

Block

2

ARCHAEOLOGICAL UNITS

UNIT 1**Space**

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BLOCK 2 ARCHAEOLOGICAL UNITS

Introduction

Archaeology is studied either independently or as a branch of History or of Anthropology. Similar to Anthropology, archaeology studies the past culture history of mankind, and the current syllabus is aimed at imparting knowledge about the early man and his culture to the students of Anthropology. At present day scenario, Anthropology and Archaeology within the frame of Anthropology emerge as the dominating disciplines in the field of Social Sciences, and Anthropology is made an important subject in the courses and curriculum in Universities and Colleges in the developed countries like United States of America where not alone the academicians but also common people know the subjects- Archaeology and Anthropology. In India the British administration initiated studies in Anthropology, and introduced the 'Anthropological Survey of India' and the 'Archaeological Survey of India' with a purpose of knowing the man and his culture in a significantly diverse eco-cultural settings in India. In today's Northeast India, knowledge of Anthropology is considered essentially important in the making of history of the region and therefore the Palaeoanthropology or Archaeology has a basic importance in the making of history of mankind in India vis-à-vis South Asia.

In this block, the following topics have been addressed in order to make a wholesome study of 'Man' exclusively from the point of teaching and research in Archaeology and they are:

- 1) Space
- 2) Tool Families
- 3) Tool Technologies
- 4) Household and Decorative Objects

All these topics are meticulously outlined with a purpose of giving maximum opportunity to the students to learn and teachers to teach the subject Archaeology within the larger frame of Anthropology syllabus. All the units inscribed in the syllabus are explicitly elaborated to make the syllabus 'self-revealing'.

UNIT 1 SPACE

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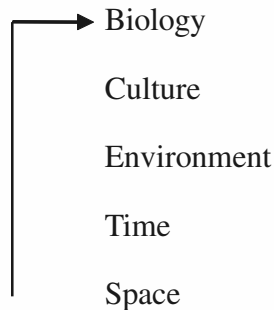
Once you have studied this unit, you should be able to:

- define and identify the different types of archaeological site;
- understand techniques that archaeologists use to interpret the function of the site;

- understand methods used to study the relationship between people and environment; and
- understand the formation of site and its abandonment.

1.1 INTRODUCTION

Over time and space within different ecological environment one can witness the biological and cultural evolution of early man. The following aspects are involved in this statement and they are studied in Archaeological Anthropology.



Out of these 'space' is an important aspect for studying the distribution of man in different ecological setup in relation to surrounding environment. Space has been utilised for settlement, economic resources, and cultural activities. Archaeologists study prehistoric subsistence pattern on the basis of artifacts with various technologies that people developed to adapt to their environment. Cultural ecology is a theoretical framework for studying the interrelationship between people and their environment. Environmental approach includes both natural and social environment. In the study of prehistoric settlement pattern, technology and subsistence have leading role.

Today settlements usually mean cities, town and villages. However, these types of settlement pattern are absent in Prehistoric period. First man was mobile rather than sedentary. He created temporary camps and sites for processing raw materials and in search of food. Cave and rock shelter were often used for occupation.

In outlining an archaeological site, different types of sites as the spatial units are important in the context of the present study unit. One can understand the importance of studying archaeological sites, their distribution and differentiation in terms of time and space in cultural frame of archaeology.

1.2 ARCHAEOLOGICAL SITE: DEFINITION AND CLASSIFICATION

A 'Site' or precisely an archaeological site is any kind of place, large or small, where there are traces of human occupation or his activity found available. Archaeological sites consist essentially of activity areas that comprise material cultural objects like tools and remains of food in the form of rubbish dump. Sites do not remain intact rather they change in course of time either through repeated occupation of man and due to impact of various natural agencies. They however remain intact on many occasion after the site is discarded and abandonment.

Sites are discovered in course of exploration upon the occurrence of stone artifact. Their sizes range in size from a spot, larger with scatter of hunter-gatherer artifacts

to large city. Innumerable sites developed owing to the migratory habit of early man, and many of them are not yet discovered. Smaller and bigger sites reveal the duration of time or length of occupational time. For example Mesopotamian occupation mounds were re-occupied again and again for hundreds and thousands of years and its remains are discovered from a number of stratified layers. In contrast the occupation site may contain scatters of potsherds or stone tools or occupation layer buried under top soil. Archaeological sites may consist of an association of assemblages of artifacts or series of assemblages stratified one above another.

A person could hardly comprehend prehistory if he regarded each of the site as an unique one; archaeologists therefore customarily group sites into convenient categories. A reader working for the purpose of a general work on archaeology will see reference in a book on Prehistory or Archaeology with different nomenclature like Paleolithic sites, early Bronze Age sites and Iron Age; however there will be sites like Cave Site, Sites on the River Valleys, Sites on the edges of Lakes, lagoon and sea or in desert environment. Here the first category of sites speaks about a cultural orientation and the later are described on their spatial distribution.

1.2.1 Classifying Sites

Archaeological sites can be classified in the following ways:

1.2.1.1 By Artifact Content

The association, assemblages, and sub assemblages of artifacts in the sites are used to label it as Stone Age, Chalcolithic or Iron Age and so on. Thus the particular site can be labeled according to its specific artifacts content: stone tools, milling stones, pottery and some metal artifacts. On the other hand the sub assemblages recovered from the site reflect individual human behaviour, sites can be classified by the characteristic pattern of the artifacts found in them such as burial sites, kill or butchering sites, quarry site and habitation site.

1.2.1.2 By Geographic/Geological Location

Many human settlements are well defined types associated to various geographic locations, and these sites can be referred as open sites, lakeside sites, cave sites, valley sites, foothill sites, and so on.

The above mentioned sites could be expanded, but none of them can singly account for all the possible kinds of sites. The study of all kinds of sites is relevant to a particular objective pertaining to any research to give a holistic picture of the social system operative in prehistory. Therefore it is meaningless to attribute that some kinds of sites are of more value than others. It is fairer to attribute that some kinds of sites yield a greater range of information than do the others, and that consequently, these are the sites most often studied.

1.2.2 Kind of Sites

A site is a place where traces of ancient occupation and activity are available. The presence of artifacts is the clue to a site. The number and variety of prehistoric sites are limited only by the activities of prehistoric men who lived and left their traces on the Earth. Each site is not unique and therefore archaeologists classify

sites into categories. These sites have been classified by artifacts type such as stone tools. The activity is represented by the remains, such as, kill site, camp site, and quarry site. Finally the site is referred to the geo-archaeological context, such as, stratified, non stratified or surface finds.

1.2.2.1 Living or Habitation Site

Habitation sites are the most important sites because people have lived and carried out a multitude of activities at the place. The most commonly excavated sites are the places where people lived and these sites were a focal point of prehistoric activities. All archaeological sites imply habitation though it may have been for relatively short time period. A habitation site is one around which a group of people centered their daily activities. The artifacts in living sites reflect domestic activities such as food production. Habitation sites that were occupied the year round frequently have the remains of houses, but dwellings may be caves or rock shelters or even open area in which no trace of a permanent shelter remains. Seasonally occupied sites generally have fewer traces of architecture. Prehistoric men found shelter in various sorts of constructions ranging from temporary windbreaks, lean-tos to semi sub-terranean house made of logs and earth that could be lived in year after year, mud brick or rough masonry houses etc. In areas where shelters were not needed, habitation sites may be seen with the remains of fire and scatter of refuse and artifacts. In prehistoric sites an arc shaped pile of stones, which perhaps served as the floor or foundation of a windbreak, has been discovered in Olduvai Gorge, Tanzania, by L.S. B Leakey.

The prehistoric caves are hollow carved in the rocks by natural agencies such as wind and ground water. They are generally found in the lime stone formation. Evidence of cave shelter has been found in Kurnool district of Andhra Pradesh. A rock shelter differs from a cave in having an overhanging rocks and almost open sides. Hundreds of rock shelters have been found from vindhyan sand stone area of Madhypradesh.

The open camp sites or open air sites are mainly found in the open or near the bank of the lakes, streams and ponds. It is a living site because people lived or camped for a certain time period. The site Langhnaj is a good example of a camp on a dune near a Lake and Bagor is the example of open camp beside River site.

Sites that are ordinarily close to settlements are agricultural fields and terrace, irrigation canals, roads, bridges, aqueducts, and cemeteries. Occasionally habitation sites served the dual purpose of dwelling and defense, although defensive structures are relatively rare in prehistoric times.

1.2.2.2 Trading Centres

A number of trading sites has been reported from a few places, though it is difficult to recognise them with certainty. Sites centrally situated between the Maya and Aztec areas have been identified as ports of trade, though of course they were habitation sites as well. The site Lothal in Indus area is also of the same type. Archeologists have found a site on non arable land that was favorably placed for the salt and obsidian trade in Turkey. Pathways across open ground or roads such as the Roman roads of Britain and Inca highways are distinguished features related to trade. Teotihuacan near Mexico City is the great prehistoric

metropolis which covers about 20 square kilometers with a population estimated as high as 125,000 persons. There are certain groups of buildings where foreign pottery is abundant and the archaeologists think that merchants from the Gulf Coast, Yucatan, and Oaxaca may have lived in the area.

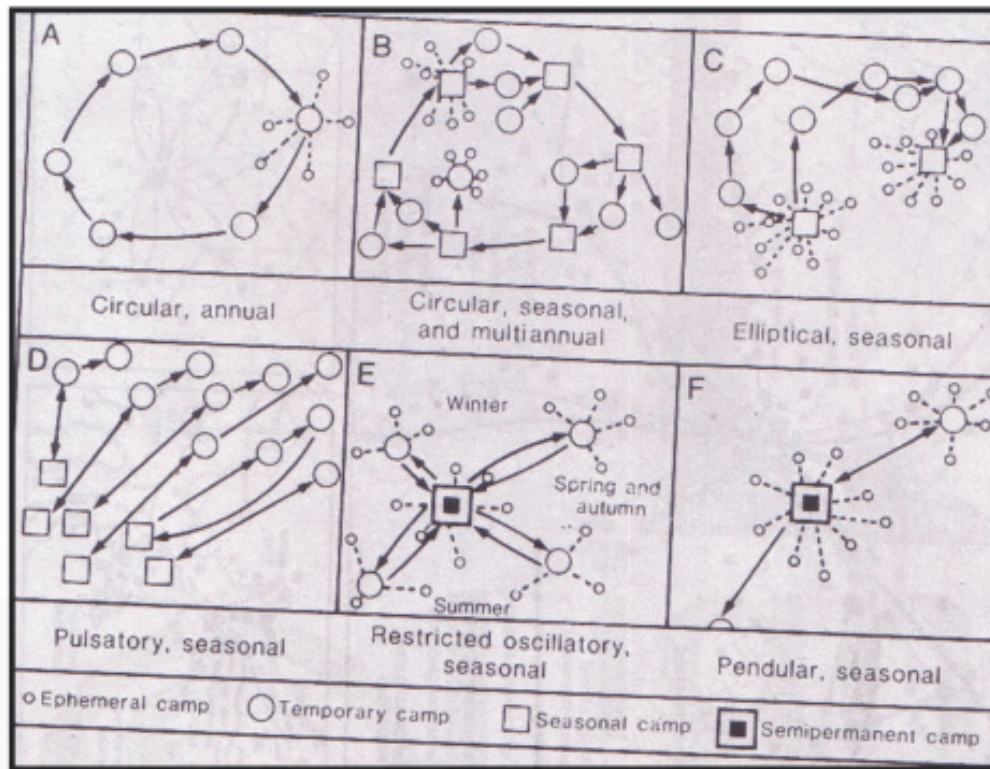


Fig. 1.1: Different Types of Camp (Fagan, 1991)

1.2.2.3 Quarry Sites

In archaeological terms, a quarry or mine site is where there were evidences of material, such as, stone or metal ore were mined for use as building material or for tool manufacture. Quarries are interesting to archaeologists, because the sources of raw materials found on archaeological sites help to know trade networks of prehistoric and protohistoric people. Evidence at a quarry might also show available technology in the form of tools left behind and cut marks in the walls of the excavation pits.

Sites in which a great variety of minerals were mined are common throughout the world although only a few of them were excavated. The presence of special tools needed for mining copper, obsidian and other metals are important for identifying quarry sites. Mining for metal ores also indicate a sites. Archaeologists have uncovered the bones, and sometimes the bodies, of miners who were crushed by falling rocks. Quarry sites may be workshop areas where ores were smelted, flints were chipped, or soapstone was worked into bowls. Analysis of raw material form quarry sites help to get to know which of the particular product was mined. A study of the distribution of finished stone artifacts may tell the archaeologist a great deal about ancient trade relations in particular stones. For example Petrological analysis of British stone axes of the Neolithic and Bronze Ages and of the determination by trace element studies of obsidian and copper in the Near East indicate the areas from where those were imported.

In 1990, a team of archaeologists of Banaras Hindu University supervised by P.C. Pant and Vidula Jayswal noticed evidence of ancient stone quarries, including many large cylindrical blocks in the nearby Chunar hills. Over 450 ancient quarry sites were identified in an area of 15 sq. km. This was done on the basis of marks of extraction of stone blocks, chiseling debris, cylindrical blocks and count marks of the number of finished blocks.

1.2.2.4 Kill Sites

Kill sites are places where prehistoric people killed games and camped around while butchering the meat. They are relatively common on the Great Plains. It is common in the United States to found kill sites, places where one or more animals were killed by hunters, some of whom may have had no permanent dwellings. At kill sites archaeologists find the bones of the animals, projectile points used for killing them, and the tools for butchering. In some cases where the bone materials has been well preserved the pattern of butchering the animals can be reconstructed. At Olduvai one such site is found.

Outside the Americas it is less common to find kill sites, though certain remains from the Acheulian and later periods, situated at the edges of rivers and lakes must have been combination of kill and habitation sites. Those hunters usually have a home base from which they wander in pursuit of game and often bring back only the edible portion of butchered animals. The amount of bone and stone tools in these sites suggests seasonal or perhaps permanent year round camps. Archaeologist usually calls these sites “living floors”. Frequently a fireplace is found in which the meat was cooked.

1.2.2.5 Factory Sites

Factory site is a site where men manufacture tools. These sites are generally located near the sources of raw material. Numerous factory sites have been discovered in India. Example of Lower Palaeolithic factory sites is Chirki on the valley of the river Pravara, Gangapur on the river Godavari, Chitor in Rajasthan. Several factory sites were also used by man as camp sites or living sites. The raw materials, finished and unfinished tools, debitage are the indicator of factory site.

1.2.2.6 Ceremonial Sites

Ceremonial site may or may not be integral to a living site. Mayan ceremonial sites, such as Tikal were surrounded by habitation areas. Ceremonial sites include the imposing megalithic construction at Stonehenge. Ceremonial sites are found in much older caves in France and Spain where remarkable paintings, carvings, and reliefs are found. Ordinarily, however, there are no dwellings other than those of political or religious officials and their retainers within the area of a ceremonial site. For example, La Venta, a large Meso American ceremonial center, was erected some distance away from the area where general population lived.

1.2.2.7 Burial Sites

Burial sites are mostly those sites where the dead bodies are ceremonially buried. Burial sites include both cemeteries and isolated tombs. People have been burying their dead since at least 100,000 years ago and have often taken enormous pains to prepare them for the afterlife. The most famous burial sites of all are the pyramids of Giza in Egypt. Archaeologists concentrate their efforts on cemeteries because they often contain useful information about social practices. Burial sites range from isolated burials in shallow holes to elaborate masonry construction, earth mounds, and megalithic monuments. At the classic Maya site of Palenque in the state of Chiapas, Mexico, the pyramid and temple of the inscriptions were built over a great burial chamber, and subsequently several other examples of tombs in the pyramids have been found. Many burials are associated with special grave furniture, jewelry and ornaments of rank.

Burials may also be found in the garbage dumps of large villages; they may be under the floors of houses; or they may occur singly, away from habitation sites. At times certain cemeteries, or sections of a cemetery, may have been reserved for persons of one sex or age or social rank. Usually, however, cemeteries contain a sample of the whole population that died in the period of the cemetery's use. Examples of special cemeteries are those for children in Pennsylvania; separate cemeteries for men in the Desert field in upper Austria, where special areas were reserved for children, for victims of epidemics, and for persons belonging to "an elevated social group". Disposal of human bodies may also involve the discard of artifacts with the body. These grave goods are extremely valuable to archaeologists for reconstruction of prehistoric ways of life and death.

1.2.3 Primary and Secondary Sites

The site may be either primary, if people have deposited its own remains there or secondary, if the remains have been re-deposited by another person or by natural agency. Any other human disturbance of the ground might result in elements of the site being moved around and re-deposited. For example a primary deposit on a river terrace has been bulldozed into another part of the terrace; the place of re-deposition is a secondary site.

1.2.4 Importance of Primary Sites

A primary site may either be disturbed or not disturbed. The living sites are mainly primary sites. If at a site the evidence of cultural material left behind by man is found in an undisturbed or original deposition or in *in-situ* position it is a primary site. The material remains recovered from these sites provide valuable information about the life of the people who lived there as well as about their surroundings. The present trend of India is more towards exploring and excavating the primary or the living sites. The contents of a primary site comprise both natural and human deposits. The natural deposits consist of materials laid down by water, wind or other geological agencies. The human deposits cover the animal deposition and material culture.

Kind of deposition			Natural deposition	Human deposition	
Deposits made by geological agencies			Water and wind-laid materials	_____	
Deposition made by occupants of the site	1.2.3 1.2.3 1.2.3 1.2.3 Products of the occupants activities	Raw materials	Material brought by animals for their own consumption	Material brought by man for his own consumption	Cultural remains
		Processed Materials	Material prepared by animals for their own consumption, including by-products	Material prepared by man for their own consumption, including by-products	
		Unworked equipment	Structures, tools, etc. used by animal in their natural state	Structures, tools, etc. used by animal in their natural state	
		Worked equipments	Structures, tools, etc. manufactured by animal in their natural state	Structures, tools, etc. manufactured by man in their natural state	
		The occupants themselves		Remains of the animals and of plant occupants	

Fig. 1.2: Contents of primary site (Rouse 1972)

1.2.4.1 Abandonment of a Site

At some stage in the life of an activity area a settlement may be abandoned. All features of site, such as pits, buildings, roads would be abandoned but also a range of artifacts. Once a site has been abandoned other communities in the area may see it as useful local resources of firewood or building materials. The site could be leveled further for new buildings and cut away to make terraces for new houses or agriculture.

1.3 FORMATION OF SITE

Two questions arise, “How a site is made?” and “How do you know where to look for sites?” These are important for the Archaeologist. In principle, the answer to both questions is easy although a little explanation and illustration are required.

Sites are the result of human activity. It is not always very easy to recognise the prehistoric sites though understanding of the pyramids and mounds that were built as tombs and memorials to the dead are rather easy. The condition of the site and depth of the findings are important aspects. This depends on the formation of the site. It is basically a geological process. Natural agencies are important factors for formation and transformation of site.

In case of caves and rock shelters continued occupation over thousands of years left a layered deposit of debris some tens of feet in depth. The accumulation of debris in caves thus can be explained as the joint result of man and natural processes. As for example family moving into a cave might bring in some branches of grass to cover the damp, hard floor where they wanted to sit and sleep and some rocks to sit on. They would bring in wood and branches to build fires. The hunters would kill animals and bring their dead bodies into the cave and when they had finished their meals they would throw the bones to one side. As natural erosion of the cave or rock shelter took place, bits of rock and dirt would flake

off the ceiling. Sometimes a major rock fall would bury the whole floor. Wind might add appreciable quantities of fine soil over long periods of time, and water-carried sediments might also add to the filling process. If occupation together with natural events continued for thousands of years, the cave might finally be filled to its top.

The great mounds (tells) that have accumulated in some parts of the world, especially in the Near East, represent an example which shows that natural processes have done more to take away than to add material. At Ur in Mesopotamia, Woolley dug more than 90 feet to reach the base of the great mound. These mounds occur in parts of the world where the chief building material is mud. The people make bricks both of sun dried mud and fired bricks they laid poles across them to form a roof on which they pile brush or matting, and cover them with a thick layer of mud. It is practically impervious in these arid regions where there is little rainfall. Despite the low rainfall and consequent slow rate of erosion, the houses do deteriorate and eventually become unsafe for continuous use. Then thrifty villagers scavenge the scarce poles used in the roof and reuse them in new structure. After this, the bare walls standing there against the wind and rain rapidly disintegrate and eventually leave a featureless mound where the old house stood. After some time new houses are often built on the same location, frequently several feet higher than the original house. One may wonder why people as they customarily do in the Near East – chose to build on top of old houses rather than pick a spot on level land. The reasons seem to be that, with agricultural fields beginning at the edges of the settlements, there was no room to expand, and often defensive walls were built around the towns.

The practice of building mounds by the deliberate heaping up of dirt or stone, the practice of building mounds on which to place houses, public buildings, and temples was common in the eastern United States as well as in Meso –America. Indians in the upper Mississippi Valley region of the United States often made mounds for the purpose of burial, some of them being in the form of animals, birds and serpents.

For a variety of reasons some locations are more attractive than others, and these spots may be continuously occupied or frequently reoccupied. A common cause of the successive use of the same spot may lie in its presumed religious sanctity. Often a shrine or church existed there, and later peoples may have lived. Perhaps they belonged to a different religion and took advantage of the same site to build their religious structure. In Europe the great cathedrals stand on the sites of pre Christian shrines or temples.

1.4 RECOGNISING AND FINDING ARCHAEOLOGICAL SITE

A wide variety of techniques, ranging from walking, to aerial photography to magnetic prospecting, can be used to find sites. Fortunate discovery of sites are a bit advantageous and are sometime can alter the general course of information.

1.4.1 Approaches for the Archaeologists

At the beginning to find sites in certain areas, an archaeologist must first familiarise himself with the landscape and its potential for supporting different

kinds of human activities. It is helpful also to have some general idea about the kinds of sites that are likely to be found. For example, a person would normally look in somewhat different places for sites of hunters and for sites of farmers, hunters usually lived in relatively small camps and moved regularly in pursuit of game. Such sites as they did occupy would have been in places where water, game, and perhaps fuel could be obtained. Farmers, by contrast, ordinarily live in permanent settlements and chose their sites with an eye toward arable land.

Archaeologists can then survey the landscape for suitable places on the basis of this knowledge. Hills, grass grows, trees, and the location of sources of water are the important indicator of finding the site. An unnatural contour of a hill, an unusual kind of vegetation, soil, differing in color from that of the surrounding area, is all clues to sites. If the grass grows more luxuriantly in the outlines of a rectangle, it may mark the borders of an ancient ditch or house, and occasionally the walls of houses may be exposed on the surface.

1.4.2 Finding Archeological Sites

The following criteria are chosen to locate a site. They are based either on documentary evidence or on the basis of certain ways and means formulated for the purpose of locating a site.

1.4.2.1 Existing Knowledge

Many archaeological sites have never been lost. The site may have been abandoned but it may remain clearly visible in the landscape. It was not considered an archaeological site as such. Classic sites like Stonehenge, the Great Wall of China, or the Acropolis of Athens have always been known. There are many sites which are known to local people like the lost civilization of Chandraketugarh where the local people retain a major source of information about sites known to them, even if this knowledge has not reached the archaeological record.

1.4.2.2 Documents

Archaeologist working in historic periods will use documents as one of their main sources for the location of archaeological sites. Documents must, however, always be treated with caution. The initial reason for the production of the document must always be considered, and whether the absence of information is simply because relevant documents have been lost.

Maps are perhaps one of the most important types of document to aid in the location of sites. Earlier maps may locate countries, towns, villages and major natural features.

1.4.2.3 Aerial Photography

Aerial photography is the earliest and perhaps still the most important, remote sensing tool available to archaeologist searching for new archeological sites. Remote sensing involves any techniques which capture geographic data by sensors at some distance from the surface being recorded. The main elements of remote sensing are aerial photography, satellite images and geophysics. All data gathered through remote sensing can be separated, combined, and manipulated through the activity of image processing, which forms one of the key elements of geographic information system (GIS).

Any site with humps and bumps, like banks or ditches, has the potential to show as a shadow site. Crop marks often produce the most dramatic aerial photographs. Crop marks are basically the result of differential speed and quality of crop growth and ripening, depending on sub-surface conditions. Essentially if the soil is deeper in one spot in the field, the crop above will have access to more nutrients and moisture than crops above shallow soil. Crops above a ditch or pit for example will grow more rapidly and strongly, be taller, and ripen more slowly than those above a wall or floor, which are likely to be weaker, shorter, and ripen more rapidly. Crops above deeper soils will produce positive crop marks, while those above shallow soils will produce negative crop marks.

1.4.2.4 Ground Survey

Archeological sites may also be found by systematic ground survey. This can be approached in a variety of ways, depending on the aims of the survey and the available time and money. Geophysical survey techniques are part of the battery of remote sensing techniques which include aerial photography and satellite images. Like all remote sensing techniques, geophysical surveying is a non – destructive method of site investigation, so has obvious advantages over excavation when dealing with the finite archaeological resources. Resistivity survey of the soil provides some clue to subsurface features on archaeological sites. Magnetic survey is used to find burial features such as iron objects, fired clay furnace, pottery kilns, hearths and pits filled with rubbish or softer soil.

Beside these, exploration by foot is an age old method of finding archaeological site.

1.5 CONTEXT SPECIFIC OF SITE

Settlement Archaeology includes the study of both permanent and temporary interaction of humans with surrounding geophysical setting in order to understand, how they are adapted to it. Archaeologists also try to understand the ways in which the people in the past understood their surrounding landscape through some ideas; initially conducive to live in and availability of food and water were the two primary considerations, and towards the ancient historic time, ownership, territory and status were given specific consideration. The settlement archaeology mainly focuses the placing of structures or other features within a settlement. Artifacts and ecofacts are used for studying the distribution of past activities of man. In Prehistory different sites have been found such as habitational sites, ceremonial sites, hill sites, graves, trading centers and camp. Looking at the modern world there is diversity among the settlements such as primary manufacturing centers, market town, suburbs or rural hamlet, centre of transportation, fishing and agriculture. If we consider the specialised functions of prehistoric sites firstly there is a conception of how people live and behave. It also can be studied by ethnography, study of contemporary people and the modern primitive communities. One group of people may use a number of sites that have different specialised functions. Hunters frequently observed game mainly from forest, religious activities are often carried out in sacred places and interior territories (rural or villages) in winter may be placed for protection from wind with the availability of fuel. Summer camps are selected at places which might have been more comfortable than other parts of the territory. Manufacturing of artifacts depend on the sources of raw materials. In modern times, most of the

people are permanently settled at a place where rapid and efficient transportation and communication are available compared to total inconvenience of early man who moved like animal in a forest environment.

The second function may examine the content of the sites. Sometimes caves were used as base camp and rock shelters served as a butchering station. In the absence of domestic refuges with the geographic context specific use of the site could be inferred.

1.6 SPATIAL UNIT: AREA AND REGION

The spatial units have been referred to thus far are all confined to the boundaries of one community. They reflect the activities of the maximum number of people who occupied the settlement at some time. Prehistorians seek to understand the wider scale though archaeological research was carried out on single site. Several communities or a scattered population living in a well defined region may be linked to same subsistence or settlement system. Culture behaviour is identified by patterning the ancient assemblages with background of geographical and environmental data in a particular settlement and across the settlement.

A number of spatial units are in common use.

1.6.1 Archaeological Culture

Culture is consistent patterning of assemblages, the archaeological equivalents of human societies. Archaeological culture is the reflection of material remains of human culture preserved at a specific space and time at several sites.

1.6.2 Culture Areas

It is a large geographical area in which characteristic of an archaeological culture exist in the context of time and space. For example Mayan cultural system and Mayan culture area.

1.6.3 Archaeological Regions

This is generally described as well defined geographic areas bounded by geographic features, such as oceans, lakes or mountains. The ecological and cultural boundaries throughout prehistoric times also have been considered.

Regional approaches involve comparison of artifacts from a few scattered settlements. This is based on a research strategy sampling the entire region and reconstructs of many more aspects of prehistoric life than those uncovered at a single site.

1.7 SETTLEMENT ARCHAEOLOGY

Settlement archaeology is the study of changing human settlement pattern and interaction of people and their external environment, both natural and cultural. The layout of the human settlement on the landscape, are the result of relationship between people who decided to place their houses, settlement and religious structure on the basis of political, economic and social considerations. Settlement archaeology reflects the society and its technological adaptation to the specific

1.7.1 Determinants of Settlement Patterns

Settlement patterns are determined by many factors related to the environment, economic practices and technological skill. For example the distribution of San camp in the Kalahari Desert depends on the availability of water supplies and vegetable foods. Village lay out also reflect the idea about the need to protect from predators or war parties.

The determinants of settlement patterns operated on at least three levels each is formed by a number of factors as below.

- 1) **Building or structure:** Houses, household cluster and activity are units of archaeological analysis.
- 2) **Communities:** The arrangement of structures within a single group constitutes a community. The community is defined as a maximal group of persons who normally reside in face to face association.
- 3) **Distribution of communities:** The density and distribution of communities, whatever their size is determined to a considerable extent by the natural resources in their environment and by the economy, nutritional requirements and technological level of the population as well as by socio religious constrains.

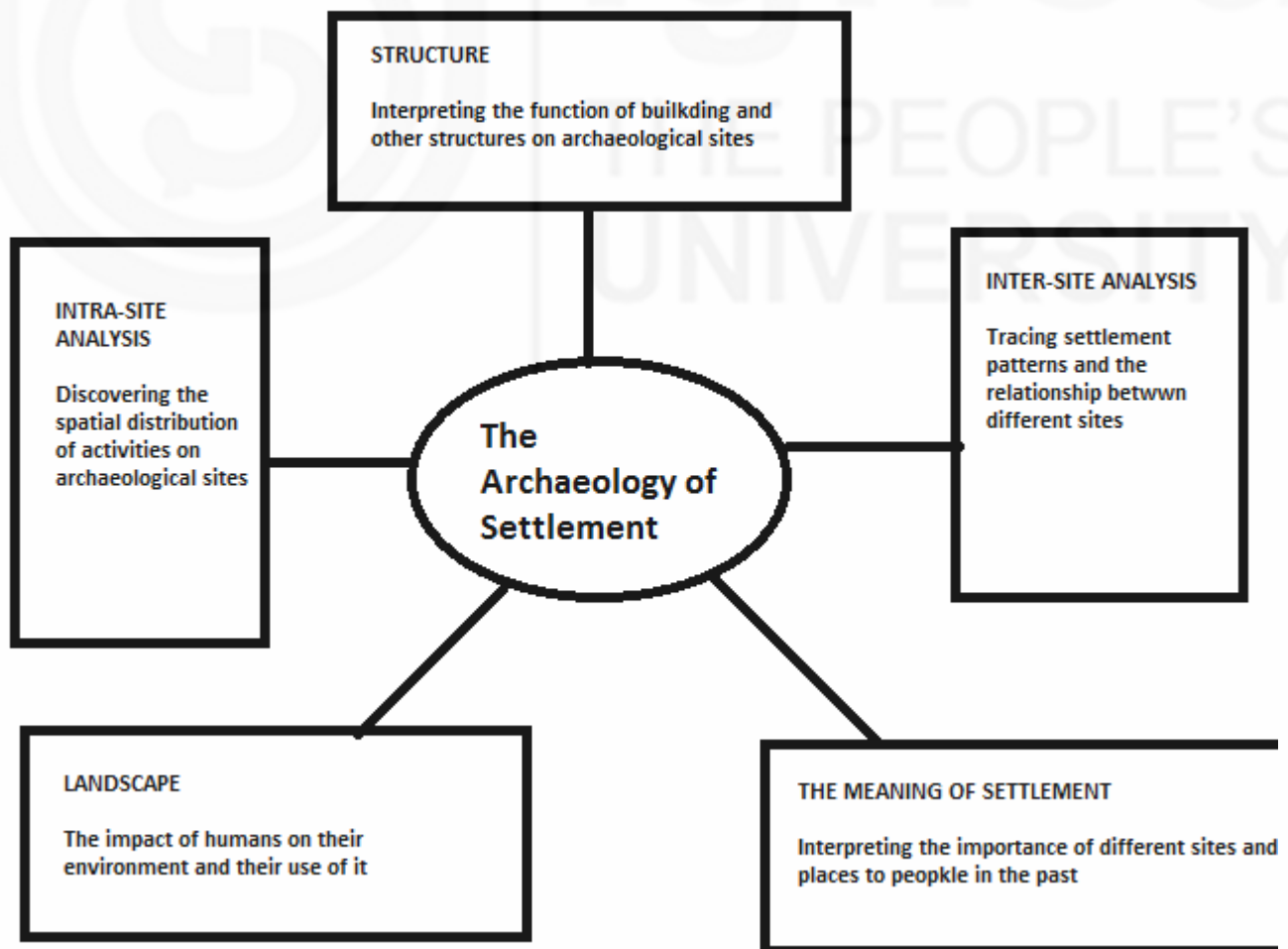


Fig. 1.3: The Archaeology of Settlement (Grant et.al 2007)

1.7.2 Hunter-Gatherer Sites

Karl Butzer (1982) studied the Lower Paleolithic Acheulian sites of Ambrona and Torralba in Central Spain. He argued that early hunter gatherers shared the ability of large grazing animal to adopt different feeding habits and seasonal movement according to the abundance of resources through the year. Ambrona and Torralba lie along the only low latitude mountain pass dividing the plains of Castile. This was the route through which the large mammals migrated in spring and fall from winter to summer pastures and back again. The Acheulian people hunt these animals. During other season of the year they spread over the neighbouring country in temporary camps near water and constantly moving herds.

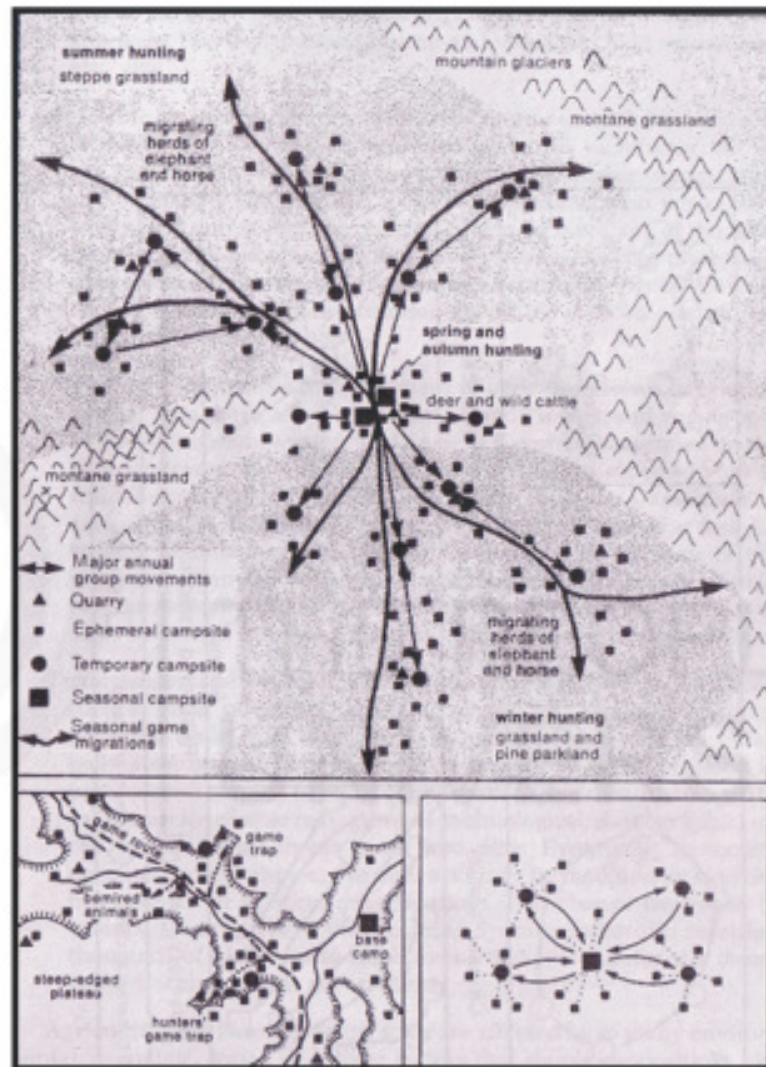


Fig. 1.4: A seasonal mobility models for Achulian hunter-gatherers in central Spain based on the data from Ambrona and Torralba. During spring the hunters preyed through the mountain passes and in summer and winter they divided into small group and lived in temporary sites near water and stone outcrop. (Butzer, 1982)

The Jarawa is an ancient Negroid tribe and live on the Andaman islands. This nomadic tribe continue to be hunting and gathering one. Jarawas hunt wild pig, monitor lizard with bows and arrows.

1.7.3 Agricultural Settlement

The clustering and patterning of agricultural settlement are affected by cultural and environmental factors combined.

Distribution of economic resources such as different types of land with separate pasture land, cultivation and so on affects the settlement pattern. Soil distribution, texture, depth, sub soil are important factors. The earliest European farmers concentrated on well drained easily dug soils because they did not use heavy plough.

Available technology, land clearance technique, available transport, crop types exploited and other factors within site are also responsible for clustering.

Topography influences the placement of agricultural sites in relation to their neighbours, affected direction of trade routes and encourages or inhibits communication. The ancient Egyptian depended on the Nile for transportation and water and the present successors still do the same.

Trade network play a leading role in the emergence of central places in great cities.

Agricultural settlements are affected by so many environmental, economic, social and other factors. Agricultural settlements were far more dependent on one another than those of hunter-gatherer.

1.8 SUMMARY

The basic concept used by archaeologists in recovering remains is that of site, by which it is meant any place in which archaeological remains have been found. Archaeologists study different types of ancient sites which include primary and secondary as well as permanent and temporary sites. The interaction of human with their landscape is studied in order to understand how people adapt to it. Human impacts on the landscape from the forest clearance to the division by boundaries into territory are important parts of settlement study. Understanding of landscape through ideas such as ownership, territory and status by people are great concern to the archaeologists. For this study they need to identify the spatial distribution of past human activities, understanding of the location of the sites within a landscape or the placing of structures and other features within a settlement. Artifacts, ecofacts and features are the key evidence base in studying of distribution of ancient activities. Archaeological sites usually form through human-related processes but can be subject to natural, post-depositional factors. Cultural remnants which have been buried by sediments are in many environments more likely to be preserved than exposed cultural remnants. The study of archaeological site is a multidisciplinary approach. Experts of physical and natural sciences, anthropologists, archaeologist, geologists and geographers have to involve for proper understanding of a site. Many sites are the subject of ongoing excavation or investigation but the study of prehistoric sites are rather scanty.

Suggested Reading

Butzer, Karl W. 1964. *Environment and Archaeology*. Chicago: Aldine Publishing Company.

Drewett, Peter. L. 2003. *Field Archaeology*. London: Rutledge.

Fagan, Brian M. 1991. *In the Beginning, an Introduction to Archaeology (Seventh Edition)*. Harper Collins Publishers.

Grant, Jim, Sam Gorin and Neil Fleming. 2007. *The Archaeology Course Book*. London and New York: Rutledge.

Rouse, Irving 1972. *Introduction to Prehistory, a Systematic Approach*. United State of America: Mc Grew-Hill.

Sample Questions

- 1) What is an archaeological site? How would you classify archaeological sites.
- 2) What are the different types of sites and their function?
- 3) How would you identify a trading centre?
- 4) What are primary and secondary site? How would you distinguish between them?
- 5) What do you understand by spatial unit in Archaeology?
- 6) Discuss how a site is formed? What are the approaches for identifying archaeological sites?
- 7) Discuss the implication of settlement archaeology.



UNIT 2 TOOL FAMILIES

Contents

- 2.1 Introduction
- 2.2 Raw Material
 - 2.2.1 Tool Classificatory
- 2.3 Techniques of Manufacture
- 2.4 State of Preservation
- 2.5 Tool Types
- 2.6 Summary
- Suggested Reading
- Sample Questions

Learning Objectives



Once you have studied this unit, you should be able to:

- understand the selection of raw material and fabrication of the tools;
- discuss different types of techniques; and
- describe the evolution of the tool types and techniques.

2.1 INTRODUCTION

Tool is a smallest unit of *Culture*. Cluster of tools made at a place during a particular time is called an *Industry*. A cluster of industries of a particular locality belonging to a particular time is called a *Culture* in prehistory. Again a cluster of a number of cultures of a given locality forms a larger unit called a *Civilization*. Therefore tools and tool families lead one to understand the different *Culture* of early man and so the knowledge of tools helps in knowing both the tangible and the non-tangible aspects of a *Culture*.

Tools differ from culture to culture and so its making. Tools develop in conformity with the regular upward trend of physical and technological evolution. *Chopper* is a tool on pebbles both small and large and appeared during the early part of the Palaeolithic times followed by the *Chopper-Chopping* tools, and *handaxes*, *cleavers* and *disc* occur later. All these are classified as *Core tools* or *heavy duty tools*. *Flake tools* or *light-duty tools* were made at the end of the Lower Palaeolithic times. Earlier to Lower Palaeolithic, some controversial tools were collected from parts of England, and scholars and researchers belonging to Earth Sciences and history gave them a status with a name called *Eoliths* and the period assigned to them was the *Eolithic time*. Tool families of each and every cultural phase of different ages of humankind reflect different physical features those resulted from the application of a some kind of tool-making method. Prehistorians and archaeologists have given some names to the tools according to the nature of work it performed together with the name of a technique, which was applied in making the particular tool. Therefore tools are time specific.

Large sized tools such as handaxes, cleavers, chopping tools are observed in Lower Palaeolithic stage; flake - tools like scrapers, points and borers etc. found in Middle Palaeolithic stage; and blade tool technology is the characteristic feature of Upper palaeolithic culture.

2.2 RAW MATERIAL

Early man used both perishable and non-perishable materials for making tools for his day-to-day subsistence and for survival as well. Tools of perishable materials like wood and bamboo do not survive in archaeological ruins but from ethnographic sources, evidence about such tools is very much obtainable. Prehistorians and archaeologists could also trace tools from perishable materials amongst the modern primitive communities during their visits on research exploration. In Southeast Asia, chopper is used in making bamboo and wooden tools. On the other hand, plenty of stone tools reach the hands of Prehistorians and archaeologists, and who, on their part do reconstruct the *culture* of early man on the basis of tools unearthed from stratigraphic sequences.

Three basic rocks namely, the igneous, metamorphic and indurated sedimentary were chosen in making a stone tool. But early man's preference primarily pinpointed at the igneous rocks for the purpose of making tools. Flint was the most preferred variety of rock in Europe followed by quartzite in Africa and in Indian Sub-continent. Igneous rock comprises agate, chart, chalcedony, jasper and quartz and other precious and semi-precious stones.

The raw material used to manufacture a given set of tools can show whether this was quarried from distant outcrops or these are merely picked up from available river bed. Former reveals early man's advanced knowledge about a better quality of rock types and the latter was a common source of rock in the form of gravel, boulders and gravels in a river valley.

2.1.1 Tool Classificatory (Basic in brief)

Name	Cultural Period	Age
Chopper, Chopper-chopping, Cleaver, Disc	Abbevillian/Acheulean	Lower Palaeolithic
Scraper, Mousterian points and others	Mousterian	Middle Palaeolithic
Blades, Points and Bone tools	Aurignacian, Solutrean, Magdalenian	Upper Palaeolithic
Microliths	Mesolithic	Middle Stone Age
Celt (Axe, Adze, Chisel and others).	Neolithic	New Stone Age

2.3 TECHNIQUE OF MANUFACTURE

The techniques used in fabricating stone tools were recorded on the basis of experiments done by experts from the disciplines of prehistory and archaeology.

Techniques were learnt amongst the primitive communities learnt in Pacific regions, Southeast Asia, Andaman and Nicobar, Africa and many territories of the globe.

To know the stone fabrication techniques, go through the relevant portion on tool technology from Unit 3.

2.4 STATE OF PRESERVATION

Antiquities are deposited by one or more natural activities. Very often these are carried by river and are rolled. At times fine deposition of line encrustation or iron, aluminium or chromium patination can be seen spread over the surface of the tool. It is an accepted methodology in Archaeology to use these or other degrees of rolling, patination or encrustation to decide the relative antiquity of the discovered specimens. It comes quite handy when one needs to separate a group of tools which have got mixed with another fresh looking group of tools.

2.5 TOOL TYPES

One needs to delve into the fact that both tool types and their method of manufacture have a kind of observed hierarchisation. For instance, core tools characterise Lower Palaeolithic and even in this one can say that stone hammer technique occurs earlier than cylinder hammer techniques. In the same way flake tools characterise Middle Palaeolithic and Thick blade tools (not fluted blades but punched blades) characterise Upper Palaeolithic.

Pebble tool

This term, in a strict sense, does not refer to any specific tool type. There are many kind of tools that can be prepared on pebbles. However, many authors use this term to include two tool types. These are Choppers and Chopping tools.

Chopper

The term chopper was first used by Hallam J. Movius Jr. for the first time in 1942 while describing tools collected from Sohan Valley, then in North-West India. Subsequently this term is used all over in European, African and Asian prehistory.

A broad and thick pebble which is broken transversely is chosen. Then with this transverse-end as platform few scars are removed from one of the surfaces in such a manner that the remaining part of the platform appears projected as a transverse cutting edge. Generally all choppers have a transverse cutting edge, but if the flaking produces a pointed end such a type can be called a pointed chopper.

Sometimes the flaking is done alternatively from both the surfaces of the pebble. These were termed chopping tools by Movius. A chopping tool also has a transverse working end but this border is sinuous because of alternate flaking. Since both these types are essentially similar in morphology and technique of manufacture except for the fact that a chopping tool is bifacial, many authors today do not count these as two separate types and call them as unifacial and bifacial choppers respectively.

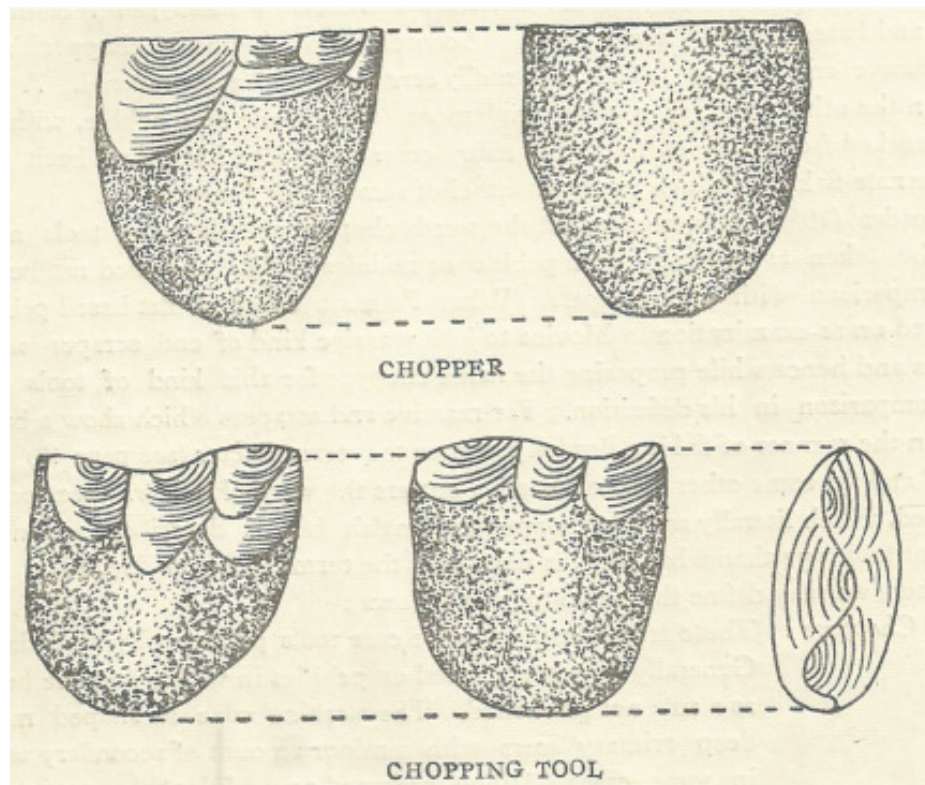


Fig. 2.1: Chopper and Chopping tool

Choppers are one of the predominant tool types in Lower Palaeolithic of East Africa and here these are also called *Oldowan* after the name of Olduvai Gorge where these occur through several levels. In Europe these describes from Clactonian in England as also from Central Europe. Mostly these are all grouped together in a techno-complex termed Mode I.

Core tools

Every piece of stone has two surfaces, two borders and 2 ends. If both these surfaces are worked and hence covered with flake scars, such a specimen is called a core tool. If both the surfaces are not worked (i.e., maintains original cortex) but only borders are worked then also this specimen will get classified as a core tool.

Basically there are three major types that will get classified as core tool. These are:

- i) **Discoid core:** These are circular cores, as the name suggests. Flakes are removed from all around the circumference. The maximum thickness of the tool is in the centre. It can be worked unilaterally or even bifacially. These can be profitably used for cutting or shaving wood.
- ii) **Handaxe:** Handaxe is one of the most prolific tool type found all over the world during the entire length of lower Palaeolithic. However, this tool type is not quite common in all the south east Asia. It is also designated to form the techno-complex, Model II.

It is essentially a biface prepared in such a manner that one end of the specimen is broader and thicker while the other end is narrow and sharp. It is because of this sharp and pointed end that many authors started calling the “working end”.

The opposite end which is often thick and bulbous was called the “butt-end”. However, since these terms refer to assumed function strict structuralist prepared to call them the anterior and the posterior ends, respectively.

When the handaxe prepared is massive and the technique used is block-on-block or stone hammer technique such handaxes are taken to characterise lower Acheulian tradition. These specimens are often more than 15 cm in length and maintain sinuous working borders. The reduction sequence and planning of these tools show a great deal of perfection and planning with distinct cognition of the resultant.

Once the technique shifts to cylinder hammer all the rough edges are regularised and smoothed by careful series of retouchings. The handaxe now become 6-14 cm in length and are as perfect in shape as to be compared with an almond (amygdaloid), a lance head (lanceolate) or even a heart (cordiform). Some of the middle to Upper Acheulian Handaxes also show a distinct extended S-twist as the lateral or working border. One of the most evolved of these handaxe is an Ovate. This is a type where the maximum thickness shifts from the proximal or butt end to the centre. The shape of the tool is slightly elongated elliptical. The entire tool is covered with extensive dressing all along the circumference. In shape these compare with the sports item discuss that is used as a missile. The only difference is that the Ovate is not circular.

If a core has been shaped like a handaxe but one of the surfaces is entirely original cortex then such a specimen can be called a proto-handaxe. This is mainly because handaxe by definition has to be a biface. Thus, leaving an entire surface untouched shows that it has not been finished, hence the name. If, however, one of the surfaces has single flake scar with a positive bulb of percussion then this needs to be called a flake handaxe. In some countries in the old world flake handaxes are quite common in middle and upper Acheulian evidences.

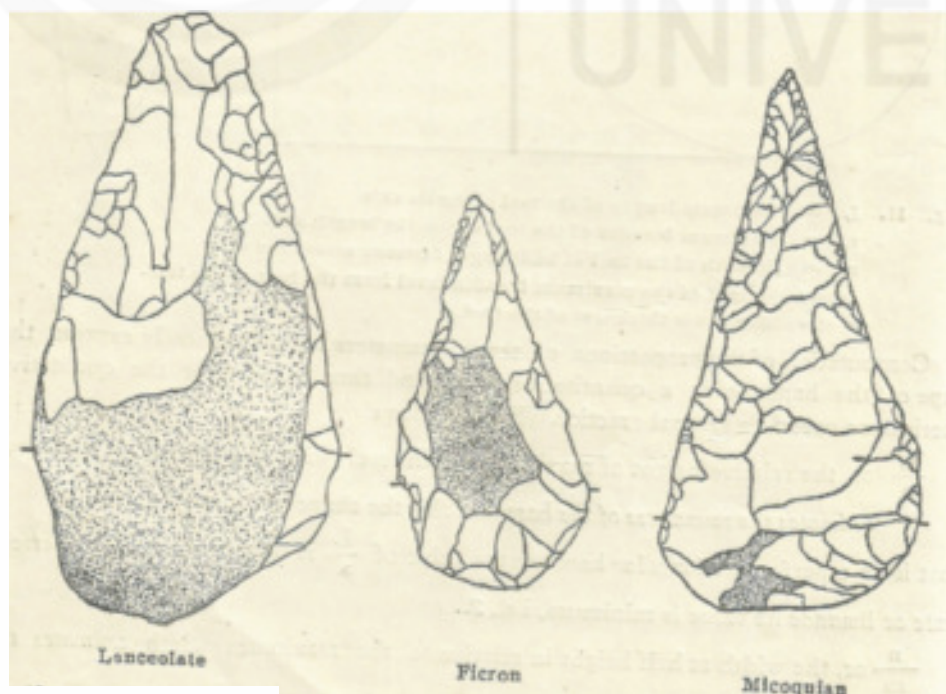


Fig. 2.2: Different types of Handaxes

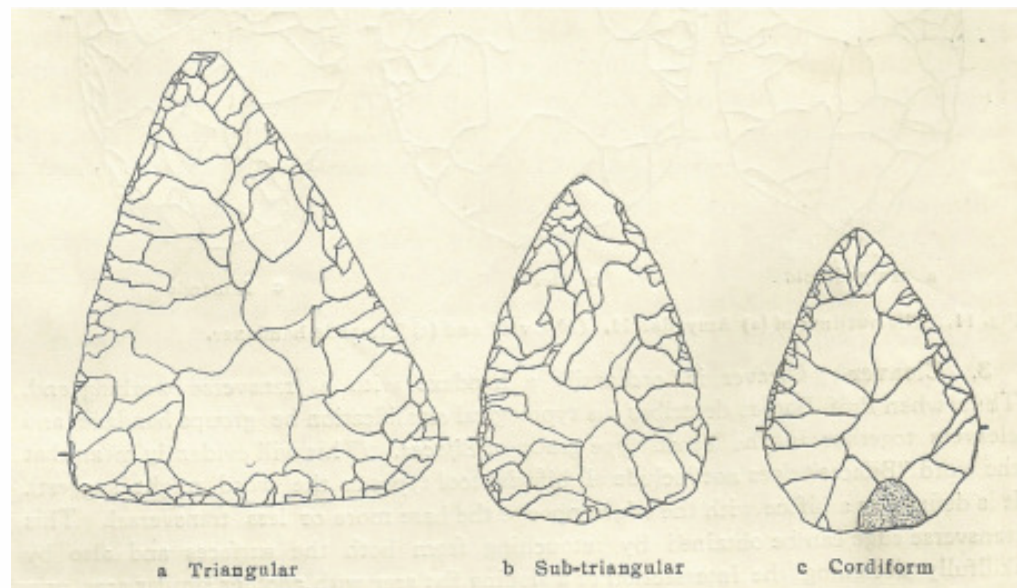


Fig. 2.3: Different types of Handaxes

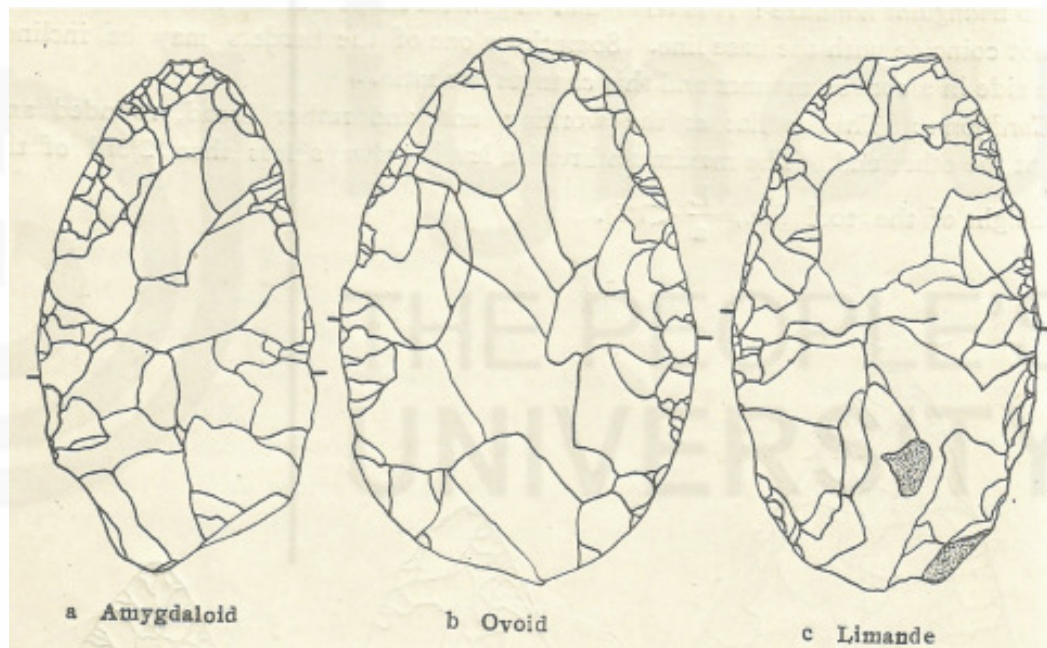


Fig. 2.4: Different types of Handaxes

Cleaver

This is also a biface like a handaxe, with the only difference that here the working end is broad, transverse and not pointed. The difference between this type and handaxe is so little that Francois Borders suggested that these should not be counted as two separate types. The generic type was named 'Biface and handaxe' and cleavers are re designated as two sub types of this.

In India and Africa a large majority of cleavers are prepared on medium sized flakes. A flat and sloping scar is so removed from the anterior end that this intersects with scar of detachment of the under surface to give rise to a transverse working end. The lateral borders are worked in such a manner that the cross section of the tool appears like a parallelogram.

Thus, whether on a core or on a flake the cleavers generally will have parallel side represented by lateral borders culmination into a sharp border across the axis at the anterior end. These cleavers as a rule have a shape like a 'U'. In some cases the sharp border is not actually across the mid axis and is inclined to the right or left. Such cleavers are designated as a cleavers with inclined working edge. There are yet some cleavers where the posterior end is both thick and also pointed. Such cleavers are called 'V' shaped cleavers in contradistinction to what has earlier been described as 'U' shaped cleavers. Both these varieties of cleavers can be either made transverse or inclined.

For statistical analysis as also for computation of proportion of core tools to flake tools, handaxes and cleavers made on flakes are classified within core-tool category.

Flake tools

A flake can be big when detached from massive cores. But such massive flakes are seldom used to make flake tools. These are usually made on flakes which do not exceed 8 to 9 cm in length. The larger flakes are often the starting point for preparing a handaxe or cleaver but not what is understood by the term flake tool.

A flake becomes a tool only when it is worked and very precisely 'retouched' along any one or the both the longitudinal edge. The area so worked determines the type of a flake tool. Here a word of explanation is required for the word "retouching." A series of nibblings executed in a contiguous manner along a border is called retouching. A flake tool seldom shows any kind of attention to its surfaces. (Refer to relevant portion on tool technology from Unit 3.)

In case of a piece of flake tool, a bulb of percussion appears on the main flake surface at the point of impact of the hammer blow, characteristically both of them remain untouched excepting employment of retouching on the edges. On the other hand opposite surface will show some flake scars of earlier workmanship or the traces of original pebble cortex, and largely remained untouched. In case of levalloisean flake, of course, the entire dorsal surface will show the centrally directed flake scars removed before the 'flake' was detached from the parent lump of stone or a prepared core.

There are four predominant flake tool types. These are (i) side scraper, (ii) point, (iii) Borer and (iv) Knife.

Side Scarper: This is the most prolific tool type of the Middle Palaeolithic period. A simple flake is taken and retouching are delivered along one of its borders. This is designated as a 'single side scraper' when one border is retouched. This border can be convex, concave or straight. To determine if the border is convex etc. a simple method is prescribed. Bring a pencil or a scale and touch the retouched border. If it touches the straight pencil at one point then call this border convex. If it touches at two points then call the border concave. If it touches at more than two points call the border straight. Thus, we see that a single side scarper can have three sub types. These will be written as 'Single Side Scraper Convex', 'Single Side Scarper Concave' and 'Single Side Scarper Straight'. Another variety of side scraper can be when two of its borders are retouched in such a manner that they do not meet. Such side scrapers will have six possible sub-types. These will be written as 'Double Side Scraper bi-convex'

or ‘double side scraper concave-convex’ and so on. If the two scraping borders meet at a point then such side scrapers are termed ‘Convergent side scrapers’. In this category we do not count size sub types. Here concave is taken as the most dominant feature, straight the next dominant and convex the least dominant. So that if the two borders in a convergent side scraper are straight and convex it will be called straight. In the same way, if the two borders are straight and concave it will be called concave. Thus convergent side scraper straight will have only two convergent borders. In a tabular form it will be as follows:

Convergent side scraper convex	– Convex + Convex
Convergent side scraper straight	– a) Convex + straight b) Straight + straight
Convergent Side Scraper Concave	– a) Concave + Concave b) Convex + Concave c) Straight + concave

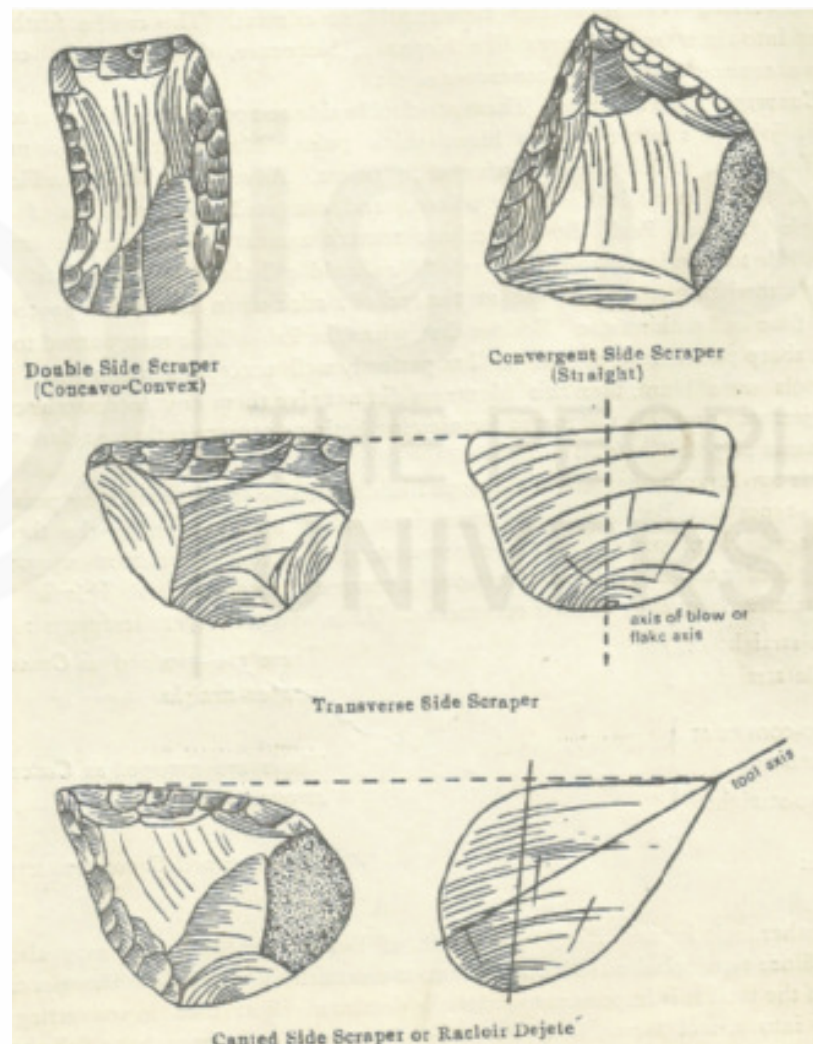


Fig. 2.5: Different types of Side Scrapers

Finally, a fourth variety of side scraper is also described. This is called ‘Transverse Side Scraper’. If the retouched border of the flake is situated across the positive bulb of percussion (which is usually situated in the under surface) such a type is called Transverse Side Scraper.

The relative frequencies of all these varieties of side scrapers, their manner of preparation and the various sub types provide a very useful tool that demonstrates regional variations in respect of adaptation and skill as also the fashioning trends.

Point: A flake is so retouched along its two converging borders that a pointed end is projected anteriorly. The emphasis of this point is more sturdy than sharp in Middle Palaeolithic. In Upper Palaeolithic these points are both thinner and sharper. In many cases the converging borders are not more towards the pointed region. The base of this triangle shaped can also be given a lateral in curve like a shoulder. Such specimens can be called single shouldered point. If a similar shoulder is made on the other side of the base it will be called a double shouldered point or an arrow head (Aterian culture in North Africa abounds in this tool type). As mentioned, varieties of points dominate in European Upper Palaeolithic after the Mousterian Culture of the same territory. Authors of the former were the *Homo Sapiens sapiens* i.e. the Cro-Magnon, Grimaldi and the Chancelade whereas *Homo sapiens* i.e. *Homo Neanderthalensis* ruled the latter.

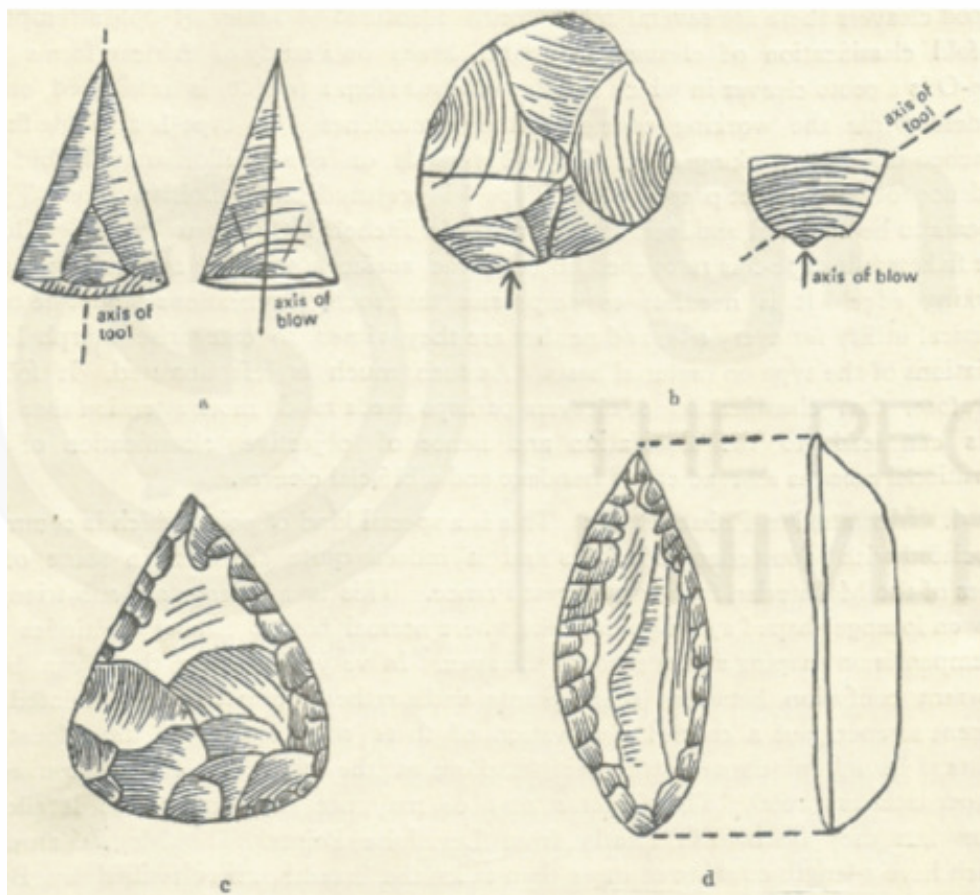


Fig. 2.6: Different types of Point

iii) Borer

These are usually prepared on sturdy flakes. Two lateral in curves are made in such a manner that a part of the flake projects out in the manner of a spike. Some times on suitable flakes only one lateral in curve is enough to get the boring edge project out. Such borers are termed 'atypical borers'.

The method of producing lateral in curves on the border of flake is also termed as a *Notch*. Such types can be prepared both on a flake as also on a blade. If two

or more notches are prepared in a contiguous manner such a type is called a *Denticulate*. Like in the earlier case a Denticulate also can be prepared on both flakes as also on blades.

iv) Knives

‘Knife’ as a type of flake tool was not recognised till about 1965 when Francois Bordes published his recommendations for Lower and Middle Palaeolithic tool types. This is prepared on a thick elongated flake. One of the lateral edges or borders is thick and is blunted by removing several step scars. The other edge or the border is sharp and runs along the lengthwise axis of the flake. The two surfaces of the flake intersect and thus produce a sharp cutting edge to work with. The finished specimen looks exactly like a single pool of a common orange. The thicker edge is meant for holding in hand of the worker and the opposite sharp in cutting and scraping. It also designated to form the techno-complex, Mode-III.

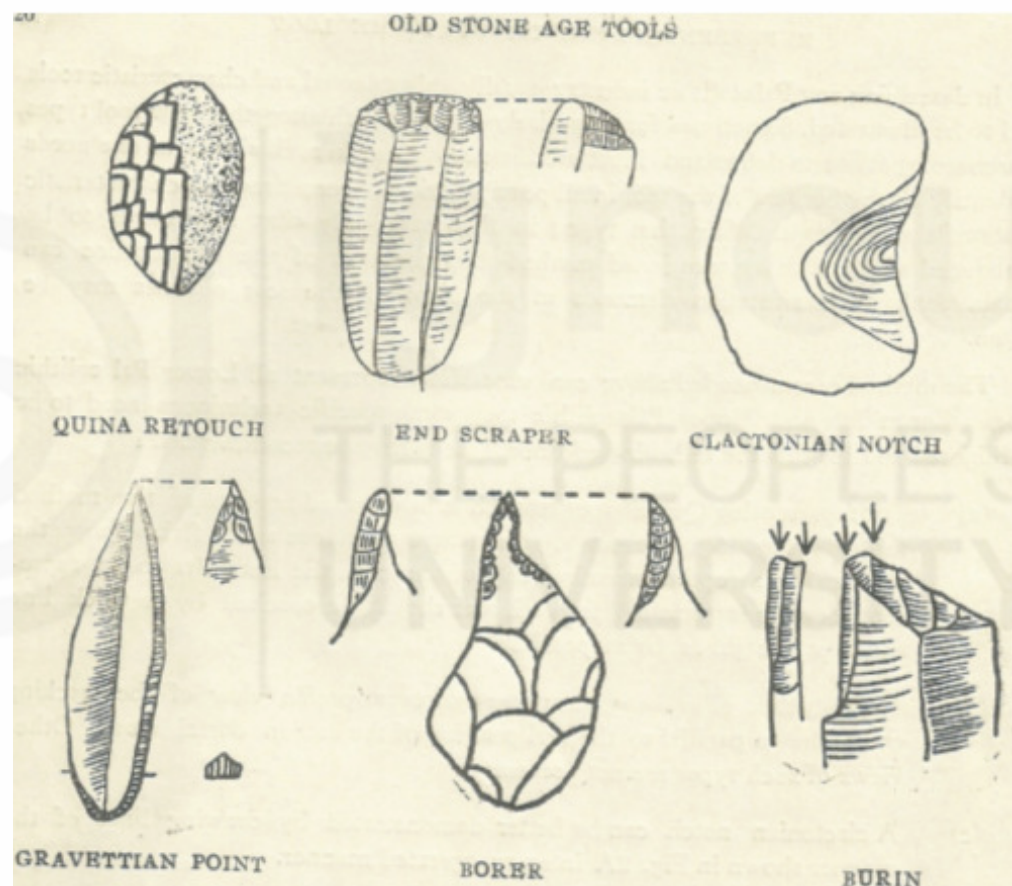


Fig. 2.7: Tool types of Middle and Upper Palaeolithic cultures

Blade tool types

A blade is a long flake that has two parallel margins with the presence of thin elongated flake marks on one of its surface. Normally, it has a length more than or equal to twice its breadth. That is, every blade is essentially a flake but every flake is not a blade. These are usually 8-9 cm in length, 2-3 cm in breadth and 1-2 cm in thickness. The technique of their manufacture is punching, i.e., indirect percussion with an antler used as an intermediate puncher. Since blade is also the term used for microliths produced by fluting technique it is advisable to use the term punched blades or 'Upper Palaeolithic Blades' for these thick blades. For those prepared by fluting the term used is either as 'P.S. Blades' (parallel

sided blades) or simply fluted blades. There are numerous types of tools that are produced on blades during Upper Palaeolithic, but the most dominant among them are (i) Retouched Blades, (ii) Backed Blades, (iii) Burins (iv) End Scraper and (v) Leaf points.

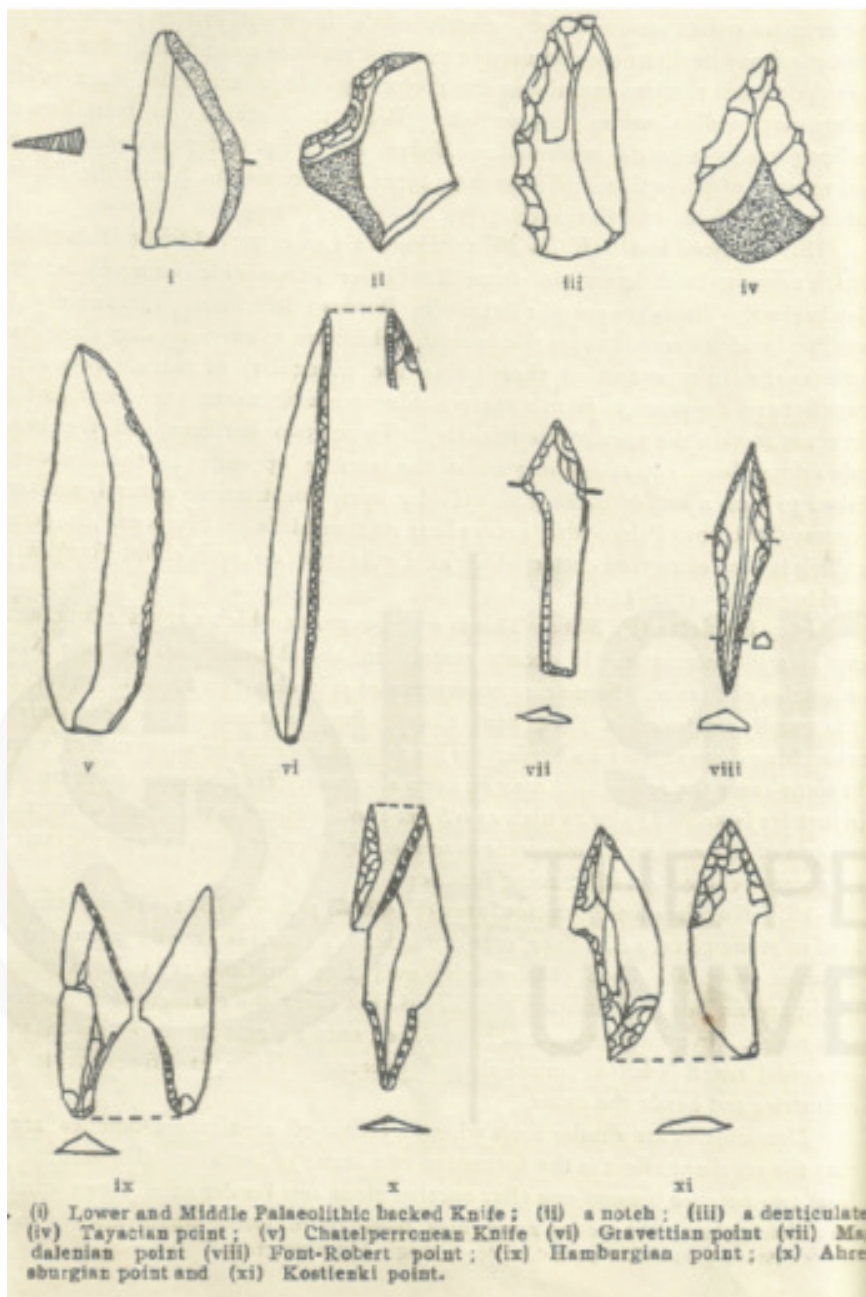


Fig. 2.8: Different kinds of Blade tool types

i) Retouched blades

These are one of the most characteristic types found in the Aurignacian tradition of Southwest France. In fact in European prehistory these are designated as “aurignacian blades”.

A blade can be retouched in two distinct manners: In one case, the edge or the border is so retouched that its sharpness does not disappear but reinforced. This kind of retouching is called *semi abrupt* retouching. Thus, one makes a distinction between Retouched Blade (wherein semi abrupt retouching are executed) and *Backed Blade* (wherein retouching are steeply executed in order to blunt the other border of the blade).

A retouched blade is a thick blade which is retouched in a semi abrupt manner all around the four borders of the rectangular blade. The finished specimen looks like a slug with a flat ventral surface.

ii) **Backed blades**

These are blades in which one of the sharp borders of the blade is blunted with the help of steep flaking. The manner in which this backing is done determines the type.

- a) If the backing is done in such a manner that the backed border meet the sharp border at a wide angle the type is called *Chattelperronean knife*. Here, it is important to emphasise that we have already defined a type called *knife* in flake tool type. A *Chattelperronean knife* is made on a blade and is an upper Palaeolithic tool, in opposition to the flake knife which is a Middle Palaeolithic tool type.
- b) If the backing is done in such a manner that the backed border meets the sharp border at an acute angle then the specimen is called 'Gravettian Blade'.

Both Chattelperronean knife as well as the Gravettian Blade are the type of tools for an Upper Palaeolithic tradition of France called Perigordian.

iii) **Burins**

These are blades in the anterior end of which a screw-driver like edge is prepared by the careful removal of two sloping facets. It is done with a vertical blow of a light at one end of a blade held upright. These facets intersect to form the working edge which is equal to the thickness of the blade. Since two facets meeting at an acute angle give rise to the working edge the type is also referred to as 'dyhedral angle burin'. These are large number of subtypes of burins identified in Southwest French Prehistoric time. These are 'Basque Burin', 'Nailles Burin', 'Bec-deflute Burin' and 'Parrot Beak Burin'. Essentially all these subtypes of Burins are all dehydral angle burins, it is only the manner in which these two hedras are created that separates one type from the other. A Burin is also named as 'graver' and was used in engraving art objects in caves and rock shelters in Western Europe.

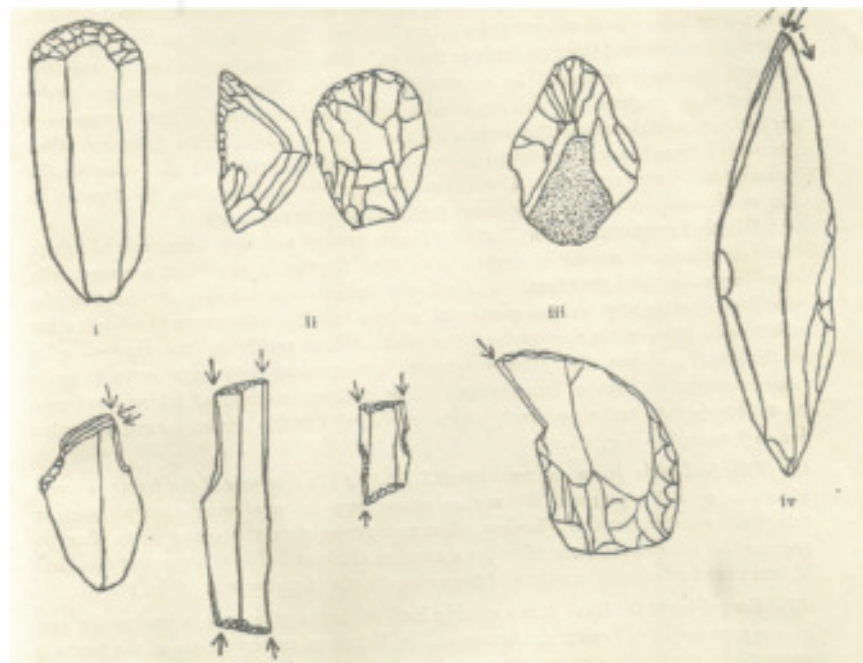


Fig. 2.9: Different kinds of Burines

iv) **End Scarper**

A scarping border made of the morphological end of a flake forms this type. However, since neither a circular or square flake can have an end it is mainly on a blade that one can have a morphological end. Thus, end scrapers are thick blades in which the terminal end has been given these retouchings.

These are delivered from the flat under surface of the blade in almost a semi abrupt manner. There is another variety of end scarper prepared on thick egg shaped nodules and these are called *Carinated End Scarper*. The egg shaped nodule is first directed in an oblong manner and then with the flat surface so obtained as platform one edge of the circular edge is given steep retouchings. The tool can conveniently be used in the manner of a carpenter's push plane. Sometimes two notches are removed from the two edges of the retouched border so that looking from top it looks like a nose. Hence, the type is called Nosed-end scarper (Otherwise it is essentially counted only as a variety of carinated end scarper). The last two tool types are characteristic of French Aurignacian.

v) **Leaf Points**

This is a very characteristic tool type of Solutrean tradition of French Upper Palaeolithic. Here flat flakes or blades measuring in average $6\text{ cm} \times 2\text{ cm}$ are given series of scars on both the surfaces by pressure flaking technique. As a result the blades are so reduced in thickness that they tend to be less than 1 cm in thickness. The anterior end is then pointed. These look like leaves of a tree and hence the name. In France these are called *Laurel leaf points*. In slightly later period these leaf points are short and unifacially worked. These may or may not have a shoulder also knocked out on them. These are called *Willow Leaf Points*. It is also designated to form the techno-complex, Mode-IV.

Microliths: This is a name given to tools which are prepared on fluted blades. As a consequence they are, on average much smaller than the prehistoric tools described earlier. Hence they are named 'microlith'. These are so small that no body can imagine that they could have been used individually. Further, cave paintings as also some evidences from excavated material have now confirmed that these were used by hafting in combination to produce the ultimate weapons to be used as a 'composite tool'. Arrow head and harpoons are two of the most common possible use for them. Microliths start occurring from around 14000 BC and continues till agriculture began during 6000 BC. In fact, in lower frequency, these can be seen to continue even during Iron Age in many parts of the Old World. In India, microliths are known to be used even today by Korwa tribe of Mirzapur district for cutting the umbilical cord of the new born baby. Some authors even identified microliths prepared on glass by some tribes. The glass is obtained from discarded wine bottles by World War II soldiers. Microlithic tool types are mostly prepared by blunting a sharp border. The most common types are Lunates, Obliquely blunted blades and trapezes. Besides these, one can also see some Upper Palaeolithic types repeated on these micro blades. These are end scrapers and burins.

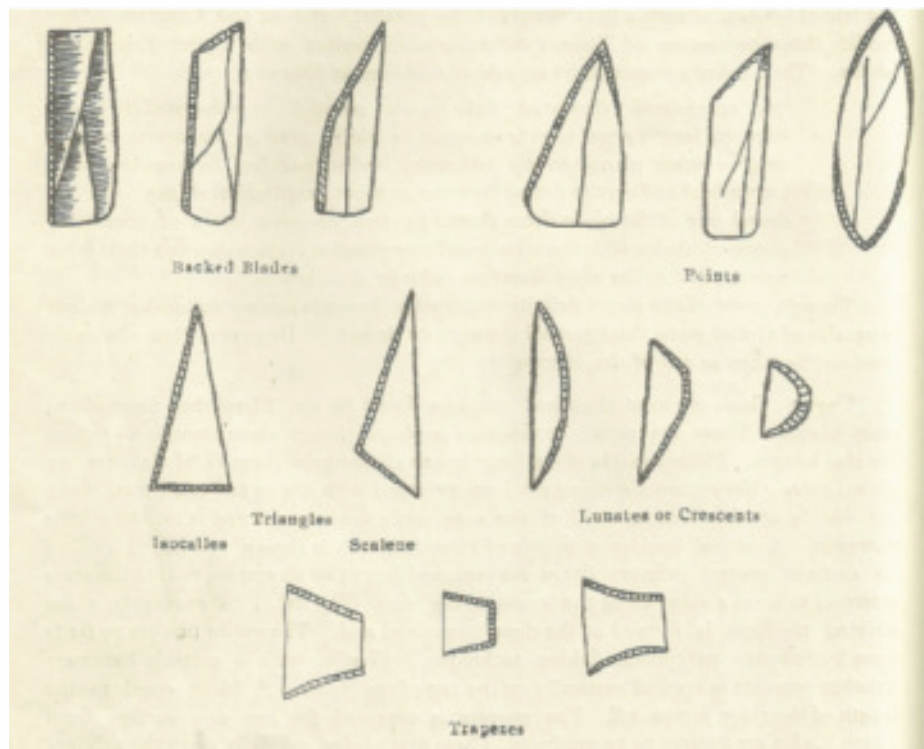


Fig. 2.10: Different kinds of Mesolithic tool types

When no triangles or trapezes are present in a microlithic cluster, it is often designated as 'Non-Geometric Microliths'. In case the cluster has triangles and trapezes this is designated as 'Geometric Microliths'.

Lunate or Crescent: If one border of a blade is so blunted that it is semi circular in shape and meets the sharp border at two points such a type is called 'Lunate'.

Obliquely blunted blades: These are similar to Gravettian points with the only difference that these are prepared on these smaller fluted blades.

Triangles and Trapezes: These are blades blunted in such a manner that they take up these geometric shapes.

Grinding and Polishing: This is a technique that has evolved in the last phase of stone age (Neolithic). It is believed that one of the most important issues linked with survival was to clear virgin forests and create agricultural fields. The sturdy axes they used to know earlier will get stuck within the split of the tree trunk. Consequently they chose to smoothen the surfaces of these axes by what is described as Grinding and Polishing technique. The type which is prepared by this technique is called a *celt*. Celt is a generic name and includes such types as *Axes*, *Adzes*, *Chisel*, *Wedges*.

The technique involves the following steps:

Flakes: A suitable rock is chosen and then it is flaked in the shape of an axe (similar to a cleaver in Lower Palaeolithic).

Pecking: A pointed hammer (mostly an antler tip) is used to systematically break all the ridges on the surfaces of the axe. These ridges are created when two flakes scars intersect.

Grinding: The flaked or pecked flake or core is later grounded on a stone slab to get the required shape and size with the production of a working edge.

Polishing: The axes so prepared are now having a more or less smooth and regular surface. These are now rubbed on hard granite stone with sand and water thrown in from time to time. The result of this action creates an axe which, unless told, can be mistaken as a metal axe. It is so shining.

Usually all axes are biconvex in cross-section. These are, however, some which are plano-convex in cross section. These are believed to be used for chiseling. These are called 'Adzes'. Some Adzes have an elongated body and a slightly narrowed anterior end. These are called 'Shoe-last celts', on the assumption that these were probably hafted as a shoe to the primitive ploughs.

Finally another type that emerges with this technique is called a 'Ring Stone'. There are flat round stones in the centre of which a hole is made using a spindle with hard quartz as the tip. The extremely varied size and shape of these ring stones make it very difficult to comment on their probable function. The general view is that the massive ones were probably used as mace head for pounding crops, while the small ones were probably used as net sinkers in nets used for fishing.

2.6 SUMMARY

In the journey of human evolution if we will see and analyse the past then we can say our ancestors have spent 90% of their life in Stone Age. This lesson basically dealt with the how prehistoric man survived with these simple stone tools. This unit also dealt with cognition of prehistoric mind.

Suggested Reading

Bhattacharya, D.K. 1979. *Old Stone Age Tools*. A manual of laboratory techniques of analysis. Calcutta: K.P. Bagchi and Company.

Inizan, M.L, Ballinger, M.R, Roche, H and Tixier, J. 1979. *Technology and Terminology Knapped Stone*. Nanterre: CREP.

Oakley, K.P. 1972. *Man the Tool Maker*. London: Trustees of the British museum natural history.

Sankalia, H.D. 1962. *Stone Age Tools. Their Techniques, Names and Probable Functions*. Poona: Deccan College.

Sample Questions

- 1) Discuss the tool types and techniques of Lower, Middle and Upper Palaeolithic Culture.
- 2) Discuss the tool types and techniques of Mesolithic and Neolithic Culture.
- 3) What is Blade tool?

UNIT 3 TOOL TECHNOLOGIES

Contents

- 3.1 Introduction
 - 3.1.1 The Earliest Tools
- 3.2 Raw Materials
 - 3.2.1 Perishable Materials
 - 3.2.2 Non-perishable Materials
- 3.3 Fracture Mechanics of Stone
- 3.4 Some Terminological Understanding
- 3.5 Basic Stone Tool Making Techniques
 - 3.5.1 Percussion Technique
 - 3.5.1.1 Anvil Technique
 - 3.5.1.2 Bipolar Technique
 - 3.5.1.3 Stone Hammer Technique
 - 3.5.1.4 Cylinder Hammer Technique
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- 3.6 Pressure Flaking
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- 3.8 Basic Flake Tool Making Techniques
 - 3.8.1 Clactonian Technique
 - 3.8.2 Levalloisian Technique
 - 3.8.3 Mousterian Technique
 - 3.8.4 Retouching and Blunting
- 3.9 Summary
 - Suggested Reading
 - Sample Questions

Learning Objectives



Once you have studied this unit, you should be able to:

- understand what is raw material;
- learn tool tradition; and
- discuss various stone tool making techniques.

3.1 INTRODUCTION

Although prehistorians and archaeologists are sure that the early man initially used some kind of natural tools made of perishable materials, the emergence of a stone tool technology during the course of hominid evolution marks a radical behavioural departure from the rest of the animal world and constitutes the first definitive evidence in the prehistoric record of a simple lithic cultural tradition (i.e., one based upon learning). Although other animals (such as the Egyptian vulture, the California sea otter, and C. Darwin's Galapagos finch) may use simple unmodified tools, or even manufacture and use simple tools (as in the termiting and nut-cracking behaviour of wild chimpanzees), a fundamental aspect of human

adaptation is a strong reliance upon technology for survival and adaptation. Archaeological evidence shows a geometric increase in the sophistication and complexity of hominid stone technology over time since its earliest beginnings at 3–2Ma.

Stone is the principal raw material found in nature. It is very hard and at the same time is suitable to produce effective working edges when fractured into pieces. A wide range of tasks can be executed with a piece of well fractured stone those include animal butchery (hide slitting, disarticulation, meat cutting, bone breaking), woodworking (chopping, scraping, sawing), hide scraping, plant cutting, and bone and antler working. Although other perishable materials, such as wood and bamboo including other raw materials susceptible to decay like bone, horn, and shell, were probably used early in the evolution of hominid technology. Tools made of stone are relatively indestructible and so provide the longest and most detailed record of prehistoric tool manufacture. Therefore stone tools supplemented biological loss like loss of sharp canines and claws as a means of adaptation to the environment during the course of human evolution, and the study of their manufacture and potential uses reveals important information about the evolution of human culture that was substantiated with the two free hands with opposable thumbs, erect posture together with a high brain capacity.

3.1.1 The Earliest Tools

The earliest archaeological sites bearing definite flaked-stone artifacts (Oldowan or Omo industry) include those found in Member from the Omo Valley (Ethiopia), dated to ca. 2.4Ma, the archaeological sites from the Gona region of Hadar (Ethiopia) at 2.5–2.6Ma, the sites at Lokalalei (Kenya) at 2.34Ma and possibly Senga-5 (Zaire), between 2.3 and 2Ma. Other sites believed to be at least 1.5 Myr include those in Member E at Omo; Koobi Fora (Kenya) in and above the KBS Tuff at Olduvai Gorge (Tanzania) Beds I and II; and Peninj, west of Lake Natron (Tanzania). The stone artifacts from the South African caves of Swartkrans and Sterkfontein (Member 5) may be put in the same time range as well.

3.2 RAW MATERIALS

It was quite obvious that early man after the loss of the power of canine and claw, was certainly having a kind of habit to pick some natural objects of perishable and non-perishable materials to defend him and in search of his food. It is true that tools from perishable raw materials do not survive in archaeological ruins but one can substantiate the use of such objects rather a tool from ethnographic sources. Therefore when raw materials of prehistoric tools are concerned, it classified into 'perishable' and 'non-perishable' objects.

3.2.1 Perishable Materials

Perishable materials comprise materials like wood, bamboo and different parts of animal bones.

3.2.2 Non-perishable Materials

The typical rock from which artifacts are produced are relatively fine grained hard igneous rocks suitable to fracture easily in any direction (i.e., they are *isotropic*).

Commonly used rock types are flint or chert, quartzite, quartz, agate, chalcedony, jasper and various other igneous rocks, including obsidian (volcanic glass). Some materials namely flint or chert, can be more easily worked after heat treatment (a controlled heating that alters crystal structure), a practice that may have begun in Late Paleolithic times.

The different types of raw materials vary widely in their overall spatial distributions and in time in terms of size, shape, quantity, and quality. They may be found in *primary* geological context, that is, at their site of origin or formation, such as a lava flow, quartz vein, quartzite layer, or flint nodule seam, or they may be in *secondary* (redeposited) context, such as cobbles in river gravels or rocks forming the pavement of desert surfaces.

Both the cultural rules regarding artifact design and the intended use of a tool influence the tool types those are found in the prehistoric record. Cultural norms and functional requirements in addition to size, shape, quality, and flaking characteristics of the stone material also can strongly affect the kind of artifact. More sophisticated, delicately flaked artifacts can generally be made in fine-grained materials like high-quality flint and chert than are usually made in coarse-grained rocks. The relative abundance or scarcity of stone suitable for flaking affects the qualities, quantities and sizes of artifacts. For this reason the artifacts made in rock available locally often tend to be larger and found in greater numbers than artifacts made from stone transported over greater distances.

In general, there is increasing selectivity in use of stone materials over time in the Palaeolithic age. Later Stone Age people were found to concentrate more on finer-grained, high quality rock sources, often quite localized in distribution and transported from some distance. Stone tools are broadly categorised into Core tool and Flake tool. Subsequently different tool-making tools are associated with them.

3.3 FRACTURE MECHANICS OF STONE

One type of fracture observed in stone-tool manufacture is often called *conchoidal fracture*. This means conch shell like ripples or swirls that is generally evident in the artifacts manufactured in finer-grained materials. In stone-tool manufacture, a sufficiently enough force is applied to the stone in a controlled fashion. The stone usually fractures in alignment with its crystalline structure; thus, non-crystalline or finer-grained materials, especially isotropic materials with no preferential cleavage planes, such as obsidian or flint, tend to produce a smoother and more predictable fracture.

The stone is deliberately fractured (or *flaked*) either through a sharp, percussive blow (direct or indirect flaking) or through the application of a compressive force (pressure flaking). The parent piece of rock is called the *core*, and the spills so removed are named the flakes.

Fracture in core is done by a hammer placed at an acute angle (less than 90°) to the core. For this reason, in manufacturing tools from rounded pieces of rock, such as stream cobbles, which have got pronounced overhangs or are with flattened edges tend to be easier to flake than more spherical pieces. When a hammer strikes the core obliquely and with sufficient force near one of these edges, a flake is detached, that results in an associated scar called a 'flake scar'; on the core (Fig. 3.1).

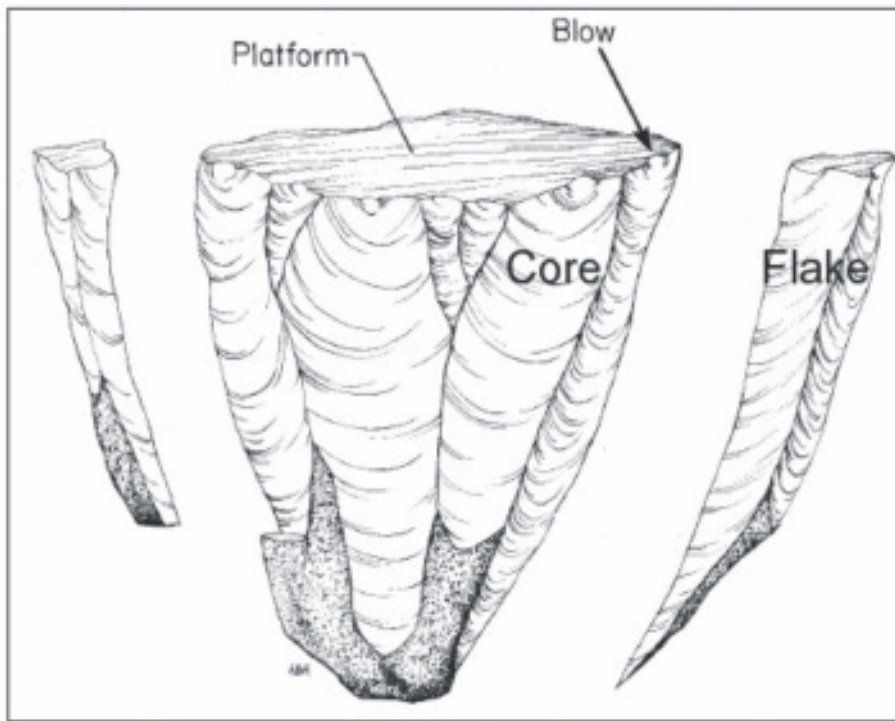


Fig. 3.1: Core and Flake (modified from Whittaker, 1994)

There are several characteristics features of the flake. The surface which was detached from the inside of the core is called the ventral, or *release*, surface. This surface includes a striking platform (*butt*) at the top of the flake with a definite point of percussion, where the hammer had struck, a bulb of percussion, a bulbar scar (*écaillage*), ripples or waves, and fissures. The outer surface of the flake is known as dorsal surface. On this surface several features are found. Sometimes a cortex, which is a weathered surface of the core and/or scars of flakes removed previously from the core (Fig. 3.2).

Although some natural processes (e.g., high-energy fluvial or glacial forces) can produce percussion flaking on pieces of stone, they do not exhibit the controlled, patterned removal of flakes characteristic of even the earliest stone industries. Early hominids clearly had a sound intuitive sense of geometry when flaking rock and expertly exploited acute angles on cores.

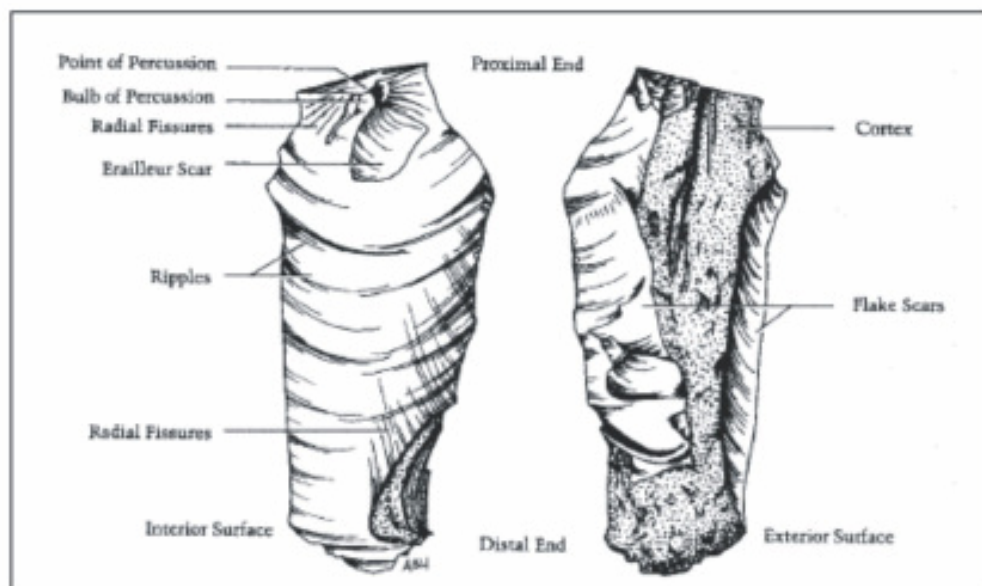


Fig.3.2: Flake Landmarks (Modified from Whittaker, 1994)

3.4 SOME TERMINOLOGICAL UNDERSTANDING

The mechanics of flake formation in stone tool making and use are basically the same and any differences that occur can be attributed to scale. As much as possible archaeologists and anthropologists use nonspecific language to describe the phenomenon of flaking, and here following Cotterell and Kamminga, (1987) some such terms are described, most of which is indicated in the following diagram (Fig. 3.3).

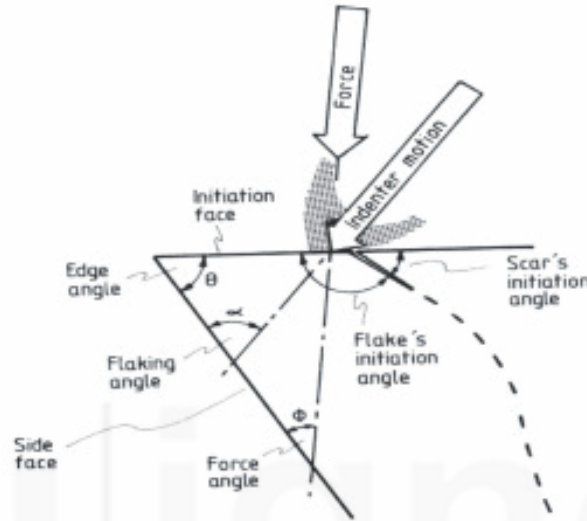
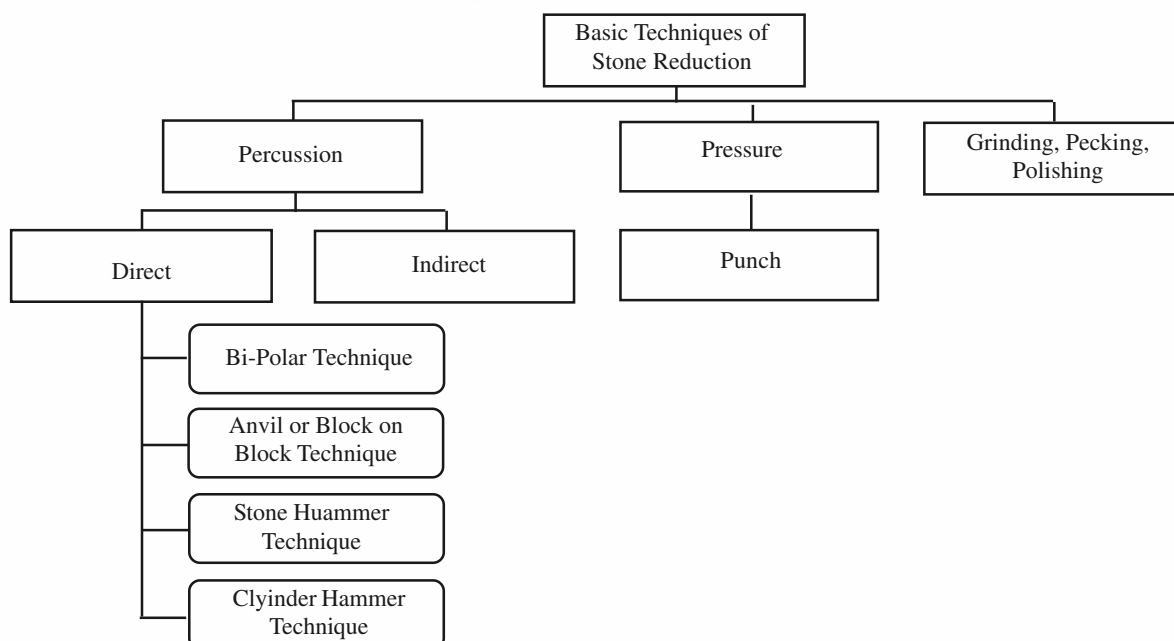


Fig.3.3: Flake Terminology (modified from Cotterell and Kamminga, 1987)

A 'flake' is a kind of fragment detached from a nucleus. A nucleus or 'core' is a piece of rock from which a flake is detached, and the selected core, which is considered as a 'future tool' after it is picked up and finally it is systematically transformed into a 'tool'. It is important that before the selection of a core, the tool maker was certainly having a kind of positive notion in his mind regarding shape, size and future use of the tool.

3.5 BASIC STONE TOOL MAKING TECHNIQUES

The Basic stone tool making techniques can be divided in the following way-



3.5.1 Percussion Technique

The simplest and most obvious way to remove a flake is by directly striking the stone with another object preferably a stone as a hammer. The earliest crude stone tools were primarily the result of direct percussion; there were great refinement in indirect percussion. The tool maker has been referred as a 'knapper' who used two types of hammer: a hard hammer or a stone hammer selected mostly from a river pebble, and a soft hammer. The latter is a hammer of antler, wood, bone, or other material, softer and more resilient than stone, hardened pieces of long bones or antlers. Stone hammers continued in use since the Lower Palaeolithic times. During Acheulean culture stone hammer was used but cylindrical hammer as well as soft hammer was used for final shaping. Stone hammer results in removal of large flakes and with the help of cylindrical hammer smaller, shallow, round and fish scale like flakes are removed. Beside these one of the earliest form of percussion method used by prehistoric people was Anvil technique or Block-on-block technique and Bipolar technique. These were prevalent in Lower Palaeolithic times.

3.5.1.1 Anvil Technique or Block-on-block Technique

A core is struck against a stationary anvil to produce flakes. This percussion technique is sometimes used in flaking very large cores. The features on flakes and cores are similar to hard-hammer percussion (Fig.3.4).



Fig.3.4: Anvil or Block-on-block technique (Modified from Whittaker, 1994)

3.5.1.2 Bipolar Technique

Simply involves Setting a core on an anvil and hitting the core from above with a hammer stone, just like cracking a nut. This technique was often used for very small or intractable, hard-to-flake raw materials. In such a case, 'positive bulb of percussion' appears on both the ends of the tool. (Fig.3.5).

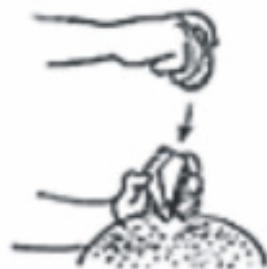


Fig. 3.5: Bipolar technique

3.5.1.3 Stone Hammer Technique

Usually refers to the use of a stone hammer used in making handaxes during Abbevillean culture. In this technique large flakes were struck off and therefore profile lines of the handaxes of that time are wavy (Fig. 3.6).



Fig. 3.6: Hard hammer percussion with a stone hammer. The knapper uses a precision grip on the pebble hammer stone because not much force is needed. The blow strikes the top of the core, and the flake comes off the underlying surface (Modified from Whittaker, 2004)

3.5.1.4 Cylinder Hammer Technique (Fig.3.7)

On the other hand, often means the use of a hammer of antler, wood, bone, or other material softer and more resilient than stone. Such tools are often called batons or billets. Soft hammers are less effective than hard for removing large flakes from normal cores; so the use of a soft hammer often implies to bifaces produced during the Acheulian culture of Lower Palaeolithic times. In case of the entire handaxe industry of the Abbevillo-Acheulian culture, best piece of handaxes were made with this technique, and 'ovate' from Europe was the representative tool of this time. In Africa and India, 'cleaver' is a branded tool of this culture. Small flakes were carefully removed with the said hammer from the edge towards the centre of the tool and this was the advantage of the cylindrical hammer, the blows of which could be given in a controlled way. In case of handaxe industry of Lower Palaeolithic time, a handaxe is also known as a 'biface' or a 'coup-de-poing'. In other cases, bifacial tool has been mentioned as similar to handaxe, the blows fall on the edges, rather than on the flat platform surfaces of normal cores. The edges of bifaces (handaxe like tools) in production are generally strengthened by intentionally dulling them, because a thin, sharp edge will crush under the blow rather than transmitting the force to a clean flake fracture. The flakes produced in making bifaces have somewhat different traits from the normal hard hammer core flake and are often referred to as biface thinning flakes. Hammers of all degrees of hardness can be used somewhat interchangeably, and the difference in the kinds of flakes produced depends in part on how the hammer is used and what form of artifact is being worked. Quite often, a large flake struck with a hard hammer is thinned and shaped with a soft hammer to make a finished bifacial tool, or a previously prepared form (perform) that can be finished by pressure flaking as described below.

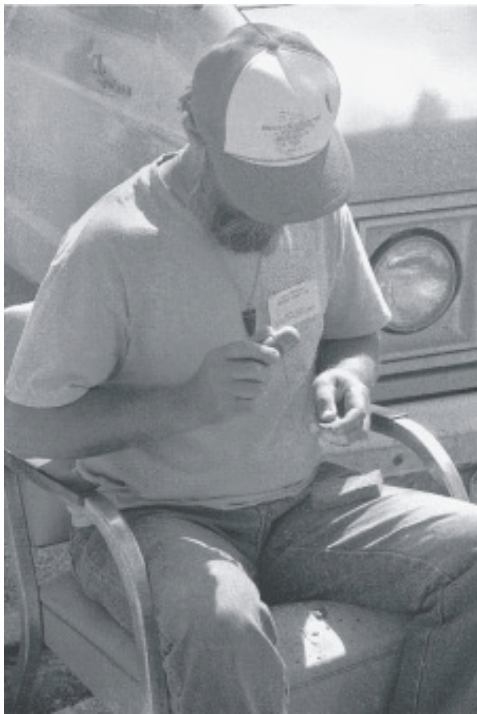


Fig.3.7: Soft hammer Percussion using wood or antler (Modified from Whittaker, 1994, 2004)

3.5.1.5 Indirect Percussion or Punch Technique

Means that the blow is transmitted to the stone through an intermediate punch, usually made of antler called a ‘puncher’. This is a relatively uncommon technique, though there are several modern knappers who use different styles of indirect percussion to thin bifaces. However, because the punch can be small, and can be placed very precisely, indirect percussion has some advantages over direct percussion techniques and is also used for making blades (long, straight flakes) or for notching projectile points. The disadvantage is that tools must be held with both hands, making it more difficult to stabilize the piece that is being worked, and many modern Knappers find it slow and clumsy. Those modern knappers who are expert at indirect percussion, however, consider it every bit as good as more common techniques (Fig.3.8).



Fig.3.8: Indirect percussion with a large Antler punch (Modified from Whittaker, 2004)

3.6 PRESSURE FLAKING

The final category of knapping techniques is pressure flaking. In pressure flaking, the force is applied by pressing instead of striking. This allows great precision, but generally limits the amount of force. Pressure flaking is most often used for the final work on refined tools like various leaf points, arrow-heads and for notching and other details that cannot be done by percussion.

In pressure flaking, the point is held on a pad of some sort in the hand or occasionally on a bench or table like object, while the other hand presses the tool against the edge of the stone, directing the force both inward, to make the flake run across the face being worked, and downward, which begins the fracture. Pressure flaking can be made more powerful by adding the pressure of the legs, or the leverage of a longer tool, called an Ishi stick by many knappers, which is held under the arm. The name honors Ishi, last survivor of a group of Yahi Indians from California. His flint knapping skills and tools were recorded by a number of early anthropologists and are admired by modern knappers. It is also possible to remove very long flakes (called blades by archaeologists) from a core by pressing with a chest crutch or other tool that allows the body weight to be brought to bear (Fig. 3.9, 3.10 and 3.11).



Fig.3.9: Pressure flaking on a bench.



Fig.3.10: Pressure flaking into hand pad with an Ishi's stick. punch (Modified from Whittaker, 2004)



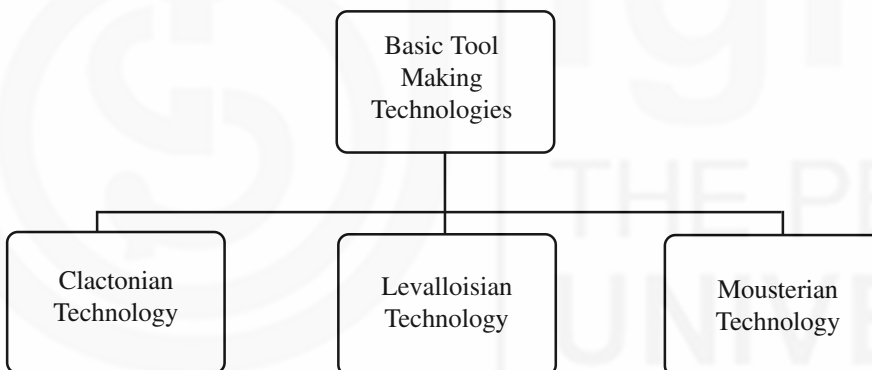
Fig.3.11: Making obsidian Pressure Blade with a Chest crutch punch (Modified from Whittaker, 2004)

3.7 GRINDING AND POLISHING

It involves grinding and shaping a rock by rubbing it against another rock. Prior to the said operation, the selected core for this purpose is processed by percussion technique in giving a desired shape to the future tool. Partly flaked and ground – edged tools bear the testimony of this application. Celts that include axes, adzes, chisels and others were manufactured by this technique. Polishing is a stage that is applied to give the tool a smooth and shining texture. This part of action is done by rubbing the tool to furry animal skin. These techniques are applied on hard grained material and often were useful for re-sharpening a Celt when its working edge get damaged. This technique is often associated with Neolithic farming communities in Southeast Asia, Europe, and North Africa, but it can be found also among aboriginal hunter-gatherer communities of Australia.

3.8 BASIC FLAKE TOOL MAKING TECHNIQUES

Flake tool tradition made its appearance at the end of the Lower Palaeolithic and flourished since then through Middle Palaeolithic times. A number of flaking technologies were used to make blanks and to shape a core into a finished tool. Here a chart is given which shows some basic flake-tool making techniques.



However beside these a number of other techniques like crested blade technology and Kombewa technology were also present at that time. Brief description of these basic technologies are given below:

3.8.1 Clactonian Technique

It originally involves use of anvil technique to produce large flake tools. From the name of the type site Clacton-on-sea, this technology is known as Clactonian method. The flakes produced by this technique present large natural striking platform with very pronounced interior angle (greater than 105 degrees), which is produced due to the intersection of the axis going through the natural striking platform with the axis going though the main flake surface, and a diffuse bulb of percussion. The lack of any surface preparation makes these flakes highly variable in structure and thickness.

3.8.2 Levalloisian Technique

This is a prepared-core technology named after a place called Levallois-Perret, a suburb of Paris where flakes and cores of this kind were first recovered and

defined. Levallois technology is most characteristic of Middle Paleolithic industries but begins to appear before 200Ka, in some cases in association with Early Paleolithic industries.

Levallois cores were artificially prepared for striking out better flakes to make a better kind of tool. Centrally directed removals were generally used to create a square, ovoid, or other regularly shaped block of stone, which was more or less flat on the upper surface and markedly convex on the lower surface (planoconvex). The sides of the block were also convex (lateral convexities). A striking platform, at right angle to the flat upper surface was prepared at one end of the core. The Levallois flake was then removed from the upper surface by bringing the striking platform down sharply at an angle on an anvil. The large flake that often resulted was extremely thin in size, conformed closely to the outline of the prepared core, and retained the pattern of centrally directed removals on its upper surface, as well as the facets of the striking platform. Although not all of these features characterise every Levallois flake or core, the distinctive thinness of Levallois flakes, together with their regular shape, are suggestive of the use of the technology in a particular assemblage. Definitive determination of Levallois technology, however, can be made only by reconstructing the entire knapping process through refitting. It is worth mentioning that the angle produced by the intersection of the axis passing through the prepared striking platform with the axis that passes through the main flake surface is always a right angle.

3.8.3 Mousterian Technique

The Mousterian or disc core technology is characterised by centripetal flaking around the entire core margin on one or both surfaces. Although it is not different to Levallois in both the technique and form of removed flakes, it lacks clear support that the exterior morphology of the core was specially prepared to achieve a flake of a particular form. Two characteristic products of this technology are the pseudo Levallois point and the disc core itself. The later is generally circular in form with centripetal flake scars and typically has a flaking surface that is quite high or even pointed at the mid point.

Neanderthals were primitive humans and are the Mousterian tool-makers. Massive skeleton and teeth, flat foreheads and heavy brow ridges were the characteristic features of Neanderthals. The Mousterian tool habit gets its name from artifacts discovered at a ancient rock shelter named Le Moustier in south western France.

3.8.4 Retouching and Blunting

The term retouching involves removal of flakes from a piece of stone. Sometimes the term *primary retouch* refers to the initial, roughing-out stages of stone reduction, while *secondary retouch* designates the more refined reduction of stone material, as in the case of bifacial thinning or the shaping of flake tools. Some archaeologists restrict the term to refer to the formation of flake tools. Where as blunting is a form of retouching which is done in such a way that a sharp edge of a flake turns into a blunt edge. Most developed form of retouching and blunting were actually developed during the greater part of Stone Age especially during Upper Paleolithic and Mesolithic to make various type of points and microliths.

3.9 SUMMARY

The study of stone technology does not entail simply observing the techniques or procedures of artifact manufacture; ideally, it considers a complex series of prehistoric actions that surround the creation of a set of tools at an archaeological site. It is useful to view stone technology as a system that encompasses the procurement of raw materials, the manufacture of tools from those materials, the transport of tools and raw materials, use of the tool, the re-sharpening and reshaping of the tools, artifact discard or loss, and the final incorporation of the stone tools within the archaeological record. Within each major component of this system, there are some basic questions that can yield important information about prehistoric behaviour.

Suggested Reading

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Semenov, S.A. 1964. *Prehistoric Technology*. London: Cory Adams and Mackay.

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Whittaker, John. 1994. *Flint Knapping : Making and Understanding Stone Tools*. Austin: University of Texas Press.

Sample Questions

- 1) What were the basic technologies used during Lower and Middle Paleolithic?
- 2) What do you mean by the term ‘flake’? Describe different feature of a flake with suitable diagram.
- 3) Discuss briefly the direct percussion method with suitable diagram.
- 4) Mention name of at least three sites from which earliest stone tools are discovered. What types of raw materials were used to make stone tools?
- 5) What do you mean by the term lithic technology? Why study of lithic technology is important in prehistory?
- 6) What type of rock fracture was used to make stone tools? Define the following terms with diagram: Indenter, Edge angle, Flaking angle, and Force angle.

- 7) What is bi-polar technique? What do you mean by the terms retouching and blunting?

Write short notes on the following with suitable diagrams.

- i) Levallois Technique
- ii) Soft hammer percussion Technique
- iii) Pressure flaking Technique



UNIT 4 HOUSEHOLD AND DECORATIVE OBJECTS

Contents

- 4.1 Introduction
- 4.2 Household/Shelter of Prehistoric Man
- 4.3 Household Objects
 - 4.3.1 Artefacts
 - 4.3.1.1 Cutting and Piercing Tools
 - 4.3.1.2 Grinding Implements
 - 4.3.1.2.1 Grinder, Muller, Pounder, Pestles, Saddle Querns, Mace-Heads, Stone Tablets
 - 4.3.2 Artefacts on Perishable Materials: Wood and Bone
- 4.4 Baskets, Earthenware and Potter's Wheel
- 4.5 Harnessing of Fire and Flint Box
- 4.6 Dress and Ornaments
- 4.7 Summary
- Suggested Reading
- Sample Questions



Learning Objectives

Once you have studied this unit, you should be able to:

- identify the different types of household and decorative objects;
- understand the function of these objects;
- understand methods of use to study the relationship between people and environment; and
- understand the evolution of different household objects from prehistoric period.

4.1 INTRODUCTION

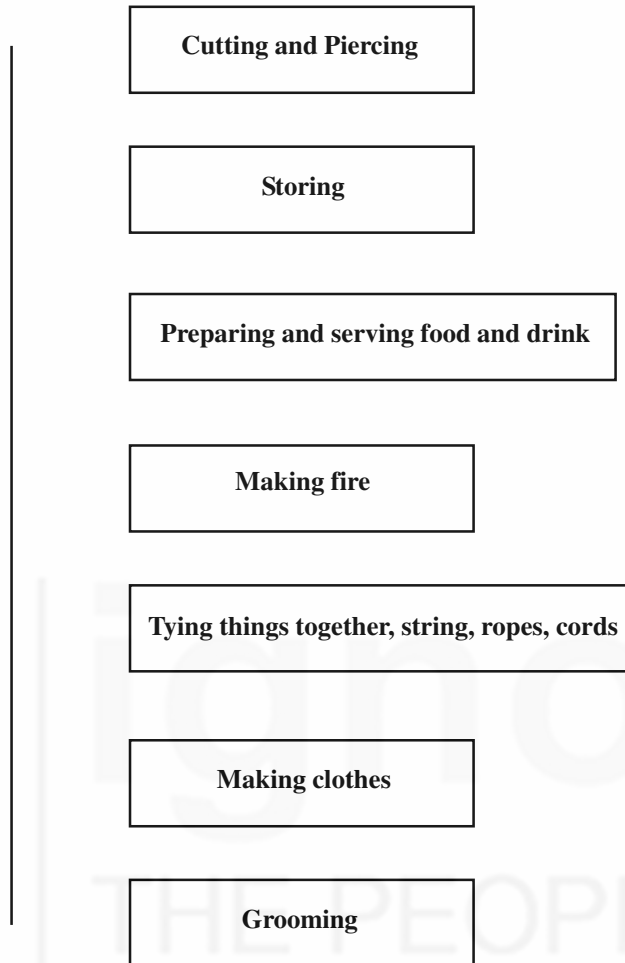
Man is a tool-making animal. Tools made by man to harness the existing environment around him for better survival. Every man either primitive or modern needs material equipment. The tools are made on various materials available in nature. With the tools man harnesses natural resources for his survival. Material culture is a vital component of human subsistence. The fundamental necessities of man to have his existence on this earth are food, shelter and clothing. The study of material culture of people is of great importance because they throw light on values of the artefacts and on the nature of invention and on the patter of diffusion of inventions and ideas. The artefacts have great importance for their relations to the whole economic and social organisation and to religious and other ceremonial practices.

Material culture means all the objects used or made by man for his survival or for supporting and improving his life. A home used to be a bustling centre of

This unit can also be read as Shelter and Material Objects.

economic activity. Utensils for making daily requirements like food, clothing and many other simple things were found in the home and abode of man. Household activities for different purposes may be categorised as follows.

HOUSEHOLD ARTICLES



4.2 HOUSEHOLD/SHELTER OF PREHISTORIC MAN

Household of early man depended on the nature of shelter or accommodation. Type of habitation differed according to the local climatic condition. In a warmer climate early men lived in open air. He needed shelter in cold and rainy weather. Caves were not convenient for habitation because a cave was dark, damp and den of carnivorous animals. Men could only venture into the cave when he learnt to use fire. With fire he could see what is inside the cave, could drive out other occupants of the cave. Prior to the discovery of use of fire most of the bones of early men recovered from the cave are proved to be of those who were prey to carnivores. This has very well proved with evidences from South Africa. Towards the end of Pleistocene times, man conveniently chose to live inside natural housing facilities like caves and rock shelters. Early man was nomadic. He selected natural shelters at different times at different locations. 'The Great Ice Age' during the Pleistocene period made the climate of temperate Europe severely cold and therefore prehistoric man lived inside caves and rock shelters comfortably, only after he discovered the use of fire. You can very well imagine the predicament of early men in bad weathers. However, even as early as Lower Palaeolithic times men could raise a kind of wind break and get shelter from inclement weather. Such evidence is found at an Acheulian site in Bihar, India (Pant and Jayswal, 1991).

With the advent of Holocene age when climate became warm and humid, and it made the man to live in open environment under the direct impact of sunlight and the dark and the moonlit night under the star laden sky. We could see emergence of new thoughts and ideas towards the end of Pleistocene with considerable cultural developments. With new climatic situation during Holocene, man gathered enormous wealth of knowledge about nature and identified cultivable cereals and started to have some kind of sedentary existence. Instead of migrating from place to place they made some kind of shelter to live in.

4.3 HOUSEHOLD OBJECTS

World of the material objects of prehistoric man is certainly too difficult to estimate. Early man used all sorts of material objects available in his surroundings either out of curiosity or for using them to defend him from predators, for food getting and for making shelter. Culture can be divided into two parts, tangible and intangible. Tangible part of the culture is also known as material culture because it consists of materials which can be seen, touched and felt and are used by man for his subsistence. You cannot see or touch the intangible part of the culture but can only feel its existence. This part consists of social behaviour, social organisation, ideas, beliefs and customs. There may be some material representation of them, such as, you may see an idol but the faith and belief connected with is intangible. Upper Palaeolithic men produced art. This has a material existence but you can only imagine the purpose and idea behind such production. Any piece of identifiable objects of prehistoric past irrespective of its material and spiritual affiliation is an essential part of 'Culture'.

Household articles on the basis of their activity may be categorised into: Cutting and Piercing, Storing, Preparing and serving food and drink, Making fire, Tying things together (string, ropes, cords), Making clothes and Grooming.

4.3.1 Artefacts

Any kind of material object made of any kind of raw material, which the early man either made or used is called an 'artefact' or a 'tool' or an 'implement'. Of all the tools made by man mostly stone tools survived the devastation of time.

4.3.1.1 Cutting and Piercing Tools

The tools for cutting and cleaving are among the most early tools invented by mankind. If at first they were only used for butchering animals, they become more varied as people began to make clothes, build shelters and gather possessions. Cutting tools presume primary importance over others because of its efficiency. With these man can exploits its environment and make other tools and devices. Cutting tools may be classified in three major ways: by their function or use, by the material of which they are made and by the techniques used to manufacture them.

In terms of the function and use the cutting tools can be broadly categorised into five groups, namely, Choppers, knives, chisels or gravers, scrapers and borers. Tool types of prehistoric period are usually studied in several ways; first by studying the stone tools, secondly by trying to imitate their function today, thirdly by observing primitive people in a comparable cultural set up making similar

tools and using them. For example a stone blade of upper Palaeolithic period looks similar to a safety razor blade of present day.

Chopper and Chopping tool: These tools are usually round or semi oval with an almost straight cutting edge. The edge is formed by removal of flakes from only the upper surface of the implement or from both the surfaces of the tools. The cutting edge may either be along the side or across the end of the specimen. These tools could have been used for chopping of meat, blocks of wood etc. These are quite heavy and large. This forms a characteristic feature of earliest tools of Palaeolithic culture.

Hand axe: The handaxes are found in various shapes, such as, pear, almond, heart. Also oval or lance like shape. Hand axes are known as multipurpose tools because many works, such as, cutting, scraping, digging and boring could be done with a single tool.

Cleavers: The cleavers are characterised by a broad, transverse cutting edge. It looks like a modern axe head. The tool was probably used for cleaving and cutting.

Scraper: As the name indicates the scrapers are used for scraping such objects as bark of trees, dressing of thin wooden or bamboo shaft and skin of animals as well as for various other purposes. According to the shape of a particular piece and the location and nature of scraping edge the tool is named as Side scraper, End Scraper, Round Scraper, Concave Scraper, Convex Scraper. Scrapers were predominant tool type of Palaeolithic period mainly in Middle Palaeolithic and continued for a longer time period till today in different raw materials.

Blade tools: The blade is a narrow or slender parallel sided flake and its length is at least twice its breadth. Special tool types made from blade are the blunted backed blade, the knives with one blunted edge. These were used for cutting foodstuffs, for carving wood and bone in households.

Some other tools: The burin or graver primarily used for engraving and for making slots in wood and bone, the notched blades were used in the same way as the contemporary spoke shaves, the borer or awl probably used to make holes. Occasionally things had to be stitched together and awls were used to make holes through materials. The blades with one or both ends sharpened were for scraping hides.

Microliths of Mesolithic period were prepared from blades and used as composite tools after hafting in a shaft. Micro-blades were hafted on shafts and were used as 'harvesting knives' or 'sickles'.

The most commonly available tools of early man were primarily made by percussion technique on rocks comprising igneous, metamorphic and indurated sedimentary rocks. Flint was used in Europe and quartzite was used in Africa and India. Quartz, chart, chalcedony, agate, jasper and number of precious and semi-precious rocks were selected for the purpose of making a tool whether it is a core tool or a flake tool, or the microliths or the Celts. Metallic tools appear at later date.

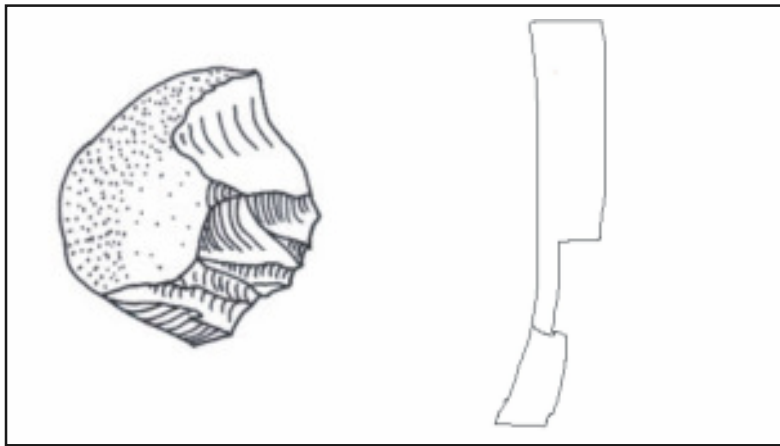


Fig. 4.1: Stone and iron Chopper

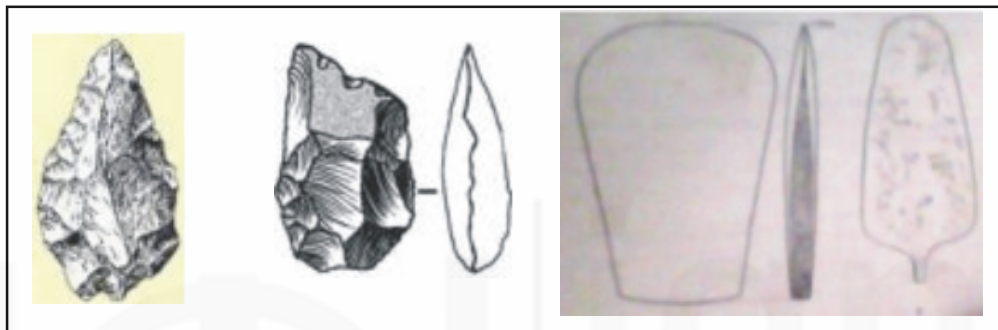


Fig. 4.2: Stone Handaxe, Cleaver and copper axe head



Fig. 4.3: Scraper, Burin, awl

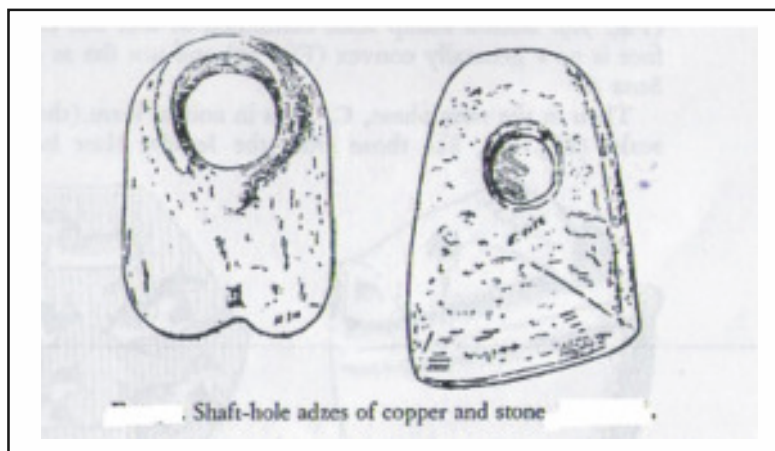


Fig. 4.4: Stone and copper adzes

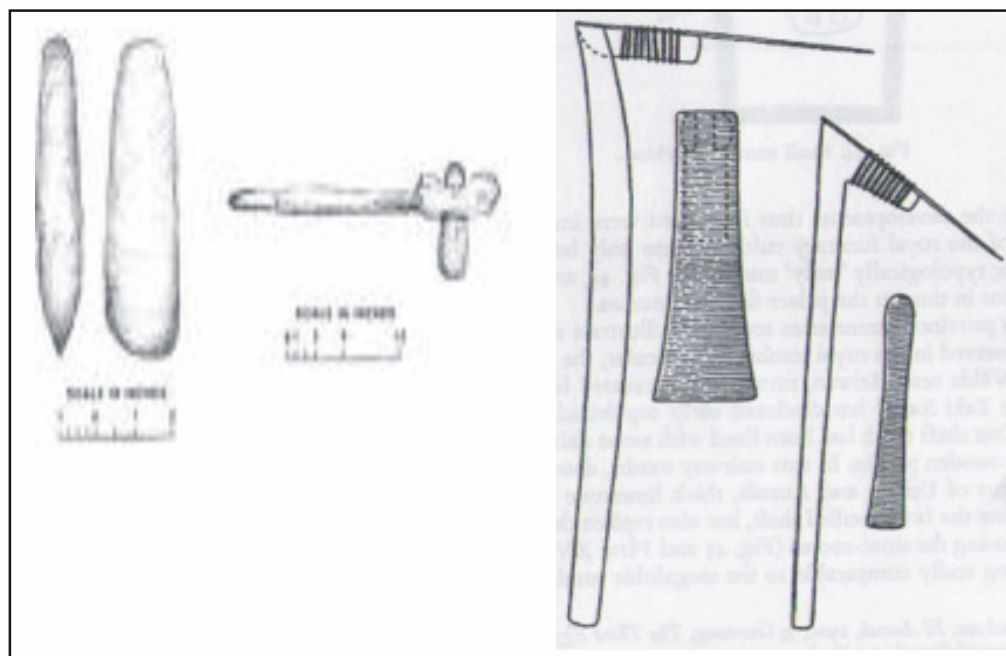


Fig. 4.5: Stone and Metal adze



Fig. 4.6: Stone and copper chisel

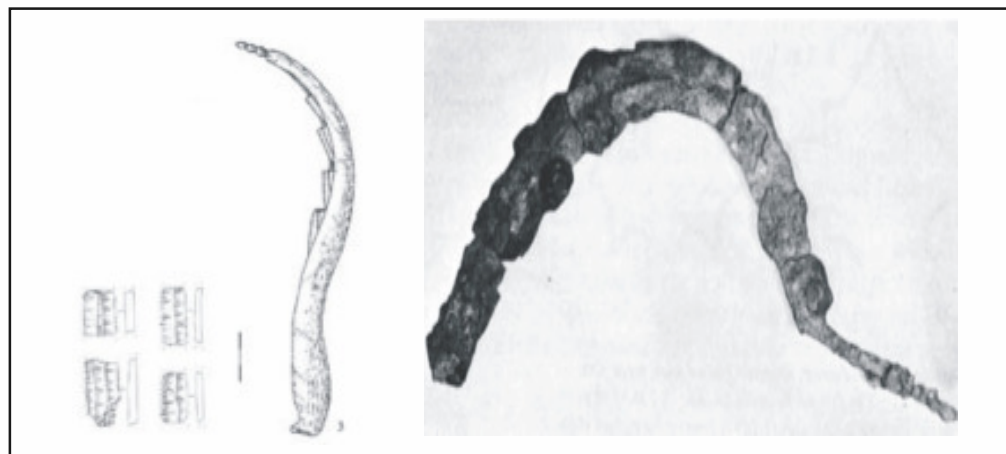


Fig. 4.7: Sickle of stone blade and iron sickle

Sharp edges of cutting tools became blunt for repeated use. Stone knives and axes were generally not ground but knapped. Re-sharpening consisted in hitting the blade near its cutting edge, flaking off small slivers of stone and leaving behind sharp ridge.

Metal blades were sharpened by whetting them with a smooth stone, dents were removed by hammering. The edges of the tools were hardened by annealing, that is, heating the tools and letting them cool slowly and hammering.

4.3.1.2 Grinding Implements

In the natural world, there are resources which may be used for everyday life directly or after some comparatively simple preparation process. Earliest humans hunted various kinds of animals and gathered edible fruits, nuts, tubers etc. Grinding implements used to play very important role in the first step of the food preparation process. It is an interesting fact that almost all the ancient grinding implements devised by humans throughout the history have continued to be used domestically even after the advent of more efficient and specialised ones. The most important achievement of use of grinders was the increase in human food supply. Many wild grass seeds which had been inedible in their raw state became edible by grinding. Cereals, especially wheat, barley, rice, millet required some tedious processing, such as, threshing, hulling or milling. In course of time, the earliest primitive grinding implement was gradually improved, enlarged and specialised for each purpose.

4.3.1.2.1 Grinder, Muller, Pounder, Pestles, Saddle Querns, Mace-Heads, Stone Tablets

Though you may say that there is no clear evidence to tell us what sort of implements were tried, we can easily imagine that man would take one of the following three possible ways according to the characteristics of the grains he used:

- Pounding which would lead to a mortar and pestle and later to a stamp mill.
- Rolling which would lead to an edge-runner.
- Rubbing which would lead to a rubbing stone, a saddle quern, and later a rotary quern.

Different courses of development of implements could be seen at different regions of the world, related to the grain available. As all of you know that rice or millet was not necessarily ground to powder, because they could be cooked after hulling only.

Following are the descriptions of some grinding implements used by early man in prehistoric times:

i) **Mullers**

Muller is a rubbing stone. As you very well know these are stones used for grinding grains, on a saddle quern. Today these are used all over India. In earlier periods man seem to have used only natural pebble for grinding purposes. Majority of them are made of sand stone or quartzite. The mullers were generally cylindrical stones.



Fig. 4.8: Muller

ii) Mortar and Pestle

The earliest grinding implements found from the remains of the Prehistoric era consisted of a roundish stone which was held in the hands and a larger hollowed stone for a bed stone. The hollowness is necessary for efficient impaction and to prevent grain from falling off the stone. Husks of the grains are hulled. The grains are further ground and powdered on a mortar with the help of a pestle.

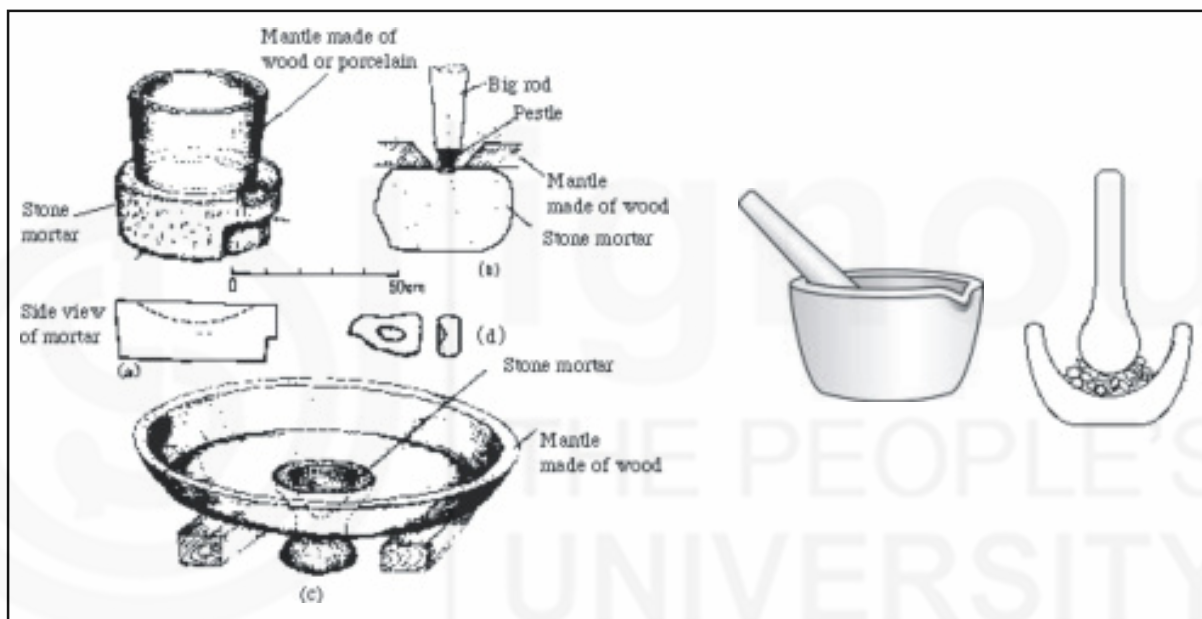


Fig. 4.9: Mortar and pestle

iii) Saddle Quern

Saddle Querns or Mill-stone is a comparatively large, roughly square or rectangular stone slabs with flattish or concave surfaces. These began to appear along with ground stone tools. Since its flat surface have smoothed and or hollowed out, it is supposed that they were used by men for crushing, grinding or milling grains. There are three types of Querns.

- Querns with circular grinding surface brought about by round ball like hammer stone or mullers.
- Querns showing up and down grinding surface with plano-convex mullers.
- Querns exhibiting both these features.

A large number of stone querns have been found both at Mohenjodaro and Harappa for grinding cereals. All these are saddle querns and no specimen of any revolving quern has been found. The two main types were those on which another stone was pushed or rolled to and fro and the others in which a second stone was used as pounder.



Fig. 4.10: Saddle quern

iv) **Rotary Quern**

The rotary quern, consisting of two circular stone discs was the beginning of a new era in grinding technology. Various evidences of fragmented pieces of rotary querns are found from all over Europe, especially Rome, South-East Asia (Taxila, 600B.C.-500A.D) and China.



Fig. 4.11: Rotary quern

v) **Mace head**

These are of various shapes but with a drilled hole in the centre. This hole is meant for fixing the wooden haft through it. This is a kind of pounder. This is mostly found in Neolithic culture and is made of polished stone. Some mace heads are found in Mesolithic culture of Europe but those are rough and crude.



Fig. 4.12: Mace head

vi) **Stone tablet**

Small stone tablets also have been found from archaeological sites. On one or both flat sides were gracefully composed stylized zoo morphs or curvilinear geometric designs in deep relief. Paint has been found on some tablets, leading archaeologists to propose that these stone tablets were probably used to stamp designs on cloth or animal hides, or onto their own bodies. These are usually found in the habitation sites of prehistoric man. Some stone tablets found from Upper Palaeolithic caves in Europe could be an artist's sketch pad could be a tablet for writing as is found from the middle east with cuneiform writings.

4.3.2 Artefacts on Perishable Materials: Wood and Bone

You must have seen that many of our present day artefacts are made of perishable materials like wood and bone. In India and other parts of Asia bamboo is used for a large number of purposes. If you go to the villages and other rural areas you will find that bamboo and wood are used for making houses, furniture and even utensils. This is also found in the cities. We can very well say that bamboo and

wood were profusely used in making tools and utensils. Chopper, a heavy duty tool and scraper were used for making tools from bamboo and wood.

Tools made of bone, animal teeth, antler and ivory appear during the Upper Palaeolithic times. These are fashioned in the form of Baton-de-commandement, lance points, dart thrower, spear thrower, needle, harpoons and fish hooks. These implements played a major role in the subsistence economy of the people.

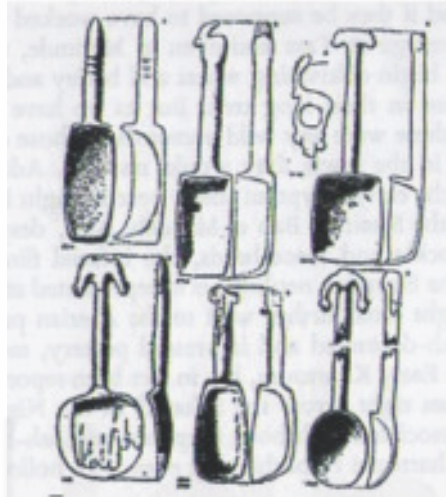


Fig. 4.13: Ivory ladles

4.4 BASKETS, EARTHENWARE AND POTTER'S WHEEL

Can you imagine life without a container? Containers function everywhere as means of transporting and storing food, artefacts and other material possessions. In addition containers are widely used in cooking and particularly in boiling of both liquids and solid food. It is also used for preserving food.

Early man at the very beginning of its evolution was very much like its primate ancestors who were foragers, meaning, they ate whatever and whenever they found anything edible, in the same way as the modern monkeys and apes do. They did not carry food item in a storing device. However, the evolved man is endowed with a foresight. He may collect his food item for sharing with others or may be storing for future consumption. For keeping food and other essential items probably they used leaves, barks of trees, shell etc. which were found in nature. Similar uses of natural objects are still found today. Perhaps he made basket like objects for keeping his things or could have dug a hole in the ground. There are evidences for such thing from various parts of the world. Earth lined baskets dug in the ground for storage of grains is known as silos and is found in many Neolithic sites. In Neolithic Egypt grains was stored in the habitation compounds in silo pits and mud-coated baskets. Gradually man learned to make container from clay. We call them pots. First evidence of pottery comes from Mesolithic culture.

The possession of pottery not only makes the storage and transportation of liquid easier, it can also be used for the storage of small grains, seeds and other materials. Pottery is also used as pipes, ornaments, ladles, lamps and for serving foods.

Sometimes potteries are used for burial. Spoons have been used for eating with since very early times. It is most likely that prehistoric people used shells or chips of wood as spoons.

Knowledge of making earthenware in large quantity is assigned to the Neolithic man who made pots from clay. Initially pots were made by hand and it served the purpose of a container. Potter's wheel was subsequently invented and wheel made earthenware were designed. The potter's wheel later revolutionised the archaic technology and industrial movement during prehistoric and modern times. No form of machinery including the locomotives is possible to move without a wheel and the principle of rotary motion.

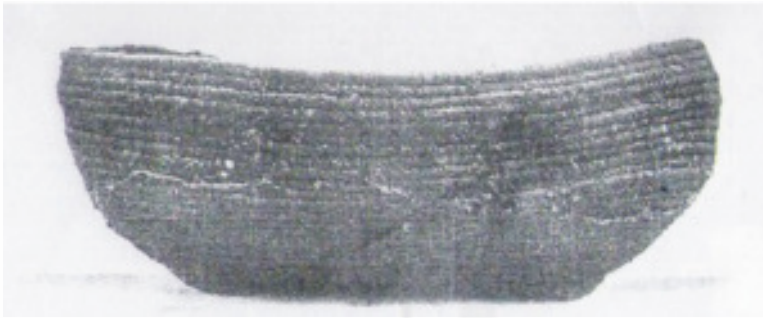


Fig. 4.14: Neolithic Basket



Fig. 4.15: Neolithic Pottery



Fig. 4.16: Indus Pottery

4.5 HARNESSING OF FIRE AND FLINT BOX

The use of fire is almost as old as human life. Before actually making fire, man tamed fire by harnessing it. That means by learning to control it. Like any other animal he must have been afraid of fire but then he used the natural fire and kept it burning by feeding fuel to it. Fire making came later. Possibly man used fire against attack of animals at night. With the discovery of fire they could venture into the caves and live there. *Homo erectus pekinensis* in China used fire. Fire is mainly used to make foods edible by cooking and in cold areas for warming up the body. Dried up branches, dried dung and later charcoal was used as fuel.

Man could discover that at the stroke of a stone against another, fire could be produced from the spark and is called percussion method. Man practiced it to generate fire as one of the earliest methods of producing fire. In another procedure called fire drill, one wooden stick vertically twirled on another stick placed horizontally produces spark which is captured in dried grasses and leaves. In another method known as bow drill in which, a wooden bow the string of which was wound tightly around a spike. With a hollowed out drill cap made of stone or a nut shell the spike was pressed against the fire stick and the bow was rotated back and forth to produce fire. Later on modern primitive communities began to carry a flint box that contained 'a piece of iron', another 'piece of hard igneous rock' with some amount of 'cotton' similar to the safety match box of modern times.



Fig. 4.17: Bow Drill and hand Drill

4.6 DRESS AND ORNAMENTS

As a result of physical evolution, man lost the furry body coat similar to that of Primate. Although human bodily hair is not less than those of the apes, it does not provide a furry coat to protect him from cold. Consequently, there was a need for clothing in the form of dress.

The origin of clothing is obscure. A kind of robe or a cloak made from the skin of large animals was the first to be used by man during Mousterian Culture; however it did not survive in archaeological ruins. Mousterian man lived in Europe during part of Wurm glaciation around 200,000 to 30,000 BC.

Evidence of clothing in Upper Palaeolithic period is supported by the appearance of first eyed bone needle. Needles that originated in the Solutrean culture in France from 19,000-15,000 BC, prominently occur in the later part of Solutrean and in entire Magdalenian culture.

Spinning and weaving is an innovation of Neolithic period. At the Neolithic 'Swiss-Lake dwellings' in Switzerland, evidence of 'Spinning and Weaving' came forth with the existence of spindle whorls. The earliest known woven textiles that came from the Near East is from the fabrics used for wrapping the dead bodies. Presence of spindle whorls at archaeological excavations suggest textile. Early Egyptians cultivated flax for making garments.

The inhabitants of the Indus Valley Civilization used cotton for clothing as early as the 5th millennium BC to 4th millennium BC. Yarn for weaving came from cultivated flax and from animals like sheep.

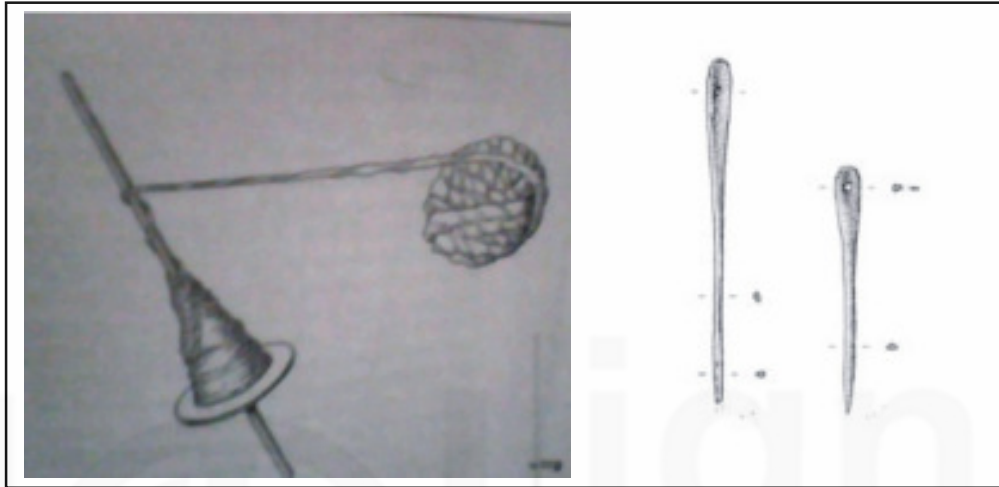


Fig. 4.18. Spindle, whorl and bone needle

Ornaments

The Upper Palaeolithic men decorated their bodies with different kinds of ornaments like necklace, perforated teeth, beads and shell and mollusc.

Beads

Evidence for the use of beads ranges between 33,000 to 45,000 years BP in Later Stone Age in South Africa. Even Neanderthals are known to have made and used beads.

Prehistoric beads were made of softer materials like sea shell, egg shell, bone, ivory, teeth, clay, stone, shale, etc. Even pine nuts, fruit pits and seeds were used as beads. Hard materials like jade were also used in early culture.

As in most ancient civilizations, women of the Harappan civilization decorated themselves with jewellery and probably men also did likewise. Rich people wore ornaments of gold, silver and precious stones. The middle classes used ornaments made of copper, bronze, shell, bones and the poor ones of terracotta and pottery made of copper, bronze, shell, bones and terracotta. A large number of beads of different sizes and shapes and materials have been recovered from almost all the sites of the Harappan civilization. These are mainly steatite and stone beads. Steatite beads are very hard and almost all these beads are white in colour. Majority of these beads were glazed either blue or green. Next to steatite the largest number of beads is made of silicate stones of transparent and opaque varieties. The transparent silicate stones being colourless quartz or rock crystal, amethyst, yellow quartz or smokey quartz and the opaque ones being agate, carnelian, chalcedony, chert etc. The opaque varieties of beads and particularly those of agate are by far the commonest.



Fig. 4.19: Jewellery of Mohejodaro

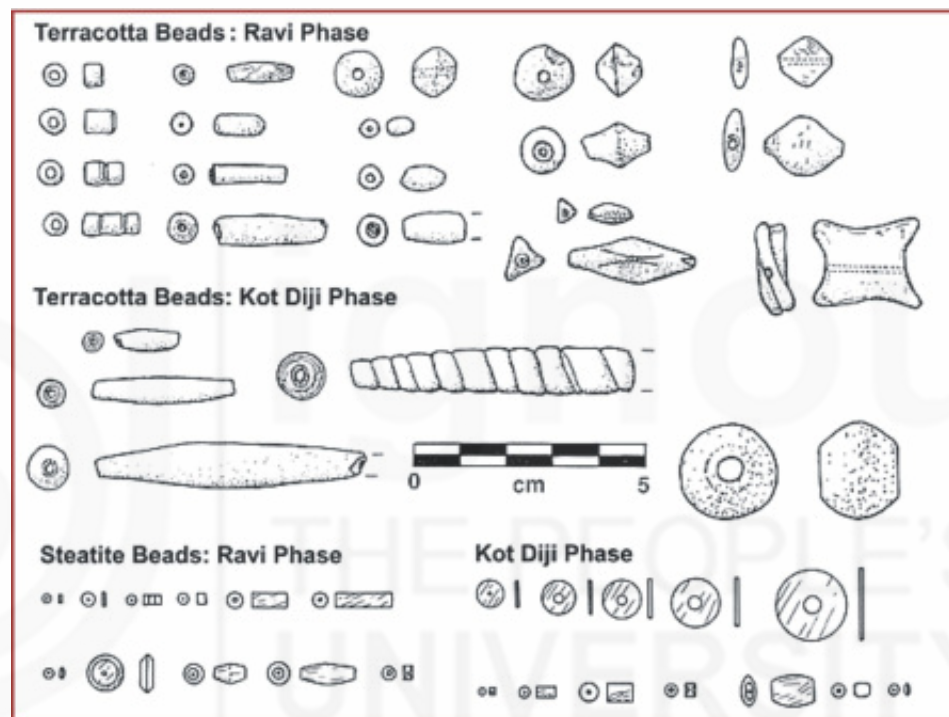


Fig. 4.20: Beads of Harappa

The mirrors of Harappan people are not made of glass but of bronze. They are slightly oval in shape. One of them has the edges of the face raised by 0.17 inch and the polish has completely disappeared. Their handles are rectangular with a hole at the end and it looks the handle were encased in wood. These mirrors are heavy. Such metallic mirrors were used in early Egypt and Sumer. They are either round or elliptical but not oval.

Faience

Faience was used in many countries such as India, Crete, Mesopotamia and China. It appears that Harappan Faience worker manufactured this material out of the paste of quartz-sand mixed with lime and a bit of soda. This paste was put under pressure in moulds of different shapes and moulded objects were dried in the sun. After glazing with sand, soda, borax or lime different coloured faience were produced. Mainly blue coloured faience were used as beads. Besides beads other personal ornaments made out of faience were bangles, rings, amulets, ear-stud, pendants and button.

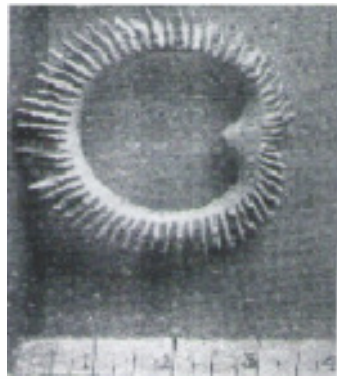


Fig. 4.21: Fayence bracelet from Harappa

Terracotta bangles

Many of the terracotta bangles were originally painted with black or red designs. Terracotta bangles include incised and painted pattern. Terracotta bangles are and were the most sought jewels. Even during the ancient Indus civilizations, terracotta bangles were made and were painted in black and red. In those times people have used them in multitudes, in the same way as the glass bangles of today. Terracotta bangles make a sort of jingling sound as that of glass or metal bangles and are very attractive. Harappan stoneware bangles and high-quality ceramic ornaments are unparalleled in ancient as well as modern world. Stone bangles were unglazed with bright red and pinkish to grey-black colour.

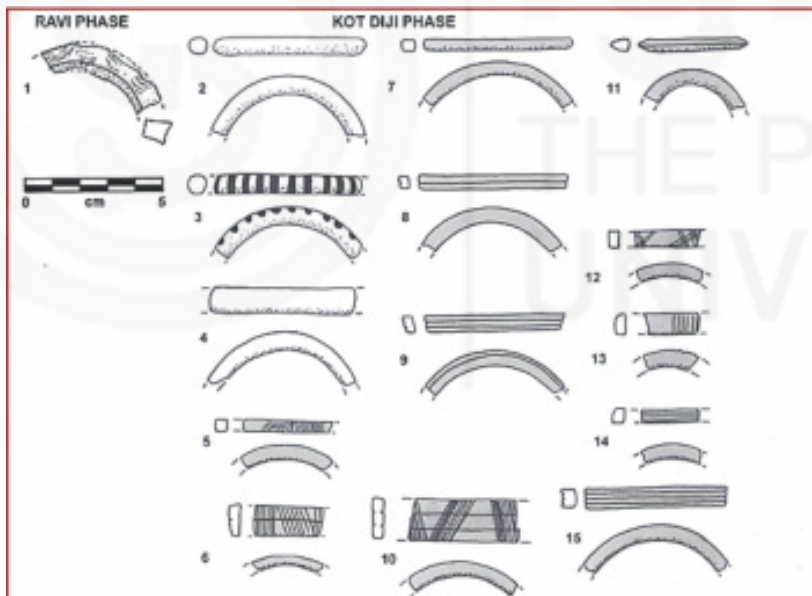


Fig. 4.22: Terracotta bangles of Harappa

Shell bangles

The most common shell object at most of the major Harappan sites is represented by shell bangles. These bangles were produced from *T. Pyrum*, the conch shells. Bangles were prepared with the use of a variety of specialised and unspecialised tools. Most of the finished bangles were perhaps incised with a motif in the form of chevron 'V'.

Metal bangles

Copper and bronze bangles have been found from Harappa and Mohenjodaro. The bangles were made from a round hammered rod bent in a full circle. The

space between the ends of the bangle would be pried apart to slip it over the wrist. Brass bangles also have been discovered from Chalcolithic culture of Orissa.

Ropes and cords

There are some ropes and cords for stringing beads and tying them around their wrists or hung as amulets around their necks. They wrapped their possessions in a piece of cloth and tied it into a bundle. The raw materials for these strings and cords were animal and plant fibres, rawhide, and leather. Fibres were spun into threads, some as fine as measuring a third of a millimetre, and two or more strands were twisted into string. Flax, palm fibre, rush, papyrus, and various grasses were used for making coarse ropes. Two-strand ropes were sometimes doubled and redoubled, resulting in thick rope of eight strands. For making nets they had netting needles, made of wood, bronze or any other suitable material. Brooms and cloths were used to clean houses.

4.7 SUMMARY

Household and decorative objects are studied for understanding degree of craft specialisation, specific artefact classes that were exchanged outside the community, behaviour of people and rough estimate of numbers of people as reflected from the assemblages of artefact types. Without the tools, containers and other implements of daily use our culture would not have flourished. These are part of daily activities of early man. Although people during early times did not have a proper concept of household but artefact found at the living sites suggest household type and activities therein.

All prehistoric people used tools but because of perishable nature of some materials we do not have all evidences of the materials used by man. The most fundamental tools are those which are used for cutting. These are made of stone, either chipped or polished by a variety of techniques, many of which are still in use. First metal tools were made from copper and its alloys like bronze or brass. Iron and steel came later. The early containers were natural products such as bark and leaves. In Egypt there is evidence of basketry before they produced pottery. Pottery containers are used primarily by sedentary farming communities from Neolithic period. Wide use of metal containers seems confined to highly industrialised culture. Containers are essential for storage and to increase the efficiency of transportation.

Suggested Reading

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Sample Questions

- 1) What kind of household was there in prehistoric times?
- 2) What do you understand by material culture in prehistory?
- 3) What is an artefact? What kind of artefacts one may expect at a prehistoric habitation site?
- 4) Why did people need container? Give an account of types of containers present during prehistoric times.
- 5) What is the purpose of a grinder? What different types of grinding implements found in prehistoric households. How these grinders changed the life of people?
- 6) Point out evolution of garments in prehistory.
- 7) Give an account of different types of ornaments in vogue among prehistoric people.