

NEOLITHIC REVOLUTION

The Neolithic is the period in which a way of life based on settled villages and domesticated plants and animals became irreversible and was adopted, first in the “Fertile Crescent”, then throughout much of the Middle East.

Neolithic period, also called New Stone Age is the final stage of cultural evolution or technology development among prehistoric humans. It was characterised by great change in technology and economy. These changes are of such a far reaching importance that **Gordon Childe** and many other scholars have termed this phase as Neolithic Revolution. Neolithic Revolution or Neolithic Demographic Transition is the transition of human culture from hunting gathering to agriculture settlement, making possible an increasingly larger population.

One of the most widely current views about the emergence of farming has been an **acute stress of subsistence because of the twin causes of population increase on the one hand** (Malthus, 1895) and **climate shift** (Binford, 1968) on the other. Boserup’s (1965) thesis purports that when a population grows more people per land unit are faced with the necessity of being provided with more food. This has to be done by intensifying their relationship with land and also adequately changing their technology. In addition to climate change and population **increase weakening of social control is cited as the third factor** by Benett (1968).

The first ever thrust of hunger in early Holocene was met by rapidly shifting the subsistence base to r-selected species (i.e., species with short maturation period- both in the animal as well as plant world) from the earlier (Upper Pleistocene) adaptation of k-selected species (species with long maturation period).

Probably the changed climate also heralded a proliferation of hundreds of gramineae (grass species) all over the middle latitudes and banks of newly formed lakes and bogs. These tempted a large proportion of our ancestors to adapt to the wild growth of these grass seeds.

Thus, one can see that a simple choice made by man in early Holocene had an enormous effect on human destiny. Since wild wheat and barley could be obtained only at specific localities (like the slopes of Zagros mountains in present day Iraq), man had to, by necessity, become semi-sedentary. It is argued that this resulted in the rise of fat content in human body. Fat content in the body below a critical level inhibits ovulation, and this could keep an average birth spacing of 3 to 4 years for active hunters. Taking to sedentism, as such, is believed to have released this barrier and consequently human population started growing exponentially within a short time. The nature of the resource being geo-specific, these hunter-gatherers could not undergo fission which must have been an effective population management technique in the preceding period. The combined effect of these two contradictory factors finally led man to carry the wild seeds and plant them along alluvial stretches, bogs, and lakes. Thus, man enters into productive economy, without realising what such an economy entails in the long run.

These developments provide for the basis for densely populated settlements, specialization and division of labour, trading economies, the development of non-portable art and architecture, centralized administration and political structures, new ideologies, depersonalized systems of knowledge and property ownership. Personal land and private ownership led to a hierarchical society, with an elite social class, comprising a nobility, polity, and military.

Changes during Neolithic Revolution

The new economy requires a series of substantial changes in technology, social structure and ideology. These changes create such a degree of change in the society that one feels that the word revolution alone can adequately describe it. The changes may be briefly described as follows:

Technology:

Neolithic technology was based around tools made of stone. Chipping, retouching, grinding and polishing were techniques developed in the Neolithic to make very fine, sharp and simply beautiful stone tools. In the Later Neolithic, stone tool design shifted to flake-based technology for everyday tools, while beautiful high-quality arrowheads, chisels, axes, daggers, maces and carved stone balls were made as trade or luxury items.

Clearing forest in order to allow sun to reach the farming field was by no means a simple task. Specially rubbed and ground homogeneous rock was chosen to create efficient axes. Possibly clearing by fire was also used to clear bushes and undergrowth. Heavy ring-stones were created to be used as thrasher.

Neolithic characterizes the appearance of a new way of making stone tools – which include very fine flaked, polished and ground stone tools and large blades. The flaking methods used seem to show that the tool makers were trying to make the most of the stone and avoid waste. The grinding made the tools sharper, polished and more effective than those in the earlier period. The ground stone tools of the period include different types of axes called “Celt”.

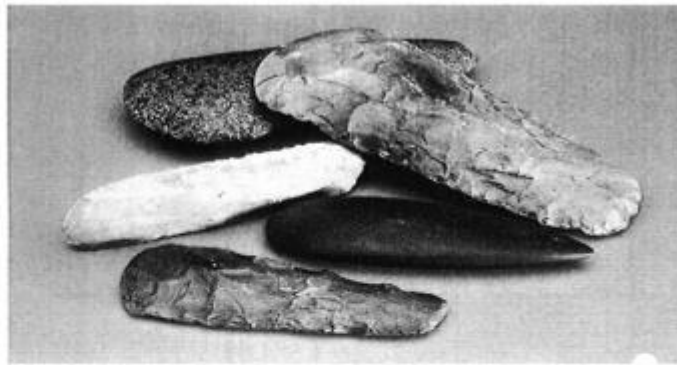
CELTS or AXES: These refer to those triangular-shaped stone tools with a broad sharp cutting edge formed by bevelling from both the surfaces.



Flint Axes (from Lithuania)



Ground Axe



Flaked and Ground axes

SHOULDERED TOOL

This is another important tool type, having a broad straight cutting edge formed either by beveling from one side or both, and the opposite butt end of which is provided with a tenon, preferably advantageous for hafting purposes with a wooden shaft.



A typical Shouldered celt - SE Asia

CHISELS: T.G. Manby (1974) refers chisels as a series of narrow blades, clearly allied to axes in technique and raw material, are classed as chisels; they are bars of flint or stone, 75–125mm long and not more than 25mm in width.



Chisels (the 'Narrow celt' bars, Allchin 1957)

RUBBING or GRINDING STONES: The nomenclature of these tools has functional meaning that refers to its use for rubbing, pounding or grinding purposes, preferably food grains.



Pottery Making

If cultivation is to be accepted as a gainful economy, it requires storing of the harvest for regularity and security of supply. It is argued that during earlier economy man had never faced the problem of storing. Some excavations have shown that for temporary storing in late Palaeolithic period man used to dig a hole in the ground. It is possible that the first farmer tried the same trick but had discovered that his entire surplus has become plants within 24 hours. This led him to decide that the hole under the ground can be brought above the ground and this led to the discovery of pottery.

Initially these were created by moulding with hand and then fired superficially. Thus, handmade and ill fired potteries are taken as early Neolithic ceramic attribute. Such pots do not have uniform thickness and show a blotchy grey appearance.

Habitation:

Agriculture ties down man because he has to wait for more than 3 months for the plants to grow and seeds to ripen. Permanent habitation structure, therefore, is also linked with the economy chosen. Besides these rare evidences the economy chosen by man during Palaeolithic and Mesolithic period did not require him to stay put at one place.

During early farming stage he had no alternative but to construct a dwelling place. Most of these dwelling structures were of stone and mud bricks (sun dried bricks) in areas of less rainfall. In India almost all evidences of habitation are **wattle-and-daub structure**. The latter is a technique in which dried branches of trees and bushes are used to form a screen. Subsequently wet mud is plastered over this screen from both the surfaces.

The evidence of early Neolithic sites from both the western and eastern border of India show emergence of domestication of seed from as early as 8000 to 6000 B.C. The western border is formed by the largest district of Pakistan called Baluchistan and parts of eastern Afghanistan. Kili Ghul Mohammad, Damsadaf and Mehargarh are some of these early Neolithic evidences known from the western border.

Ideology:

Agriculture is based on a limited land space chosen for farming. This contrasts the psychic stand of accepting a limitless ecology of both forest and waterscape as subsistence base in the preceding cultural period. Early farming was not only rain dependent but also wide open to insects and parasites. Consequently, a permanent security of supply was not always predictable. This led to **complex rituals and allied activities to combat unpredictability**. It is believed that **ancestor worship might have emerged at this stage**. It is also through this link and allied rituals that inheritance rights have to be established. Inheritance becomes a central concern in agriculture because the subsistence base of a homestead is limited in this economy.

Clothing:

Clothing was yet another new development. For the first time in human history, clothing was made of woven textiles. The raw materials and technology necessary for the production of clothing came from flax and cotton from domesticated sheep, and the spindle for spinning and the loom for weaving came from the inventive human mind. Basket weaving was also evolved and different types of baskets were made of bamboo and other natural fibers.

European Neolithic:

In Europe, the Neolithic period is characterized by the domestication of plants and animals which led the people to a settle village life. Thus the people of this period gave up the nomadic habits as well as the hunting, fishing and gathering way of life. During this period itself some group of people introduced wheel and it brought many changes in their economy which again led to the formation of early farming communities, i.e from food gathering to food producing economy.

The broad divisions of the Neolithic cultures of Europe are:

1. Early Neolithic: 7000-5500 B.C.
2. Middle Neolithic: 5500-3500 B.C.
3. Late Neolithic: 3500-2200 B.C.

Danube river valley presents very important view of European Neolithic. At a time (around 4800 BC) when the Danubians were practicing plant cultivation in the plains of Western Europe, new farming economies were becoming established around the shores of the Mediterranean.

Brandwijk-Kerkhof an open-air archaeological site located on a former river dune in the **Rhine/Mass** river area in the **Netherlands**, associated with Swifterbant culture, and it was occupied periodically between 4600-3630 BC.

Dikili Tash(Greece) is a massive tell, a mound built of thousands of years of human occupation rising 50 feet into the air. The Neolithic components of this site include evidence for wine and pottery making.

An important lake site that was first discovered hundred years ago was from Lake Zurich, Switzerland. It has yielded evidences of lake dwellings.

Later, further sites came to light on the shores of Lakes Geneva and Neuchatel. Besides yielding lot of pottery, axes and wooden piles it throws light on early European farming. These lake shore settlers cultivated barley, wheat, peas, beans and lentils. They also grew small apples. Flax was cultivated for its oily seeds and for its fibre employed in making textiles. The Swiss farming cultures were characterised by scattered agricultural communities between the Mediterranean and the English Channel.

Asian Neolithic:

In the Fertile Crescent, bounded on the west by the Mediterranean Sea and on the east by the Persian Gulf, wild wheat and barley began to grow as it got warmer. Pre-Neolithic people called **Natufians** started building permanent houses in the region.

The archaeological site of **Catalhoyuk in southern Turkey** is one of the best-preserved Neolithic settlements. Studying Catalhoyuk has given researchers a better understanding of the transition from a nomadic life of hunting and gathering to an agriculture lifestyle.

Archaeologists have unearthed more than a dozen mud-brick dwellings at the 9,500 year-old Çatalhöyük. They estimate that as many as 8,000 people may have lived here at one time. The houses were clustered so closely back-to-back that residents had to enter the homes through a hole in the roof.

The inhabitants of Çatalhöyük appear to have valued art and spirituality. They buried their dead under the floors of their houses. The walls of the homes are covered with murals of men hunting, cattle and female goddesses.

Some of the earliest evidence of farming comes from the archaeological site of Tell Abu Hureyra, a small village located along the Euphrates River in modern Syria. The village was inhabited from roughly 11,500 to 7,000 B.C.

NEOLITHIC CULTURE IN INDIA

The Neolithic culture in India is known since the middle of the 19th century. In 1842, captain **Meadows Tylor** picked up the first Neolithic tool, a polished stone axe, in Lingasagur in Raichur District, Karnataka. In 1872, **Fraser** discovered the first Neolithic settlement in Bellary District, Karnataka. Later, **Robert Bruce Foot** discovered more than 200 Neolithic sites in South India.

Geographical distribution

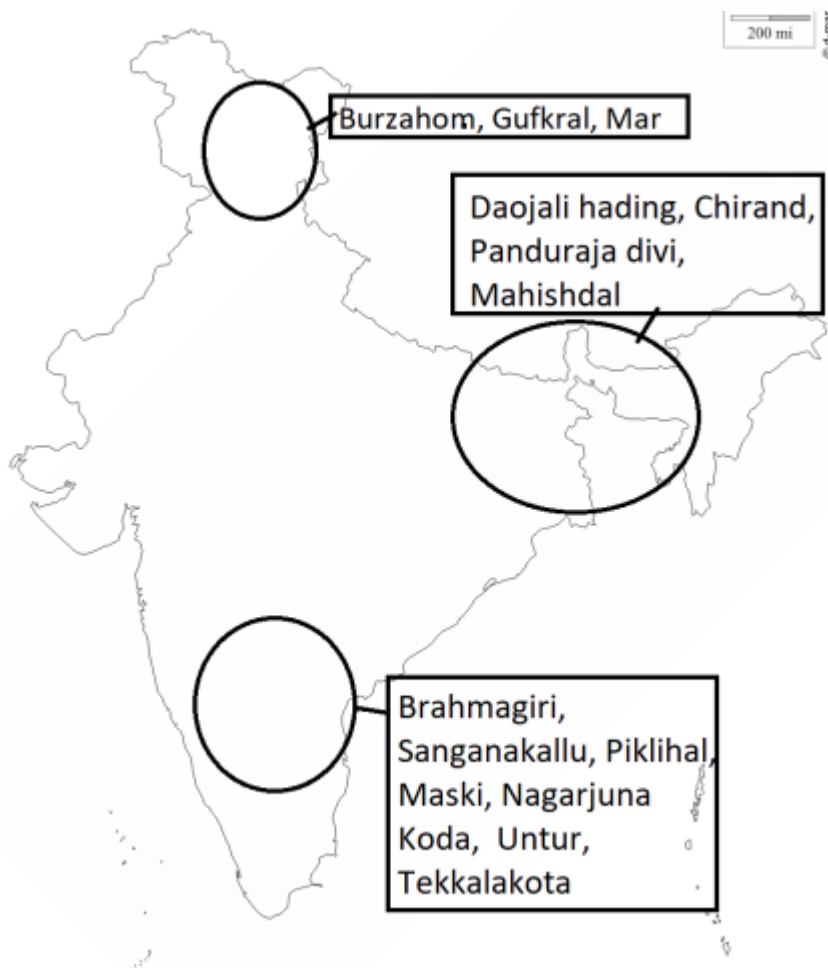
The Neolithic culture in India occurs in the following three zones:

<u>Zone</u>	<u>Site</u>
The Northern Zone	<ul style="list-style-type: none">• Burzhom (T.N. Khazanchi and Sardarilal 1960-66),• Gufrakal, Martand and other places in the Kashmir Valley;
The Southern Zone	<ul style="list-style-type: none">• Andhra Pradesh Nagarjunakonda (Soundararajan 1958), Utnoor (Allchin 1961) and Palavoy (Ramireddy 1976)• Tamilnadu

	Bairampalli (Rao 1964-65) and Paiyampalli <ul style="list-style-type: none"> Karnataka Brahmagiri (Wheeler 1948), Sanganakallu (Subbarao 1948, 1949)
The Eastern Zone	<ul style="list-style-type: none"> Bihar Chirand (Verma 1970-71) West Bengal Panduraj Dibi (Das Gupta 1964) in Burdwan distt. Assam Deojali Hading (Sharma 1966) in the North Cachar Hills

Neolithic people did not live far away from hilly areas. They habituated mainly hilly river valleys, rock shelters and slope of hills since they were entirely dependent on weapons and tools made from stone.

Some of the important Neolithic settlements are Mehrgarh, Burzahom, Gufkral, Chirand and Utnur.



Environment:

The climatic conditions varied from one zone to another.

People in **Burzhom** experienced cool weather because of the higher elevation and also the lake situated to the north of the settlement.

At **Chirand** people experienced mild cool weather.

The area surrounded by **Panduraj Dibi(WB)** is mountains tract. Therefore, this area also experienced somewhat cool climate.

The people living in the South experienced hot climate. Everywhere the sites were surrounded by hills and valleys.

The surroundings of Burzhom contained a thick forest supporting plenty of plant life and small as well as large fauna. The nearby lake provided excellent fishing grounds. The people of Chirand had plenty of forest wealth in their surroundings. The fossil evidence shows a rich variety of small medium and large animals living in this forest.

Chronology

The Neolithic culture in **India existed between 4000 BC and 1050 BC**. Khazanchi estimated that Burzhom Neolithic started prior to 2375-1400 BC. According to Wheeler, Subbarao, Allchin, Nagarajrao and others the Neolithic in Karnataka existed between 1800 to 1500 B.C.

Materials

Like the people in the preceding phases, those in the Neolithic phase also utilized the locally available raw materials for making different types of tools. Basalt, dolerite were the raw materials frequently used by the Neolithic.

Tools

Same as above.

The people also used microlithic blades in addition to tools made of polished stones. They used stone hoes and digging sticks for digging the ground. The ring stones of 1-1.5 kg were fixed at the ends of these digging sticks. They also used tools and weapons made of bone, found in Burzahom (Kashmir) and Chirand (Bihar).

Weapons

The people primarily used axes as weapons. The north west part of Neolithic settlement used rectangular axes having curved cutting edge. The Southern part used axes with oval sides and pointed butt while polished stone axes with rectangular butt and shouldered hoes were used in North eastern part.

Housing

The people of Neolithic Age lived in Rectangular or circular houses which were made of mud. The people of Mehrgarh lived in mud-brick houses while pit dwelling is reported from Burzahom, the Neolithic site found in Kashmir.

Pottery

With the advent of agriculture people were required to store the food grains as well as to do cooking, arrange for drinking water and eating finished product. That's why pottery appeared in large scale in Neolithic Age. The pottery of the period was classified as Grey Ware, Black burnished ware.

In the initial stage of Neolithic Age, handmade pottery was made but later on the foot-wheels were used to make pots.

Northern Neolithic

The Northern Neolithic culture can be understood by examining the characteristic features of **Burzahom culture**. T.N. Khazanchi and Sardarilal excavated Burzahom in Kashmir Valley between 1962-1966.

According to them, the Neolithic culture of Burzahom displayed two phases: (a) The first phase beginning around 2375 B.C and (b) The second phase lasting upto 1400 B.C.

Major characteristics were:

- 1) Oval, square or rectangle pit-dwellings along lake side.
- 2) Separate pits for depositing kitchen refuse and for storing grains, wood, birch, hay and pots; Kitchens with hearths and grinding stones and mullers;
- 3) The ground stone tools such as axes, adzes, wedges, chisels, hoes, Celts, perforated picks, meatheads, double-edged flake-knives, pokers and harvesters;
- 4) Hand-made pottery with coarse surface finish and fabric;
- 5) Human burials of extended type made in circular or oval pits; domestic dogs were buried with their masters in graves.

Mehrgarh:

- 1) One amazing bit of info about this town is that in 7000 BC it had a population of 25000 people, which was the number of people living in the entire Egypt in 7000 BCE.
- 2) There are mud brick houses and also granaries in Mehrgarh as early as 7000 BCE.
- 3) Mehrgarhians were experts in medical and dental fields and had found a cure to dental caries and could effectively remove cavities!
- 4) The oldest ceramic figurines in South Asia were found at Mehrgarh. Mostly figurines of terracotta and clay have been found along with those of stone mostly consisting of females which points to deities related to fertility rites and male figurines were also found with turbans on the heads! Total amount of figurines unearthed were over 32,000!
- 5) The first use of cotton in the history of mankind has been found at Mehrgarh.
- 6) Mehrgarh stretched over 2 square kms for 25000 people.
- 7) Mehrgarhians buried their dead with items such as pitchers and ornaments.

Eastern Neolithic

The Eastern Neolithic culture existed around 2000 B.C. This culture (Krishna Swami 1959) included two culture complexes:

- a) The Assam culture –complex and
- b) The Bengal-Bihar-Orissa culture complex;

The evidence for Assam culture-complex comes from surface collections in Garo Hills, Khasi Hills, Kamarup District, Goalpara District.

The evidence for the Bengal-Orissa culture complex comes from Panduraj Dibi in Burdwan District and Cahisdal, Nannur, and Haraipur in Birbhanpur District in West Bengal (Das Gupta 1964,1966), Chirand

in the Saran District of Bihar (Verma 1970-71) and Kuchai in Mayurbhanj District in Orissa (Mahapatra 1962).

Chirand: It is an early historic mound in district Saran. Three phases are identified, of these the earliest phase has a radio-carbon date of **1,755 B.C.** This is probably one of the youngest date of early farming known from the Gangetic basin. Although very few celts are known from this excavation, both bone and antler tools are found in overwhelming variety. This includes harpoons, eyed needles, pierced batons, fishing hooks etc. Microliths are also known in lesser amount. Varieties of seeds are domesticated. Bones of wild animals also indicate that they were avid hunters.

Besides Burzahom it is the only site to have stone polished tools as well as variety of bone tools like needles, borers, awls etc.

Bones were also used to make pendants, earrings, discs and combs.

Terracota Figurines of snake have also been recovered yielding first evidence of snake cult.

BELAN VALLEY:

Koldihawa: South of Allahabad in the neighbourhood of Mahagara, Dam Dama cluster occurs this Chalcolithic mound which had yielded a Neolithic layer dated to almost 5,440 B.C. This site drew a great deal of attention primarily because domesticated rice in pure Neolithic group has so far not been recorded from many middle Ganga sites. Microlithic blades and ground stone axes form the main tool kit besides some bone tools. The potsherds are crude handmade, carry cord and mat impression, and are ill fired.

Chopani Mando: This site is also close to Allahabad and this shows a continuous occupation from Epi-Palaeolithic Early Mesolithic to advanced Mesolithic to Neolithic Period records a variety of ground stone tools, hammer stones, anvils, querns, mullers and ring stones. Few potsherds of thick fabric and handmade variety accompany these.

Mahagara: It is a single cultural site situated on the right bank of river Belan. 2.6 feet occupational debris has been excavated and six cultural phases have been identified. A series of successive floors, post holes and pits occur within this deposit.

Two TL dates are available for this layer. These are 2,265 B.C. and 1,616 B.C.

Besides these middle Ganga represents some more sites like Oriup, Sonapur, Chechar Kutulpur and Barudih.

Southern Neolithic

The southern Neolithic culture developed in three phases: the first phase (2300-1800 B.C), the second phase (1800-1050 B.C), and the third phase (1400- 1050 B.C). The earliest manifestation of Neolithic Culture in South India is seen at Sangankallu which was dug by Subbarao.

Major Characteristics are:

- 1) Pointed Butt, polished axes is characteristic of Southern Neolithic.
- 2) Adze and variety of chisels is found.
- 3) Pottery is handmade dull grey ware.
- 4) People show mastery of Pottery
- 5) Cattle rearing and agriculture is practiced.

- 6) Lived in huts remains of which have been found in Brahmagiri.
- 7) Terracotta figurine of humped bull has been found. These animals might have played important part in their economy.
- 8) Ragi was the earliest crop

