
UNIT 1 DEFINITION AND SCOPE

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Learning Objectives

After reading this unit, you would know the:

- definition of physical anthropology and its historical background;
- scope of physical anthropology; and
- different branches of physical anthropology.

1.1 INTRODUCTION

Physical anthropology is an important field of anthropology. Aren't we inquisitive to know about ourselves? How we were in the past to why we are like today? In this course on Physical Anthropology, let us first define what physical anthropology is and what does one achieve knowing this discipline. The historical background will take you back to the days when physical anthropology meant human variation and measurement to the current status, when we have advanced our knowledge through technical progression. The progress in this discipline has paved the way for several branches in physical anthropology.

1.2 DEFINITION

It very much interests us to know more about our past, present and future. What were the stages that took us to our present day form? All the answers lead us to the in-depth knowledge of Anthropology. The word Anthropology consists of Greek word "Anthropos" which means man and "logos" stands for study. It is a very vast subject comprising man as a physical being, man in his prehistoric setting and man in his cultural context who is ruled by a multifaceted system of customs, attitudes and behaviour. Anthropology is holistic in approach as it is concerned with all human beings, at all times, around the world through the examination of historical and present geographical distribution of human both biological as well as social. In a broader perspective, it is comparative science of man, his variation and their causes.

Amongst the various branches in Anthropology, Physical Anthropology holds a very coveted position. What is Physical Anthropology? It is not a simple task to provide a specific definition of physical anthropology for the simple reason that it involves interdisciplinary approach. Paul Broca, father of Physical Anthropology defines it as natural history of the genus Homo and more concretely as the science whose objective is to study humanity as a whole and in relationship to rest of the nature. Herskovits identifies that physical anthropologists study such matters as the nature of racial differences; the inheritance of bodily traits; the growth, development and decay of human organism; the influence of natural environment on man. According to Juan Comas, it is defined as science which studies variation, comparative study of the human body and its inseparable functions, exposition of the causes and courses of human evolution, transmission and classification, effects and tendencies in the functional and organic differences, etc.

Broadly speaking, Physical Anthropology comprises of biological evolution, genetic inheritance, human adaptability and variation, primatology, and the fossil record of human evolution. Physical Anthropology thus reflects an important scenario in today's increasingly specialised world of science.

The discipline thereby facilitates us in investigating the sources of variation which are the result of genetic differences and environmental modifications and directions of change which originated in the past. These differences perhaps arose over long spans of time through evolution both among individuals and groups. This very understanding of human organism is the strength of physical anthropology and in today's increasingly specialised world of science, it constitutes an important perspective. The domain of physical anthropology is widespread leading into physicians' seminars, schoolroom classes or even in casual conversation, endorsing its broad spectrum.

The branch of anthropology that concerns the human and nonhuman primate evolution, the biological basis of human behaviour, and human biological variability and its significance (giving it a proximity to biological science) is referred to as biological anthropology while physical anthropology is largely an American and British concept. In most European and many other countries, physical anthropologists are the only ones who are considered as anthropologists, while others are referred to as archaeologists, ethnologists, linguists, or prehistorians depending upon their field of specialisation.

1.3 AIM

The broad based understanding of human organism is the strength of physical anthropology. Not only this, physical anthropology integrates bio-cultural studies of human diversity, the ancestors of human species, comparative anatomy, ecology, behaviour and history of primates. Physical anthropologists are interested in studying human genetics, growth and development and evolutionary history. They attempt to accurately describe human physical structure both past and present and also investigate how function and behaviour are integrated into the environment in which human beings live.

Human biology has many times been erroneously used as a synonym for physical anthropology although, there is clear cut area for both the fields. Human biology comprises structure and function of contemporary man, whereas physical

anthropology refers to all that is chronological, racial, social and even pathological groupings of human. They are very close knit, yet they maintain individual identity in working methods, techniques and objectives.

1.4 SCOPE

With so much information getting unveiled, do you think physical anthropology is merely an academic subject? On the contrary, the recent years reflect an ever increasing recognition of what anthropology has discovered and can discover about humans.

The essence of physical anthropology right from its inception remains focused on man's physical characters, their origin, how they evolved and their development to present state that is, whatever we are today is the result of past and present conditions. Physical anthropology is widely accepted as the comparative science of man as a physical organism in context to his total surrounding be it social or cultural or physical; because development of his physical and cultural factors is reliant on the environment prevailing at that time.

What makes physical anthropology so indispensable? The answer lies in the very fact that the understanding and assessment of the degree of human variability along with the accounting of factors responsible for our current distribution have been of vital concern. Major answer lies in the fields of genetics and anthropometry which has been used in approximating the causes of diversification and human variation. Human variation is a specialised branch of physical anthropology.

The stages of evolution particularly the 'prehuman' history of man to his present form is the basis of Primatology. It also includes the study of human biology including anatomy, physiology and ethology. Undeniable is the contribution of Primate Palaeontology on extinct primates. This entire phenomenon tracing the origin of man and his evolution comes under Palaeoanthropology. Appropriate evaluation of the remains of fossil men in evolutionary outlook requires the contribution of comparative anatomy as well as embryology or developmental anatomy and physiology of growth.

Human diversity, another important component of physical anthropology takes into account human taxonomy, which in anthropological perspective refers to study of races. It was decided to replace the term 'race' with 'ethnic group' due to the misuse of the term, but then again the term is being revived.

The inclusion of human genetics as an essential component of physical anthropology has witnessed tremendous growth even occupying place in health magazine about a disease cell or gene therapy to treat diseases. Whatever it may be, there would undoubtedly be some information related to the field of genetics. Patterns of inheritance of trait in humans have generated tremendous interest. The assessment of the distribution and the gene frequency of the traits form an important basis for evaluating the continuous process of human differentiation. The information on recurrence of a particular trait interests us a lot, like, what would be the stature of a child born to parents of average stature. The study of human genetics has facilitated for treatment and genetic counseling to prevent recurrence of Down's and other syndromes. Human population genetics using mating pattern as a method contributes in the evaluation of inflow and outflow

of genes which are responsible for evolution. Eugenics forms a fundamental part of physical anthropology responsible towards the improvement of populations.

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

Recent years have witnessed physical anthropology playing undeniable services in the field of dentistry, medicine and industrial research. This clearly is reflection of the basic fact that whenever human body in part or whole needs any explanation be it the form, functional or age changes, physical anthropology plays a vital role. The scope of physical anthropology in the field of forensic science is noteworthy. The various branches of physical anthropology which facilitates forensic scientist in arriving at conclusion are dermatoglyphics, osteology, osteometry, and serology; somatic and genetic characteristics contributing towards the determination of age and sex. Somatological knowledge plays an important role in interpreting the body types for different sports or even in relation to specific disease.

1.5 HISTORY

Early physical anthropologists pondered about the nature and geneses of human races. Variation in human phenotypes mesmerized them. Way back in the seventeenth century, it was widely accepted by the western scholars that humans belonged to a single species, all descendants of Noah and his family. When they came across so many different looking human beings, it struck upon them the diversity among mankind. This was obviously something they had not imagined. With the advent of 18th century, physical anthropology answered this curiosity with its emergence as the scientific study of race, a response to the presence of so many human types.

The founder of physical anthropology was the German physician Johann Friedrich Blumenbach (1752–1840) of Göttingen; he was also regarded as the inventor of craniology, build up enormous collection of human skulls, and thus had right to be an empirical power on the question of human diversity. According to him, mankind could be divided into five races: American, Caucasian, Ethiopian, Malayan and Mongolian.

The very first impression everyone had, was that all contemporary human races were monogenic, which meant that man's origin was from a single gene. James Cowles Prichard (1786-1848), was of the opinion that, as the descendants of Adam became lighter-skinned they attained higher intellects and civilization. With passage of time, all races would become similar to Western Europeans, the race that in his view had progressed farther or more rapidly. It was in late eighteenth and early nineteenth centuries, the proposal that races were polygenic, that is more than one gene, picked up momentum in the scientific circles of Europe especially France and America. The advocates of polygenism were of the view that the extent of human diversity found could not be attributed to the opponents of polygenism as the variation between the races was too much to be

just a resultant of environmental differences and too great for humanity to be attributed to a single species. Therefore, there must have been many species right from the beginning. This human variation which came into limelight was studied using anthropometric measurements (anthropometry) by a Philadelphia physician and advocate of polygenism, Samuel George Morton (1799-1844), in later nineteenth century.

Anthropological Society of Paris, first in the field of Anthropology, was founded in 1859 by a French surgeon, Paul Broca (1824-1880). He set up an anthropological laboratory the previous year, which subsequently became the Centre for a training program for anthropologists. Broca followed the tradition of Samuel Morton. Most of the activities of these early physical anthropologists could be categorized as racial craniology. Anthropometry took lead and spread from Broca's laboratory to other institutions. It became clearer why polygenism was preferred over monogenism. The polygenists were in a position to make their point more acceptable. Broca emphasised that it was incorrect to attribute the huge diversity in races due to degeneration and also argued that it would be degrading to believe the diversity of racial variation as degeneration from a single superior species.

Paul Broca along with other French physical anthropologists intensified their work on cranial anatomy and other small variations. While the German tradition, led by Rudolf Virchow (1821–1902) stressed on the fact that the variation observed in the human form is a result of environment and disease upon the human body, and the lack of fit among race, nation, and culture. The American tradition focused upon the “pacified” aboriginal (Indian) inhabitants of the North American continent, unearthing and gathering skeletons as scientific objects along with artifacts, languages, and culture.

It was Edward Tyson (1650-1708), a London physician and member of the Royal Society, who started the European primate studies and differentiated between the animal, humans, and monkeys by dissecting a chimpanzee. In fact lot of curiosity was generated among people in primate behaviour despite it most of the early scientific investigations were basically anatomical. Thomas Henry Huxley's in *Man's Place in Nature* (1863) endeavored to apply Darwinism to appreciate the origins of human. Thus Primatology focused on anatomy and look for primate evolution from paleontological record. It was Ernst Haeckel (1834-1919) in Germany who published an encyclopedia of primate anatomy and came up with first scientific phylogenetic trees. It was because of these efforts that made us understand what we are today, with anatomy remaining the focal point until after 1900.

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

It was prevalent in the United States after the Civil War (1861–65) that physical anthropology was a mystique medical speciality. But it was Franz Boas (1858–1942) in 1897, an architect of today's face of physical anthropology who used his expertise in measuring schoolchildren, and collecting Inuit skeletons. Boas also propagated changeability of the human form and minimize race in favor of studying culture.

Ales Hrdlicka (1869–1943), a physician, studied physical anthropology in France, whereas Hooton, a Classics Ph.D from the University of Wisconsin, then 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 under his umbrella: like Harry L. Shapiro and Carleton S. Coon whose input to the discipline is unmatched. As the leading US student of race in the 1930s, Earnest Hooton, a protagonist of race in 1930's, tried to differentiate "good" American physical anthropology from "bad" German physical anthropology. Unaware of the conflict of scientific interpretation, the priceless input towards the field of anthropology continued between Germans and Americans, by Eugen Fischer, Fritz Lenz and Erwin Baur.

Right in the middle of twentieth century in 1951, a Hooton alumnus, Sherwood Washburn rediscovered the field with newer focus in physical anthropology; racial typology studies took a backseat and centre was shifted to the study of human microevolution distancing from classification, emphasising evolutionary process and history. Washburn's anthropology ventured to paleoanthropology and primatology. As a result, current anthropology boasts of diverse methodology to get a more vivid picture of animal behaviour, human genetics and medical anatomy. It has taken several roads of development in recognising physical anthropology and giving it a very enviable position in scientific fraternity.

1.6 BRANCHES AND ITS DEVELOPMENT

The growth of physical anthropology has been unparallel. In its nascent stages, physical anthropology was synonym to taking measurements, compute indices and other statistics. Irrespective of the objectives of study, the methods of observation, measurement and comparison remained same. As a result, the approach at that time was stagnant with thrust on taxonomy. This was because the development of theory was not known at that time and so was genetics. Consequently for number of years, classical Physical Anthropology was considered nothing but anthropometry with assumption that with accurate metric values all the solutions would be there. Precisely for this, an agreement on the techniques of measurement became necessary and thus was attempted.

The significance of measurements and indices was certainly well understood in understanding the extent of variability and development in certain traits. Nevertheless, it does not reveal if all could be put in a single biological category on the basis of some traits. To get clarity on evolution, race and constitution, information on number of factors like cranial forms, pigmentation, somatic structures and growth process is essential, thereby requiring the reorientation of the methodology becoming vital. This necessitated the beginning of the analytical phase, thereby initiating a new outlook in Physical anthropology. The new physical anthropology aims to enhance the knowledge of past by the study of present.

Physical anthropology, often called biological anthropology, as has been mentioned earlier specialises in the physical development of the human body and the human species. Its area of function is large as it involves man. Physical Anthropology can be divided into several branches. Conventionally, physical anthropology meant races and anthropometry. But now with passage of time, many sub-branches have arisen due to vast work done in the quest to know about ourselves. This is a continuous process and new branches are evolving depending upon the nature of field area. Some of these include:

Human Growth and Development: This branch of physical anthropology concerns the process of growing to maturity. In biological terms, it involves growth from a one-cell-zygote to an adult human being. Human growth and development specialises in understanding the different stages of growth, patterns of growth and the effect of nutrition, environment and genetic factors influencing growth. The growth studies of different populations not only reflect variation amongst them but also indicate the growth rate of the nation. There has been tremendous progress in the field of human growth and development since the 1940s. The studies have enabled to establish the norms of bone development, sexual maturation so that congenital, nutritional, and other environmental effects can be detected and utilised clinically in children and adolescents. Another contribution of the field is that global nutritional surveys recognised small adult size to be correlated with dietary insufficiency. It is the endeavor of physical anthropologist to apply anthropometric techniques to the study of aging to have an insight into longevity of certain people.

Human Genetics: Human genetics involves the study of inheritance of genes-unit of hereditary, in human beings. It is the common factor of most human traits. It provides information to questions about human nature, understand the diseases and their effective treatment, and also understand genetics of human life. The information on what are the chances of acquiring a trait like blue eyes or cardiac ailment all can be gathered from human genetics. It incorporates a variety of overlapping fields including: classical genetics, cytogenetics, molecular genetics, biochemical genetics, genomics, population genetics, developmental genetics, clinical genetics, and genetic counseling. In fact the rechristening of physical anthropology to biological anthropology is primarily because of inclusion of human genetics so as to understand Human better.

Primatology: It is basically concerned with the study of primates. Anthropologists hope to gain more insight into human nature by studying primates like apes and monkeys. This branch of physical anthropology encompasses the study of the hominids, (general term used for humans and any member of the species of animal we are most closely evolved from), which include all ape-like ancestors of man and the other great apes. Modern primatology boasts of newer and an extremely diverse science, ranging from anatomical studies of primate ancestors and field studies of primates in their natural habitat, to get intrinsic information, to experiments in animal psychology and ape language. This parameter has generated tremendous information on basic human behaviours and their ancestry.

Human Evolution: This branch, as the name suggests, revolves around the origin and evolution of *Homo sapiens* as a distinct species. The word “human” in the framework of human evolution speak of the genus *Homo*. But then how did humans evolve. In order to understand human evolution we study hominids also

as the study of hominids holds importance. It is important to know other disciplines like primatology, archaeology, linguistics and genetics so as to have a better understanding of human evolution.

Palaeoanthropology: Palaeoanthropology is the study of fossil hominid evidences petrified bones and footprints, encompassing the discipline of paleontology. It also involves human osteology which provides historical support by studying the remains of the human evolutionary lineage. It is amongst the forerunners of the fundamental branches of physical anthropology. Paleoanthropology incorporates many disciplines to enrich our knowledge on human evolution as supported by fossils, artifacts, and their geological and burial sites. They accomplish the task by reconstructing from the fossils found in the excavation, the organism or the individual to whom they could probably have belonged. They must be in know how of human and other primate anatomy and the principles of taxonomy, so as to explain their discovery.

Human Osteology: The study of human bones is termed as Human Osteology. Evidences concerning osteology are frequently applied in forensic science. It holds important information in arenas like health, disease, physique, genetics of early populations, identification of unknown remains, criminal investigations, war crimes, etc.

Human Ecology: Ecology is a biological discipline that deals with the interactions between organisms and their environment. This environment is a sum total of the physical environment including temperature, water availability, wind, soil acidity and biological environment which holds influences on an organism. Human adaptation (physiologic, developmental, and genetic) to environmental stresses and variation is part of human ecology. Human being is the most versatile species on earth which can adapt in any environment, be it extreme climate, deserts, polar region, high altitude or even a marooned island. Human species are distributed world wide well adapted in diverse environment. The human group is an ever-increasing population which in return would involve more consumption of resources; therefore better adoption of the Earth's primary production is need of the hour. However, many other human ecological developments are probable in future. The growth of human population and how this growth is accommodated, the way they utilise these resources yet preserve the biodiversity is yet to be comprehended.

Nutritional Anthropology: This branch of physical anthropology enjoys wide horizons describing how particular social and cultural factor place people at risk for nutritional disorder or identifying health problems related to nutrition. Nutritional Anthropology is gaining importance mainly due to concern and consciousness of people towards health. Anthropologists have contributed to the specialised fields of nutrition at a more holistic perspective, based on the historical, direct observation, and documentary accounts. The significance of this field lies in assessing health status of any population.

Molecular Anthropology: Molecular anthropology is a comparatively newer branch of physical anthropology which deals with the molecular analysis. It makes easier to understand the evolutionary links between ancient and modern human populations, as well as between contemporary species. This enables to determine the closeness or distance in relationship between populations or within

populations. The findings of DNA study of primate phylogeny questions the views of the traditional anthropologist that humans are very different from all other animals. Certain similarities in genetic makeup let molecular anthropologists determine whether or not different groups of people share a common geographical origin. This paves way for anthropologists to trace patterns of migration and settlement, which gives an insight as to how contemporary populations have formed and progressed over time. Molecular anthropology plays a very important role in establishing the evolutionary tree of humans and other primates, including closely related species like chimpanzees and gorillas. This is of vital importance as it aids in searching for common ancestors and thus in understanding of human evolution. The coming up of molecular biology that tracked the cracking of the genetic code fascinated physical anthropologists, interested in knowing the proximity between the humans and the apes, and the relationships of other primates to one another and to other creatures. In fact it is claimed that “molecular clocks” have been unearthed to indicate when species diverged from one another.

Forensic Anthropology: This has been one of the most sought after branches of physical anthropology. The term “forensic” refers to the application of this subfield of science to a court of law. Forensic anthropology is the application of the science of physical anthropology and human osteology in a legal scenario; when in a criminal case, victim’s remains are unidentifiable or in the advanced stages of decomposition, forensic anthropology helps in identification of the individual. The techniques of Forensic anthropology helps to assist in the reconstruction of remains, assessment of age, sex, stature, ancestry, and analyse trauma and disease. Forensic anthropology is witnessing rapid growth and recognition, laurels of which goes to anthropologists whose expertise in criminal evidence (fingerprints, blood types, and skeletal remains) are sought. Forensic anthropologists utilise the proficiency of forensic pathologists, odontologists, and homicide investigators to identify a decedent, discover evidence of trauma, and determine the postmortem interval. Though their opinions are taken into consideration by the medical examiner, yet they do not enjoy the legal authority to declare the official cause of death.

Anthropological Genetics: Genetic methods are used to learn about human in the course of its deviation from apes, the magnitude and how hominid population in geographic area originated and the initial migrations of anatomically modern humans. The field of anthropological genetics encompasses patterns of genetic similarity among different human populations to deduce demographic history, including mating structure, the account of people moving from one place to another and mixing with surrounding groups, and population size fluctuations.

Genetic Anthropology: This is a very new branch of scientific study which deals with combining DNA data with available physical evidence and past histories of civilizations. This facilitates scientists to assemble through existing genetic information in elucidating how the modern day Homo sapiens evolved through the millennia.

Physiological Anthropology: The word physiology is from Greek: “physis” which means nature, origin and “logy” means, study. Human physiology is a scientific study of the mechanical, physical and biochemical functions of humans in good health, their organs, and the cells which constitute them. Physiological basis is at the level of organs and systems within systems. It is strongly connected

to anatomy since anatomy is the study of form, while physiology is the study of function of that form.

Dental Anthropology: This branch engages the scientific study of people including their living and extinct primate relatives, using the evidence of teeth. Practicing dentists, anatomists, radiologists, forensic scientists, biochemists and geneticists, archaeologists, paleontologists and zoologists apart from anthropologists are actively working in the field of Dental anthropology.

Anthropometry: Anthropometry as the name suggests consists of Greek word “anthropos” which means man, and “metry” meaning measure. This branch focuses on the understanding of human physical variation as in literal sense anthropometry refers to measurement of humans, and in physical anthropology, it means measuring of the human individual. Anthropometry plays an extensive role in industrial design, clothing design, defence equipments, ergonomics and architecture. To attain perfection in this endeavor statistical data on the variation in body dimensions in population are taken into consideration. These variations in body size can be attributed to changes in life styles, nutrition and ethnic composition of populations and therefore warranting regular updating of anthropometric data collection.

Ergonomics: Ergonomics is derived from two Greek words, “ergon” meaning work, and “nomoi” meaning natural laws, which means the science of work and a person’s relationship to that work. Ergonomics is fundamentally the study of designing equipment and devices that fit the human body, its movements, and how to carry about the work. Proper ergonomic design is necessary to avoid recurrent strain injuries, which can be hazardous later in life. Ergonomics takes into account designing the furniture and technological knowledge such that it appears to be perfect amalgam of the two. In accomplishing so, it takes into account the user’s competence and restrictions in seeking to make certain that tasks, equipment, information and the environment are appropriate to yield efficient results. Ergonomics comprises number of disciplines like anthropometry, biomechanics, mechanical engineering, industrial engineering, industrial designing, physiology and psychology.

Demography: Demography is the scientific study of uniqueness and movement relevant to the human population illustrated by size, growth rate, density, vital statistics, and distribution of a specified population. Demography gains its significance as it is this field that necessitates the study of precise information that may be collected from a population census or vital statistic records. People who study and record this information are referred to as demographers. Demographers must know both how to scientifically obtain information and then interpret it relatively. Demography is the basic statistics of human population which can be applied to any kind of human population which does not remain static, that is, one that changes over time or space in response to birth, migration, aging and death.

Human Diversity: It is concerned with study of human evolution and human biological variation. Human evolution involves the extensive work on the discovery, analysis, and description of fossilized human remains. This mainly aids to identify the differences between humans and their nonhuman ancestors and how did present man emerge. To achieve this, it involves the comparative

analysis of genetic codes. Studies on human variation among contemporary humans are not only dependent on the concept of race, but on principles of genetics also.

Palaeoprimateology: It is well understood that man is a primate evolved from non-human primates. The nonhuman primates are link to human physical history and status as mammals. They also show the continuity in the similarities to the behaviour and mental abilities of human ancestors as gauged by physical anthropologist. The palaeoprimateologists take the assistance of fossil specimens by collecting, describing and interpreting them phylogenetically and functionally.

Population Genetics: Population genetics concerns the genetic structure of populations, the frequencies of alleles (alternate form of a gene) and its genotypes (genetic constitution). An important branch of physical anthropology, it is related to the process of evolution witnessing natural selection, genetic drift, gene flow and mutation. It is the study of allele frequency distribution and change under the influence of the above mentioned evolutionary processes. Population genetics specialises in the genetic constitution and changes overtime in any population. It also encompasses the study of the forces like mutation, migration and intermixture between the groups which have the capability of altering the genetic composition of any population. This enables us to understand the steps towards biological evolution. It concerns the information of the frequencies of genes, genotypes and phenotypes, and the mating systems.

Human Variation: The term human variation is gaining popularity over its historical predecessor “race” in anthropology because of the exploitation of the term. It is suggested to use gene frequencies and biological traits of human populations by their geographic area. This genotypic and phenotypic detail would be understood in terms of historical and closest selective forces in each environment. Its main thrust is focused in an endeavor to interpret given so much of human diversity, a consequence of evolution through a long passage of time and all around the globe.

1.7 SUMMARY

After going through this unit, you must have understood that various definitions of physical anthropology have been given depending upon the focus at that time. It is rather difficult to give precise definition to physical anthropology as it embraces interdisciplinary approach. The mechanisms of biological evolution, genetic inheritance, human adaptability and variation, primatology and the fossil record of human evolution constitute Physical Anthropology reflecting an important scenario in today’s increasingly specialised world of science. It aims for the physical anthropologists to explore human genetics, growth and development and evolutionary history in an attempt to accurately describe human physical structure both in the present and in the past and also investigate how function and behaviour are integrated into the environment in which human beings live. The scope of this discipline is manifold making it indispensable. We realised that the understanding and assessment of the degree of human variability along with the accounting of factors responsible for our current distribution has been of vital concern. Genetics and anthropometry have been used in estimating the detailed cause of individual variation and diversification of the varieties of man. Human variation, a specialised branch of physical anthropology, currently carries

out studies to facilitate in the understanding of reliable history of the origin and evolution of mankind and its varieties; and attempts to evaluate the reasons of human variation. There are different branches of physical anthropology, each maintaining its thrust area and identity.

It is believed that by now you must have realised how fascinating is the field of physical anthropology. It has witnessed a long painstaking journey in its quest to never-ending desire to know about human. Continuously, physical anthropologists are meticulously working to unearth the mysteries of human beings. It is not that they are working in isolation but amazingly involves varied fields resulting in newer concepts and better understanding which you will encounter in the next unit.

Suggested Reading

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Sample Questions

- 1) What is physical anthropology and what are its aims and scope?
- 2) Briefly give the history of physical anthropology.
- 3) What are the different branches in physical anthropology? Give a brief outline of each branch.