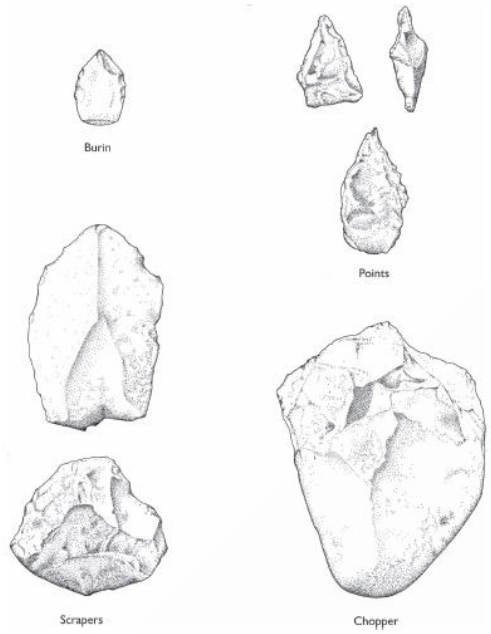
LOWER PALEOLITHIC CULTURE

The stone tool traditions of Homo erectus are traditionally known called Lower Paleolithic. These stone tools traditions involve "core" tool techniques in which the core of the stone is used as a basic raw material for finished tools.

THE ACHEULIAN TOOL TRADITION

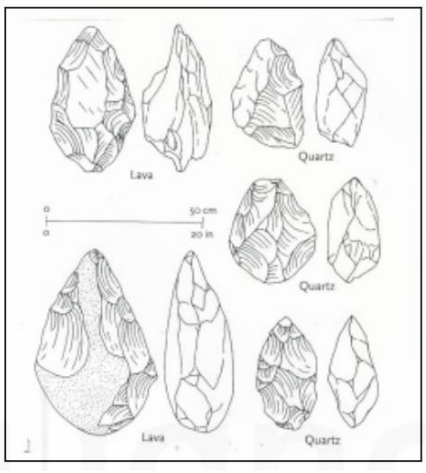
The stone tool making tradition known as Acheulian was named after the site at St. Acheul, France, where the first examples were found. But the oldest Acheulian tools were recovered are from East Africa, Tanzania dating approx. 1.7 million years ago. Similar but somewhat cruder artefacts were found by another Frenchman Boucher de Perthes between 1836 and 1846 near the town of Abbeville in Northern France.



Flake and chopper tools associated with *Homo erectus* from the cave at Zhoukoudian. Although the functions of these tools are uncertain, some are named for inferred use. Burins may have been used to etch out thin slivers of antler or bone, which were then further modified into awls or needles. Points may have served as cutting tools for fine work. Scrapers may have helped remove flesh from animal hides. And choppers chopped wood and perhaps broke open bones to extract marrow.

In Africa, this tradition is best represented at Olduvai Gorge (Bed II), Olorgesailie, Koobi Fora, Kalambo Falls and Isimila and persisted from about 1.65 till 0.25 million years ago. In the later stages of the Acheulian tradition, handaxes and cleavers became very refined and more symmetric in shape.

The core tool produced by the Acheulian technique is the hand axe. Acheulean assemblages are characterized by specifically shaped tools called hand axes and cleavers that are worked on two sides. Both are thus **bifaces,** tools whose cutting edge is formed by the removal of flakes from opposing sides of the piece. The scars left by the removal of these flakes meet to form the sharp edge. A **hand axe** is a bifacially worked, symmetrical, teardrop-shaped tool It is symmetrical, edged and pointed, and bifacial (flaked on both Sides). It was the all-purpose tool of its time, used for any number of tasks, from butchering to cutting wood.



In addition to hand axes, H. erectus also made tools with straight, sharp edges called **cleavers**. Moreover, making a hand axe or cleaver produces a great many flakes—as many as fifty usable ones by one estimate—used either unmodified or further worked to produce a desired shape. **Hand axes appeared in Africa about 1.76 mya and lasted for over a million years**. They spread throughout Africa and into Europe. They are, however, **rarely found in Asia**. Instead**, Asian erectus populations made choppers**, with flakes removed from one or both sides but asymmetrical and not flaked over the whole surface.

FIRE

Perhaps the most striking behavioural advance associated with Homo erectus is the purposeful use of fire. There is some evidence, though it is disputed, for the use of fire in Africa at 1.5 mya and France at 750,000 ya. A rock shelter in Thailand has yielded evidence of fire dated at 700,000 ya. The earliest well-accepted date is from the cave at Zhoukoudian sometime after 500,000 ya (Binford and Chuan 1985; Binford and Stone 1986). Fire, of course, provides heat, and so it is not surprising that some of the earliest evidence of fire comes from cold northern areas. Fire also provides protection from animals and can be used for cooking, making meat easier to chew and digest.

But in the long run, perhaps its most important use is as a source of light. Science writer John Pfeiffer (1966) suggests that fire could extend the hours of activity into the night and provide a social focus for group interaction. Sitting around the campfire at night was when people experimented, created, talked, and socialized. Fire serves these functions in human cultures today. Moreover, the use of fire may well have given people a psychological advantage—a sense of mastery and control over a force of nature—and a source of energy. As Pfeiffer says in the title of his article, "When Homo erectus Tamed Fire, He Tamed Himself."

HUNTING

The Homo erectus were efficient big game hunters. The number of bones at Zhoukoudian and number and size of animals at Tera Amata in France indicate that erectus were hunters. The use of tool and fire for hunting is clearly evident in these sites.

F. Clark Howell, who excavated sites in Spain, found a substantial number of elephant remains and unmistakable evidence of human presence in form of tools. Howell suggests that the humans at those sites used fire to frighten elephants into muddy pits from which they would be unable to escape.

CAMPSITES

Acheulian sites were usually located close to water sources, lush vegetation, and large stocks of herbivorous animals. Some camps were found in caves but most were in open areas surrounded by rudimentary fortifications or windbreaks. Several African sites are marked by stony rubble brought there by H.erectus, possibly for the dual purpose of securing the windbreaks and providing the ammunition in case of sudden attack.

The presumed base campsites display a wide variety of tools, indicating that the camp was the center of many group functions. More specialized sites away from the camp have also been found. These are marked by the predominance of particular type of tool. For example, a butchering site in Tanzania contained a dismembered hippopotamus carcasses and cutting tools.

The site of Terra Amata in the city of Nice, in France, about 400,000 years old contain several huts. A basic feature of each hut was a central hearth that seems to have been protected from drafts by a small wall built just outside the corner of the hearth. The animal remains suggest that they obtained both small and large animals.

CANNIBALISM

Some fractures hominid bones and skulls with enlarged foramen magnum from China indicate the technique of removal of human brains from skull. E.A. Hoebel suggests that cannibalism was practiced by Peking man for ritualistic and survival (in case of Scarcity) purposes.

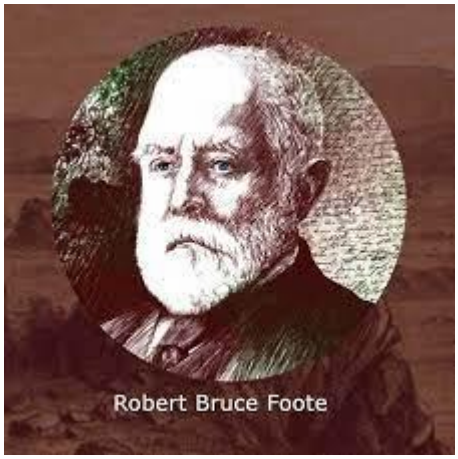
LOWER PALEOLITHIC CULTURE OF INDIA

Robert Bruce Foote, a British geologist discovered and identified the first Palaeolithic tool in the Indian Subcontinent in 1863, at the village of **Pallavaram, near Madras (now Chennai**) and laid the foundations of the Prehistory in India. Since then, prehistoric archaeologists have located hundreds of prehistoric sites in different parts of India and are attempting to understand the life ways of prehistoric people.

The next major development took place in **1930**. Based upon the stratigraphical evidence of gravels and silts recorded in the rivers of Eastern Ghats in Kurnool area of Andhra Pradesh and also considering the typological aspects of stone tool assemblages recovered from these deposits, L.A. Cammiade (a District Collector) and M.C. Burkitt of Cambridge University proposed that Southeast India witnessed a four-fold Stone Age sequence. They designated these stages as Series I to IV, which broadly correspond to Lower, Middle and Upper Palaeolithic, and Mesolithic stages, respectively. In the next four decades similar stratigraphical and typological studies were carried out in different regions of the country. H.D. Sankalia and his colleagues and students at the Deccan College, Pune, played a pivotal role in these studies. Sankalia's book Prehistory and Protohistory in India and Pakistan (1974) provides an elaborate synthesis of the results.

Robert Bruce Foote

When Henry Geoghegan, an employee with the Geological Survey of India, died of sunstroke surveying the rocky terrain of Trichy (Tiruchirappalli) in 1858, 24-year-old Robert Bruce Foote was brought in as a replacement.



Like his colleagues, Robert's mandate was to help the British Crown locate precious metals that would fill up their coffers. **Little did Robert know that one day, he would be called the "Father of Indian Prehistory."**

Born on 22 September 1834, in Cheltenham, England, Foote spent his time surveying the rocky landscapes of Trichy and delivering lectures on geology at the famous College of Engineering in Guindy, Madras (Chennai).

It was in Madras, where he met Peter Percival, a social reformer priest who had given up missionary work to teach linguistics, Tamil and Telugu literature, besides Sanskrit at the Presidency College. Their friendship blossomed, and in 1862 Foote married Percival's daughter Elizabeth Anne.

Robert Bruce Foote, a British geologist joined the Indian geological survey in 1858, then after the establishment of archaeological survey of India in 1862, Foote began the systematic research of human prehistoric remains in India. He discovered the handaxe in southern India at a place called Pallavaram near Chennai. The discovery would have caused a sensation in Europe but Foote, though delighted, was cautious and showed it only to his family, apart from his best friend, William King Jr.

Then in September that year Foote, along with King Jr., discovered a number of implements and artefacts in Atirampakkam, about 64km north-west of Madras city (now Chennai), near Poondi in Tiruvallur district today. This spurred him to revisit the site of the first find, where he discovered two more Palaeolithic implements in January 1864.

In the course of his geological surveys **in South India and Gujarat he discovered nearly 400 sites and classified them under the Palaeolithic, Neolithic and Iron Ages**. In the elaborate Introduction

of his publication about these sites which he prepared in 1916, Foote made many insightful observations about the life and times of Palaeolithic societies.

He almost single-handedly laid the foundations of prehistory in India. He was inspired by the Royal Society's ratification of the findings of stone tools and animal fossils in England and the Somme valley of Northern France and started looking for similar Palaeolithic implements on the Indian soil.

In 1884, alongside his eldest son, Henry, Foote would go onto discover ancient stone artefacts inside the Billasurgam cave complex in Kurnool district of present-day Andhra Pradesh. More than eight years later, after these findings, Robert retired from service. After working in Baroda for two years, he was invited by the Maharaja of Mysore, where he set up the Mysore Geological Department, an institution which would lead many historical discoveries**. He (Foote) discovered the largest Neolithic stone factory in the Madras Presidency, located atop the Kappagal hill in Ballari's Sanganakal hill complex.**

His collection grew steadily as he traversed the Indian subcontinent, from the Himalayas in the north to Kanyakumari in the south, from Peshawar in the west to Bengal in the east. Over the course of his 40-year career, he discovered a total of 459 prehistoric sites. In the end, he sold his entire collection to the Madras Government Museum in 1904 for Rs33,000 as he believed the history of India should be preserved in the country itself.

Robert Bruce Foote was a scientist with an open, logical, inquisitive mind with knowledge in a variety of subjects. One can easily realize this if one reads his writings, especially a book published by the Madras Government Museum titled The Foote Collection of Indian Prehistoric and Protohistoric Antiquities, Notes on their Ages and Distribution.

These discoveries squarely established the antiquity of man in the Indian subcontinent, lending credence to Darwin's theory of natural selection in the process. Secondly, the stone implements showed that humans were living in Pallavaram and Atirampakkam in the rude Stone Age. And lastly, Foote's findings inspired a more scientific approach to geology in the subcontinent, rather than just a search for precious metals and minerals.

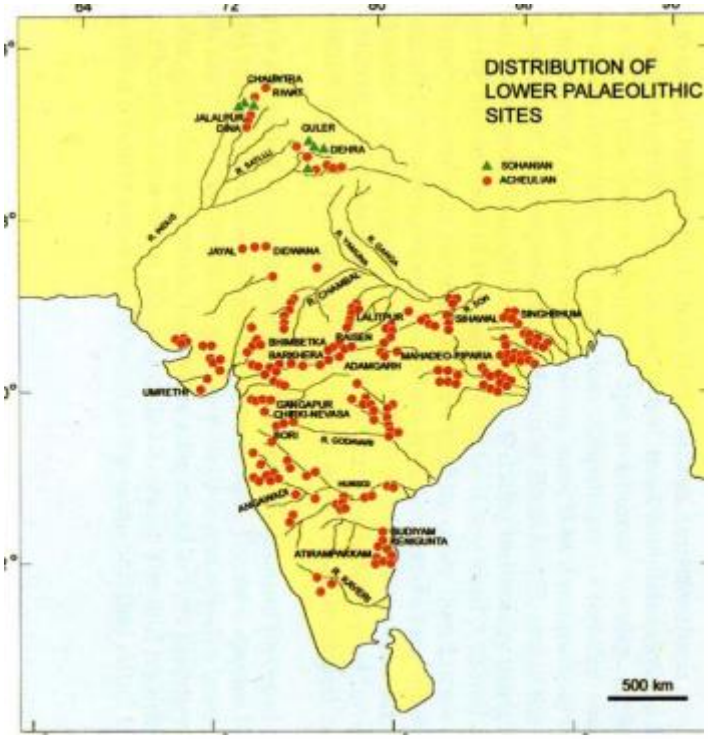
Calling him the **"Father of Indian Prehistory"** is not a stretch—he not only found the first prehistoric artefact in the subcontinent, but also worked hard to ensure his discoveries remained in India.

DISTRIBUTION:

Lower Palaeolithic phase in India consists of two principal tool-making or cultural traditions, viz., a) the Soanian tradition forming part of the East and Southeast Asian **chopper chopping tool tradition** and b) the **Handaxe-cleaver or biface assemblages constituting the Acheulian tradition**, which is widely known from the western half of the Old World (Africa, Western Europe, West and South Asia). **The Lower Palaeolithic cultures occur in all parts of India except Tinnelvelly District in Tamil Nadu and the Kerala State in South India and the Sindh province in North West India.**

In Peninsular India, they occur in the middle and the upper reaches of rivers and streams, foot hills, caves, and rock shelters (M.P., T.N. and Maharashtra) forested areas (Bulsar In Maharashtra and Peernala in M.P) and at open air factory sites (Nevasa, Lalitpur, Anangawadi, Vadamadurai, etc.,)

In Extra-Peninsular India, they occur in the glacier– pluvial deposits of Kashmir and in the middle and upper reaches of river Valleys of Punjab, Kashmir, Assam, Meghalaya, and Arunachal Pradesh. These cultures occur at open-air sites on river banks (Sohan River in West Punjab), on high hills (Phalgaon in Kashmir), in thick forests and perennial river streams (Kangra in Punjab) and foot-hills (Meghalaya and Arunachal Pradesh).



ENVIRONMENT

The environment in which the Lower Palaeolithic cultures existed was not uniform. When the Potwar Plateau and Kashmir Valley in extra-Peninsular India were under the influence of the great Ice Age characterized by glacial and inter glacial phases, the river Valleys in Peninsular India were experiencing climatic fluctuations in terms of pluvial conditions during Pleistocene epoch. The environment was rich in flora and fauna. The floral remains occur in the form of a carbonized trunk of Terminalia Arjuna species at Mulanagar in Ahmednagar district, un-identifiable silicified wood pieces at Nevasa and Pollen grains of Chilbil from the fossil soil near Imamgaon in Poona Dist. – all in Maharashtra.

Several sites located in the areas between Hoshangabad and Narsingpur Dist. in M.P., yielded remains of wild elephant, wild horse, wild Ox, hippopotamus, rhinoceros, deer and seven more animals. The remains of wild elephant and wild ox have been found at sites like Nandumadhaneswar, Mulanagar, Yeldani, Kalegaon, Chandoli, Kalamb, Amaravathi, Chanda and Wardha in Maharashtra, Chikdauli, Yelhatti and Kittur in Karnataka.

CHRONOLOGY

There are diverse views on the chronology of Lower Palaeolithic culture in India.

At Riwat near Peshawar in Pakistan a flaked pebble and some other artefacts were found in a cemented gravel occurring at the base of a 70 m deep section within the Siwalik sediments. This gravel has been dated **to 1.9 million years ago** (revised to 2.5 million years) on the basis of palaeomagnetism. Likewise, at Uttarbaini in Jammu some nondescript artefacts were found in Siwalik sediments which have been assigned an age of **1.6 million years** (revised to 2.8 million years) by fission track method. Although some doubts are expressed about these dates, these sites are presently the earliest known archaeological sites in India.

The site of Isampur in North Karnataka has given a date of 1.2 million years on enamel of animal teeth, obtained by means of electron spin resonance method. This is the earliest known Acheulian site in the subcontinent. Other Acheulian sites such as Dina and Jalalpur in Pakistan, Didwana (Rajasthan), Umrethi and Adi Chadi Wao (Gujarat), Nevasa, Bori and Morgaon in Maharashtra, and Sadab, Teggihalli and Yedurwadi in Karnataka have produced dates on materials like calcretes, milliolites and volcanic ash. **These range between 0.7 and 0.2 million years, thereby suggesting that the Acheulian culture persisted for one million years**

I. **De Terra and Paterson (1939)** considered the geological and palaeontological evidences and placed the Lower Palaeolithic culture in the Middle Pleistocene (1.25–0.7 million years ago).

II. **Sankalia (1964)** studied the geological and stratigraphic evidence in the Narmada, Godavari, Prabha, and Krishna River Valleys and estimated the time period of Lower Palaeolithic between the Late Middle Pleistocene and its upper level to the Upper Pleistocene times (0.126 million years ago - 0.012 million).

III. Investigations into the marine and semi-marine formation of the east coast near Madras and West coast yielded archaeological evidence placing the Lower Palaeolithic at Sohan in the second inter-glacial period of the Middle Pleistocene.

MATERIALS

The Lower Palaeolithic people utilized the raw materials available in their environment. Their principle material used for making tools was granular quartzite in the form of river pebbles. Very rarely people collected fine-grained quartzite collected from the riverbeds, raw materials for making tools.

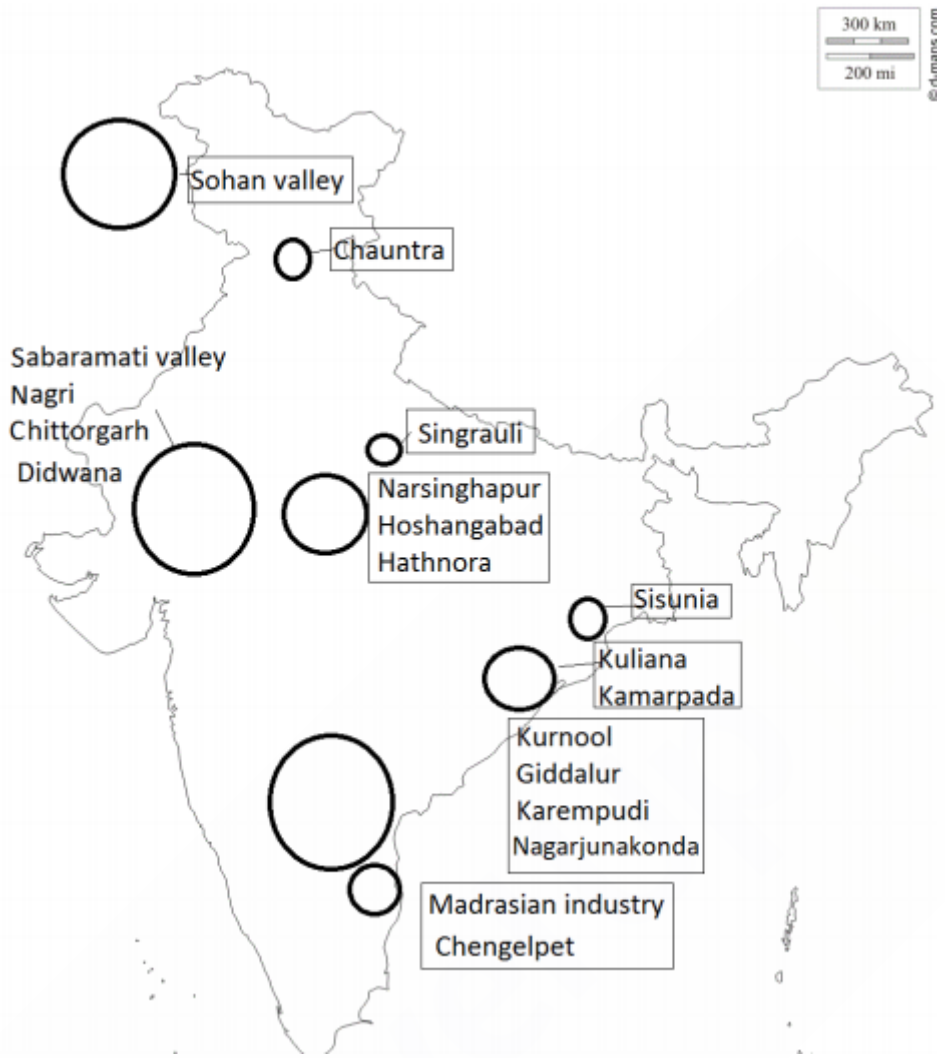
Cultural diversities

The Lower Palaeolithic culture was not uniform. It may be divided into three broad groups.

a) **Soan culture** (Soan Valley in Pakistan – Choppers and Chopping tools).

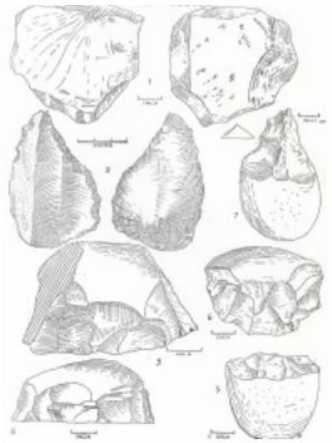
b) **Narmada culture** (Adamgarh Hill) - Higher occurrence of cleavers and a combination of hand axes and Choppers and Chopping tools).

c) **Madras culture** (Attirampakkam site situated on Budida manuvanka and Kartalayar near Vadamadurai – Hand axes).



SOAN CULTURE

The Sohanian culture, termed after the river Sohan (or Soan), a tributary of the Indus, came into limelight through the Yale-Cambridge Expedition led by **H. de Terra and T.T. Paterson in 1939**. The evidence of this culture is found at a number of sites in the Siwalik hills in northwest India and Pakistan.



. Choppers and flake tools of the Early Soan tradition

On the basis of their field studies in the area they identified a series of five terraces on the river Soan, forming part of the Indus drainage system. They correlated these terraces with glacial and interglacial events of the Kashmir valley above. Further they collected stone artefacts from some of these terraces and, on stratigraphical and typological considerations, put up what has come to be called the Soan culture-sequence, comprising pre-Soan, Early Soan, Late Soan and Evolved Soan stages

The tools consist of pebbles with working edges on their sides or ends, obtained by means of flaking from one or both surfaces (producing choppers or chopping tools).

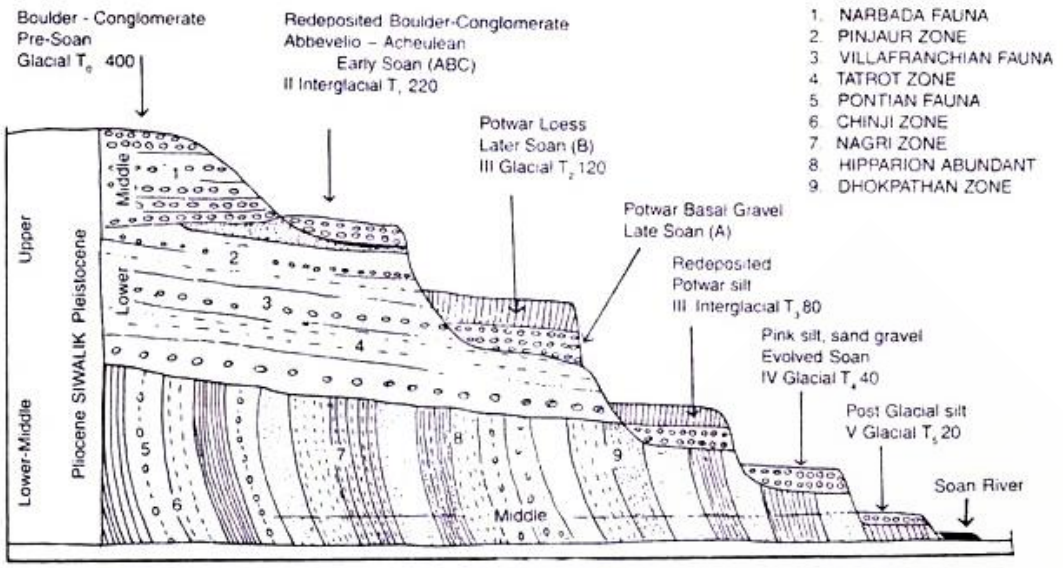


Fig. 11.16. Transverse Section Showing Stone Age Sequence in Soan Valley
(After De Terra and Paterson)

From the Indian side of the border, pebble-tool assemblages were found in the Sirsa and Ghaggar valleys of Haryana, Beas and Banganga valleys of Himachal Pradesh, and Hoshiarpur-Chandigarh sector of the Siwalik Frontal Range. Curiously enough, bifacial assemblages were also found at more than 20 places in the latter area. This led some scholars to the interpretation that the hominin groups responsible for these two traditions co-existed in the same area – the Soanian tradition confined to duns or valleys of the Frontal Range and the biface tradition restricted to plateau surfaces. The Soan assemblages from Punjab have been assigned by some workers to the Middle Palaeolithic tradition.

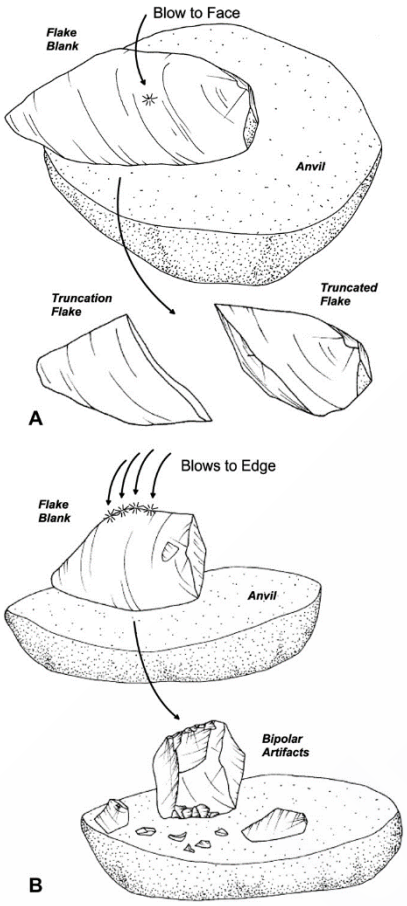
Pre Soan (To):

The tools that come from the top of the boulder conglomerate constitute the 'Pre-Soan Industry'. The level can be marked as Terrace **To** which is situated about 400 feet above the present riverbed. The available tools are large and massive made from crude split pebbles.

Terrace-1 (T1):

The first river Terrace (T1) was formed during the second inter-glacial phase cutting the boulder conglomerate. This is **220 feet high** from the present riverbed. The tool-assemblage in this terrace has been labeled as '**Early Soan Industry'**. The industry consists of tools made on split pebbles or pebble halves where the number of flaking are quite limited.

Such flaking show no initially prepared striking platform; **bi-polar technique has been employed in detaching the flakes**. The tool-types include scrapers, borers and other pebble flakes. The materials are mostly the fine-grained quartzite of different variety.



The 'Early Soan' is primarily a pebble-tool industry as most of the tools are made on rounded pebbles. Minimum flaking are found on them as necessary to obtain a shape of a chopper.

India is a home of quartzite; therefore it was really a credit for the Indian toolmakers who had developed the technical capacity to make effective tools out of a hard refractory rock like quartzite

Terrace -II (T2):

This Terrace was formed during the third glacial phase when the streams eroded spreading gravel. Very fine silt called loessic loam was also deposited during this period, covering the whole of Potwar region. Height of this Terrace is about 120 feet from the present day riverbed. In this new terrace, gravel is found at the base and the thick deposit of loessic silt known as 'Potwar loess' is found on them. More evolved tool types of early man have been recognized from this level; the Soan industry became developed in technique as the time passed on.

The tool-assemblage of Terrace-II (T2) has been named as '**Late Soan Industry'.**

The main feature of Late Soan Industry is the appearance of flake tools and cores, which have undergone previous preparation. This technique of detaching flakes from a prepared core may be synonymous with the Levalloisian technique.

Terrace-III (T3):

During third inter-glacial period, the atmospheric temperature increased once again and this released great amount of water from ice caps, which in turn eroded the Potwar basin. Naturally a new Terrace came into existence. It consisted of the gravel covered with the deposition of loessic silt and has been designated as re-deposited Potwar silt. This Terrace is situated at 80 feet above the present day riverbed. It is very interesting that no tools of man have come out from this Terrace.

Terrace-IV (T4):

During the last glacial phase, the weather became extremely cold and humid and there was a deposition of loessic soil. Terrace -IV (T 4) of Potwar region was formed at this time on the river valley of Soan. Height of the Terrace is 40 feet from the present day riverbed. It is composed of loam sand and gravel. The tool industry that has been recovered from this Terrace is known as **'Evolved Soan'**. The tools are not much different from the Early and Late Soan, but technologically they are much developed. The Levalloisian technique that appeared in Late Soan had shown a further refinement in the Evolved Soan.

Terrace-V (T5):

This is the lowest Terrace, which show the evidence of post-glacial period. Height of this Terrace is about 20 feet above the present stream. From the study of different Terraces, we can reach to the conclusion that the evolution of man and his tools took place with the succession of environment.
Investigations in the Indian Siwaliks appear to conform to observations of de Terra and Paterson in Pakistan. Five terraces comparable to those of the Indus- Sohan in the Potwar region have been recognized in the valleys of the Sutlej, Beas and Banganga rivers in the Punjab-Himachal Pradesh region. Pebble tools of Sohanian style have been collected by B.B. Lal and B.S. Karir on these terraces. G.C. Mohapatra (1976), who discovered both Sohanian and Acheulian sites in the Hoshiarpur-Chandigarh sector of the Siwaliks, has argued that the Acheulian and Sohanian populations inhabited distinct environments; the former occupying the flat surfaces of the Siwalik frontal range and the latter occupied the duns or valleys of the Himalayan flank.

MADRASIAN CULTURE

The Madrasian culture spread Tamil Nadu, Andhra Pradesh and Karnataka. Robert Bruce Foot identified this culture in 1863 at Attirampakkam in Tamil Nadu. Later, De Terra, Paterson, Krishnaswamy, Banerjee, Joshi and a host of others excavated the sites at Attirampakkam and Vadamadurai in Tamil Nadu and brought to light the Madrasian culture.

The most common and characteristic tool-type of Madras Industry' is hand-axe. These hand- axes are typically pear-shaped or oval, flaked on both faces to produce a continuous cutting edge. Some pebble tools are also found in association with hand-axes. Technologically the hand-axes are more evolved than the pebble tools as they show multi-directional flaking and symmetrical forms. In technique the Madras Industry is almost similar to the Lower Paleolithic industries of South Africa, which is also known as '**Abbevellio-Acheulean'**.

Not only the tools of these two Continents are typologically similar, similarity is also found in the quality of raw material. Quartz has been used in both the areas.

Tools like cleavers were characterized by narrow waists on their body suggesting the practice of hafting. A cleaver usually suggests a tropical woodland environment where it is used for cutting and shaping the wood and for skinning and flaying of animal carcass.

Morgaon is important site from the Deccan basalt landscape; it is located in the upper reaches of the Bhima drainage system. It has preserved 2 to 15 m thick ancient sediments including a tephra (volcanic ash) layer. A trench (6 x 4 m) excavated by Sheila Mishra and Sushma Deo between 2002 and 2004 yielded artefacts from three horisons. The main horison consisted of weathered basalt rubble found on surface of clay and produced 180 artefacts of local basalt. A second trench (5 x 5 m) dug in 2007 yielded an assemblage of 162 specimens including cleavers and handaxes

At Isampur in the Hunsgi valley K. Paddayya's detailed geoarchaeological investigations and excavations exposed a quarry-cum-camp site covering an area of three-quarters of a hectare. It is associated with a weathered rock outcrop made up of silicified limestone blocks of suitable sizes

and shapes. It lay close to a palaeochannel with a perennial body of water. Five trenches were excavated here, covering an area of 169 m2

NARMADA CULTURE

The Narmada valley of Central India is also a very important source of paleolithic culture. De Terra and Paterson excavated several sites in Hoshangabad and Narsingpur distt in Narmada valley and unearthed handaxes, cleavers, choppers, chopping tools and others.
Supekar excavated the place Mahadeo Piparia in Narmada Valley in Madhya Pradesh.

In Rajasthan Mishra excavated Nagri and Chittorgarh and other sites in the Banas, Gambir and Chambal river Valleys and obtained the Choppers and Chopping tools from the Basal gravel layer. These Valleys experienced climatic changes twice. Similarly, the Excavation of Sankalia and his students near Bombay and Ratnagiri, at Nevasa in Pravara Valley, Gangawadi in Godavari Valley, Ahmednagar, and so on yielded Chopper and Chopping tools, large hand axes and cleavers.

Singi Talav (western Rajasthan) was a lake-shore site excavated by V.N. Misra and his team. This site yielded an assemblage of 252 artefacts of quartzite and quartz from two levels of silty clay. The assemblage comprised choppers, polyhedrons, bifaces, scrapers and points.

Rock-shelter III F-23 at Bhimbetka in Madhya Pradesh was also excavated by V.N. Misra. It preserved 4 m thick cultural deposit containing Acheulian, Middle and Upper Palaeolithic, and Mesolithic levels. The 2.5 m thick Acheulian level consisted of occupation levels paved with stone slabs and rubble. An excavated area of 16 m2 yielded 4700 artefacts of quartzite.

Adamgarh (also in Madhya Pradesh) also exposed an Acheulian level below Middle Palaeolithic deposits. Lalitpur (Jhansi district, U.P.) produced an early and in situ assemblage made up of granite tools.

Paisra (Munger district, Bihar) lies in an inland valley enclosed by hills forming part of the Kharagpur range. It was excavated by R.K. Pant and Vidula Jayaswal and exposed Acheulian levels below 1 to 1.5 m thick colluvial deposits. In addition to a large assemblage consisting of early Acheulian artefacts, the excavation exposed remains of hut-like dwelling structures in the form of alignments of post-holes and a circular arrangement of stone blocks.

Sankalia, Sen, Joshi, and Singh excavated Maheshwar of the Narmada Valley near Jabalpur, Malwa and Damoh areas in Madhya Pradesh. These excavations yielded Lower Palaeolithic tools like Abbevillian and Acheulean hand axes besides Chopper Chopping tools and cleavers.

In the same region at a place called Hathnora a very important discovery has been made. It is a skeleton of Homo erectus that has now been designated as Narmada man. This is the only skeletal remain from lower paleolithic.

Feature	Soan	Narmada	Madras
Distribution	Potwar in Pakistan	M.P, Maharashtra, Gujarat, and Rajasthan)	(A.P., Tamilnadu, Karnataka, U.P, Bihar, Orissa and (W.B)
Climate	Glacial	Pluvial	Pluvial
Stratigraphy	Massive with 5 terraces	Complicated strata because of rift of the Valley	Simple with three terraces.
Technology	Chopper – Chopping tools	Narmada culture is a combination of Chopper Chopping tools culture and hand axes culture	Hand axes culture

Hunting and Foraging

We have already noted that the entire Palaeolithic stage was characterised by a simple economic organisation consisting of hunting of wild animals and gathering of wild plant foods. Based upon the widely accepted premise that the various ecological or geographical zones of India supported rich animal life and vegetation in the Pleistocene periods we can safely infer that a wide spectrum of animal and plant foods was available for exploitation by the Stone Age groups.

Since the middle of the last century large collections of fossil fauna of mammals have been obtained along with stone tools from the Narmada, Godavari, Krishna and other rivers. These findings gave rise to interpretations that Early Man was exploiting wild cattle, deer and other mammals for food purposes. This interpretation is now supported by the recovery of dental and post-cranial bone pieces of wild cattle and deer species, dental remains of wild horse and tusk pieces of wild elephant from primary Acheulian sites at Isampur, Teggihalli, Hebbal Buzurg and Fatehpur in the Hunsgi and Baichbal valleys, Chirki-Nevasa in Maharashtra, Attirampakkam in Tamil Nadu and other sites. Cut-marks and other taphonomic marks found on these bones indicate that these pieces formed part of food-processing and consumption. These skeletal remains either belonged to hunted prey or else were partly scavenged from kill-sites of carnivorous animals.

Further, the occurrence of turtle shell pieces at sites like Isampur suggests that the Stone Age groups also exploited a variety of small fauna comprising insects, birds, fishes, rodents and amphibians by adopting simple collection strategies.

Settlement Patterns

Some of the studies undertaken in recent years have proved to be helpful in the reconstruction of Stone Age land use patterns. In 2004, R. Korisettar put forward the view that the sedimentary rock formations of peninsular India, viz. the Vindhyachal, Chhattisgarh, Cuddapah, Bhima and Kaladgi formations, were the core areas of Stone Age settlement. The principal reason put forward by him was that these areas offered many advantages to Stone Age groups, e.g., basin-shaped landforms, a variety of suitable rocks for toolmaking, presence of caves and rockshelters, perennial water springs, and rich biomass with a variety of wild life and plant foods.

In 1970s Jerome Jacobson identified as many as 90 Late Acheulian sites in a small valley enclosed by sandstone hills in the Raisen district of Madhya Pradesh. These probably represent winter-season occupation and the hunting groups moved to caves and rock-shelters of the adjacent Bhimbetka hills in the rainy season.

In 2004-2005, Ajith Prasad located a cluster of 40 Acheulian sites in a 300 km2 stretch of the middle reaches of the Orsang river in Gujarat. These are primary context sites located in the foothill zone of hills or along the small feeder streams.

In the 1990s, R.S. Pappu and Sushma Deo investigated the Stone Age land use patterns in the Kaladgi basin of North Karnataka. They arrived at the inference that the Stone Age groups generally avoided the thickly forested and high rainfall tracts close to the Western Ghats and instead concentrated their activities on river banks and in foothill zone of hills in the middle reaches of the rivers Malaprabha and Ghataprabha.

Non-utilitarian Behaviour

Archaeological record has also preserved some strands of evidence regarding non-utilitarian aspects of the behaviour of Lower Palaeolithic groups such as cognitive and artistic abilities and personal ornamentation. **Thomas Wynn** pointed out that the preparation of handaxes and cleavers reflects the employment of developed cognitive principles of reversibility and whole-part relations. Developed cognitive abilities are also reflected in many aspects of land use. These include the selection of valley-like topographic settings as habitats for occupation, recognition of seasonal availability of water sources and food resources, and identification of certain rock outcrops as suitable spots for workshop-cum-camp sites.

Some of the handaxes in the Acheulian assemblages are very symmetric in shape and aesthetically pleasing. So, the possibility cannot be ruled out that these specimens were valued as such by their makers. The cupules (small cup-like depressions) and simple engravings found on rock slabs from Bhimbetka, DarakiChatan and other caves in Central India have been interpreted by some archaeologists as artistic creations of the Acheulian groups.

There is some evidence of body decoration too. A few red ochre-like pieces were found at the Acheulian sites of the Hunsgi and Baichbal valleys (Karnataka). These were probably procured from vicinity and used for body smearing.

Hominin Fossil Record and Origins

Discussions about the biological identity of hominin groups responsible for the Lower Palaeolithic traditions groups of India are hampered by the woefully inadequate amount of fossil skeletal record available in the country till now. As yet only one true instance of the association of human skeletal record with the Acheulian cultural material is known. In 1982 Arun Sonakia of the Geological Survey of India found a fossil cranial vault (calvarium) in a 3 m thick gravel deposit of the Narmada River at Hathnora in Madhya Pradesh. Initially classified under the Homo erectus group, this skull cap is now treated as representing an archaic form of Homo sapiens. Later a fossil clavicle was also reported from this site. Some bifacial implements and fossil fauna were also found from the gravel deposit.

Origins of the Lower Paleolithic culture in India

Lower Palaeolithic Cultures Taking into account the high antiquity of hominin occupation in Africa and also the possible early dates for sites like Riwat and Uttarbaini in the Indian subcontinent, some workers have concluded that the Soanian type pebble-tool assemblages were a part of the spread of the Oldowan tradition of East Africa across Asia by a northern route between 1.8 and 2 million years ago. It has further been pointed out that the initial dispersal of the Acheulian into West Asia took place 1.4 million years ago and that its spread to South Asia occurred later either by a coastal route along the Arabian sea or else from the Levant (Mediterranean) zone of West Asia via a land route traversing the Iranian plateau.

But there are some scholars who, based on the early dates for sites like Isampur, proposed an alternative hypothesis that the Acheulian culture may even have originated in peninsular India itself and spread in both eastern and western directions beyond the subcontinent's borders.