UNIT 1 INTRODUCING
ANTHROPOLOGY*

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Learning Objectives

After reading this unit you will:

- understand the subject matter of Anthropology;
- know about different branches of Anthropology;
- know the history and development of Physical/Biological Anthropology; and
- comprehend the aim and scope of Physical/Biological Anthropology.

1.0 MEANING OF ANTHROPOLOGY

Most generally Anthropology is defined literally by expanding the word itself into *anthropos* and *logos*. *Anthropos* means human and *logos* mean science, thus defining anthropology as science of human. The American Anthropological Association defines Anthropology as “the study of humans, past and present. To understand the full sweep and complexity of cultures across all of human history, anthropology draws and builds upon knowledge from the social and biological sciences as well as the humanities and physical sciences. A central

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The basic idea in this definition is that anthropology is an integrative science that tries to understand human in its totality. It studies cultural and biological diversities for a better understanding of human existence. Giving a single comprehensive definition of Anthropology is rather difficult as the subject is vast and diversified hence divided into four sub-branches: Physical/Biological Anthropology, Social-Cultural Anthropology, Archaeological Anthropology and Linguistic Anthropology.

1.1 ANTHROPOLOGY: A HOLISTIC/INTEGRATED DISCIPLINE

Anthropology takes a holistic view of human existence. It tries to integrate all that is known about human beings and their activities. The holistic approach of anthropology can be understood in terms of its four-field approach that encompasses physical, social, archaeological and linguistic anthropology. Each of these four sub-disciplines contributes to the understanding of different aspects of humans in past and present. Rather than focusing on a single aspect of human, such as history or biology, anthropology is distinct in its holism. From a holistic perspective, Anthropology attempts to study all aspects of human culture and society in an integrated and comprehensive manner. It starts from placing the *Homo sapiens* in the evolutionary scheme to analyzing the variations within the human species. It then tries to understand the emergence and diversification of culture and emergence of civilization (McIntosh, 2008).

Being a holistic discipline, Anthropology tries to understand human existence from different angles of culture, biology, history and environment. Anthropologists are interested in understanding the origin and development of human species. They are also interested in knowing how environment affects culture and how culture has an impact over the growth and development of human. Anthropologists enquire about the existence of human variation and try to find reasons behind such variations. They are equally interested in the reconstruction of human past and its culture.
An example can illustrate this point more clearly. We all have studied about the Indus Valley Civilization in our school days and know something about the fascinating culture and society of that period. Past had been reconstructed on the basis of archaeological findings in the form of artifacts- seals, statues, objects of daily use, objects of luxury etc. People of Indus Valley Civilization knew how to write but the script has till date not been deciphered. In the absence of such evidence, reconstruction of the past is totally based upon contextual findings and scientific analysis. Some skeletal remains have been found from Harappa. They belong to both male and female. On genetic analysis of these remains, it has been established that most of the male skeletal remains were genetically not related; on the other hand most of the females are genetically related to each other. Very important insights have been gained from such findings. It can be said that since most of the females were related genetically, therefore the residence pattern after marriage could be ‘matrilocal’ in nature. This is to suggest that after marriage males might have come to their wives place to reside which is opposite to what we observe generally in most societies in India that after marriage women go with their husbands. This may also have important bearing in the context of position of women in the society as it has been observed that in matrilocal societies, position of women is better than their patrilocal counterparts. Anthropological approach to the study of Indus civilization integrates almost all aspects of Harappan life that reflects anthropology takes a holistic view of human existence (McIntosh, 2008).

Check Your Progress 1

1) Anthropology is the scientific study of:
   a) Amphibians
   b) Humans
   c) Reptiles
   d) Birds

2) The subject matter of Anthropology is divided into:
   a) 03 branches
   b) 05 branches
   c) 04 branches
   d) 06 branches

3) The discipline of Anthropology is described as holistic because:
   a) It consists of many sub-disciplines
   b) It supports complete development of marginalized societies
   c) It is an integrated and comprehensive approach to study human diversities
   d) It focuses on interdisciplinary approach
1.2 SCOPE OF ANTHROPOLOGY

Anthropology as a holistic or multifaceted discipline deals with the study of man in totality. It studies man not only as a part of nature but also as a dynamic creature in terms of biological and social features. Anthropology is also referred to as a comparative study of man since it takes into consideration the similarities and differences in human body, behavior and values of all human groups. The wide scope and vastness of the anthropology necessitates its division into four branches as mentioned earlier. It must be kept in mind that anthropology retains its holistic orientation by ensuring the interconnectedness and interrelationship among its branches as well as with humanities, social sciences, biological sciences and physical sciences. The scope of anthropology and its four major branches are presented in the following section.

1.3 BRANCHES OF ANTHROPOLOGY

1.3.1 Physical/Biological Anthropology

Physical anthropology also known as biological anthropology takes into account human body, genetics and the status of man among living beings. This branch of anthropology is mainly focused on human evolution, variation and adaptations. As the name indicates, it studies the physical characteristics of man, using the general principles of biology and utilizes the findings of anatomy, physiology, embryology, zoology, paleontology and so on.

The scope of physical anthropology is embedded in its various branches i.e. primatology, palentology, human genetics, growth and development and forensic anthropology. In recent years many academic research areas of physical anthropology have evolved as specialized fields. Mention may be made of human population genetics, physiological and nutritional anthropology, and molecular anthropology. Further elaboration on the scope of physical anthropology is presented in section 1.4.4.

1.3.2 Socio-cultural Anthropology

Socio-cultural anthropology is the second major branch of anthropology, focusing on the comparative study of human culture and society. The intensive study of customary patterns in human behavior, thought and feelings and organization of social groups are all included in the purview of socio-cultural anthropology. Socio-cultural anthropology is referred by the term ‘social anthropology’ in Great Britain while similar studies are referred by the term ‘cultural anthropology’ in America. However, it is pertinent to note here that in the nineteenth century the term ‘ethnology’ was in use for similar studies. Social Anthropology tries to find out the structure of human society that consists of customs, beliefs whole pattern of working, living, marrying, worshipping and political organization. It tries to find out the differences in the human societies and also tries to establish the similarities among these societies. The life of man has several dimensions and the attempts to study each one in detail has resulted in the origin and growth of several sub-branches from the elementary branch of social anthropology such as economic anthropology, political anthropology, psychological anthropology,
Anthropology of Religion and so on. Many new sub-branches are also coming up like – Communication and Visual anthropology, with the new demands of society (Patnaik, 2011).

### 1.3.3 Archaeological Anthropology

Archaeological anthropology is the science which concerns itself with the recovering and studying the relics of Man’s past (Roe, 1970). It studies human cultures through the recovery and analysis of material remains and environmental data. The major time periods that are covered under archaeology include prehistoric, proto-historic and civilization. Material products scrutinized by archaeologists include tools, pottery, hearths and enclosures that remain as traces of cultural practices in the past, as well as human, plant and animal remains, some of which date back 2.5 million years (Haviland et al., 2008).

Studying societies and cultures of the remote past also falls into the scope of archaeological anthropology. Anthropologists try to reconstruct the lifestyle of the people who either left no written records or those who left certain written material but which could not be deciphered as yet. Archaeological anthropology also helps to study the contemporary societies from the light of their socio-cultural practices set in prehistoric period times (Ember, Ember & Peregrine, 2002).

### 1.3.4 Linguistic Anthropology

Linguistic anthropology, another branch of anthropology deals with the study of human languages. Anthropologists who specialize in this area are particularly concerned with the relationship between language and culture behaviour. Linguistic anthropology encompasses the study of the emergence and divergence of languages over time. Initially this branch was concerned with the study of origin, evolution and development and salvaging of languages which were on the verge of disappearing. With time the various facets of language and its effect on social life were also taken into consideration. Today linguistic anthropology as an interdisciplinary science works in collaboration with anthropological linguistics, ethno-linguistics and socio-linguistics.

Language is an important aspect of human behaviour and the transmission of culture has been possible through languages. Therefore, the sub-field of linguistic anthropology also helps to understand cultural variations and human behaviour. The scope of linguistic anthropology mainly lies in the study of past and present languages. Linguistic anthropologists not only study the written languages but they also try to decipher cultures through unwritten languages.

### Check Your Progress 2

4) Which field of Anthropology concentrates on human evolution adaptation and variation?

   a) Physical Anthropology

   b) Socio-Cultural Anthropology
1.4 BIOLOGICAL/PHYSICAL ANTHROPOLOGY: AN INTRODUCTION

Biological anthropology, also known as physical anthropology, is a scientific discipline concerned with the biological and behavioral aspects of human beings, evolution of their related non-human primates’, study of their extinct hominid ancestor, their biological variability and its significance. This sub discipline of anthropology provides a biological perspective to the systematic study of human beings. Biological Anthropology echoes the shift in stressing more biologically oriented topics such as genetics, evolutionary biology, nutrition, physiological adaptation, growth and development. This shift occurred in quest of understanding origins of structure, exploring human genetics, growth and development and evolutionary history that led to advances in the field of genetics and molecular biology (Sinha, 2016).

1.4.1 Physical Versus Biological Anthropology: An Overview

During the initial stage of the inception of physical anthropology the interest was to understand the evolution and physical variations in human beings. Physical variation among human beings basically 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 were studied, therefore 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 1950’s with the breakthrough in the fields of genetics and molecular biology, the interest of the physical anthropologists have shifted to understanding biological aspects in terms of human genetics, nutrition, physiological adaptation, growth and development etc. Thus, based on the
rapidly growing interest and shift in emphasis of biologically oriented topics, many prefer to call it as biological anthropology. The usage of the term physical anthropology is however, still being retained by the American Association of Physical Anthropologists in their journals and many college courses, while some anthropologists prefer to name the subject as physical/biological anthropology wherein both the aspects of human beings are the focus area. Thus, it can be concluded that physical anthropology was the original term, but today based on the shift in emphasis to more biologically oriented concerns the term biological anthropology is gaining popularity. Nonetheless, the subject matter tries to concentrate equally on physical and biological aspects of human beings.

1.4.2 History and Development

Physical/biological anthropology in present form is the result of successive stages of development and changes in the framework of its study. “The history of physical anthropology dates back to the time physical anthropologists deliberated on the nature and genesis of human races. 17\textsuperscript{th} century witnessed the western scholars presuming that all humans were descendants of Noah and his family, consequently belonging to a single species, which meant that all contemporary human races was monogenic. German Physician Johann Friedrich Blumenbach (1752-1840) of Gottingen founder of physical anthropology, regarded as the inventor of craniology and an empirical power on the questions of human diversity divided the mankind into five races: American, Caucasian, Ethiopian, Malayan, and Mongolian.

James Cowles Prichard (1786-1848), proposed a controversial idea that as the descendants of Adam became lighter-skinned they attained higher intellects and civilization. This curiosity led him to understand that all races would become similar to western Europeans, the race that in his view had progressed farther or more rapidly. However, encountering huge number of different looking human beings, the diversity among mankind struck to them. In fact, scientific physical anthropology began in the 18\textsuperscript{th} century with the study of racial classification (Marks, 1995); this scientific study of race was an answer to the presence of so many human types. Man’s origin was from more than one gene picked up momentum in the scientific circles of Europe especially France and America in late eighteenth and early nineteenth centuries; stressing races were polygenic. The advocates of polygenism submitted that there was a wide variation among human population and this variation could not be attributed to the environmental difference and too great for humanity to be credited to single species. Hence, God must have created several human species right from the beginning. Philadelphia physician and advocate of polygenism, Samuel George Morton (1799-1844), in later nineteenth century reflected upon concept of human variation using anthropometric measurements.

Anthropological Society of Paris, first in the field of Anthropology, was established in 1859 by a French surgeon, Paul Broca (1824-1880) who pursued the tradition of Samuel Morton. The anthropological laboratory set up became the Centre for training program for anthropologists where activities of these early physical anthropologists were devoted to racial craniology. Anthropology became the focus and extended from Broca’s laboratory to other institution and facilitated in understanding why polygenism
was favored over monogenism. The polygenists were now categorically in a position to make their point more acceptable. Broca was of the view that it was incorrect to attribute the huge diversity in races due to degeneration and also argued that it would be demeaning to consider the diversity of racial variation as degeneration from a single superior species.

Edward Tyson (1650-1708), a London based physician and member of the Royal Society, started the European primate studies and distinguished between the humans and monkeys by dissecting a chimpanzee. He concluded that the chimpanzee has more in common with man than monkeys, particularly brain. Even though the early scientific investigations were basically anatomical, lot of curiosity was generated among people in primate behavior. Thomas Henry Huxley’s in Man’s Place in Nature (1863) applied Darwinism to stress the origins of human. Primatology was basically concerned with the anatomy and considered evolution from paleontological record. Ernst Haeckel (1834-1919) published an encyclopedia of primate anatomy and came up with first scientific phylogenetic trees. These studies formed basis of understanding evolution of man through paleontological records. Their attempt facilitated in understanding us in present day context, though anatomy remained the focal point until after 1900.

The German tradition, led by Rudolf Virchow (1821-1902) stressed that the variation observed in the human form was a consequence of environment and disease on the human body and the lack of fit among race, nation and culture. The American tradition gave attention to the “pacified” aboriginal (Indian) inhabitants of the North American continent, finding and gathering skeletons as scientific objects, along with artifacts, languages and culture.

Subsequently, with the start of nineteenth century, anthropometry came into limelight, becoming more sophisticated under the patronage of Karl Pearson (1857-1936), co-founder and editor of the journal, Biometrika. Karl Pearson treated the measurements of bones and bodies to statistical tests that made the exercise more scientific, including computations for variation and correlation, and tests of significance for comparing samples. Physical anthropology was committed to the study of racial determinism- a philosophy that assumed the superiority of Caucasoids in the last half of the nineteenth century.

Physical anthropology was considered a mystique medical specialty in the United State after the Civil War (1861-65). Franz Boas (1858-1942) an architect of today’s face of physical anthropology in 1897, led physical anthropology from just taxonomic “race” classification to practical research in human biology and unearthed and erased the doubts in the area of race and culture studies propagating the changeability of the human form. Hrdlicka (1869-1943), was a prominent physical anthropologist hired by United States National Museum in 1903 who worked hard to counter Nazi wartime belief about race and rejected the idea of racial superiority. The establishment of American Journal of Physical Anthropology in 1930 goes to him. Hooton, a Ph.D. from the University of Wisconsin, entered anthropology as an Oxford Rhodes Scholar, under R.R. Marett, and the anatomist Arthur Keith. In the following decades, Hooton trained most American physical anthropologists like Harry L. Shapiro and Carleton S. Coon whose input to the discipline is unmatched. As Harvard began to train physical anthropologists, the discipline began to diversify.
Though the emphasis continued in anatomy and medicine, human biology catered to several questions about man than just anthropometry and racial origin. Unaware of the conflict of scientific interpretation, the priceless input towards the field of anthropology continued between Germans and Americans, by Eugen Fisher, Fritz Lenz, and Erwin Baur.

In the middle of twentieth century in 1951, a Hooton alumnus, Sherwood Washburn rediscovered the fieldwork with newer vistas in physical anthropology highlighting evolutionary process and history. Washburn’s anthropology ventured to paleoanthropology and primatology. He was one of the many anthropologists who followed modern trends in biology and science and paved way for the present bio-social scenario of physical anthropology. Scientists whose prolific work and unparallel contribution laid foundation of current physical anthropology includes W K Gregory, William Krogman, Dudley Morton, Adolph Shiltz, Harry Shapiro, William Straus, T Dale Stewart and many more. Consequently, current anthropology claims diverse methodology to get a more vivid picture of animal behavior, human genetics, and medical anatomy. It has taken several roads of development in recognizing physical anthropology and giving it a very vital position in scientific fraternity” (Sinha, 2016).

The development of physical/biological anthropological research has amazingly altered during the last three decades. The subject has made a rapid progress exploring more diversified fields covered under it. The emphasis has shifted from measurements, osteology, blood groups to nutrition, physiology and eugenics.

Check Your Progress 3
7) Which branch of Anthropology provides biological perspective to the systematic study of human beings?
   a) Biographical Anthropology
   b) Biological Anthropology
   c) Bio-cultural Anthropology
   d) Bioscience Anthropology
8) Who is considered as father of Physical Anthropology?
   a) M. D. Leakey
   b) J. F. Blumenbach
   c) K. Pearson
   d) R. Dart
9) Who is the author of Systema Naturae:
   a) Carl Linnaeus
   b) J. F. Blumenbach
   c) Comte de Buffon
   d) Charles Darwin

1.4.3 Aim
The old physical anthropology symbolizes the descriptive stage of the subject, distinguished by anthropometric measurements and classification of indices
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and computation of statistics. This approach with stress on taxonomy remained static till genetics and its applications in the explanation of evolutionary theory surfaced; hence the objective of old physical anthropology was principally classification by which it was assumed that description of the differences would suffice for solving the problem. The new physical anthropology on the other hand concerns in understanding the processes and mechanisms involved in the problem, where classification plays a trivial role. Thus, the new physical anthropology embarks on where the old conclude, with aims and interests of both the traditions remaining same, although the accent of new physical anthropology is reorientation in methodology and comprehension and interpretation.

Physical anthropology answers the question on who were the ancestors of human species and how they evolved to the present form. They ascertain the different stages and mechanism during the evolutionary history. Human paleontologists reconstruct the skeletons of extinct that may have been our forerunners to understand the present day man. Using the fossil record and from what can be determined through comparative anatomy, the paleoanthropologists study the evolution of primates and hominids.

Physical anthropologists apply human demographic and ecological data (of birth rates, death rates, marriage practices, nutritional intake, health condition, and so on) to the study of human population genetics. Demography directly related to fertility and mortality is another subject which attracts attention of physical anthropologists. The factors responsible for variation in different populations of these phenomena are answered by the physical anthropologists.

The molecular differences between species and the relative frequencies of different molecules in the same species necessitate explanation on acceptance of how these species live, or have lived in the womb, or how their ancestors lived in the distant past, is the domain of molecular anthropologist. The growth in man is reliant on two broad categories - heredity and environment. The study of growth and its related fields are important aspects of physical/biological anthropology (Sinha, 2016).

1.4.4 Scope

Physical/biological anthropology no more remains only an academic discipline, the recent past reflect an ever increasing recognition of what anthropology has discovered and can discover about humans. The latest developments in the field have opened new avenues in physical anthropology. Globally the scope of physical anthropology is best identified within the framework of the tradition followed in the different stages of its development. These traditions may be called “old or classical” physical anthropology and “New or Analytical” physical anthropology. Ever since the coining of the term ‘New physical Anthropology’ by Washburn in 1951, the study of man has come long way.

Physical anthropology is generally accepted as the comparative science of man as a physical organism in context to his total surroundings, both social or cultural and physical; because development of his physical and cultural factors is reliant on the environment prevailing at that time, form an important anthropological perspective.
The extent of human variability and their factors responsible for the current distribution have been of vital concern. Genetics and anthropometry are used to determine the cause of diversification and human variations—a specialized branch of physical/biological anthropology.

Human diversity, a component of physical anthropology takes into account human taxonomy, which in anthropological perspective refers to study of races. The genetic diversities observed in different racial groups can be explored through factors of mutation, gene recombination, chromosomal alterations, isolation, genetic drift, social selection and so on. The difference in frequencies of phenotypic and genotypic characters, classification of human population forms basis of race, ethnic groups, isolates or mendelian population or endogamous groups.

The stage of evolution particularly the ‘prehuman’ history of man to his present form is the foundation of primatology apart from anatomy, physiology and ethology. Unquestionable is the contribution of primate paleontology on extinct primates, tracing the origin of man and his evolution under palaeoanthropology.

The major concern of human evolution is to trace the ancestral form and to understand the course of evolutionary processes and mechanism involved in the making of the erect walking, bipedal brainy creature who is a tool maker. This is accomplished by the assessment of biological distinctiveness of the living as well as extinct non-human primates and by the comparison of the same with those of the living and extinct people. All living populations of the world had common ancestor irrespective of their morphometric variation. This necessitates contribution from primatology, primate paleontology, palaeoanthropology and comparative anatomy.

Human genetics a significant part of physical/biological anthropology has witnessed incredible growth. Inheritance patterns of trait in humans have generated lot of curiosity. The assessment of the gene frequency and distribution of the traits form a significant basis for evaluating the incessant process of human differentiation. The study of human genetics has facilitated for treatment and genetic counseling to prevent inherited disorders. Human population genetics use mating pattern as a method that assist in the estimate of inflow and outflow of genes that are accountable for evolution. Eugenics forms a fundamental part of physical anthropology responsible towards the progress of populations.

Growth and development in physical/biological anthropology has its own significance, be it studying secular trends (e.g., increase or decrease of weight in the next generation), stage of growth, growth pattern of a population, factors affecting nutritional status, reproductive biology, population variation all come under this branch of physical/biological anthropology.

Recent years have witnessed physical anthropology playing irrefutable service in the field of dentistry, medicine and industrial research. The scope of physical anthropology in the field of forensic science is tremendous. The various branches of physical anthropology which assists a forensic scientist in arriving at conclusion are dermatoglyphics, osteology, osteometry and serology; somatic and genetic characteristics contributing towards the determination of age and sex. Kinanthropometry uses somatological knowledge in interpreting the body types for different sports or even in relation to specific disease.
The varied dimensions of academic/research and applied significance of physical/biological anthropology have developed into a number of evidently discernable subfields of the subject as a result of advanced researches elevating physical anthropology to the level of independent discipline. The numerous specialized field of physical/biological anthropology are human population genetics, primatology, palaeoanthropology, human genetics, medical anthropology, physiological anthropology, forensic anthropology, nutritional anthropology, dental anthropology, anthropometry, ergonomics, demography, ethology, etc. (Sinha, 2016).

Check Your Progress 4

10) Who coined the term ‘New Physical Anthropology’?
   a) G. Mendel
   b) P. Broca
   c) E. Lartet
   d) S. L. Washburn

11) Kinanthropometry refers to:
   a) Study of measurement of human skull
   b) Understanding of inheritance and hereditary traits
   c) Study of human shape and size to understand growth, nutrition and performance
   d) Identification of dead bodies through body measurements

12) Personal identification and reconstruction of evidences comes under the subject matter of:
   (a) Human Genetics
   (b) Forensic Anthropology
   (c) Palaeoanthropology
   (d) Anthropometry

1.5 SUMMARY

Anthropology is a subject that studies human beings in time and space. This is a holistic discipline which attempts to study all the aspects of human beings. The subject matter of the study of the four branches of anthropology reveals the multidimensional aspects of the study of man in totality. All the four branches of anthropology namely physical or biological anthropology, socio-cultural anthropology, archaeological anthropology and linguistic anthropology deals with the diverse aspects related to human biology, culture and language from the origin. The interrelationship and interconnectedness between these branches ensures the holistic orientation of the discipline of anthropology. On one hand physical/biological anthropology studies human body, genetics and the status of man among living beings whereas socio-cultural anthropology incorporates the intensive study of social behavior, customary patterns in human behaviour, thought and feelings and organisation of social groups. Archaeological anthropology deals with the reconstruction of history with the help of material remains along with skeletal remains, pollen, etc. Linguistic anthropology, another branch of anthropology deals with the study of human languages.
This unit also reflected on the history and development of the subject matter of physical/biological anthropology. It also traced the scope of physical anthropology through the lens of its various sub-fields like human evolution and variation, human genetics primatology and forensic anthropology. The varied dimensions of academic and applied significance of physical/biological anthropology have also been discussed in the unit.

1.6 REFERENCES


1.7 ANSWERS/HINTS TO CHECK YOUR PROGRESS

1. (b)
2. (c)
3. (c)
4. (a)
5. (b)
6. (a)
7. (b)
8. (b)
9. (a)
10. (d)
11. (c)
12. (b)