
BLOCK 3: Major Fields of Anthropology

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UNIT 7 CONCEPTS AND DEVELOPMENT IN BIOLOGICAL ANTHROPOLOGY*

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- 7.2 Branches of Physical Anthropology
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Learning Objectives

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

- the history, growth and development of physical anthropology as a branch of anthropology;
- various areas of study that are covered under physical/biological anthropology; and
- debate concerning the nomenclature of the physical/biological anthropology.

7.0 INTRODUCTION

Anthropology is the study of human beings in time and space. Time refers to the geological time scale from the first appearance of apes and hominids to the present era tracing the evolutionary path of human beings. Space is the spatial area spread across the globe where human kind has lived and is found till date. In anthropological studies physical anthropology that deals with the evolution, physical growth and development and biological aspects of human beings has emerged as a major branch. In this unit we shall discuss the growth and development of physical/biological anthropology. The major areas of study under physical anthropology would be introduced. One of the ongoing debates about the nomenclature of this branch of anthropology, whether it should be called physical or biological anthropology or we should leave it as physical/biological anthropology would be presented.

* Contributed by Dr. Arnab Ghosh, Department of Anthropology, Visva Bharti University.

7.1 GENESIS OF PHYSICAL/BIOLOGICAL ANTHROPOLOGY AS SUB DISCIPLINE IN ANTHROPOLOGY

Questions about the nature and origin of human races stimulated early physical anthropology. Seventeenth century western scholars presumed that humans belonged to a single species, all descendants of Noah and his family. As explorers brought Europeans into contact with human phenotypes that were more and more diverse, it became evident that humanity was more variable than earlier scholars had imagined. Debates rose over the meaning and importance of these variants. Traditionally, all humans descended (or degenerated, since the Western European groups considered themselves biologically superior) from the original type. Johann Frederich Blumenbach (1752–1840), German naturalist, founder of physical anthropology, and inventor of craniology divided human kind into five races (American, Caucasian, Ethiopian, Malayan, and Mongolian). According to Biblical tradition, all contemporary human races were monogenic, that is, they were derived from Adam and Eve. If humans were created in the image of God, then God was an Englishman (or Frenchman, or German,... depending on the author’s ethnic identity). An exception to this way of thinking was James Cowles Prichard (1786–1848), an English anthropologist who proposed that Adam had been black. Prichard argued that as the descendants of Adam became lighter-skinned they acquired higher intellects and civilization. Given enough time, all races would become similar to Western Europeans, the race that in his view, had progressed farther or more rapidly.

Check Your Progress 1

- 1) Who is regarded as the founder of physical anthropology? What are his contributions?

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The idea that races were polygenic became popular in scientific circles of Europe (especially France) and America in the late eighteenth and early nineteenth centuries. Proponents of polygenism argued that differences between human races were too great to be a consequence of environmental differences and too great for humanity to be attributed to a single species. Therefore God must have created several human species. A Philadelphia physician and advocate of polygenism, Samuel George Morton (1799–1844), was widely quoted in European anthropological circles of the later nineteenth century. Morton used anthropometric measurements (anthropometry) to study human variation.

Check Your Progress 2

- 2) What does polygenism propose? Which method did Samuel George Morton use to promote the study of human variation?

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The world's first anthropology society, the Anthropological Society of Paris, was founded in 1859 by a French surgeon, Paul Broca (1824–1880). He had established an anthropological laboratory the previous year, which later became the site of a training program for anthropologists. Broca attempted to make physical anthropology scientific in the tradition of Samuel Morton. Many of the activities of these early physical anthropologists could be classified as racial craniology. Anthropometry flourished and spread rapidly from Broca's laboratory to other institutions. The conflict between polygenism and monogenism became clearer. The polygenists felt that their position was more acceptable with the tradition of the fixity of species. Broca also argued that it would be wrong to consider the diversity of racial variation as degeneration from a single superior species. John Ray's criterion that a species could be defined by its members' ability to interbreed was called into question by those who resisted the idea of a single human species.

European primate studies begin with Edward Tyson (1650–1708), a London physician and member of the Royal Society, who dissected a chimpanzee and published a comparison (Tyson, 1699) between humans and monkeys. Although people were greatly interested in behavior of monkeys and apes, most early scientific investigations were primarily anatomical. Thomas Henry Huxley's *Man's Place in Nature* (1863) attempted to apply Darwinism to understand the origins of humanity. Primatology became primarily concerned with anatomy and the understanding of the paleontological record of primate evolution. In Germany, Ernst Haeckel (1834–1919) produced an encyclopedia of primate anatomy and drew the first scientific phylogenetic trees. Since we knew the current products of human evolution, contemporary primates were seen as windows into our past and sources of understanding that could "flesh out" the fossil bones of paleontology. Anatomy was the primary focus until after 1900.

Check Your Progress 3

3) What is primatology?

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After the turn of the century, anthropometry became more quantitatively sophisticated under the leadership of Karl Pearson (1857–1936), co-founder and editor of the journal, *Biometrika*. Pearson developed much of the mathematics (statistics) that made measuring bones and bodies appear scientific, including computations for variation and correlation, and tests of significance for comparing samples. Anthropology, and certainly physical anthropology, in the last half of the nineteenth century was strongly committed to racial determinism, a philosophy that assumed the superiority of Caucasoid.

In this philosophical climate, the first Americans who were to become known as physical anthropologists appeared. Frank Russell (1868–1903) received the first Ph.D. in physical anthropology in America in 1898 at Harvard. Ales Hrdlicka (1860–1943), a migrant medical student from Bohemia, was employed by the state of New York as an associate in anthropology and pathology. In 1896, he spent a brief period in Paris studying with Leonce

Manouvrier in Broca's laboratory. Hrdlicka was hired as an anthropologist by the United States National Museum in 1903, where he remained a major personality in American physical anthropology until his death in 1943. Ales Hrdlicka established the American Journal of Physical Anthropology in 1918 and the journal still bears his name on each issue. He was a forceful figure who argued that American Indian aboriginal populations came across the Bering Straits from Asia in recent times. There was not, in his view, evidence of Paleolithic peoples in the New World. Hrdlicka, perhaps because of his Bohemian background, rejected the ideas of racial superiority and worked hard to counter Nazi war-time dogma about race. He wanted to establish a center or institute similar to Broca's famous laboratory that would be a training ground and the home of a national society of physical anthropologists. Though never able to realize his ambition to create the "American Institute of Physical Anthropology," he was able to stimulate the organization of the American Association of Physical Anthropologists (AAPA) in 1930.

Check Your Progress 4

4) Who established the American Journal of Physical Anthropology?

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Most charter members of the society were anatomists, and many of them were insightful, prolific scientists whose work laid part of the foundations for current physical anthropology. Some of the members were Franz Boas, Juan Comas, W.K. Gregory, Earnest A. Hooton, Ales Hrdlicka, William Krogman, Dudley Morton, Adolph Schultz, Harry Shapiro, William Straus, T. Dale Stewart, Robert J. Terry, T. Wingate Todd, and Mildred Trotter.

Earnest A. Hooton (1887–1954) earned a Ph.D. from Wisconsin (1911) and traveled to Oxford where he received a Diploma in Anthropology in 1912. Hooton was convinced of the validity of the attitudes of racial superiority and biological determinism that were strongly imbedded (perhaps from Morton) in the traditions of both Broca and Keith. Hooton was appointed to the anthropology department at Harvard in 1913, where he established the first major training program in the United States for physical anthropology. His first graduate was Harry L. Shapiro (1902–1990) in 1926, and most of the programs in other American universities for the next 30 years were staffed with Hooton graduates. Even today, lecture notes of American anthropology students bear the strong stamp of Hooton's outlines and interests.

As Harvard began to train physical anthropologists, the discipline began to diversify. Its roots were strongly grounded in anatomy and medicine, but there was much more to human biology than anthropometry and more interesting questions than those concerning racial origins. One of Hooton's students, J. N. Spuhler, was one of the first physical anthropologists to use discrete traits instead of anatomical typologies to compare human populations.

Dudley Morton utilized comparative functional anatomy to study the primate foot and William K. Gregory applied the same principles to primate teeth. Primate phylogenies began to assume relatively modern configurations.

Wolfgang Köhler (1887–1967), a gestalt psychologist who studied chimpanzees at the Anthropoid Station at Tenerife, Canary Islands from 1913 to 1917, conducted the first truly modern behavioral study of a nonhuman primate. His excellent book, *The Mentality of Apes* (Köhler, 1927), is still in print and still important.

About the same time (1913–1916), a Russian scientist, Nadine Kohts kept an infant chimpanzee in her home and compared its behaviour to her own infant son, Roody. Two important laboratories were established that used primates in biomedical research, the Pasteur Institute in 1923 and the Institute for the Study of Experimental Pathology and Therapeutics at Sukhumi on the Black Sea in 1927.

Robert M. Yerkes, a Yale psychologist who became interested in the psychology of apes, founded the first major American primate breeding laboratory, the Laboratory of Primate Biology at Orange Park, Florida in 1929. His students shaped the field of primate behavior in America, even though there were many other scientists studying monkeys. Two of his students attempted unsuccessful field studies of apes, Harold Bingham (in 1929) of the gorilla, and Henry W. Nissen (in 1930) of the chimpanzee.

Clarence Ray Carpenter, another Yerkes student, began his study of the howler monkey of Barro Colorado Island in the Panama Canal Zone on Christmas Day, 1931. Carpenter's was to be the first successful naturalistic study and it set the model for modern fieldwork.

Check Your Progress 5

5) What is the Laboratory of Primate Biology?

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In England, Le Gros Clark [1895–1971], the first biologist of repute to devote his entire career to the study of primates, concentrated his talents on primate anatomy, developing his concept of the total morphological pattern to understand and recognize major adaptive complexes in anatomy. Another British anatomist, Sir Solly Zuckerman, applied mathematical models to anatomical problems. A major rift took place in British anatomical sciences between Le Gros Clark's morphological patterns on one hand and Zuckerman's mathematics on the other. Zuckerman, after traveling to Africa and the United States, spent some time observing baboons at London's Regent's Park Zoo. His interest in anatomy and behaviour led to his publication of *The Social Life of Monkeys and Apes* (1932), a book that was to be a major source of popular ideas about monkey behaviour for thirty years. The growing use of monkeys in the psychology laboratory is evidenced by the publication of Heinrich Klüver's *Behavior Mechanisms in Monkeys* (1933).

Forensic anthropology, the estimation of age, gender, race, stature, and personal characteristics from human skeletal remains, is largely a development of anatomy departments where cadavers were being collected and studied. The first anthropological publication in forensic science was *Guide to the*

Identification of Human Skeletal material, an FBI pamphlet prepared by W.M. Krogman in 1939.

Check Your Progress 6

6) What is forensic anthropology?

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After the Second World War, especially between 1952 and 1954, some Japanese scientists began provisioning and keeping longitudinal genealogical and behavioural records on Japanese monkey troops. The projects were so successful that more than twenty separate troops were provisioned and studied. Denzaburo Miyadi and Kinji Imanishi formed a Primate Research Group at Kyoto University and in 1956 established a Japan Monkey Centre at Inuyama, Aichi. The Japanese studies constitute the earliest longitudinal research on free-ranging nonhuman primates anywhere in the world.

European primatology in the tradition of Haeckel continued with activities of anatomists W.C. Osman Hill, Helmut Hofer, Adolph Schultz, and D. Stark. In the 1950s, physical anthropologists broadened their interests to investigate relationships between evolution and genetic variation among humans. Watershed analyses were published by Alice Brues on the ABO blood groups in 1954 and by Frank Livingstone on the relationships between sickle-cell anemia and malaria in 1958. Physical anthropology was beginning to merge modern ideas of evolution, medicine, genetics, and ecology.

The late 1950s and the decade of the 1960s saw a rediscovery of fieldwork. One of the personalities behind this trend was an anatomist, S.L. Washburn. Another contributor to this trend toward longitudinal naturalistic studies was the anthropologist L.S.B. Leakey who sponsored numerous scientists, including Jane Goodall at the Gombe Stream National Park, Tanzania to study chimpanzees; Dian Fossey at Rwanda's Parc National des Volcans to study gorillas; and B.M.F. Galdikasin Indonesia to study orangutans. Japanese scientists expanded their studies of their native monkey species to field studies of primate biology all over the world.

Physical anthropology emerged in its modern form in the 1950s. Its transformation from disciplines of craniometry and somatology/somatometry (later changed to Anthropometry from 1980 onwards) is largely due to discoveries in genetics that expanded our focus beyond the question of human origins. S.L. Washburn, in the tradition of the British scientist Le Gros Clark, proposed in a paper, *The New Physical Anthropology* (1951) that physical anthropology should turn away from its focus on racial history and emphasis upon typology. Rather, physical anthropology should adopt a more modern scientific methodology, including experimentation and analysis of cause and effect. That article reflected the attitude of a new generation of scientists who brought modern research design to physical anthropology. Washburn was one of the many anthropologists who followed contemporary trends in biology and science and who created the modern biosocial science of physical anthropology.

7.2 BRANCHES OF PHYSICAL ANTHROPOLOGY

In this section we focus on the various fields of study in physical/biological anthropology. Initially this discipline concentrated in taking anthropometric measurements and somatoscopic observations. With the coming up of theories and the knowledge of genetics it reached new heights. We are listing below some of the fields of study in the present age.

Primatology: This field is concerned with the understanding of primates, who are known as our closest ancestors, specifically apes. The aim is to understand human nature and behaviour through a comparative study of humans and primates to ascertain the position of humans in the animal kingdom. Primatology today is engaged in anatomical studies, experiments in animal psychology and ape language, which encompasses field studies of primates in their natural habitat. Jane Goodall in 1968 started a field study of primates in Gombe Stream National Park in Tanzania, which is still going on and is considered one of the longest field studies in physical anthropology.

Palaeoanthropology: This field comprises two disciplines: palaeontology and physical anthropology. It deals with the fossil remains of human that takes into account petrified bones and footprints. The reconstruction of human beings based on fossil remains helps in the understanding of human evolution. Palaeoanthropological studies came to the forefront with the discovery of the hominid fossil (*Homo habilis*) later named Lucy in the Olduvai Gorge, Tanzania in eastern part of Africa by Mary and Louis Leakey.

Human Osteology: The study of the bones in a human body is the subject matter of human osteology. Forensic anthropology uses human osteopathy to identify the age, sex, growth, skeletal features, morphology etc. of human remains. This field is used to understand health, disease, genetics of early populations, and war crimes.

Population Genetics: This field concentrates on the study of processes like natural selection, genetic drift, gene flow and mutation to understand evolution. Physical anthropologists focuses on mechanisms of populations to comprehend the frequency, distribution and change in allele frequencies which helps in the understanding of how new species develop and their adaption to environment.

Human Ecology: Ecology is the study of the relationship of organisms with their physical environment. The thrust area here is the study of the interaction of human beings with the environment that consists of both natural, and manmade or built environment. Human ecology studies human adaptation to natural environment by building different types of shelter, and use of natural resources in localities like deserts, polar regions, high altitude, river valleys, and islands.

Human Growth and Development: This field studies growth and development of human beings from the zygote (one cell) stage to its maturity and degeneration at old age. It involves an intensive study of the embryonic stage (prenatal stage, when a baby is in the mother's womb) to birth, postnatal up to adolescence and maturity. It provides a complete picture of human growth in terms of internal factors like genetic factors (hereditary traits) and

external factors like nutrition and environment that affects physical growth. This aspect throws light on the variations in populations and tries to reflect on the causes of variations.

Human Variation: No two human beings can be alike expect in the case of identical twins who might look similar yet genetically there would be variations in foot and palm prints. This sub branch of physical anthropology concerns itself with the study of the variations that occur in human beings. The branch seeks to understand human population, their genotypic and phenotypic construction in relation to environment in order to interpret human diversity over a period of time.

Human Genetics: The study of the inheritance of genes, that is, how the transmission of hereditary traits takes place in human beings is known as human genetics. This branch concerns itself with the understanding of hereditary traits that help provide answers to clinical questions of human nature, disease and its treatment. Genetic counseling, genetic screening, cytogenetic, molecular genetics, biochemical genetics, population genetics, developmental genetics, clinical genetics, genomics are some of the key study areas.

Forensic anthropology: Forensic anthropology deals with the personal identification in legal scenario of human beings either dead or alive. The application of anthropological techniques such as osteology, fingerprints, and blood types helps in the reconstruction of evidences and personal identification. This branch of physical anthropology is involved in solving criminal cases like murder, accident, decomposed bodies or such other cases where in the normal course of identification of dead bodies is a challenge.

Check Your Progress 7

- 7) List the branches of physical anthropology?

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7.3 PHYSICAL VERSUS BIOLOGICAL ANTHROPOLOGY: AN OVERVIEW

As discussed, physical anthropology is the study of the evolution and variation of human beings with an emphasis on the interaction between biology and culture. The interest in physical anthropology sparked off with the writings of the natural historians, or the naturalists as they were known in the nineteen century. These naturalists were trying to answer the question of origin of species keeping aside the literal interpretations of the biblical accounts of creation. This was further reinforced by the publication of Charles Darwin's *On the Origin of Species* in 1859.

Initially physical anthropology was interested in the evolution and physical variations in human beings. Physical variation among human beings tries to answer the question of differences in colour of the skin, hair, eyes, height, weight etc. among people living in different geographical conditions. Primarily the features that are visible to the naked eyes are studied. For this purpose

the emphasis was on the anthropometric and somatoscopic measurements. This interest carried on till the early twentieth century and is still a major area of research.

However, since the late 1950s with the breakthrough in the fields of genetics and molecular biology, the interest of the physical anthropologists has shifted to understanding biological aspects in terms of human genetics, nutrition, physiological adaptation, growth and development etc. Because of the rapidly growing interest in biologically oriented topics, many prefer to call the subject biological anthropology. However, the American Association of Physical Anthropologists still use the term physical anthropology in their journals. Some anthropologists prefer to name the subject physical/biological anthropology, covering both the aspects of focus areas of human beings.

Though physical anthropology was the original term, because of the shift in emphasis to more biologically oriented topics the term biological anthropology is gaining popularity. However, the subject matter tries to concentrate equally on physical and biological aspects of human beings.

7.4 SUMMARY

This lesson reflected on the growth of the subject matter of physical anthropology. It enumerated how physical anthropology as a subject emerged in Europe and America to answer the questions of human evolution and variation across time and space. The lesson has traced the path of growth and development in various fields of interest like anthropometry, somatoscopy, primatology, forensic anthropology, biological aspects like human genetics, molecular biology etc. Various branches of physical anthropology have also been described. Finally, the question of nomenclature of the subject, whether it should be called physical anthropology or biological anthropology has been dealt with.

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7.6 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

- 1) Johann Frederich Blumenbach (1752–1840), German naturalist is regarded as the founder of physical anthropology. His main contribution to the field of physical anthropology was the invention of craniology.

Major Fields of Anthropology

He divided human kind into five races (American, Caucasian, Ethiopian, Malayan, and Mongolian) based on physical variation.

Check Your Progress 2

- 2) The theory of polygenism argues that human beings have different origins and did not evolved from a single gene. This theory negates the biblical concept of single creation by God i.e. monogenesis. Samuel George Morton used anthropometric measurements to promote his study of human variations.

Check Your Progress 3

- 3) Primatology deals with the study of primates. The primate behaviour, anatomy and the palaeontological records are studied to understand the evolution process.

Check Your Progress 4

- 4) Ales Hrdlicka established the American Journal of Physical Anthropology in 1918.

Check Your Progress 5

- 5) The Laboratory of Primate Biology at Orange Park, Florida founded in 1929 by Robert M. Yerkes is a primate breeding laboratory. The primary aim is to understand the psychology of apes.

Check Your Progress 6

- 6) Forensic anthropology deals with the estimation of age, gender, race, stature, and personal characteristics from human skeletal remains. This branch engaging itself in the personal identification related to legal scenario is largely a development of anatomy departments where cadavers were being collected and studied.

Check Your Progress 7

- 7) The branches of physical anthropology are primatology, palaeoanthropology, human osteology, population genetics, human ecology, human variation, human genetics and forensic anthropology.

UNIT 8 CONCEPTS AND DEVELOPMENTS IN SOCIAL ANTHROPOLOGY*

Contents

- 8.0 Introduction
- 8.1 The Beginnings of Social/Cultural Anthropology and its Colonial Roots
- 8.2 Classical Theories
- 8.3 American Cultural Traditions
- 8.4 The French School
- 8.5 Symbolism and Interpretative Theories
- 8.6 Post-Colonial and Critical Period
- 8.7 Concepts of Time and History
- 8.8 The Present Strength of Anthropology
- 8.9 Summary
- 8.10 References
- 8.11 Answers to Check Your Progress

Learning Objectives

In this unit, you will be introduced to:

- society and culture as critical and constructed objects of study;
- social or cultural anthropology;
- differences between social and cultural anthropology; and
- development of these concepts within a historical framework.

8.0 INTRODUCTION

Society and Culture are words most commonly used and yet little understood. We take them as givens in our daily lives yet never stop to think, what do they really mean?

Many times culture is taken as ‘accomplishment’ so that we say a person is ‘cultured’ when we actually mean that the person has some qualities. In anthropology, to have culture is to be human.

Society too is not just a given condition in which we find ourselves but something that has evolved as the human species has evolved. Since most people took the world in which they lived as God-given or originating from some kind of supernatural interventions, the study of society and cultures was among the last to emerge in the sequence of disciplines.

* Contributed by Prof. Subhadra Channa, Department of Anthropology, University of Delhi, Delhi

Major Fields of Anthropology

The early attempts to understanding society were through the following:

- theology (having a religious base)
- philosophy
- power relations or economy (Arthaśāstra of India or the Śrutis that gave rules and regulations about social life).

Most rules were viewed as coming from a sacred source.

In the seventeenth and eighteenth century in Europe, western philosophers like Locke, Hume, Comte, Rousseau, Saint-Simon, Motesquieu (see Aron1965) and others began to think society as a creation of humans rather than of the Gods. Two aspects about society became matters of academic discourse:

- societies were not given and could change and transform.
- societies(as they were found in Europe in the seventeenth century) were not always like that; they had evolved from some past condition.

There were two historical events that were taking place at that time:

- colonisation by Europe of most of the world.
- discovery of various kinds of people across the world about whom the Europeans had little knowledge.

Since they had begun to think about society as something that had evolved, the Europeans became curious about their past. They began to think about the origins of their society. What were they like before? French intellectuals like Montesquieu and Comte were influenced by the French Revolution which showed that history indeed could be controlled by human beings. They were also influenced by what was happening in the American continent and the Civil war that was taking place there.

The concept of evolution of society was first thought about by these philosophers although not recognised as 'evolution' per se. Auguste Comte "law of the three stages" maintained that human intellectual development had moved historically from a theological stage, through a transitional metaphysical stage, to the modern positive stage of Reason.

With the theory of Human Evolution as an established scientific theory anthropology emerged as a Science of Man; a scientific enquiry into the origin, evolution and differentiation of the species Homo sapien. The term Man is also significant because during this period of intellectual development in Europe, it was also established that men had reason and women were more like instinctual and natural beings, a conception that was to have far reaching implications for gender theory. By the nineteenth century, human beings were seen as worthy of being objects of scientific scrutiny, in both their biological and their social and cultural aspects. Anthropology became an independent discipline away from both social philosophy and biology, although since it derives its roots from these disciplines the early intellectual premises of the subject are drawn from both these academic areas.

8.1 THE BEGINNINGS OF SOCIAL/CULTURAL ANTHROPOLOGY AND ITS COLONIAL ROOTS

Sir Edward B Tylor, who was appointed to the first Chair in the subject at Oxford University in England, is recognised as the father of social anthropology. He is credited with giving the first systematic definition of Culture in its anthropological sense that makes us realise it as a pan-human character rather than the legacy of the elite few. Tylor was also an evolutionist and his conceptualisation of culture was that there is only one Culture, that we can call Culture with a capital C (see Ingold 1986) and societies are different because they are at *different stages* of evolution of this Culture; this made evolution both unilinear, that is, in one direction only and progressive that is moving to a higher from a lower stage.

In Tylor's theory culture builds upon itself, that is, every institution, like religion, moved in a sequence of developmental stages that were logical progressions of the earlier stage. This theory then scaled human cultures as high or low depending upon how close or how far they were from the apex of human cultural evolution that not unsurprisingly was represented by the nineteenth century European civilization; that was also then at the peak of its political domination of the world through the process of colonisation.

Frazer in his magnum opus, *The Golden Bough* (1890), talked of the transition from Magic, to Religion to Science. He relegated much of the beliefs of so called 'primitive' people to "Magic" or an irrational system of beliefs in misplaced causation. He deemed such people incapable of higher metaphysical thinking of religion as it is found in more civilised societies which were moving towards rationality or scientific thinking.

Tylor was followed by Lewis Henry Morgan in the USA. In his magnum opus *Ancient Society* (1877), Morgan elaborated upon his theory of social evolution. He introduced a critical link between social progress and technological progress. He emphasized the centrality of family and property relations. He traced the interplay between the evolution of technology, of family relations, of property relations, of the larger social structures and systems of governance, and intellectual development.

Morgan significantly left out religion that was elaborately discussed by Tylor who also gave the definition of the first form of religion as Animism; or the belief in Soul or Spirit. Morgan was more of a materialist who founded his theory on the solid base of subsistence activities that according to him provided the clue to human cultural evolution. He was thus delightfully accepted by Marx and Engels who made use of his theory and data in their book, *Origins of Private Property and the State*.

The classical evolutionists, as this school of thought is now called, were trying to transcend the racial theory that had categorised human beings into higher and lower species; an assumption totally refuted by Darwin's theory that had firmly established *Homo sapiens* as one unified species with only superficial variations but no integral differences. The cultural theory of evolution was thus based on the premise that all humans were capable of attaining the same level of culture but due to some historical circumstances

some of them were arrested in their development and were termed as 'primitive', 'barbarian' and 'savages'. But there was always the possibility of giving an impetus to development that would quickly bring them to the same level of civilisation as the Europeans. This concept of 'primitiveness' as ascribed to the colonised people, and the belief that Europe was the pinnacle of 'civilisation' became an ideological justification for colonisation, that was then passed off as a 'civilising' process rather than for what it really was, a process of exploitation and domination.

Evolutionary theory was criticized for the following reasons:

- It was based on data from secondary sources such as travellers and missionaries who were likely to be biased and unreliable.
- Most of the theories of stage-by-stage evolution were speculative and there was no way to establish if they were true or not.
- They were also Eurocentric, since the only measure of 'development' was in terms of the culture's resemblance and distance from European Civilisation.

Thus Tylor's schema of evolution of religion put monotheism or belief in one God at the apex, while Morgan's evolution of family put the monogamous nuclear family as the most evolved form of family. Morgan was also severely criticised for his speculative postulation of primitive promiscuity (a stage when there was no rules of marriage), that was not only not confirmed by any society known, past or present but most scholars including Freud had put the incest taboo as primary to the evolution of human society.

Thus evolutionary theory was more or less discarded as being speculative, unreliable and 'unscientific' apart from being ideologically biased and Eurocentric.

8.2 CLASSICAL THEORIES

Emile Durkheim, the father of functionalism, began his career as an evolutionist and his analysis of the religion of the Australian Aborigines was to look for an original religion that could be seen as the beginning of religions of human society. The name of his book *Elementary Forms of Religious Life*, reflects the fact that he considered the Australian Aborigines to be representative of the most elementary or primitive stage of human culture. Yet what he analysed was quite to the contrary, he discovered that the religion and rituals of the Australian tribes were not simple primitive superstitions but rational institutions functional towards maintaining what he termed as the social order. To Durkheim, religion is a way in which an inner control is exerted over the individual in terms of establishing a moral order, or what may also be termed as a conscience; a way in which not only is a sacred domain established but also this domain is seen as part of the group's collective consciousness, what motivates diverse people to come together as one society, or one community.

Functionalism was a reaction to the excesses of the evolutionary and diffusionist theories of the nineteenth century and the historicism of the early twentieth (Goldschmidt 1996).

Under the influence of Durkheim, British social anthropology developed the structural-functional model based also on the organic analogy in which society was compared to a living organism with component parts, each part contributing to the whole. This model, also known as the holistic model of society, visualised society as composed of interdependent parts each functioning in a way that the entire structure was maintained in a state of equilibrium, just like the living body is healthy and functioning if each part is contributing towards the maintenance of the body in a state of harmony.

A.R. Radcliffe-Brown postulated his theory of social structure as an interconnected web of social relationships, and each component playing its own role in maintaining a state of equilibrium. Most anthropologists belonging to this school, engaged in showing how customs and rituals considered strange or exotic were in fact perfectly rational solutions to problems of actual or potential tensions in the structure of relationships that makes up society. Thus a very important contribution of this school was the concept of cultural relativism, or the idea that nothing is irrational, everything makes sense in the relevant context. For example, Radcliffe-Brown himself explained the role of customs such as 'joking relationships' in maintaining social harmony. Others like Evans-Pritchard demonstrated the functions of witchcraft, or initiation rituals or other practices in society. Thus cultures were no longer seen as 'high' or 'low' but different and making sense in particular contexts.

Consequent to the change in the concept of society and culture, the methods of data collection too were transformed to the empirical collection of data by the anthropologist from the field, in a process known as fieldwork. Since everything had to be understood in its own context, data had to be collected personally; over a long period of time till perfect understanding was reached.

The scholar who really made the method of fieldwork perfect was Malinowski, who being stranded on the Trobriand Islands during the First World War, was engaged in in-depth collection of data from the people of this island. He wrote the classic book, *Argonauts of the Western Pacific* about the Trobriand people. Till today Malinowski's method of fieldwork is taken as the prototype for anthropological data collection.

Malinowski was also a functionalist but somewhat different from Radcliffe-Brown. While Radcliffe-Brown emphasised social structure, Malinowski focused upon the individual and his needs, which he classified into primary, secondary and tertiary needs. Thus, for example, he investigated the role of Magic in giving confidence and creating a positive mindset or in regulating gardening activities.

Two versions of functionalism developed between 1910 and 1930: Malinowski's biocultural (or psychological) functionalism and structural-functionalism, the approach advanced by Radcliffe-Brown

British social anthropology developed concepts of social structure, social organisation that gave rise to elaborate kinship and caste studies and studies of ritual and religion as institutions. The focus was always on the social variables and they looked little towards any other aspects such as environment and psychology. These studies were all synchronic paying little attention to historical time, although some of British anthropologists like Edmund Leach

and Meyer Fortes examined the concepts of structural time or the manner in which institutions evolved over time.

Fortes (1906 – 1983) contended that social institutions, like family or tribe, were the building blocks of society. Through studying those institutions, especially their political and economic development, he believed that one could understand the development of the society as a whole.

Fortes' monographs on the Tallensi and Ashanti tribes of Africa laid the foundations for the theory of descent. This formed the basis of the “structural-functionalism” that dominated social anthropology in the 1950s and 1960s

Jack Goody (1919 – 2015) explained social structure and social change in terms of three major factors.

- development of intensive agriculture.
- urbanisation and growth of bureaucratic institutions that modified or overrode traditional forms of social organisation, such as family or tribe.
- technologies of communication as instruments of psychological and social change.

The basic assumptions of functionalism required historical time and change to be external to the ahistorical synchronic social orders that were seen as the normal condition of society.

8.3 AMERICAN CULTURAL TRADITION

On the other side of the ocean, in the American continent anthropology was developing in some other direction. Rather than focusing on society and structure, they began to focus on culture as something that exists outside of the organic presence of people and living societies. The reason was the nature of the American experience as compared to that of the European: Europe had colonies like India that were flourishing societies with all institutions in place whereas in the American continent the colonisation was genocidal with the Native Americans dispersed and sometimes eliminated to the last person in a tribe.

Boas, the father of American anthropology, spent his life in collecting material that he thought would fast disappear. He collected folk and oral traditions, material culture artifacts and life histories as there was very little in terms of stable social structures and functioning institutions. Boas postulated that every culture is to be understood as a process of its own history and since history cannot be understood outside of location and a people, American anthropology was concerned about geographical settings or areas, about the minds of the people who constituted a culture and aspects like folklore, material culture and myths that survived the people who created them.

Kroeber, a direct disciple of Boas, defined culture as “super organic and super individual”. He wrote, “culture is super organic and super individual in that, although carried, participated in and produced by organic individuals, it is acquired by learning.” Boas, of German origin, was also influenced by German Diffusionism and Gestalt psychology and not by Durkheimian notions of function and society. Thus the concept of Culture Circles (of the German

Diffusionist school) was borrowed into American anthropology as Culture Area hypothesis. Margaret Mead and Ruth Benedict, both students of Boas, laid the foundations of the culture and personality school that later developed into psychological anthropology.

From the Culture Area hypothesis there emerged concepts of culture as a tool of adaptation and the interaction between culture and environment led to the development of ecological anthropology by the works of American anthropologists like Leslie White and Julian Steward. The interest in psychology also diversified into the field of medical anthropology from the works of anthropologists like Clyde Kluckhohn who had worked on the Navaho beliefs in witchcraft and its relation to disease and cure. Thus American anthropology diversified into various branches involving various aspects of culture and the individual.

8.4 THE FRENCH SCHOOL

The French school continued with its positivist approach as given by Comte and other French philosophers. The most prominent among French anthropologist was Levi Strauss whose search for human universals lead him to postulate that the human mind is universally structured to think in terms of binary opposites and all human social reality can be analysed to reveal deep hidden structures of such oppositional thought, through which human life is made meaningful. He demonstrated that although cultures and institutions appear to vary across the range of human societies in reality they are all ruled by the law of opposition or the rule of comprehending through binary opposites. Thus to him Totemism was not a religion or anything sacred but only a way in which to understand the world, and in essence was no different than the Hindu caste system. To him the most basic mode of social relationship was that of exchange, especially the exchange of women that formed the basis of all kinship relationships.

Thus to him it was alliance rather than descent that was the most essential human relationship. In this he was opposing the British school of descent theorists such as Radcliffe-Brown who had taken the vertical relationships based on descent to be the primary building blocks of human society. Levi-Strauss thus believed, like all positivists, that a science of society in terms of the possibility of formulating universal laws was possible.

The French school, influenced by Marx, was also critical of the functional postulates of ahistoricity and stability of structures. They identified society to be layered and internally differentiated into dialectically opposed segments that makes societies dynamic. They also looked for such Marxist notions as exploitation and the importance of economy even in pre-capitalist societies.

Maurice Godelier postulated that given that kinship dominates every aspect of the lives of pre-capitalist people, one can analyse kinship itself as providing the relations of production in addition to the domestic and reproductive aspects that are usually associated with kinship. To some extent Marxism also influenced ecological anthropologists towards materialist conceptions of human culture like Marvin Harris's formulation of cultural materialism where he postulated that all cultural traits, no matter how abstract and ritualistic they may appear, like the worship of cows in India, are in the last

analysis, dictated by material considerations. Historical anthropology was also a development under Marxist influence.

8.5 SYMBOLISM AND INTERPRETATIVE THEORIES

The cultural approach also developed a keen interest in the human capacity for symbols as culture was recognised as primarily symbolic behavior giving meaning to the world that humans occupy. According to anthropologists like Clifford Geertz, the world that humans occupy is one that is created by them through their capacity to symbolise and give abstract meaning to things. This clearly indicates that the human world is constructed and not an objective space of real things, or that what we consider real is what we have constructed and made meaningful, so that culture is that received code or map of symbols that is passed down to us by our society and which is then reconstituted by our actions that conform to the symbolic codes that we internalise.

This deviated considerably from the earlier approaches that looked upon society as an ‘object’ that could be understood by a ‘scientific’ approach. Both the structural-functional and evolutionist approaches had assumed that what is observed is something real with a substantive content. For the interpretative theory, a scholar has to use what Geertz has called, “Thick description” or a very detailed description of a situation that includes the motives and contexts of a situation in full to get to the reality.

However, the interpretative approach still maintained its positivist as well as functional stand to a large extent. Thus symbols, as analysed by scholars such as Victor Turner, Edmund Leach and Sherry Ortner, were seen as powerful motivators of action but almost always in the direction of maintaining a given social order. Thus Turner’s classic description of the symbolic dimensions of puberty rituals and Leach’s analysis of ritual reversals and the symbolism of time were directed towards how the anthropologist can illuminate the function of these cultural processes that maintain the society in a state of equilibrium or order. Thus two aspects of the anthropological methodology had not changed till the seventies when these theories were popular;

- that the analysis and understanding of cultural processes is ‘external’ or apparent to the trained observer and not to the actors;
- that the anthropologist plays a critical role in objective and scientific analysis of culture and society.

But soon anthropology entered into its critical phase when most of the assumptions of scientific rationality and ‘objectivity’ of the so called scientific observer came under criticism from a variety of sources, of which the feminist and the critical approach from the ‘margins’ was the most prominent.

Check Your Progress 1

1) Who is the father of functionalism?

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- 2) Who introduced a theory of social structure as an interconnected web of social relationships?

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- 3) What is a concept developed by British social anthropologist is?

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- 4) Who wrote the classic book, *Argonauts of the Western Pacific*?

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- 5) Who defined culture as “super organic and super individual”?

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- 6) What is “thick description”?

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8.6 POST-COLONIAL AND CRITICAL PERIOD

Anthropology began as a western science dominated by white men. The anthropological self was both white and male such that the study of ‘Other Cultures’ was primarily the study of people colonised and referred to as ‘natives’. But post-World War II, as the world scenario changed, the identity of the anthropologists also changed; from being predominantly white to the ones who were earlier part of this “other”; in other words, natives became anthropologists, and so did women.

Anthropological thinking was influenced by the work of scholars like Edward Said, who turned a critical eye on the production of knowledge by the westerners, deeming it biased by how the west imagined the orient, rather than by actual facts. A major feminist anthropological criticism came from Annette Weiner, who having restudied the Trobriand Islands (1976), realised that Malinowski had missed out on the value of women’s work that plays substantial economic, social and ritual role in Trobriand society.

In 1930 Robert Redfield (1897–1958) published his study *Tepoztlan: A Mexican Village* in which he produced an idealist representation of a village where people lived in peaceful harmony. Redfield developed the concept of the Great and Little traditions. Oscar Lewis, in *Life in a Mexican Village: Tepoztlan Restudied* (1951) used a processual approach that focused on behaviour itself and it turned out not to conform to Redfield's rules. He found a village full of factionalism, personal antagonism, drunkenness and fighting. Lewis went on to develop the concept of the culture of poverty.

Derek Freeman challenged Margaret Mead's famous account of adolescent sexuality in Samoa. He said *Coming of Age in Samoa* (1928) was mistaken and misleading in its depiction of uncomplicated sexual freedom there and that it had been shaped to support academic theory rather than to report the realities of Pacific island society.

The moot question raised was: is it possible to collect completely unbiased data as the anthropologist too is a constituted subject raised in a culture and carries deep-seated and often unconscious views that cannot be changed by conscious efforts. In other words there is nothing called a purely 'objective' gaze.

Secondly those in the field are also not passive objects of study. They too are influenced by the presence of the observer who is also evaluated by them and their reaction to him or her is according to this interpretation. For example, Derek Freeman had said that the elderly men in Samoa had told him that they regarded Margaret Mead as a slip of a girl not worth telling the serious things.

The second methodological issue then was of inter-subjectivity or the interaction of two (or more) subjective selves in the field situation. For example, Kumkum Bhavnani (1994) has discussed how while working with white but somewhat lower class men in England she was in the ambiguous position of being coloured as well as a woman (both negative points of reference) but having high educational and social position (positive points of reference) that created ambivalence in her informants as to how to relate to her.

Feminist writers like Donna Haraway (1988) and Susan Harding (1991) among others have further criticised the very methodology deemed as 'scientific methodology', with its claim to objectivity and freedom from bias. They have shown that studies of primate behaviour among other biological studies were strongly conditioned by pre-existing stereotypes of male and female behaviours among humans. Since primate behaviour has often been used to demonstrate the 'naturalness' of human behaviour such as male dominance and female dependence, such studies served the purpose of re-establishing and justifying gender-based prejudices in human societies. Such 'deconstructions' have been part of what has been termed as the 'post-modern' phase of world in spheres of not only academics but art and literature also. Strongly influenced by the works of philosophers such as Derrida and Foucault, this point of view is critical of the perspective that there is only one truth or that there is any methodological possibility of getting at 'objective reality'. All observations, even that of science, are seen to be largely mediated by the humans who make them and the human factors is always present in any scientific work.

In anthropology, the emphasis was laid not on the data collection in ethnography, but on the way it was written down. The publication of Malinowski's diary long after his death had proved undoubtedly that the hierarchy or inequality in the position of the observer and observed is an inherent part of any fieldwork situation, no matter how meritorious the scholar.

Marjorie Shostak's (1981) publication of *Nisa*, the life history of a Kung San woman, further gave a new direction to anthropological methodology that foregrounded the 'voice' of the informant rather than that of the ethnographer. This paved the way for a way of writing that included more and more of what people said than what the observer had to say. Instead of trying to push observed data into anthropological categories, the field data was presented in as pristine a way as possible and anthropological concepts modified to explain the data rather than other way around. Thus most contemporary ethnographies use native terms to explain key concepts of a culture rather than to look for their western equivalents. Literature and folk histories, narratives and life stories became larger part of data than statistical tables and quantified data. Anthropology is now more qualitative than it ever was.

8.7 CONCEPTS OF TIME AND HISTORY

Another post-colonial criticism was directed against the ignoring of history by the structural functional anthropologists and assuming that it was only with the advent of the white men that societies began to change. In his book *Europe and the People without History*, Eric Wolf showed how the world was not only changing but there was active contact and interaction between people through long distance trade, travel and migration and that the non-western world had its history from times long before the contact with the western world.

Criticism was also directed towards such constructs as 'acephalous' or stateless societies and people such as hunter-gatherers as representing the unchanged 'past' of human beings as many of them were shown to have devolved into being marginal and stateless by the onslaught of colonisation. Even so-called 'isolated' people like the Inuit of the Arctic are now shown to be composed of many different people migrating and moving over time. Thus the assumption of equilibrium as a natural condition of societies and the presumed functionality of all institutions was also criticised. Historical analysis had shown that societies have been subject to conflict, tensions and transformations at all points of historical time.

Contemporary ethnographical works are concerned with history as a process that is integral part of all communities and people. For example, Bernard Cohen, Nicholas Dirks, Ronald Inden and other anthropologists working in India have also shown how the caste system was transformed and consolidated into being a far more rigid and bounded institution because of colonial rule and interpretation than it was in the pre-colonial times. On the other hand, 'tradition' is often invented to suit present political requirements than a thing of the past.

The concept of fixed boundaries and timeless entities has now been replaced by the far more dynamic concept of 'identity' that includes the possibility of

change, negotiation and contestation. For example, it has been shown that the caste system, far from being a rigid and defined system, is fluid, where one category may lay claim to a higher status or challenge the status of another group, or invent a new status for itself. In the present day, many castes who laid claim to high status demand to be included in OBC or SC category. Identities are thus shown to be more shaped by the present interests than by the past. Thus history is a tool by which one can examine change, contestations and fluidity of identity formations and analyse them with reference to their contexts.

8.8 THE PRESENT STRENGTH OF ANTHROPOLOGY

Thus anthropology is redefining its boundaries and also opening up to other disciplines such as history and cultural geography even as other disciplines like psychology, political science and even literature are beginning to use the anthropological methods of fieldwork and qualitative data collection. Today from its colonial past, anthropology is emerging as the humane discipline that looks at human beings with empathy and produces discourses with a human face.

Anthropologists are emerging as the voice of the marginal and the critics of materialism and consumerism in an increasingly global and market-dominated world. Anthropologists gain insights into real people's lives by their close and prolonged contact with their field areas and have now become the specialists who can deal with any kind of human problems (see Veronica Strang 2009).

8.9 SUMMARY

We went over the development of social/cultural anthropology from its early philosophical roots and colonial past to its present day. Since both society and culture are constructs and not concrete objects of study, the subject has developed as a part of human history and philosophical thoughts. Certain paradigm shifts occurred in anthropology from evolutionism to functionalism and from modernism to post-modernism, which were reflections of human. Wars, revolutions, women's emancipation and formation of modern nation states have all played their role in shaping the subject of social/cultural anthropology for it is after all a study of humans in the context of their lives and lived conditions of existence.

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8.11 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

- 1) Emile Durkheim.
- 2) A.R. Radcliffe-Brown introduced a theory of social structure as an interconnected web of social relationships.
- 3) British social anthropology developed concepts of social structure, social organisation that gave rise to elaborate kinship and caste studies and studies of ritual and religion as an institutions. The focus was always on the social variables and they looked little towards any other aspects such as environment and psychology.
- 4) The classic book, *Argonauts of the Western Pacific*, was written by Bronisław Malinowski.
- 5) A.L. Kroeber defined culture as “superorganic and superindividual”.
- 6) Thick description or interpretative theory is a very detailed description of a situation that includes the motives and contexts of a situation in full to get to the reality.

UNIT 9 CONCEPTS AND DEVELOPMENT IN ARCHAEOLOGICAL ANTHROPOLOGY*

Contents

- 9.0 Introduction
- 9.1 Understanding Archaeology
- 9.2 Archaeology as Anthropology
- 9.3 Concepts of Prehistory or Archaeological Anthropology
 - 9.3.1 Temporal Division in Prehistory
 - 9.3.2 Geological Time Scale
- 9.4 Development of Prehistoric Researches
- 9.5 Summary
- 9.6 References
- 9.7 Answers to Check Your Progress

Learning Objectives

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

- understand the idea of prehistory;
- understand the relationship between prehistoric archaeology and anthropology;
- interpret the significance of prehistoric remains; and
- analyse the problems in prehistoric researches.

9.0 INTRODCUTION

The idea of prehistory is closely associated with the study of human emergence on the Earth and subsequent developments. It is a story of human transformations through a long period of nearly 5 million years. Prehistory, or the earliest period of human existence, often contains the roots of present human divergence. The advancements in human biology, society and technology all have come through a long chain of transformations. To understand these transformations the involvement of a number of closely associated disciplines, often claiming separate identities by their own rights, are required. Two such streams of scientific studies are archaeology and anthropology.

9.1 UNDERSTANDING ARCHAEOLOGY

Archaeologists study the past through the understanding of material remains created through human actions. These material remains constitute the

archaeological record which helps us in imagining those past human activities (Gamble, 2003). Archaeological imagination follows a process which has been refined through various practices and theories in the last two centuries of the Christian era. However, the beginnings of archaeological study can be found in the works of Oriental historians such as the Chinese and the Arabs as well as in the writings of the Italian Renaissance.

The political context of the last two centuries was crucial for the development of archaeology as a systemic scientific discipline. This context was crucial as it attached three important ideas with archaeology — nationalism, colonialism and imperialism (Gamble, 2003).

Monuments and artificially (as against naturally) produced material remains (also known as artefacts) were often used to create an idea of national identity. Indian history is full of such instances where historical materials were used to form a pan-Indian identity. Similarly such vestiges from the past or their absence were also used by colonial powers to suit their agenda of expansion. Later the imperial powers of the twentieth century developed the idea of “world archaeology”, often erasing small boundaries created by nationalistic agendas (Gamble, 2003).

The turmoil of political ideas played a significant role but inputs from various other factors cannot be denied in shaping the discipline in its present form. Though the subject was originally developed through interests in classical monuments of Greece and Rome but three major intellectual currents of the nineteenth century decided the future course of action for archaeology.

Archaeology is indebted to geology for the understanding of huge time depth of human existence on the Earth. The eighteenth century gave birth to the modern discipline of geology through the writings of scholars like Georges Cuvier of France and William “Strata” Smith of England. The year 1785 saw the publication of a book by James Hutton which claimed that the stratification observed in rocks was due to processes still going on in the Earth (Renfrew and Bahn, 1996). Later the geologist Charles Lyell expanded this idea in his theory of superimposition or uniformitarianism (Redman, 1999). This theory provided the framework for a scientific understanding of the depositional processes or the laws of stratigraphy and also put forward the framework for the relational chronology. This concept was instrumental in understanding prehistory.

The second important principle for the development of archaeology was the understanding of the antiquity of humankind. The discoveries of the nineteenth century indicated a very long period of human existence on earth. These findings such as stone tools from the Somme valley, France allowed scholars like Jaques Boucher de Perthes (1788-1868) to argue that these material remains were human creations of a very remote past. These notions were contrary to the prevalent biblical ideas of creation which propounded that the Earth was created on 23rd October, 4004 BC at 9 am (Bhattacharya, 1996).

The third and the most important principle which changed not only archaeology but the entire course of the modern history is the theory of evolution. The ideas mentioned earlier were conforming to the findings of one of the most influential scholars of the modern era, Charles Darwin

(1809 – 1882). Darwin’s fundamental work on the *Origin of Species by Means of Natural Selection* was published in 1859 and provided the best possible explanation for the origin and development of all plants and animals (Renfrew, 1996).

This theory proposed that all life on earth is related and descended from a common ancestor. It also suggested that all living beings have gone through changes over time and these changes were guided by the mechanism of “natural selection”. This mechanism propound that in the struggle for existence, better adapted or fitter organisms will survive and less well adapted ones will die. The beneficial traits of the surviving individuals would be passed on to the next generations and gradually it would lead to the development of completely new characteristics, resulting in the birth of a new species.

Since the birth of these three new principles, archaeology has changed its courses several times and emerged as a sophisticated branch of scientific study. However the importance of these principles still remained valid in consideration to our understanding of past human cultures and will be vital for our knowledge of prehistoric archaeology.

Check Your Progress 1

- 1) State the three principles for the development of archaeological studies.

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9.2 ARCHAEOLOGY AS ANTHROPOLOGY

As we have mentioned earlier, archaeology tries to reconstruct past human cultures through their material remains or archaeological records. The archaeological record constitutes the hard facts of the archaeological research design. However, a closer look at the archaeological record will reveal that these facts or the observations of data are not simple (Gamble, 2003). These facts are never neutral or value-free. Any interpretation of the archaeological record is dependent on concepts of two levels.

At the first level stand the theoretical narratives generally followed by the discipline. Facts are arranged according to these paradigms. At the second level stand the concepts of the researcher, whose implications are no less profound.

Theoretical narratives of the discipline associate archaeology with other streams of scientific knowledge. Anthropology provides archaeology such a stream of narrative which enables the researcher of the material remains to interpret the fact in a particular manner.

We are already aware of the basic nature of anthropology. The American Anthropological Association has defined anthropology as a subject which studies “humans, past and present” (American Anthropological Association website). To understand the complex human culture, anthropology incorporates theories and methods of social, biological, physical sciences and humanities. Anthropological researches have been classified into four categories:

- 1) socio-cultural anthropology,
- 2) physical anthropology,
- 3) archaeology and
- 4) linguistic anthropology.

The third segment which incorporated archaeology as an integral part of anthropology deals with the past people and cultures. The subjects of this stream cover not only the earliest traces of human cultures but also its recent past.

Check Your Progress 2

- 2) What is archaeology?

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Theoretical narratives which are utilized by all other segments of anthropology also influence archaeological research designs. The seminal paper which made archaeology inseparable from anthropology is “Archaeology as Anthropology” by Lewis Binford (1962). Binford (1962) visualized human past as an ever-changing process, modifying and altering cultural systems endlessly. Human cultures and these processes are primary units of archaeological study. He viewed cultures as systems composed of environmental, social and ideological elements. Cultural systems can be successfully reconstructed through analyses of artifacts and their contexts in a scientific manner (Gamble, 2003).

Though archaeology as anthropology assumes basic human continuities over time and space but at the same time it recognizes the uniqueness of each human culture, which is a product of its own time and space. Archaeology is generally considered either as a separate discipline or a part of historical studies in Europe but in America it is an integral part of anthropology (Gamble, 2003).

9.3 CONCEPTS OF PREHISTORY OR ARCHAEOLOGICAL ANTHROPOLOGY

Prehistory, or the age before history, refers to a period which did not produce any written record (Renfrew and Bahn, 2007). The historical period started with the commencement of textual records. In many parts of the world, literate societies evolved at a very recent date, not much before the last two centuries of the Christian era and even where such records are available their antiquity does not go back beyond the last four millennia, whereas the story of human existence covers a huge time span. It has been rightly said that 99% of the story of human existence falls within the domain of prehistory (Renfrew and Bahn, 2007). Archaeology provides a system and method to understand cultures through material remains of this prehistoric period.

Prehistory also refers to the life of early hunter-gatherers and subsequent farming communities. It speaks about centralised human societies which

caused the rise of civilizations (Renfrew and Bahn, 2007). Prehistory does not stop at the doors of these societies but also investigates those cultural systems which continued hunter-gatherer or pastoral life style despite technological advancements in other parts of the world (Renfrew and Bahn, 2007).

Check Your Progress 3

3) What is Prehistory?

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Prehistoric archaeology or otherwise known as archaeological anthropology provides a methodical system comprising various sophisticated methods of analysis. Considering the vast time span of prehistoric period, the absence of such a system would have made the system non-functional. Prehistoric archaeology is also known as palaeoarchaeology. The term “palaeo” had its origin in the Greek word “palaios” meaning ancient. Palaeoarchaeology denotes archaeological investigations of ancient periods but not necessarily of the prehistoric era.

The word “prehistory” did not become a part of the everyday language till 1859. It was Daniel Wilson who first used the term in his book *The Archaeology and Prehistoric Annals of Scotland* in 1851. Sir John Lubbock popularized the term in his book called *Prehistoric Times* (1865). It is generally considered that Lubbock’s book was the cause behind the birth of prehistory as a discipline (Renfrew and Bahn, 2007).

Prehistoric archaeology originally developed as a part of the Culture-Historical Paradigm. The main objective of this paradigm was to understand prehistoric cultural sequence of a given area and origin and dispersion of that particular prehistoric population (Bhattacharya, 1996). Later other objectives such as studies of cultural life ways or laws which govern cultural processes became part of prehistoric researches.

9.3.1 Temporal Division in Prehistory

It is important to understand the concepts of temporal divisions and periodisation to grasp the meaning of prehistoric researches. Temporal divisions are large units of time while periods are smaller divisions within these units. Temporal divisions and periodisations of prehistoric times help in arranging material remains in sequential orders. Time has no division to mark its progress and any temporal division only exists in human mind and thoughts. These divisions are basically relative in nature and no unit of time can be compared with any other. Concepts of change, variability, continuity and direction are important for the creation of relative temporal divisions. Generally we assign a block of time containing a set of actions happening over a particular space. The entire human existence on the earth is divided

into two broad temporal units, prehistoric and historic on the basis of these above mentioned principles.

The first attempt towards temporal divisions of the prehistoric past was by Danish antiquarian Christian Jurgensen Thomsen. He divided the human past into three ages on the basis of type and technology of material remains. This scheme of periodisation is known as the Three-Age System. Thomsen divided the past into Stone Age, Bronze Age and Iron Age. The first was further classified into early and late phases by the prehistorian J.J. Worsae (1851). The Late Stone Age marked the advent of pottery and polished stone tools (Renfrew and Bahn, 2005). Sir John Lubbock rechristened these two phases as Palaeolithic and Neolithic in 1865 (Renfrew and Bahn, 2005).

In 1870 Edouard A. Lartet proposed further sub-divisions of the Palaeolithic period. In 1883 Gabriel de Mortillet divided the Stone Age into several periods corresponding with a particular assemblage of finds (Renfrew and Bahn, 2007). The basis of this classification was the types of artifacts and their technology. In his scheme of classification:

- The Lower Palaeolithic period represents the earliest era of human prehistory noted by the use of massive core tools such as hand axes and cleavers.
- Middle Palaeolithic period was dominated by flake tools such as scrapers.
- The Upper Palaeolithic period is famous for its elongated blades, bone tools and appearance of artistic activities.

The Upper Palaeolithic period is followed by a period called Epi-palaeolithic, known for its smaller blade tools and absence of art. In between the Palaeolithic and Neolithic periods exists the Mesolithic period. This temporal unit saw the appearance of geometric microliths (small geometrical stone tools) (Shaw and Jameson, 1999). The Neolithic period ushered an era of sedentary life marked by the domestication of plants and animals, profuse use of polished stone tools and the advent of agriculture.

In the latter half of the twentieth century this typo-technological scheme of periodisation was questioned. Thomson and Braidwood (1961) divided the prehistoric past on the basis of subsistence patterns of respective ages. According to this scheme of classification the earliest part of the Palaeolithic was termed as the *Food Gathering* and its later is known as the *Food Collecting* periods. The advent of agriculture marked the *Food Producing* era. However this system of periodisation did not get wide currency as our knowledge of prehistoric subsistence pattern is scanty. Significant breakthrough in prehistoric archaeology came with the invention of radiometric dating techniques in the latter half of the twentieth century.

Check Your Progress 4

4) When did human beings appear on the face of the earth?

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9.3.2 Geological Time Scale

The other important aspect of prehistoric researches is the frequent use of the geological time scale due to the huge time span it covers. The geological time scale is a sequential arrangement of earth's geology on the basis of the relative age relationship between earth's structures. The geological history of earth is divided into two eons – Precambrian and Phanerozoic. The latter started at around 550 million years ago and continues till today. Eons were further sub-divided into eras and periods (see Fig. 1). Human beings appeared on earth only at the last leg of the quaternary period in the Cenozoic era. The prehistoric past started with the Pleistocene epoch of this Quaternary period.

The Pleistocene epoch started at around 2.5 million years ago and ended at 11,500 years BP. This epoch was known for severe climatic fluctuations and long durations of ice ages. These ice ages are known as glacial and their warmer interludes as interglacial periods. The last glacial period also marked the end of the Pleistocene. Since then we are going through an interglacial period called the Holocene.

The early human existence of the prehistoric past endured severe harsh glacial and interglacial periods. Prehistoric material remains bear the testimony of human struggle against these environmental conditions.

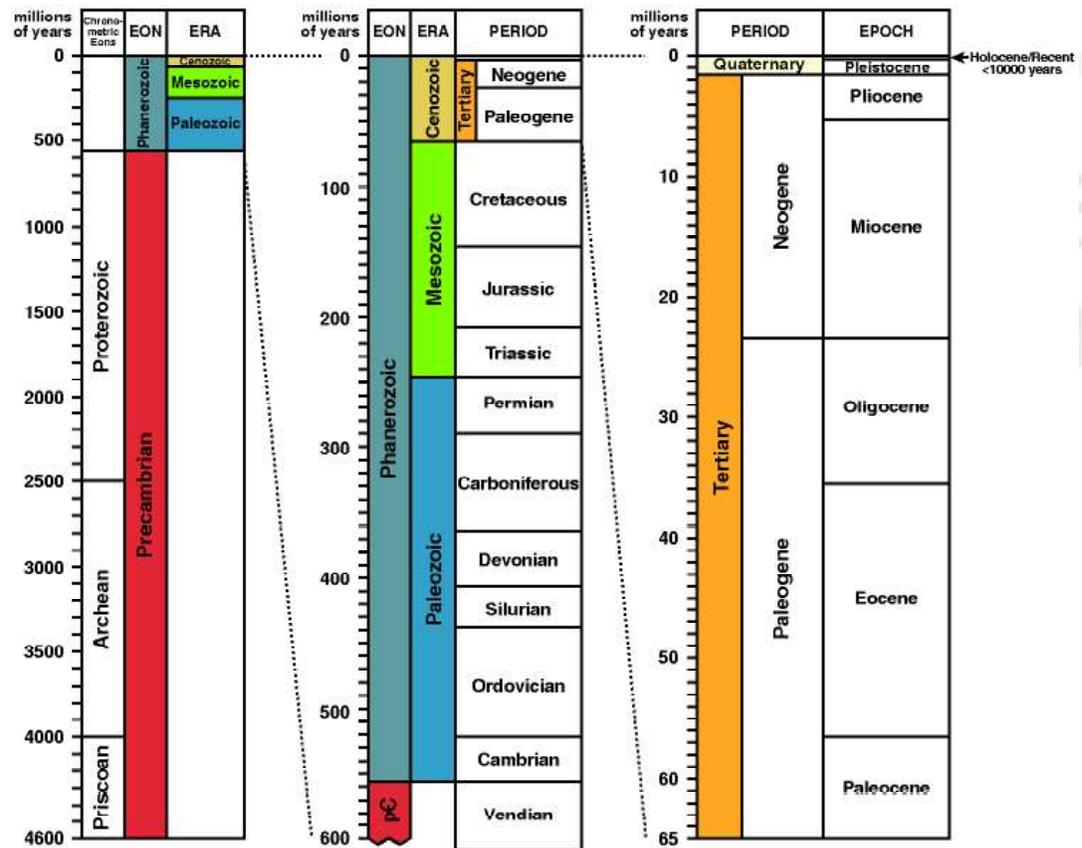


Fig. 1: Geological Time Scale

9.4 DEVELOPMENT OF PREHISTORIC RESEARCHES

The idea of prehistory could not take shape before the realisation of the limitations of the textual data. Although the origin of prehistoric archaeology can be traced back to the Italian Renaissance, the actual investigations of the remains started only in the eighteenth century. The study of prehistory was revolutionary indeed as it not only challenged the predominant notions of the day but questioned the very basic structure of the Christian theology. West Asian religions provided a theory of creation which tried to explain the human existence on the Earth. The story of creation in six days provided the theoretical context for any consideration of ancient things (Renfrew and Bahn, 2007). The very laity notions of prehistory could not be formed without challenging these religious tenets. Prehistoric archaeology owes its existence to the thinkers of the Enlightenment period and scientific revolutions of various areas of research. Prominent among these contributors were astronomers such as Galileo and Copernicus who presented an entirely new world view to the academia and laity of the day. The other equally important discipline was geology.

Prehistoric archaeology had its seeds in the works of early antiquarians in northern Europe. These antiquarians such as Richard Colt Hoare directed their investigations to burial mounds to compensate the paucity of traces of early literate civilizations in that region.

During the early days of the Renaissance, chipped stone tools were noticed all over Europe. They were eventually collected but could not be explained by the intelligentsia of the time. John Frere in 1797 realized that these chipped stone implements were creations of human beings. He talked about a period of a very remote past when metals were not in use (Renfrew and Bahn, 2007). Glyn Daniel (1962) called this observation by Frere “one of the first facts in a prehistory based on archaeology”.

The antiquarianism of the eighteenth century gave rise to new museums of northern Europe. The collections of these museums played important roles in the growth of prehistory in the later years. This was also the period which experienced the Scientific Revolution in Europe which sowed the trends of ethnocentricity in popular thinking. The Three-Age system of periodisation was born within this context of continuous accumulation of prehistoric data.

Initial researches on the Palaeolithic period were carried out in France. Boucher de Perthes found stone tools in the Somme Valley. The first reported stone tools came from Abbeville and Saint Acheul. In the middle of the nineteenth century a series of excavations was conducted in the caves and rock shelters of Pyrenees and Dordogne of France which helped the scholars in reconstructing the life of the people in the Upper Palaeolithic period. This period also witnessed the discovery of fossilised human remains of *Homo sapiens* at the rock shelters of Cro-Magnon, (earlier known as Cro-Magnon man) in France. A new species of human ancestors were found at the Neander valley of Germany and came to be known as Neanderthal man (Renfrew and

Bahn, 2007). In 1879 painted art of the prehistoric period were noticed at a cave in Altamira in France.

Soon the scope of prehistoric researches expanded beyond France and Germany. Neanderthal and *Homo sapiens* remains were reported from Palestine. A new hominid species called *Homo erectus* was reported from Indonesia (Renfrew and Bahn, 2007) and several fossilised hominid remains including those of *Australopithecus* were found in Africa.

Three-Age System

The Three-Age System provides a scheme of periodisation on the basis of a relative time scale and the idea of progress. This system presented the first framework for understanding the Stone Age and its relationship with other subsequent periods. As has been mentioned earlier, Christian Jurgensen Thomsen was the father of the Three-Age System. He was the son of a wealthy merchant of Copenhagen. Thomsen was influenced by the evolutionary approach of his time and the environment of nationalism prevalent in Denmark. In 1816 Thomsen was invited by the Danish government to arrange their collection of Antiquities (Trigger, 1989).

Thomsen was instrumental in cataloguing and exhibiting this huge national treasure. Thomsen gave special emphasis to the context of the finds and divided these antiquities into different categories on the basis of the material, shape as well as decorations on them (Trigger, 1989).

On the basis of his analysis of tool types he could differentiate the objects of the Stone Age from those of the Bronze Age and objects of the Bronze Age from the ones of the Iron Age. Thomsen opened his collection of antiquities to the public in 1819 and published his researches in a book called *Ledartraad til Nordisk Oldkyndighed* (Guide Book to Scandinavian Antiquity) in 1836. He divided the entire human history into three ages – Stone, Bronze and Iron.

The advent of radiometric dating techniques in archaeology enabled prehistorians to look beyond the cultural sequences. Prehistoric archaeology is now ably helped by physics, chemistry, genetics and other allied subjects to expand the sphere of valid enquiry from probing the question of human antiquity to the origin of human species.

Prehistoric archaeology in India also witnessed a simultaneous development. Prehistoric researches in India are mainly associated with the arrival of Europeans and their activities related to surveying (Singh, 2004). Institutions and individuals played different roles and caused the growth of prehistoric study. One such institution was the Asiatic Society of Bengal, established by Sir William Jones in 1784. In a Proceedings of the Society, V. Ball mentioned about a few agate splinters discovered from the Narmada Valley by one Captain Abbot in 1845 (Chakrabarti, 2006). Similar findings were also

reported from Warangal, Bundelkhanad and Port Blair (Chakrabarti, 2006). However it is Robert Bruce Foote who is generally credited with the first stone tool in India. Foote discovered a Palaeolithic implement from Pallavaram near Madras on 30th May, 1863.

Prehistoric researches in India can be divided into three phases.

The first phase (1863 – 1900) is marked by individual surveys for prehistoric remains. Stone implements of Palaeolithic and Neolithic were reported from various parts of the country. Rock paintings were also reported from Madhya Pradesh.

The second phase (1900 – 1950) witnessed the efforts to synthesise the acquired data. In 1930 L.A Cammiade and M.C. Burkitt proposed a scheme of classification of prehistoric tools from the Palaeolithic to Mesolithic on the basis of typo-technology. This period is also marked by increasing involvement of other sister disciplines in prehistoric research. H.de Terra and T. T. Paterson of Yale and Cambridge University tried to establish a relationship of the Pleistocene glaciations and their counterparts in the sub-continent.

Check Your Progress 5

5) In which year and location was painted art of the prehistoric area found?

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The third phase (1950–till date) is known for multi-disciplinary approaches and frequent application of sophisticated technologies.

9.5 SUMMARY

In this unit we have learned about the concepts and ideas that govern prehistoric archaeology. These ideas were not only influential to the development of the discipline but changed the thought processes of the contemporary world and presented a logical world view bereft of religious dogma and superstition. Definitions of prehistory, prehistoric archaeology and archaeological anthropology help us to understand epistemological (the nature of knowledge) nuances of the discipline. The development of this stream of knowledge and the advent of radiometric dating significantly widened the scope of prehistoric studies and made it open for new questions to be asked.

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Useful Links

Evolution: <http://www.ucmp.berkeley.edu/history/evotheory.html>

Geology and Geophysics: <http://geoscience.ucalgary.ca/>

National Climatic Data Centre: <http://www.ncdc.noaa.gov/>

Physical Geography: <http://www.physicalgeography.net/fundamentals/10c.html>

9.7 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

- 1) The three principles for the development of archaeological studies are;
 - a) The understanding of the laws of stratigraphy (Geology)
 - b) Understanding of the antiquity of humankind and
 - c) Theory of evolution (Darwin)

Check Your Progress 2

- 2) Archaeology is the study of the past human cultures through the reconstruction of their material remains.

Check Your Progress 3

- 3) Prehistory is the period before history of which there are no written records or documents available.

Check Your Progress 4

- 4) Human beings appeared on the Earth during the last leg of the Quaternary period in the Cenozoic era.

Check Your Progress 5

- 5) In the year 1879 painted art of the prehistoric period was found in a cave in Altamira in France.



