkar in Gujarat and quartz for the blade and burin industry at Visadi in Gujarat. Quartzite was primarily used for the blade industry at Bhimbetka in Madhya Pradesh and for the blade and burin industries at Renigunta and Yerragondapalem in Andhra Pradesh.

The hallmark of the Upper Palaeolithic technology was the production of blades from prismatic cores. The selected raw material, in the form of nodules or pebbles or tabular pieces, was initially dressed apparently with a cylinder hammer. For dressing the core flakes were struck off from different directions, as is observable in the cross and parallel negative scars on the primary core-dressing flakes and some of the first detached blades. After dressing one or both ends of the core were trimmed on the horizontal axis to facilitate a suitable platform, but not necessarily in all cases. After dressing blades were struck off along the perimeter with a soft hammer and by direct percussion. It is likely that an intermediate punch was used in some cases. The process of detaching blades along the perimeter was repeated several times until the core got exhausted. Several core-rejuvenation flakes (or core tablets) and plunging blades found at some of the workshop centres show that both the striking platform and the body of the core were reworked a few times, to get the maximum production of blades from a single core.

There are also instances, particularly when raw material of crypto-crystalline silica was used, indicating that even thick flakes were used as cores for blade production. These blades, strictly speaking blade blanks, were eventually finished by backing, nibbling and pressure retouch into a variety of tool types such as backed points, pen-knives, scrapers, shouldered points, etc. Burins were produced by the removal of minute spalls at the business end and were made on blade, flake and split core. Scrapers, points and awls were made on flake, flake-blade and nodule. The backed tools must have been hafted with bone or wood to make composite tools.

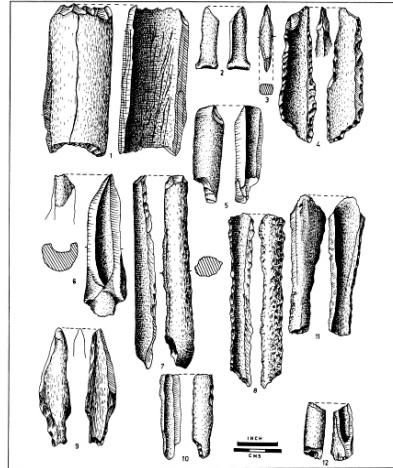


Figure 6. Bone tools from Muchchanta Chintamani Gavi (a cave site in the Karimnagar district). 1, scraper; 2-5, perforators; 6-8, chisels; 9-10, awls; 11, large point; 12, discoidal point. Broken: 11, bone blank; 12, bone with both ends used and showing the removal of bone blank.

Bone Tools from Muchchanta Chintamani Gavi



Bone Tools



Bone Tools

Bone tools have been reported from the Kurnool caves and the Godavari Khani open air site in Karimnagar district of Andhra Pradesh. The bone tools from the Kurnool areas recovered by M.L.K. Murty are

described as scrapers, perforators, chisels, scoops, shouldered points, barbs, worked bones, bone blanks, broken and cut bones and splinters.

Bone implements from the caves in Kurnool, were made on elongated strips taken out of long bones, which can be termed as bone blanks. To produce the latter the epiphysis ends of the long bones were first cleared off either by chopping or by percussion flaking. On these prepared-to-size shafts parallel grooves were made along the long axis and bone blanks were removed by splitting along these grooves. Bone blanks were also made by vertical flaking on the external surface of a longitudinally cut bone. They were finally finished into various forms by lateral chipping, pressure flaking, oblique flaking and vertical flaking and the working edge was ground in some cases. The working ends on some of the perforators were also fire-hardened.

Bhimbetka

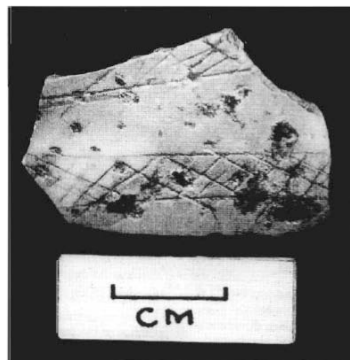
At Bhimbetka in Raisen district of Madhya Pradesh, a separate horizon of the black-burin assemblage was unearthed from one of the rock-shelters. The Upper Palaeolithic deposit rests on the layer yielding scraper-points. The assemblage is characterized by the burin made on thick blade and scraper and a few other types of scraper.

Belan Valley

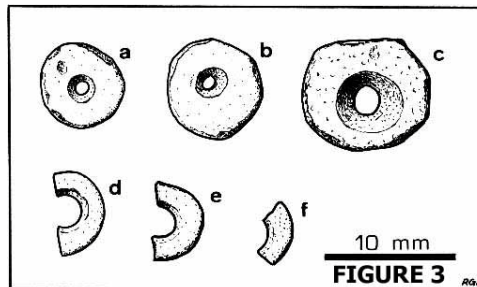
In the basin of the Belan and its tributary, the Seoti, the Upper Palaeolithic artefacts have been collected both from the old bank deposits and from the slopes of the adjoining foot-hills. The alluvial deposits of the Belan and Seoti valley provide a definite chronology to the Upper Palaeolithic blade-burin tradition in India. A deposit with Upper Palaeolithic tools is dated by ^{14}C method, the date being 19715 ± 340 B.P. A typical blade and burin assemblage was recorded from Gravel III of the Upper Gravel of the region. From the underlying and overlying layers of silt Upper Palaeolithic tools were obtained respectively in association with Middle Palaeolithic and non-geometric microlithic tools. The Upper Palaeolithic man of the area manufactured implements on the adjoining hill slopes, where the raw material was available in the form of small chunks, and occasionally occupied the neighbouring rock-shelters. Factory sites and rock-shelters with Upper Palaeolithic deposits are reported from the Kaimur range. The main components of the Belan group of industries are the burin, steep scraper, side scraper, backed blade and bladelet and crescentic backed blade.

Artistic Expressions of the Upper Palaeolithic culture of India :

There is less evidence to indicate artistic expressions during the Upper Palaeolithic in India, except a fragment of an ostrich eggshell having an engraving in a criss-cross pattern found at Patne and a bone figurine, probably a mother goddess, found in a gravel horizon on the Belan. Regarding the paintings in the caves and rock-shelters, it can be said that there is a possibility that some of the early paintings in the rock shelters and caves on the Vindhyan and Kaimur ranges in Uttar Pradesh and Madhya Pradesh, may belong to the Upper Palaeolithic period, however, there is no clear cut indication.



Fragment of an ostrich eggshell having an engraving in a criss-cross pattern found at Patne



Ostrich egg-shell beads

In the excavation of a cave complex known as Muchchtla Chintamani Gavi in the Kurnool caves, an Upper Palaeolithic fire place has been reported by K.S.V. Nambi and M.L.K. Murty in a dated context of 17,390 years B.P. by TL dating method. This fire place was made by arranging limestone boulders in a horse shoe shape fashion. Within the confines of the fire place occurred burnt bone fragments burnt chunks of limestone and clayey-loam and nuclei and nodules of green coloured chert. This fire place evidently was used continuously for roasting meat and fire treatment of chert nodules for production of artefacts.

S.A. Sali has reported beads as the first evidence for art in the Upper Paleolithic levels at Patne in Jalgaon district of Maharashtra. The beads consisted of an ostrich egg-shell bead and two blanks of the same material and a marine shell bead. Over one hundred ostrich egg-shell pieces collected from the deposits, three are engraved with crisscross designs between two horizontal lines. Although these designs are simple they represent the first direct evidence of art of the Upper Paleolithic in India.

Another noteworthy evidence of art for this period is the bone figurine recovered by G.R. Sharma and his team in the Belan valley in Uttar Pradesh. Of the female figurine, the face is featureless, has a triangular formation, the trunk stick like, with a pointed triangular portion for the legs and probably the extremity broken. It has pendant breasts, and broad loins.



Upper Palaeolithic shrine at Baghor II

Mark Kenoyer and others has reported an Upper Palaeolithic shrine at Baghor II in the Son valley, Uttar Pradesh. A rectangular rubble platform was exposed with a triangular stone with natural concentric circles installed in its centre. The present-day traditional hunter-gatherers in that region worship similar stones installed on stone platforms as mother goddesses. This leads them to conjecture that this practice may have its antecedents in the past extending to the Terminal Pleistocene.

Palaeo-climatic condition of the Upper Palaeolithic time :

Sedimentological studies at Patne in Belan river and at Visadi and Budh Pushkar sand-dunes demonstrate that during the Upper Palaeolithic the climate show a general tendency towards aridity. The analyses of the Belan deposits have shown that they were laid in a fluvial environment and that the stream had possibly a uniform water-flow throughout the year, suggesting that the climatic conditions were not as arid as in the

Holocene. More or less similar conclusions have been arrived at by the study of Upper Paleolithic and Mesolithic sediments at Patne, which indicate the formation of the former under less arid climatic conditions than the latter.

Palaeoclimatic research including geomorphology, sedimentology, pedology, radio-metric dating such as TL and ^{14}C in different parts of India shows that there was intense glaciations in high altitudes and severe aridity in much of the peninsular India, north-east India and the south-east coast. In north-west India fossil dunes indicate aridity during the Late Pleistocene and the dead river systems such as the Luni show humid climate in the Early Pleistocene.

Geomorphic evidence indicates that there was a decrease in rainfall and consequent poor vegetation in many parts of the country. In coastal Tamil Nadu, Saurashtra and Kachchh there was a lowering of sea level around 20,000 years B.P.

Faunal Remains :

The faunal remains from the Kurnool caves include a variety of mammalian species, such as *Rhinoceros karnuliensis* (rhinoceros), *Boselaphus tragocamelus* (nilgai), *Gazella gazella* (chinkara), *Antelope cervicapra* (black buck), *Tetracerus quadricornis* (four-horned antelope), *Cervus unicolor* (sambar), *Axis axis* (chital) and *Tragulusscf. meminna* (mouse deer). This rich animal life points to a thick vegetation cover of scrub-to-tree jungle type with open expanses of grasses and a continuous source of water in the streams and streamlets.

The faunal remains found in the gravel horizon associated with the incipient blade industry at Inamgaon in the Ghod valley belong to *Hexaprotodon palaeindicus* (hippopotamus), *Equus namadicus* (horse), *Bos* sp. (ox), *Bubalus* (buffalo) and *Cervus* sp. (sambar), again indicating a forested environment with local pools and swamps providing ideal conditions for the survival of animals like the hippopotamus.

Fossil faunal remains including *Canis* sp., *Equus namadicus*, *Elephas* sp., *Bubalus* sp., *Cervus* sp., *Bos namadicus*, *Hexaprotodon palaeindicus* recovered from the Belan, Mahanadi, Manjra, Godavari, Ghod and Krishna valleys indicate a grassland ecosystem, with some forest cover, swamps and pools. The recovery of ostrich egg-shells along with Upper Palaeolithic tools from several sites in Maharashtra, Madhya Pradesh and Rajasthan indicates an arid climate during the Late Pleistocene.

Chronology:

On the basis of relative chronology grounds, the Upper Palaeolithic period of India can be ascribed to the Late Pleistocene. The faunal remains associated with this phase in the Kurnool caves and the Ghod valley also represent Late Pleistocene fauna. A few ^{14}C dates corroborate the Late Pleistocene date of this period. The shell samples from the Belan have given a date of 19000 B.P. and two shell samples for the Ghod valley indicate a range of 18000 to 22000 B.P. A date from ostrich eggshell fragments from Patne suggests an age between 20000 and 25000 years. The dates in Maharashtra range from c. 27,000 years B.P. to 10,000 years B.P.; in Uttar Pradesh and Madhya Pradesh it is between 40,000 years B.P. and 6,000 years B.P.; in Chambal valley, between 38,000 years B.P. and 36,000 years B.P.; in Gujarat between 40,000 years B.P. and 25,000 years B.P.; in Andhra Pradesh between 25,000 and 15,000 years B.P.; and in Tamil Nadu it is 25,000 years B.P. Thus, a time bracket of 40,000 years to 10,000 years B.P. may be tentatively fixed.

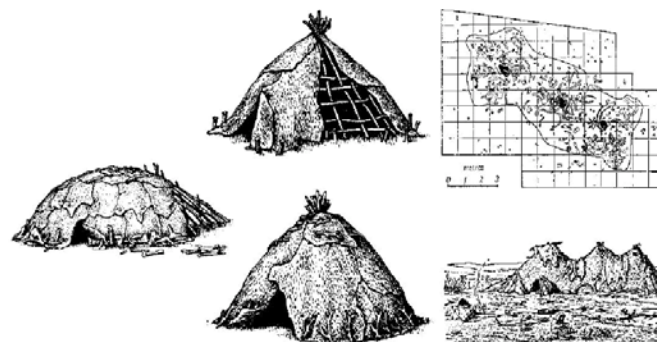
Ethnoarchaeology of the Upper Palaeolithic period:

There has been an increasing awareness of utilizing the information on the life-ways of the contemporary simple societies for gaining insights into the past life-ways which can be visualized through the works of V.N. Misra, Malti Nagar, M.L.K. Murty, D.R. Raju, Zarine Cooper, Sheena Panja etc. The traditional food-gathering communities in India have hunting-gathering, agricultural (shifting cultivation), pastoral and agro-pastoral life-ways. These ethnic groups use nets, spring, gravity and noose traps, pitfalls, bows and arrows for hunting small and large game and birds. They also exploit aquatic fauna like fish, prawn, crabs, turtles, etc., in the nearby ponds, pools, rivers and tanks and gather wild fruits, roots, leaves, nuts and mushrooms and collect honey. The Upper Palaeolithic artifacts, various types of scrapers, simple blades and backed blade variants are likely to have been used for wood work, bamboo work and hafted as sickles, arrow points, spear points, fishing arrows, fishhooks, etc. The damaged cords and tips of the backed blade variants recovered at sites in the Gunjana valley show that they were used for making nets and traps. A large number of grinding stones recovered in a stratified context at Vodikalu by D.R. Raju shows that these were used in the processing of wild plant foods. Bored stones were probably used as weights for digging sticks and net sinkers in fishing. Researchers conducted by D.R. Raju in the Cuddapah region, M.L.K. Murty in the Kurnool cave areas, Malti Nagar and V.N. Misra in

central India and north India, and in Rajasthan and Zarine Cooper in the Andaman Islands are noteworthy.

Life-ways of the Upper Palaeolithic period:

No human skeletal remains have been unearthed so far for this period which ranges from c. 40,000 years B.P. to 10,000 years B.P. with regional variations. These hunter-gatherers had the knowledge of fire making for cooking and for the production of artifacts. A number of flat grindstones, bored stones and anvils recovered in the Gunjana valley and in the adjoining areas implies knowledge of processing vegetal foods like wild grains, and fishing activities as the bored stones would have been used as net sinkers as is done by the present day food gatherers like Yanadis in the area. According to D.R. Raju, the distribution pattern and spatial configurations of thousands of lithic artifacts in the Cuddapah region suggest band organization and home based activities.



Upper Palaeolithic earth house plan reconstruction



Dwelling structure of the Upper Palaeolithic stage

The Upper Palaeolithic populations occupied varied ecological settings—arid zones in the north-west India, semi-arid zones in north and central India and humid to sub-humid regions in south-east India. These

include hilltops, hill slopes, foothill areas, plains, plateaus in woodland, savanna woodland and thorny thicket zones near small stream courses as also away from the major rivers in the forested hills like the Nallamalais of the Eastern Ghats where the source of water is mainly springs. The same source is being used by the contemporary simple societies.

The probable functional attributes of the lithic artefacts like various types of scrapers, backed blade variants, etc., for wood working, bamboo working and cord work, and the ethnographic evidence suggests that bow and arrow, and prototypes of various traps, snares and nets were in vogue.

Conclusion :

The Upper Palaeolithic culture is marked by a rapid technological advancement as well as the first expression of man's imaginative power and artistic talent. Despite great regional variations, the chief diagnostic trait of this period is the lithic blade tool technology and economic way of utilizing the raw material by knapping a series of elongated parallel-sided blades from prismatic cores. These blades are subsequently finished into various forms such as backed knives, backed points, scrapers, awls, etc. However tools on flake-blade also form an important component of the industries.

The blade tool industries occupying intermediate positions between the Indian Middle Palaeolithic and Mesolithic can be ascribed to the Late Pleistocene time period on the basis of faunal evidence and a few ¹⁴C dates. The cave site in Kurnool has yielded a bone tool industry, in association with a lithic blade industry. The Upper Palaeolithic men used bone tools; however, the absence of bone tools at the open-air stations and cave sites in other parts of the country might be due to deleterious conditions for the preservation of organic remains within the microenvironment of the sediments in which they lay buried.

Considering the limited understanding of the upper Palaeolithic stage of Indian prehistory and limited number of excavated sites like Patne in Maharashtra, Baghor II and Bhimbetka in Madhya Pradesh and the Kurnool caves in Andhra Pradesh there is a large scope for further research in this field. So far, most of the studies are done on the surface scatters and are devoted to techno-typological aspects. There is plenty of scope for further research on the life-ways, and the reconstruction of culture process during this period.

Additional Information

To have an understanding of the problems of divisions, chronology and terminologies of Palaeolithic cultures in India, students can refer the web-blog ([://sheilamishra.wordpress.com/](http://sheilamishra.wordpress.com/)) created and maintained by Prof. Sheila Mishra of Deccan College PG and Research Institute, Pune which is being updated frequently and commented by experts, worldwide.
