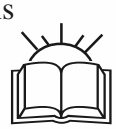
UNIT 1 NEOLITHIC REVOLUTION

Contents

Learning Objectives



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

- discuss the stage of human history which turned the progress of man from savagery to civilization;
- describe the origin of agriculture and history of cereal cultivation in India;
- describe the early history of animal husbandry in our country;
- understand forms and production of the earliest tools and equipments of agriculture and carpentry;
- discuss the beginning of the use of earthen pots; and
- describe the beginning of settled and organised life in India.

1.1 INTRODUCTION

You know that man has evolved since the last two million years. The two million years long history of man, is divided within three main technological stages — Stone, Copper/Bronze and Iron. Stone Age itself is classified into three, two of which — the Palaeolithic and Mesolithic have already been covered earlier. In this Unit, the final stage of Stone Age, the Neolithic shall be discussed. Beginning of food production and related technologies were important events in human history. India also contributed to this venture. The Neolithic cultures in close succession gave rise to the metal using cultures. Use of metal, the copper of the Chalcolithic cultures, in India developed from rural to urban stage. In the following unit of this block, details of Chalcolithic cultures shall be discussed.

In this unit, 'Neolithic Revolution' shall be discussed with particular reference to the 'Nucleus Areas and Salient Features of Neolithic Cultures in India'. The term 'Neolithic' has been explained. Also reasons for calling it a 'Revolution', is included. The main characteristics of Neolithic period, the incipient farming and pastoral practices, are mentioned with a brief outline of the tools and equipment, nature of dwellings and settlements, thereafter.

The factors responsible for the initiation of food production are essential to know. A brief outline of West Asia, where the origin of food producing practices is well

documented is very significant for history of Noelithic culture of India. The new technologies originated in this region, and spread to the other parts of the world, including India.

Neolithic Stage is known from the archaeological findings. In India, remains of this period are found from a number of areas. The nature of Neolithic findings, along with the main diagnostic features too is important for better understanding. The main regions of Neolithic occupation are also identified.

The regions of Neolithic spread in India can be identified as — Nucleus and peripheral areas. Kashmir Valley, Vindhya-Ganga region, and Deccan, are marked as Nucleus areas of Neolithic occupation. Salient features of each have been discussed. The findings of the other areas like Ganga plain of Bihar and Bengal, Chhotanagpur plateau and Assam, Neolithic have been discussed under the head Peripheral regions of Neolithic in India.

1.2 WHAT IS 'NEOLITHIC REVOLUTION'?

Terminologies and Concept

The literal meaning of 'Neolithic' is New Stone Age. It is the last phase of Stone Age. It is marked by a number of new cultural traits. Like use of new technology for making stone tools, new subsistence, new dwelling tendency etc.

All the three distinct stages of Stone Age are characterised by stone tool-making. In the oldest, the Palaeolithic stage, the first efforts of tool making can be seen in very primitive forms of chopping and cutting implements. In Palaeolithic period, the development of stone technology was in the form of decrease in the size and increase in the efficiency of the working edges. As a result, in the succeeding stage, the Mesolithic, large quantities of micro/ pigmy tools were being made. This category marked the culmination of Palaeolithic technology. From the use of the individual tools, the change was to the use of small tools in composite forms. Tools like sickle, harpoon etc., could be made by hafting some triangles on one base. This long practice of development suddenly reversed during the Neolithic time. Large and heavy tools made on hard stones were produced and used. This was a new technological stage.

Neolithic tools are also named as — 'Polished stone axes', 'Ground stone axes' etc. Two new features came to be in practice. One was making of axes and the other was, grinding of the surfaces of tools. Grinding often resulted in polishing of the surface. Because of these features the new stone tool making tradition was named as above.

During the Palaeolithic and the Mesolithic stages the mode of subsistence was hunting and gathering *jungle* products. Animal and plant food available in natural form was collected and consumed. Contrary to this in Neolithic stage, man for the first time started producing food by artificial means. Two practices were initiated at this time, — agriculture and domestication of animals. There were some wild species of animals, such as — goat, sheep and cattle, which were tamed. Similarly, wild variety of barley, wheat and paddy, were cropped at the initial stage. Since this was the first stage, both these practices were in incipient or primitive form. But, these were new and important innovations in the history of man. Agriculture was such an important invention that a small section of the society was able to produce food for the entire community. It was thus, termed as 'Green Revolution' by archaeologists. V. Gordon Childe coined the term Neolithic

revolution in 1920 when he was describing the first agricultural revolution. He considered the beginning of food production as a revolution because food production ushered important and significant changes in the subsistence economy and life of the communities who started this. Surplus food production by the farmers made it possible for large section of the society to master skills of arts, crafts and technologies. A natural outcome of which was a rapid growth of trade and commerce and, economic affluence.

The new subsistence also changed the dwelling pattern. The nomadic tendency of hunting-gathering changed into 'sedentary' or settled life. Wandering from one to other place in search of edibles was not required now. Instead, man's dwelling was governed by the preparation and use of cultivated fields. Construction of durable structures, villages near the farming fields were inevitable. Domesticated animals too required a shelter, which formed part of human dwelling complex.

All the above new beginnings and a number of other cultural traits justify the term 'New Stone Age' for the Neolithic. The term 'Revolution' is attached to it due to the unique innovation of food production strategies, particularly agriculture. It is therefore addressed as 'Neolithic Revolution'.

Main Tools and Technologies of Neolithic Period

The diagnostic feature of Neolithic period is 'Ground stone axes' or the 'Polished stone axes'. The most common type of a Neolithic tool-kit is axe or celt. Shaped almost like the present day iron axe, this was the form having one sharp cutting edge, and a butt. The type is found in small to large sizes. Variation in shape of the butt in the form of English alphabets V, U and with shoulders can be found. Similar to present day, a Neolithic axe was hafted to a stick with its cutting edge parallel to the haft (Fig.1.1 A). The other common type is adze. Almost similar in look the edge of this tool is so that it is used by hafting it in a way that its cutting edge is placed perpendicular to the haft/ handle (Fig.1.1 B). This is a carpenter's tool. The other forms are ring-stones, chisels, hoe, pick etc. All these types are agriculture and carpentry tools.

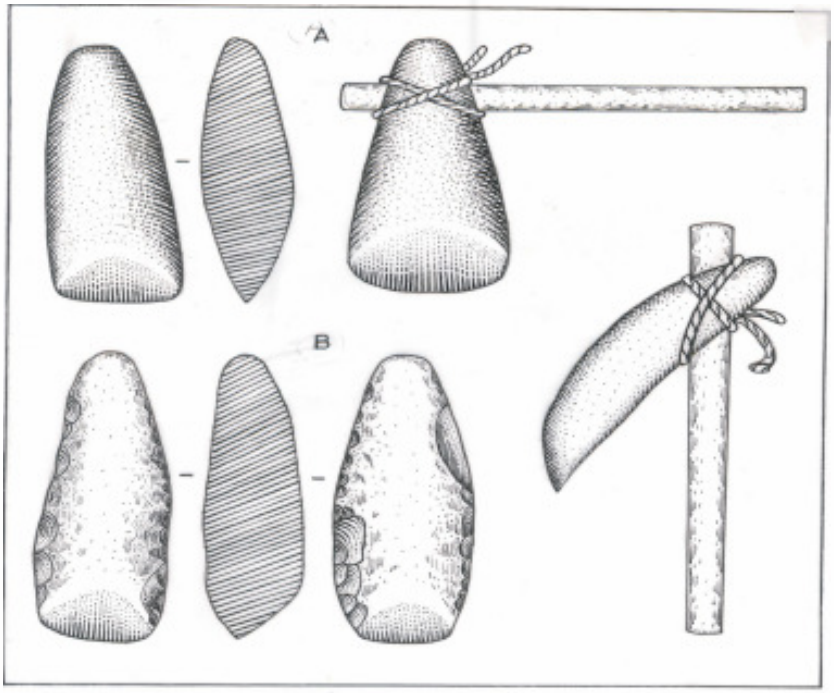


Fig.1.1

A Neolithic tool-kit is made from locally available fine grained, but hard rock like basalt, dolerite, schist etc. After selection of the basic lump of suitable stone, the main form of the tool is produced by knocking off extra mass of stone by a stone hammer (Fig. 1.2. A). This procedure is known as flaking. The initial flaking leaves prominent ridges and depression on the surface of the tool. In the second stage the undulation of the surface is flattened by removing very small chips (Fig. 1.2. B). Remember, metal was not known at this stage, so this flaking too was performed by stone or antler. The fine flaking of the second stage is named 'pecking'. Though pecking flattens the surface of tool considerably, it still leaves surface full of minute undulations. Thus the surfaces of the tool in the final stage were rubbed over a block of stone covered with sand layer (Fig. 1.2.C). Such a grinding operation made the surface completely smooth and also made it shining at times.

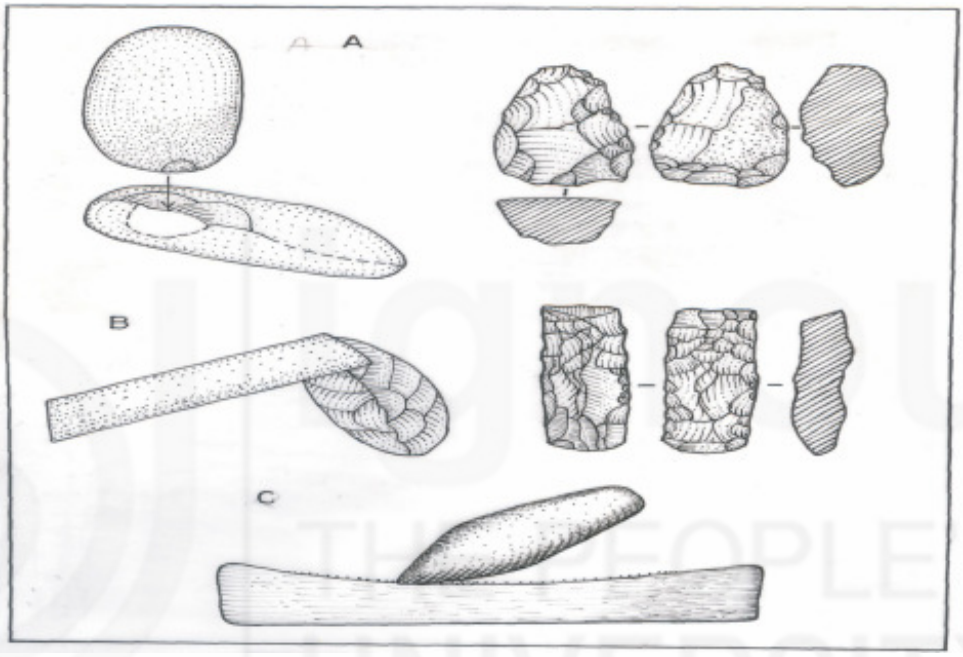


Fig.1.2

1.3 ORIGINS OF FOOD PRODUCTION PRACTICES

Background for Origins

Archaeological records for the earliest food production practices come from West Asia. In around ninth/eighth millennium BCE (Before Common Era), agricultural and pastoral practices were innovated. Wild animal species like sheep, goat, and pig were tamed. Also wild varieties of wheat and barley were the first crops which were cultivated. The question is why this innovation happened in West Asia? A number of factors worked together prompting the initiation of food production practices, here.

Mesolithic, the preceding stage of Neolithic, was very wide spread in Levant Valley of West Asia. The Savanna climatic condition which prevailed in the early Holocene period, were marked by large stretches of grass land and small patches of *jungles*. In this ecological niche wild variety of cereals like wheat and barley were plenty. Also the population of grazing animals like sheep, goat, cattle, deer etc., was high. Mesolithic man, who had acquired all the physical capabilities of *Homo Sapiens Sapiens,* had a much milder and congenial climatic conditions

than his ancestors. Though hunter-gatherer, he became familiar with the nature and behaviour of edible plants, seeds, animals etc. He got well adapted in Savanna landscape of the post-Pleistocene arid conditions.

Activity 1

Understand tools of Neolithic Period. Make comparison of main Neolithic tools with those of the Palaeolithic and Mesolithic.

- Draw a chopper of the early Palaeolithic period.
- Draw a side scraper on a flake of Middle Palaoelithic period.
- Draw a knife made on a blade of Upper Palaeolithic period.
- Draw a triangle of the Mesolithic period.
- Draw a Neolithic axe.

While drawing mark the natural surface on the tools. Also note the number and sizes of dressing scars on each of the tool. Make comparison of all the drawn tools on the following:

- Size of all the five tools. Note down the tendency of the decrease and increase of size in all select categories.
- Compare the number of flake scars on the surface of each of the five tools. Note the difference on surface of Neolithic axe from the others.
- Note the length of working edge on the tools in proportion to their size.

Write down your observations on the difference of size, nature of surface and edge form of Neolithic axe from the others. This will give you understanding of features of development of stone technology, particularly during Neolithic period.

It is a known fact that when species get adapted within an ecological niche, their population increases. The increase of Mesolithic population in West Asia created a situation of 'food crises'. The natural resources of both cereal and animal began to lessen. Because, in gathering practices, the seed/ essential part of the cereal yield to be used for next crop was also consumed. Similarly, the hunting of grazing animals and their younger members too was detrimental to keep balance between the consumption and the growth. Thus, a continuous exploitation of natural resources by hunter-gatherers created a situation of food scarcity. It is said that necessity is the mother of invention. This proverb appears to be true in this case. Mesolithic man was not only physically fully developed, but was also familiar with his natural surroundings of edible plants and animals. Thus, he could initiate food production by means of domestication of cereals and animals. These efforts came up as agricultural and animal husbandry practices.

Origin of food production may also be considered as the outcome of ecological niche formation as mentioned above. Human being has got the capability of handling down of knowledge from one generation to the other. Knowledge accumulates in every generation. Mesolithic people had an intimate knowledge about the species of plants they collected and the species of animals they hunted. It appeared that Mesolithic people with their knowledge about the environment and its resources became species specific hunter- gatherers, meaning they preferred certain species of plants and animals over others. The cereal, which we call

domesticated variety are distinguished from wild varieties by a character of its seeds. The seeds in domesticated varieties do not fall off the stalk when ripe. These are known as non shattering types. In case of the wild cereals after ripening the seeds fall off the stalk and shatter around. Shattering of the seed is convenient for natural dispersal of seed. Non shattering types are not. Non-shattering types are mutants of the shattering types. Human beings selected the non-shattering seed type of cereals, namely, wheat, barley, rice, millet etc. for domestication because they could harvest and bring the cereals home with the seeds attached to the stalk. This saved them from picking seeds one by one from the ground. They also took charge of propagation of the cereals by planting the seeds of these varieties near to their homestead.

West Asia, particularly Levant region, has been mainly identified as the nucleus area for the origin and growth of Neolithic strategies. For not only was the above geographical background available here, but also one finds individual efforts of taming of animals and cultivation of cereals at very early date in this region. Wheat and barley were cultivated for the first time in Levant. There are other nuclear areas of food production as well. For example lower Yangtze valley in China is considered as nuclear zone for rice cultivation and Mexico for the cultivation of maize.

West Asia

Levant includes present countries of Israel, Palestine, Lebanon, Syria and Jordon. Zagros Mountain lying north of Rivers Tigris and Euphrates mark a half moon shaped plain of alluvium, which is known as the 'Fertile Crescent'. During early Holocene, this region had savanna climate. The severe post-Glacial climatic conditions were replaced by arid and mild seasonal climatic cycles. There was natural growth of such plants and animals in this region, which were suitable for human consumption. The original inhabitant of the region, the Mesolithic population got well adapted in this ecological niche, between 10, 000 and 8500 BCE. As was explained earlier, this back ground laid the foundation for the origin of Neolithic technologies.

Many sites of Mesolithic and Neolithic period have been discovered and some important ones have been excavated. As a result almost complete sequence of development of Neolithic is known to us from this region. The early dates and details of history of animal husbandry and agriculture have made this region as the nucleus area for the origin and development of Neolithic period. Four following stages have been identified in the history of Neolithic of West Asia.

Stage I: Advanced Mesolithic, represented by Natufian. Named after Wadi-el-Natuf, a long strip along the eastern coast of Mediterranean in the present day Israel, this stage was food collecting. Located at the lowest levels of large sites like Jericho, Beidha, etc. The stage appears to lay foundation for successive stages of food production.

Stage II: Proto-Neolithic, is a short span (8900 – 8500 BCE), with very limited remains. This is marked by sporadic attempts of beginning of cereal cultivation and taming of wild animals. This phase is marked at Natuf and at Jarmo in Iraq. These are represented with the presence of mortar and pestle – a cereal processing tool and the presence of sickles, the harvesting tool.

Stage III: Archaic/ Aceramic (without pottery) Neolithic (8500 – 6000 BCE), is comparatively well represented. Though no pottery was used, it is marked by settlement of permanent nature, a feature of 'sedentary life'. With the use of unbaked bricks (in the shape of flattened cigar), multi-celled houses were constructed. But, the most imposing feature in this stage was to fortify the settlement. A feature which is taken to be a characteristic of urban centre of historical times. Stone and bone tools, domesticated species of sheep and goat, and cultivated wheat and barley are noteworthy finds. Domestication of cattle appears in the last phase (around 6500 BCE). Needless to mention hunting and gathering of food items continued.

Stage IV: Developed /Ceramic Neolithic (6000 – 4000 BCE), is marked by an expansion in size of earlier settlements. At Catal Hüyük in Turkey an area of 32 acre could be demarcated as settlement. An estimate of 10,000 to 8,000 people is calculated to be residing in here. Sun dried bricks now were of bun shape and the houses rectangular. All species of animal and cereal were being domesticated. The society was heading towards the stage of surplus food production.

The follow up of Mature Neolithic by copper using community completed the story of Neolithic subsistence in West Asia. However, it may be noted that in archaeological records a hiatus, desertion of sites, is distinct, between Neolithic and Chalcolithic horizons.

Expansion of Neolithic to the other parts

West Asia thus could be identified as the nucleus region for the origin and growth of Neolithic practices. By 6000 to 4000 BCE, Neolithic was fully developed in this region. Agriculture and animal husbandry through an incipient stage, could give rise to imposing and affluent settlements, which looked similar to cities.

Soon people from Levant migrated to other parts of the world. With them spread the food production strategies. As the evidence stands today, one branch from West Asia migrated to west. Through Anatolia this branch reached and settled in Europe. The other expansion was towards central and south-east Asia. It may be mentioned here that the major crop of South and South East Asia had been Paddy. Cultivation of rice, a complex process of agriculture appears to be of local origin in Asia. This innovation appears to take place in more than one region – the Spirit Cave in Thailand, Yang Sao in China and Belan Valley in India, for paddy farming.

Activity 2

Would you not like to understand how Neolithic tools were used?

You can do it by comparing specific form of the Neolithic tool-kit with the modern tools used in kitchen, farming and carpentry. Remember, in modern times metal, particularly iron is used for most of the tools. While in Neolithic period all the tools were made from stone. So compare just the form not the medium of tools.

- Select a Neolithic axe, adze, chisel, pick, hoe, quern and Pestle.
- Draw out line, plan of each, along with cross section showing form and position of edge.

- Go to kitchen. Try to identify the tools and equipments of food processing with your list of tools.
- Draw or note their similarity with your comparable type.
- Note the function of the comparable type.
- Go and repeat the same exercise with the farming tools.
- Repeat the same exercise with carpentry tools.

Draw your own conclusion on following account:

- Categorize your list of Neolithic tools within the three – kitchen, farming and carpentry tools, on account of the comparisons you have made.
- Note down the use of identified kitchen tools of your list.
- Note the use of identified farming tools of your list.
- Note the use of identified carpentry tools of your list.

You will be able to understand major activities which were performed by the Neolithic tool-kit.

1.4 NEOLITHIC REMAINS OF INDIA

General characteristics of Indian Neolithic

It was explained earlier that the diagnostic feature of Neolithic period is the category of Ground Stone Axes. In India also all the Neolithic sites have yielded polished or ground stone axes in good number. Also adze, chisel, pick, hoe etc. form part of this tool-kit. Mace head or ring stone and stone ball form a separated category, as these appear to be used for defensive purposes. So are the quern, pestle, which were used for grain processing. Since all of these are made on large stone piece and are heavy in weight, these are also called 'heavy duty tools'.

Besides the ground stone tools, Neolithic remains of India include earlier tools, like microliths and blades. Microliths are diagnostic tools of the Mesolithic period. But in many regions, these are associated with the Neolithic deposits, in small proportion. In some regions, like Kashmir Valley, microliths are not recorded from Neolithic deposits.

Bone and antler tools comprised needle, point, arrow head etc. Broken bones of food refuge with point and edge were also used, as tools. At Senuwar this tendency was very pronounced.

Use of earthen pots in large way was a Neolithic feature. But, in regions like Baluchistan and Kashmir, Aceramic Neolithic phase has been recorded. Earthen pots and pans were not in use in these regions. The pottery of Neolithic period developed from simple hand made forms like bowl, to wheel turned forms of bowls and vases. Study of tribes who make earthen pots by hands, like Sema Nagas of the Northeastern India, suggest that bowls can by prepared by coil method. Surface of the pots were often decorated by pressing cord or mat in

semi-dried condition. Grey or dull red colour of a typical early Neolithic pot is due to ill firing.

On the floors of Neolithic period are found remains of simple structures. The post-holes and earthen floors indicate that shelters were constructed by the use of perishable material, like wood, bamboo and earth. There are also examples when under ground dwellings were used. The huts are found in archaeological records in small clusters. These might have looked like simple and small villages. However, in the north-western part of Indian sub-continent, durable rectangular houses similar to the West Asian Neolithic settlements were in use. But, in other parts of the country Neolithic settlements were in the form of small villages made of simple huts.

Neolithic remains also comprise items of arts and crafts. Beads of semi precious stones, like — carnelian, chert, agate, lapis, turquoise, etc. and clay figures of animal like bull, and human, particularly portraying mother goddess, are important categories.

Neolithic sites and regional pattern

Recognition of Neolithic in India dates back to 1852, when an axe was found in Mysore. Many sites have been discovered, thereafter. A number of these were also excavated. Neolithic remains are reported from almost entire length and breadth of our country. But, the sites of the period are confined in small regional pockets. At least six regions, — the Kashmir Valley, Assam, Vindhya-Ganga region, Middle Ganga plain, Chhotanagpur and Deccan have yielded Neolithic sites. All of these are marked by varying characteristics, such as, — density of sites, date of existence, nature of subsistence and dwelling etc. Thus each region needs to be discussed individually. However, on account of the dates and density of sites, it is possible to divide each region of Neolithic occupation within two main categories — the nucleus and the peripheral regions, which are as below.

1.5 NUCLEUS AREAS OF NEOLITHIC IN INDIA

Three regions in India, — Vindhya-Ganga Valley, Kashmir Valley and Karnataka (Deccan), can be identified as nucleus areas for the Neolithic occupation. Evidence for early beginning of food production in India comes from Vindhya-Ganga Valley. While the northern most, the Kashmir Neolithic and the southern most, the Karnatak group are significant, due to their diverse culture formats.

Neolithic culture of Vindhya-Ganga Valley

This region is characterised by two geological formations. One the fertile alluvial plain of the Ganga basin and the other is the hilly tract of Vindhyas (Fig. 1.3). The area lying within the boundaries of Uttar Pradesh is very important for the history of Neolithic remains. A continuous sequence of Stone Age has been recorded in the Valley of Belan, a tributary of the river Ganga. The geological composition of this region was very suitable for the Stone Age cultures. The Vindhya-Kaimur ranges are rich in variety of stones, and, the flat southern plain of Ganga is very fertile. Thus the geographical back ground which is needed for the origin of food producing strategies was available in this region. The cluster of sites of Neolithic, pre-Neolithic, and post-Neolithic in Vindhya-Ganga region provides evidence of origin and developmental stages of Neolithic.

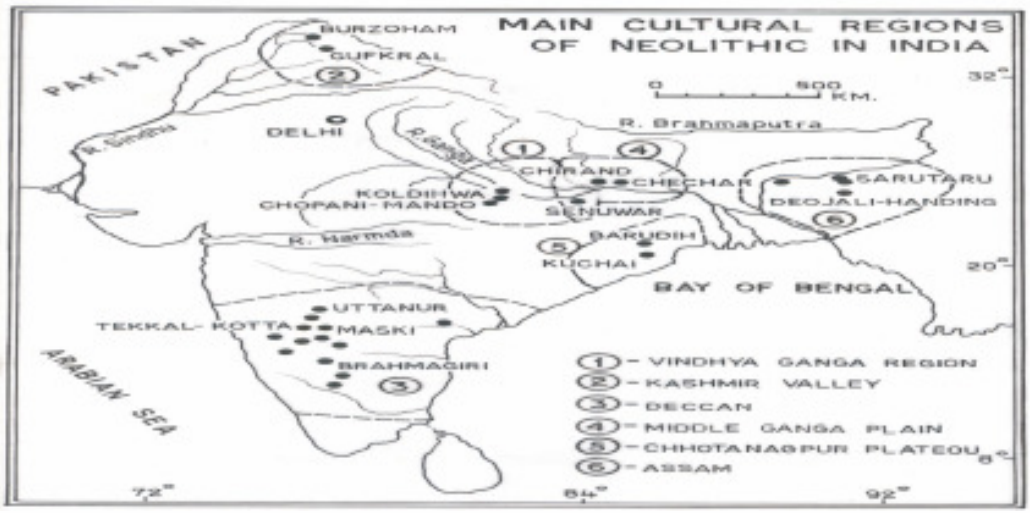


Fig.1.3

The important sites which have been excavated in this region are – Chopani-mando, Mahgarha, Koldihwa, Pachoh and Indri. The recent findings from Lahuradeva and the earlier excavated remains from Adamgarh rock-shelter sites are also important to note. On account of all of these the following stages of Neolithic of Vidhya-Ganga region can be reconstructed.

i) **Advanced Mesolithic/Proto-Neolithic:** This stage is reported from Period III of Chopani-mando. It is significant to note that through a long continuous development this stage was reached at this site. For example, during earlier two periods size of tools had become tiny and the stone used was of fine grained semi-precious category. But at this stage large tools made on hard rocks like quartzite and sandstone appear. Grinding technology also appears for the first time. Heavy duty tools were ring stone, quern, pestle, and hammer. Microliths in good proportion continue.

Use of earthen pot was initiated at this stage. Bowl and small vase of this phase were hand made and ill fired. A lone example of stone bead and engraved bone piece were the other significant findings.

In Belan valley, shelters were being constructed right from the Mesolithic times. In 'Proto-Neooithic', this tendency becomes pronounced. A group of 13 huts arranged in bee-hive pattern were exposed at Chopani-mando. Floor full of tools, pot fragments and fragments of bones were covered by bamboo, wood and earth. Post-holes suggested that the circular huts had support of wooden frame and thatched roof. However, hearths were made out side the huts, and were used for community cooking, as was the case during Mesolithic times.

This stage is dated around 9th /8th millennium BCE. It was pre-food producing, as the bones of animals included wild species of cattle and other animals. Also, the paddy husk after analysis was identified as of wild variety. But, the pots and the food processing equipments suggest consumption of such species of wild cereals and animals, which could be domesticated subsequently.

ii) **Early Neolithic stage:** This stage is reported from sites like Koldihwa and Mahgarha. The most significant finding of this stage is the very early date for the cultivation of paddy, which is seventh to 5th millennium BCE. Though

there was doubt expressed for acceptance of this date-bracket, a number of recent sites, like Lahuradeva, confirm cultivation of rice, at this early period in the Ganga plain. .

Remains of settlement of this period from Mahgarha, a site close to Koldiwa, reveals that the huts were associated with cattle-pens. Small animals like sheep and goat were kept there. But, for cattle, a large enclosure was constructed of wooden fence. These places revealed hoof marks. In the domesticated animal bones identification of horses are noteworthy.

Group of 20 huts were exposed at Mahgarha. These were also constructed by use of wood, bamboo and mud. Circular in plan, the floors of these were full of food processing equipments like pestle, muller, quern etc. Axes, microliths, pottery, bone arrow head and animal food refuge were other noteworthy remains.

The earthen pots discovered from this phase are developed and are of diverse fabric. Important types were cord impressed Black-and-Red and rusticated wares. Baking technology now was much developed. The shapes included bowl, vase, basic and *handi*.

Neolithic phase of Belan Valley does not have good representation of ground stone tools. The proportions of carpentry tools were negligible. Axes were few, but food processing equipments were many. Bone tools included hunting tools.

iii) **Late Neolithic:** The Koldihwa-Mahgarha group suggest that Neolithic in this region continued up to 2nd millennium BCE. The later phase, date between third and 2nd millennium BCE, evidence continuation of the earlier culture with intrusion of Chalcolithic characteristics.

It was during this phase that there was migration of farming communities from Belan region to east. Sites near the slope of Kaimur hills in Bihar were occupied during the process. Excavations of Senuwar in Rohtas district support this presumption. From the lowest level evidence for rice cultivation is attested. This is dated to 2200 BCE. A little later, multi crop agriculture which appears to be inspired by Harappan crops, have been identified. This indicates a change from Neolithic to Chalcolithic subsistence in this region.

Recent archaeological evidence suggests that in Vindhya-Ganga region Neolithic food producing practices had very early dates. At more than one place rice cultivation was attempted. One in Belan Valley and the other inner land of the Ganga plain, as is evident by Lahuradeva. Similarly, domestication of animal may also have been initiated in Vindhya-Ganga region. Pasotral practices, around 6th millennium BCE, appear to spread to the hilly tracts of the Vindhyan region. Excavation of Adamgarh rock-shelter indicates that this branch was using microliths, but was also domesticating animals like cattle, sheep and goat for their livelihood.

Neolithic culture of Kashmir Valley

Kashmir Valley was occupied between 3rd and mid 2nd millennium BCE, by Neolithic communities. Main sites like Burzoham, Gufkral, Begagund, Hariparigom, Pampur, Badatal etc., indicate that small groups of people were

spread in this region. Excavations of Burzoham (16 km Northeast of Srinagar) and Gufkral (41 km East of Srinagar) have given to us full sequence of Neolithic in Kashmir Valley. The Neolithic remains in this region is divisible within the following stages —

i) **Aceramic Neolithic Stage:** This earliest phase of Kashmir Neolithic has been reported from the lowest levels of Gufkral. Dated around 3rd millennium BCE, typical Neolithic findings from this phase were ground stone axes, adzes, chisel, muller made on schist, the local Himalyan rock. Bone tools comprised points and needles. But a number of broken bone fragments with points were also rubbed and used. Two beads of bone and stone paste were noteworthy finds. But, the most significant finding from earliest levels of Gufkral was pit dwellings. Circular or oval pits were dug. Floors of these pits were prepared by ramming earth. Large under ground pit dwellings measured 3 m long, 1.5 m broad and one meter deep. In the centre of this pit was a platform, on which were located three grain storage pits. The under ground pits were covered by thatched roof, which was supported by wooden logs and hay. Under ground huts are suitable for the cold climate of Kashmir.

   The earliest subsistence of Aceramic Neolithic of Kashmir Valley was animal husbandry. In the remains of bones domesticated sheep and goat species have been identified. These species were tamed from the local wild forms. Hunting of deer, wild cattle, wolf, bear and Ibex was the supporting edible consume.

   Beginning of agriculture was introduced a little later. But, right from its first appearance it was recorded in developed form. Since the cereal remains recovered from the period were wheat, barley, *mansur* and pea. Clove (Ban-methi) was also cultivated. It is believed that knowledge of agriculture in Kashmir Valley migrated from out side. The seeds of the cereals for initiating cultivation were also brought to the region during this process.

ii) **Early Neolithic Stage:** In view to food producing practices and also nature of dwelling this stage was similar to the above. But, now earthen pots were being made and used. This Cermaic Neolithic stage has been reported both from the Period IB of Gufkral and Period I of Burzoham. Pottery is hand made and ill fired and are of grey and ochre colour. Main forms of pots used were bowls, vases and bases. On the flat surface of pots, was mat impressed design.

   Stone tools in this stage were large in number and also new forms like, — quern mace-head, picks were found along with axes, adzes, chisels etc. Similarly, in the category of bone tools, important forms were, — harpoon, needle (eyed and with out eye), arrow-head, point scraper, etc.

   The pit dwelling continued in Early Neolithic of Kashmir Valley. At Burzoham, where good evidence for pit dwellings has come to light, two types have been recognised. One was of circular and oval shapes and the other of rectangular shape. These pits were dug by the use of picks. Side walls were many times plastered by mud. For entering into the pit-huts steps used to be dug at one corner of the hut or wooden stairs were also used. On the living floors were found traces of small and large pits, which were storage of edible items, like grain or also meat, roots etc.

Remains of domesticated species, like sheep and goat increased. Cattle breeding too were added. Findings of Gufkral Period IB suggested that cultivation of pea and clove was dropped at this stage. The economy at this stage appears to be dominated by pastoralism, the subsistence which even now is followed by tribes like Gaddis of Kashmir region.

iii) **Late Neolithic Stage:** This phase is represented by the findings from Period IC of Gufkral and Period II of Burzohom. The subsistence though remained similar to the earlier stage; it is marked by development in livelihood strategies, e. g. potting technology and change in the nature of dwelling. The list of domesticated animals now includes sheep, goat, humped cattle, pigs, dog and buffalo. Hunting continued. So were the agricultural practices.

The most prominent feature was use of over ground huts. Remains at Burzohom suggest that some of the pits of earlier times were filled. The surface was plastered and used as floors. Two types of structures were constructed. One which was only thatched with the help of erecting posts, and in other the area of the hut was enclosed by mud or wooden screens. Traces for the use of sun dried bricks were also noticed in the excavations.

Earthen pots were made both by hand modeling and wheel. The grey and dull red color of these indicates less perfection of firing technique. Besides, bowl and vase, basin and dish on stand were also found. The surface of pots was decorated variously by impression cord, hay, matt or by incising geometric designs.

Ground stone tools have some new forms like two pointed picks. Cloth weaving is also attested by terracotta or stone spindle whorls. The dead were buried in the residences in pit burials, in which animal pets like dogs were also buried.

Increase in such items which suggest trade included beads, copper tools like arrow head, needle, ring etc. A painted pot contained 950 carnelian beads, which was perhaps imported from Harappan region in Baluchistan-Pakistan. Exchange of goods or trade between far places and Kashmir Valley is indicated by these finds.

Neolithic in Kashmir Valley appears to be migration from out side. As presence of Mesolithic stage was not established here. Perhaps one of the groups from West Asia had reached this Valley. The physical features of the skeletons from Burzohom bear similarities with West Asian population. The local species of sheep and goat, and subsequently, cattle were domesticated by these immigrants. But, the seeds which they sowed for cultivation of cereals were brought by them from out side. The noteworthy variation of Kashmir Neolithic was its' Aceramic stage and the pit dwellings.

Neolithic Culture of Deccan

The plateau of Deccan in Karnatak has a dense concentration of Neolithic sites, such as, Maski, Piklihal, Hallur, Brahamgiri, Tekkalkotta, Snagankallu, Kopagal etc. The southern part of Andhra Pradesh too has revealed important Neolithic habitations, Uttanur, Nagarjunakonda, Palvaya, Rampuan etc. Extension of Deccan Neolithic was also in north Tamilnadu, as is attested by Payampalli site.

The time span for Deccan Neolithic is 2500 – 1000 BCE. The Neolithic remains of the region is divisible into four phases:

i) **Aceramic Neolithic:** Reported from the earliest levels of Sangankallu, is composed of just flake tools.

ii) **Mature Neolithic:** This Ceramic Neolithic is pre 1600 BCE. Period IA of Sangankallu and other sites have revealed this horizon.

iii) **Neolitihic-Chalcolithic:** Dated between 1600 and 1500 BCE, it is reported from Sankallu Period IIB, and many other sites. The Neolithic appears to be in close contact with Chalcolithic communities of the north.

iv) **Neolithic-Megalithic:** This phase is very common at sites of Deccan, where overlap between Neolithic and Megalithic can be seen.

All the Neolithic phases of Deccan are influenced by the ecology of the plateau. Composed of Dharwar formation, the granite and trap, the rocky terrain is drained by rivers, which have alluvial stretch. Till the mature phase, Neolithic communities of the region were occupying the hilly terrains, which could support pastoral subsistence. In the succeeding phase, when these groups came in contact with Chalcolithic communities, their villages got concentrated in the alluvial plains. For the reason that fertile land for agriculture was available around the water channels.

The main subsistence of the Mature Neolithic phase was animal husbandry. In archaeological remains 80-85 % bones of animals were found to be of humpless cattle, and buffalo. The other domesticated animals were sheep, goat and ass. Agriculture at this stage was secondary. Only coarse grains like, Kuthali, Jowar, lentils and gram were cultivated.

Four types of shelters have been recorded in the Neolithic period of Deccan.

1) Pit dwellings were found at Nagarjunakonda and Payampalli. These pits were covered by thatched roof, supported by wooden posts. Smaller pits associate the dwelling which were used for storage of edibles, discard of garbage or burying the dead.

2) Circular huts with thatched roof supported by wooden posts have come to light from Period I of Tekkalkotta. The wooden posts were supported by block of stones.

3) Circular huts with walls made of wood and mud were covered by thatched roof. Many sites including Tekalkotta have yielded this type.

4) Square and rectangle shaped huts were being constructed in the last phase. In this case the mud walls up to half height were constructed. Over which wood and mud walls were made. The conical thatched roof was the upper component.

The later huts resembled huts made by Boya tribes of the region. Small cluster of Neolithic huts perhaps looked similar to these tribal villages. Each of the hut had cattle-shed. Also, cattle-pen, for the village was made adjacent but away from the village. The ash mounds of Deccan Neolithic, like the one excavated at Uttarnur, suggested that accumulation of cattle dung were burnt from time to time.

Burying the dead was an important ritual practice of the Deccan Neolithic. Burials were made within the residential area. Two types of burials have been reported. Pit burials, in which adults were buried along with edible items and pots. Children were buried mostly in earthen pots. This custom appears to continue during Megalithic times in the south.

The culture content of Deccan Neolithic was characterised by polished stone tools which were made of local rocks – dolerite and trap. Small to medium sized axe, adze, pick, quern, pestle, ring-stone etc., were the main types. Continuation of earlier technology, microliths was another feature. Besides usual types a number of flake and blade tools with serrated edge, point and scraping edge were used. In the bone and antler tools the forms found were scraper, point and chisel.

Except for Stage I, pottery was found from all the phases of Neolithic of Deccan. Grey and red ware pots made by hand or slow wheel were characteristic of the region. These were often painted, grey with ochre colour, and red with purple or dark brown. Painting included simple geometric designs.

Terracotta figures of animals like bull and birds associate the collections from Neolithic sites of the Deccan. These forms appear to correspond with Chalcolithic clay models. Similarly, beads of semiprecious stones also looked similar to the Chalcolithic beads. Occurrence of lead bead in the Neolithic horizon of the late phase may be taken to be a Megalithic trait. Similarly small copper objects which occur in the third phase of Neolithic of Deccan, evidence Chalcolithic contacts. Occurrence of gold ornaments, particularly earring is accepted as an important indication of trade between the Deccan Neolithic communities with the Harappans. For, the gold used by city dwellers of the north during 2nd millennium BCE, was known to be coming from the Kolar mines of the southern India.

On account of the above it may be summarized that the Neolithic culture of Deccan though retained earlier culture traits, microliths, it does not appear to have originated in this region. As the earlier stages of Neolithic are not represented in this region, and also the time span too is quite late.

1.6 PERIPHERAL AREAS OF NEOLITHIC IN INDIA

The other remains of Neolithic are very late, and also sporadic in nature. There were early farming communities in Ganga plain, — in Bihar and Bengal, — Chhotanagpur plateau, — lying within the boundaries of Bengal and Orissa, — and Assam.

Early Farming communities of Middle Ganga Plain

In the fertile alluvial plain of middle Ganga Valley, many sites were occupied for many centuries. The earliest levels have been identified as Neolithic. Chirand (Saran district), Chechar (Vaisali district) and Sahgaura (Gorakhpur district), are noteworthy. The earliest levels at Chirand (Period IA), was pre-metal, when pit-dwellings were used. The subsistence was characterised by multi-crop cultivation. The cereals found were wheat, paddy, barley, gram and lentils. Also domestication of sheep, goat and cattle were practiced. Pottery is characterised by evolved techniques like Black-and-red ware, and polished red and black wares. Also

evolved forms, like, — spouted and lipped vases associated the ceramic collection. Proportion of ground stone axes was nominal. But, bone and antler tools were many. Called also as 'Neolithic-Chalcolithic', this phase of Chirand is dated between 1800 and 1400 BCE.

Similar Neolithic horizons have been reported from, — Tamluk and Pandurrajar-dhibi in Bengal. Characterised by ground stone axes and primitive pottery, all these remains fall in the later part of 2nd millennium BCE.

Neolithic remains of Chhotanagpur Plateau

Chhotanagpur is a wide spread plateau, comprising parts of Bihar, Bengal and Orissa. Many surface finds of ground stone axes included shouldered axe, round butted axe, chisel, Ring-stone hammer etc., are reported from Santhal pargana, Chakradharpur, Ranchi and Mayurbhanj districts. Only a few sites have been excavated. These too have revealed very limited deposit of habitation.

Dated between 1200 and 800 BCE, Barudih in Bihar, revealed round butted axes, adze, quern, muller, pestle, ring-stone etc. Also hand and wheel made pottery were obtained. Bowls and dishes were the main forms. Like wise Kuchai in Orissa, was a contemporary site. Near Baragaon, in Sundergarh district factory sites of Neolithic tools have recently been discovered, which suggest production of large quantities of stone axes and Celts in this region.

Neolithic remains of Assam

Many surface findings are reported from Assam. The ground stone tools of this region are characterised by shouldered axe. Two sites of the region — Sarutaru and Deojali-handing are significant. Neolthic tools and cord impressed hand made and wheel turned pottery are reported from the excavation of these sites. The evidence of Markdola, near Sarutaru suggests that the Neolithic way of life in this region continued up to first century CE (Common Era).

All the finds of incipient farming from Chhotanagpur plateau, and Assam are late to very late in date. Thus, could be accepted as late survival of Neolithic technologies in these geographically isolated areas. It may be recalled that even to day, Chhotanagpur plateau and eastern India are occupied by tribal population, who live in cultural isolation.

1.7 SUMMARY

The Neolithic period was the first stage of food production in man's history. In India this period is well represented by beginning of agriculture and animal husbandry. The main regions from where sites of this period are reported are marked by diverse climatic conditions. Accordingly, the cultures of these regions differ in time and contents. The earliest Neolithic culture, with rice cultivation comes from Vindhya-Ganga region. While the other nucleus regions, the northern and southern parts were of late date. In Kashmir, domestication of animals and agriculture of the first stage was associated with the immigrants, who were pit-dweller. The Neolithic communities of Deccan were pastoral. Neolithic of both of these regions were almost contemporary to Chalcolithic cultures of the north-western part of the sub-continent. The other regions like the Chhotanagpur plateau, the middle Ganga plain of Bihar and Bengal and north east, were such areas

where Neolithic way of livelihood survived very late, and may not be classified in the category of true Neolithic.

Suggested Reading

Sankalia, H.D. 1974. *Pre-And-Proto-History of India and Pakistan.* Poona: Deccan College.

Thapar, B.K. 1985. *Recent Archaeological Discoveries in India*. UNESCO

Singh, P. 1991. *The Neolithic Origins*, Delhi: Agam Kala Prakashan.

Vidula Jayaswal, 1992. *Bharatiya Itihas ka Nava-Prastar Yuga* (Hindi). Delhi: Swati Publications.

Sample Questions

1) Explain the term 'Neolithic'.
2) How was a Neolithic axe made?
3) What does 'Aceramic Neolithic' mean?
4) What is the diagnostic subsistence of Neolithic period?
5) How do Neolithic food obtaining strategies differ from earlier Stone Ages?
6) What role did ecology play in the origin of food producing practices of Neolithic period?
7) What is the significance of findings of Period IA at Gufkral?
8) What was the main subsistence of Neolithic communities of Deccan?
9) What was the evidence for the origin of Neolithic in Belan Valley?