VIVEKANANDA COLLEGE
THAKURPUKUR
KOLKATA-700063

NAAC ACCREDITED 'A' GRADE

Topic: Concept of Race

Course Title: Human Geography

Paper: 3

Unit: I

Semester: 2

Name of the Teacher: Alolika Mangal

Name of the Department: Geography

UNIT 1 CONCEPT OF RACE

Contents

Learning Objectives

Once you have read this unit, you will be able to understand the:

- concept of race;
- early racial classifications;
- typological approach and genetic classification of races;
- contemporary thought on races;
- concept of cline; and
- causes of biological diversity.

1.1 INTRODUCTION

Human geographical variability is manifest on a continental basis with usual division of our species into races or ethnic groups. For instance, we rely on the simple visual appraisal to determine the distinctions between various groups; especially differences existing in the colour of the skin. People range in pigmentation from a very pale colour as in the North Europe to extremely dark brown as in the African Congo or New Guinea. Human stature also ranges widely from the four-and-a-half foot Pygmies in West Central Africa and Oceania, to the six-and-a-half-foot Nilotic peoples of East Africa. Hair form, another trait that attracts a great deal of attention, varies from straight and long as in the Japanese to short and spiral shaped as in the Africans. Further, the size and form of the human face differs considerably throughout the world, and the proportions of the lower limbs and the trunk vary over a broad range. Many more subtle differences between human populations, such as those in the frequencies of different blood groups, types of blood enzyme and protein polymorphisms and DNA markers also exist, although they require special techniques to be determined.

1.2 DEFINITION OF RACE

Hooton (1926) defined race as a great division of mankind, the members of which, though individually varying, are characterised as a group with a certain combination of morphological and metrical features, primarily non-adaptive, which have been derived from their common decent. Montagu (1942) defined race or an ethnic group as representing number of populations under species *Homo sapiens*, which individually maintain their differences, physical and cultural, by means of isolating mechanisms such as geographic and social barriers.

As early as 1944, Dobzhansky provided a genetic definition of human race. According to him "Races are defined as populations differing in the incidence of certain genes, capable of exchanging genes across boundaries that separate them". Later he gave a somewhat different definition i.e. "Races are genetically distinct Mendelian populations. They are neither individuals nor particular genotypes who differ genetically among themselves" (Dobzhansky, 1970). In his opinion the traditional morphological races of the anthropologists were interference of genetic races.

Boyd (1950) defined human race as a population which differs significantly from other human populations with regard to the frequency of one or more genes it possesses. According to Garn (1960) "Race is a breeding population, partially isolated reproductively from other breeding populations, arising commonly but not exclusively from geographic isolation." Hulse (1963) stated "Races are populations which can be readily distinguished from one another on genetic grounds alone".

In his famous book *Origins of Man,* Buettner-Janusch (1969) defined race as "Mendelian population separated from another by major geographical barriers; breeding isolate; a population distinguished from another by demonstration of differences in allele frequencies." According to Mayr (1969) race is "An aggregate of phenotypically similar populations of a species, inhabiting a geographic subdivision and differing taxonomically from other populations." Templeton (1998) stated "A subspecies (race) is a distinct evolutionary lineage within a species that genetically differentiated due to barriers from genetic exchange that have persisted for long periods i.e. the subspecies must have historical continuity in addition to current genetic differentiation."

> Diverse as they are, these definitions emphasise, first, an assumption of the role of geographic isolation in race formation. Second, most agree on the importance of breeding population in forming a collection of genes that sets a race apart.

1.3 EARLY RACIAL CLASSIFICATIONS

Initially the scientists were primarily concerned with ordering, naming, and classifying the diversity of life found on the earth. Classifications simplify and bring order to the complexity in the natural world, making it easier to understand and study variation. As the Europeans began exploring the world, naturalists and other writers published descriptions of the people, who looked and acted differently. The first published classification of humans into distinct races seems

to be by François Bernier's (1684), who divided people into various types, namely, the Europeans, Africans (Negroes or blacks), Asians (Far Easterners) and Lapps.

Western Scholars viewed humans as "natural beings." Carl Linnaeus, the great classifier, placed human beings at the top of the chain of nature in a classification along with the primates. He not only classified all living things but also attempted to classify the varieties or subspecies of humans. Linnaeus (1735) separated humans into four basic "varieties" on the basis of geography, colour, humour, posture, and customs. These were termed as the American, European, Asian and African (Table 1.1).

Measuring of skulls and the racial classifications

Blumenbach, the father of physical anthropology and the founder of racial classifications, had an extensive collection of human skulls. This enabled him to empirically investigate differences rather than merely speculate about varieties based on the second-hand observations and European traveller's accounts. He assumed that *Homo sapiens* had been created in one place and then spread across the world, and climate, environment, different modes of life, and the transmission of acquired characteristics shaped these peoples into different races. He divided humans into five varieties based on skull shape, preferably as seen from above, namely the Caucasian, Mongolian, Ethiopian, American and Malay (Polynesian, Melanesian, and aborigines of Australia). Blumenbach coined the term "Caucasian", derived from the mountain range between Russia and Georgia and for him the ideal skull type was the Caucasian, with degeneration in other skull types. His 1795 classification was similar to that of his teacher Linnaeus (Table 1.1).

Table 1.1: Comparison of early classifications of man

Linnaeus (1735)	Blumenbach (1795)
American	Caucasian
European	Mongolian
Asian	Ethiopian
African	American
	Malay (Polynesian, Melanesian, and aborigines of Australia)

During the 19th century, the scientists were measuring human bodies and focusing on cranial morphology. Retzius (1842) popularized a measurement called the cranial index (C.I.) defined as the maximum breadth of the skull (B) divided by the maximum length of the skull (L) multiplied by 100 (C.I. = B/L multiplied by 100). The values obtained were grouped under following categories.

a) Dolichocephalic (Long and narrow heads) – C.I. 74.9 or less

b) Mesocephalic (Medium heads) – C.I. 75-79.9

c) Brachycephalic (Short, broad, or round heads) – C.I. 80 or more

So, by comparing cranial index, the anthropologists could objectively study human variation and delineate different groups. Face angle also became an important measurement, with prognathic (jutting out) face being much worse and primitive than orthognathic (less jutting forward or straight) face.

1.4 TYPOLOGICAL APPROACH

The emphasis on cranial morphology, anthropometrics and anatomy during the late 19th century encouraged the continued use of the typological approach in anthropology during the 20thcentury. New methods of quantitative analysis were developed, but the typological paradigm continued, changing little in the way the anthropologists studied human variation and classified races. The metrical and morphological traits used in the analyses and classifications were thought to be stable and environmentally non-adaptive. The traits and classifications were also indistinguishable in many aspects from popular racial stereotypes. Using morphological data, Coon et al. (1950) distinguished six groups of mankind namely the Negroid, Mongoloid, White, Australoid, American Indian and Polynesian which were further grouped into thirty races (Table 1.2).

Table 1.2: Racial classification of Coon et al. (1950)

Murraylan	Hindu
Ainu	Mediterranean
Alpine	Nordic
Northwest European	North American Coloured
Northeast European	South African Coloured
Lapp	Classic Mongoloid
Forest Negro	North Chinese
Melanesian	Southeast Asiatic
Negrito	Tibeto-Indonesian Mongoloid
Bushman	Turkic
Bantu	American Indian Marginal
Sudanese	American Indian Central
Carpentarian	Ladino
Dravidian	Polynesian
Hamite	Neo-Hawaiian

In his magnum opus *The Origin of Races* published in 1962, Coon's main hypothesis was that modern humans (*Homo sapiens*) arose through five separate lines from *Homo erectus*, into the Caucasoid, Mongoloid, Australoid, Congoid and Capoid. He attempted to use Darwin's theory of natural selection to explain the differing physical characteristics of various racial groups. Coon argued that, in their evolutionary development, different races reached the stage of *Homo sapiens* at different times, which explains why races achieved different levels of civilization. Coon's work was extremely controversial; his explanation of multilinear racial development and his emphasis on the white race led many commentators to criticize him for "scientific racism" common to the early 20th century anthropologists. Contemporary researchers such as Sherwood Washburn and Ashley Montagu were influenced by the modern synthesis in biology and population genetics and for them the human species was a continuous "serial" progression of populations, rather than the five "parallel" genetically distinct races in Coon's account.

Garn (1961) proposed that there were three levels of racial groups – geographical races, local races and micro races. Former are major continental units and island chains such as Amerindian, Polynesian, Micronesian, Malenesian-Papuan, Australian, Asiatic, Indian, European and African. Local races were subdivisions within continents e.g., North-Western European, Bantu, and Iranian etc., while micro races could be equated with breeding units. He suggested that "if the local race is equated with the Mendelian population, then the number of local and micro-geographical races is upwards of thirty" (Table 1.3). This type of classification system used the older typological system based on geography and morphology combined with the concept of breeding populations. In a sense, Garn attempted to add a dynamic, evolutionary dimension to the traditional typological classification systems but, in the end, produced a traditional racial classification.

In the 19th century, a number of natural scientists and anthropologists opined that races are objective, naturally occurring divisions of humanity, with a strong relationship between biological races and human social behaviour and culture. Races were distinguished by skin colour, facial type, cranial profile, stature, and texture and colour of hair that were considered to reflect group differences in moral character and intelligence. Their understanding of race was both essentialist and taxonomic. Advent of the Darwinian model of evolution and Mendelian genetics in the beginning of the 20th century, questioned the scientific validity of characteristics used as racial criteria and necessitated a radical reconsideration of the concept of race.

Table 1.3: Racial classification by Garn (1961)

Geographical races	Local races	
Amerindian	Northwest European	North American
Polynesian	Northeast European	Central American
Micronesian	Alpine	South American
Melanesian-Papuan	Mediterranean	Fuegian
Australian	Iranian	Lapp
Asiatic	East African	Pacific Negrito
Indian	Sudanese	African Pygmy
European	Forest Negro	Eskimo
African	Bantu	Ainu
	Turkic	Murrayian Australian
	Tibetan	Carpenterian Australian
	North Chinese	Bushman and Hottentot
	Extreme Mongoloid	North American Coloured
	Southeast Asiatic	South African Coloured
	Hindu	Ladino
	Dravidian	Neo-Hawaiian

1.5 GENETIC CLASSIFICATION OF RACES

There was little recognition of 'Mendelian genetics' and 'Landsteiner's ABO blood groups' until Hirschfeld and Hirschfeld (1919) at the end of the First World War carried out serological tests on large number of soldiers of different nationalities. They suggested that blood groups could be used to delineate biochemical races and identified three major racial types – the European, Intermediate and Asio-African. The article then attempted to trace the origin of the *A* and *B* alleles in all races based on two different hypotheses – first, that *A* and *B* were in the same proportion in all races when humans appeared on the earth, and second that these alleles had different origins in different races. They opined that the latter hypothesis was correct and that India was the cradle for B blood group. The origin of A could not be located, but they assumed that it arose in North or Central Europe and then spread out from there to the rest of the world.

Using ABO blood group data and the racial index of Hirschfeld and Hirschfeld (1919), Ottenberg (1925) suggested that there were six main types (races) of humans (Table 1.4). These types only partially corresponded to the racial groupings based on other characteristics. Snyder (1926), using similarity in the frequencies of the ABO blood groups, came up with the seven-fold racial classification that was very similar to that of Ottenberg (Table 1.4). He advocated the use of blood group data as additional criteria for racial classifications, citing advantages such as their stability under varying environments and simple inheritance.

Table 1.4: Racial classifications based on early genetic data

Ottenberg (1925)	**Snyder (1926)**
European	European
Intermediate	Intermediate
Hunan	Hunan
Indomanchurian	Indomanchurian
African-South Asiatic	Africo-Malaysian
Pacific American	Pacific-American
	Australian

Boyd (1950) argued unacceptability of skeletal analysis in racial classifications as skeletal morphology is difficult to determine in the living people. The skeleton adapts quickly to environmental conditions, skeletal characteristics are controlled by the action of many genes. According to him, the genetic classification of races is scientifically accurate than older classifications; the differences we find between races are inherited in a known manner, not influenced by environment and there is no discrimination against any subject. Boyd used "non-adaptive" traits in the blood such as ABO, Rh and MN blood groups, PTC tasting ability, ABH secretor system and other "non-adaptive" morphological traits to "tentatively" classify humans into six races (Table 1.5). Although Boyd's analysis initiated a change in many of the methods of racial analysis, the major issue remained virtually unchanged and the analyses remained typologically oriented by expanding and updating his classification to thirteen races later (Boyd, 1958) (Table 1.5).

Stewart (1951a, b) noted that the classifications of serologists were not surprisingly different from those of anthropologists using traditional methods. He suggested that the serologists used existing morphological classifications to draw their subjects. Hence, they chose individuals who were phenotypically Asiatic, Indian, White or African etc. Later they analysed the data within this framework by manipulating the gene (allele) frequencies and obtaining a classification similar to the morphological one. Strandskov and Washburn (1951) advocated that genetics and anatomy should be used together in racial classifications.

Table 1.5: Boyd's classifications of races

Boyd (1950)	Boyd (1958)
Early European (hypothetical)	Early European
European (Caucasoid)	Lapp
African (Negroid)	North West European
Asiatic (Mongoloid)	Eastern Central European
American Indian	Mediterranean
Australoid	African
	Asian
	Indo-Dravidian
	American Indian
	Indonesian
	Melanesian
	Polynesian
	Australian (aboriginal)

1.6 MODERN THOUGHT ON RACES – THE ETHNIC GROUPS

In the first half of the 20th century while racial classifications continued to be generated, a few anthropologists such as Ashley Montagu and biologists such as Julian Huxley opined that it was difficult to use zoological nomenclature for classifying humans into groups. They argued that the classification of humans into races was simply not a productive endeavour to examine human variation. Montagu (1942 a, b) was probably the most vocal opponent of the use of the term race to classify humans. Following Huxley (1865), Deniker (1900), and Huxley and Huddon (1936), Montagu (1942a) adopted the term "ethnic group" as a replacement for "race", maintaining that the latter term had lost its usefulness for describing human variability. Subsequently, on July 18, 1950, following World War II, UNESCO issued a statement which included both a scientific opposition to race theories and a moral condemnation of racism and thus suggested to replace the term 'race' as 'ethnic group'.

Montagu (1942a) noted that there were no clear boundaries in the continuous stream of human variation and argued that anthropologists should consider Darwinian natural selection to understand the relationships among human groups

and develop a dynamic "genetical theory of race" using concepts such as exogamy, endogamy, hybridization, mutation, selection, isolation and random genetic drift. He stated that race is merely an expression of the process of genetic change within a definite ecologic area with the goal to discover what factors produce the variation and change gene frequencies.

Washburn (1951) suggested that the physical anthropologists should change their perspective, goals and approaches. The anthropology of the past was one of the techniques of taking careful measurements, computing indices and defining type specimens for static classifications. The new physical anthropology focuses on the mechanisms of evolutionary change and adopts a dynamic perspective. Earlier ways of description and speculative methods were replaced with an emphasis on problems and tests. Washburn's concept of a "new physical anthropology" was controversial but reflected the changing scientific paradigm in anthropology i.e. the shift that was occurring in racial studies and the study of human variation.

At the same time, some anthropologists were proposing that the population (breeding unit) should be the basic unit of study of human diversity and adaptation subjected to specific environmental constraints and responded through the evolutionary mechanisms of mutation, gene flow, genetic drift and natural selection. As these populations adapted to these particular environments, they came to manifest traits (measured by allele frequency differences) that were unique. Thus, races could be viewed as episodes in the evolutionary process (Hulse, 1962) and were not static, fixed entities but dynamic units that constantly changed. One could also study the relationship between cultural and biological diversity and this, as Thieme (1952) states, is the anthropological perspective of combining cultural and physical anthropology.

1.7 THE NON-EXISTENCE OF THE RACES – THE CLINES

Livingstone (1962) in his article "On the non-existence of human races" pointed out that the static typological notion of races was simply not compatible with the dynamic concept of natural selection. He did not deny the differences among populations but argued that these differences did not match races. As an alternative to this static approach, he suggested that research should focus on geographical variation of single traits, or what was called "clinal variation." In other words, "there are no races, there were only clines". If the goal of anthropological research was to explain the genetic variation among populations, then the racial approach was simply not adequate.

Montagu (1962) insisted that race was an ambiguous, overused and very loaded term that should be dropped from the scientific literature since it continued to mix biology, culture, intelligence, personality and nations together. Like Livingstone, Montagu did not deny that there were differences between peoples. However, he argued that one should study a population's diversity, observe variation, and then compare it to other populations. Brace (1964) advocated for the study of individual traits, stating that races, and even populations, were not adequate for study of human diversity. The distribution of individual traits and the selective pressures modifying them should be focused. Thus, clines replaced races as the units of study for many anthropologists during the 1960s and 1970s.

1.8 CAUSES OF BIOLOGICAL DIVERSITY

Race is a biological consequence and as such explains practically nothing. The collective unit of evolution is the population where all the forces of biological diversity such as mutation, natural selection, genetic drift and hybridization operate. The process of evolution may be very slow but to a large extent depends on mutations where new genes are introduced into human populations. The evolutionary forces of mutation and selection go hand-in-hand, and the chances of survival of new mutant gene in the population will depend upon the kind of selective advantage it confers on its fertility rate. In spite of the elimination of a large number of mutant alleles, a considerable number are "selected for" by natural selection and overtime become established in a population with an appreciable frequency (= 1%), leading to the condition of genetic polymorphism.

In addition to mutation and selection, a force that substantially contributes to biological diversity in a population is genetic drift (or simply drift), a statistical process of pure chance devoid of any biological consideration. In a large population, changes in allele frequencies due to drift (sampling error) in gamete transmission are small from one generation to another, but the cumulative effect over many generations may be substantial. In the case of human populations derived from a small number of individuals the drift may be extreme, resulting in the phenomenon known as the "founder effect". Because of sampling errors, the allele frequencies at various loci are likely to differ in the founders from those in the population from which they are derived. Thus, for example, if one of the founders of a new colony happened to carry an allele with very low frequency in the parental population, the subsequent expansion of the colony will result in a disproportionately high frequency for that allele in the new population. Indeed, there are instances in human history where such extreme cases of genetic drift have occurred (Roberts, 1968).

A similar drift phenomenon, but without migration, occurs when a population goes through "bottleneck". Epidemics, wars, natural calamities, and unfavourable climatic, nutritional and morbidity conditions may cause a population to be drastically reduced in number. The survivors reconstitute a new population, but random effects might have considerably altered its allelic frequency during the "bottleneck" and in the successive generations also. The possibility cannot be ruled out as some of the allelic differences seen among the contemporary ethnic groups of human populations are the result of such "founder effects" and "bottlenecks" from time to time.

The present distributions of racial variations in man can be explained through hybridization, a process by which genes from one population may be brought into another population, thereby changing the frequency of alleles in the hybrid population. Hybridization is expressed as an admixture of genes from two parent populations in a descendent hybrid population. Two comparatively recent and most important human examples of hybrid (mixed) populations are the 'mulatto' (a Negro x White cross) mainly in South Africa and North America and 'mestizo' (an American Indian x White cross) mainly in South America.

1.9 SUMMARY

Although it is not easy to divide the world population into clear-cut categories such as races as the dividing lines between them are arbitrary, many anthropologists now consider race to be more a social or mental construct than an objective biological fact. Nonetheless, the European scientists and physical anthropologists of the 17th and 18th centuries proposed various systems of racial classifications based on observable traits such as skin colour, hair colour/type, body proportions, and skull measurements, essentially codifying the perceived differences among broad geographic populations of humans. The traditional terms for these populations – the Caucasoid, Mongoloid and Negroid - are now controversial in both technical and non-technical usage. Presently, the biological aspect of race is described not by observing physical features but rather from characteristics such as blood groups and other genetic polymorphisms.

Because of the nature of geographical variation in man it has been stated that there are no races but only clines. However, a well regarded definition of race is "population differing in gene frequency" and clearly such populations exist. Indeed, on such a definition practically every human breeding population is a race (Harrison et al., 1990). The issue is whether taxonomic grouping within the *Homo sapiens* is meaningful and helpful or whether human groupings of any kind above the breeding population are arbitrary, if not artificial.

At the turn of the 21st century, the scientists at the National Institute of Health, U.S.A. had announced that they had put together a draft of the entire sequence of the human genome, and the researchers had unanimously declared there is only one race - the human race (Angier, 2000). In fact, there is no "human race" - only the "human species" (*Homo sapiens*); all human beings belong to a single species because they can interbreed and produce fertile offspring.

References

Angier, N. 2000. *Do Races Differ? Not Really, DNA Shows.* New York Times, August 22.

Boyd, W. C. 1950. *Genetics and the Races of Man: An Introduction to Modern Physical Anthropology*. Boston: D C Heath and Company.

Boyd, W. C. 1958. *Genetics and the Races of Man*. Boston: Boston University Press.

Brace, C. L. 1964. *On the Race Concept.* Current Anthropology 5: 313-320.

Broberg, G. 1983. *Homo sapiens* - Linnaeus's Classification of Man. In: *Linnaeus: The Man and His Work*, edited by Frängsmyr T. Berkeley: University of California Press. pp. 156-194.

Buettner-Janusch, J. 1969. *Origins of Man*. New Delhi: Wiley Eastern Private Limited.

Coon, C. S. 1962. *The Origin of Races*. New York: Alfred A Knopf.

Coon, C., Garn, S. and Birdsell, J. 1950. *Races: A Study of the Problems of Race Formation in Man*. Springfield: Charles C Thomas.

Deniker, J. 1900. The Races of Man. Reprinted in Count E W (1950) *This Is Race: An Anthology Selected from the International Literature on the Races of Man*. New York: Henry Schuman, pp. 207-221.

Dobzhansky, T. 1944. *On species and Races of Living and Fossil Man.* American Journal of Physical Anthropology n.s. 2: 251-265.

Dobzhansky, T. 1970. *Genetics of the Evolutionary Process*. New York: Columbia University Press.

Garn, S. M. Ed. 1960. *Readings on Race*. Springfield Illinois: Charles C Thomas.

Garn, S. M. 1961. *Human Races*. Springfield Illinois: Charles C Thomas.

Garn, S. M. and Coon, C. S. 1955. *On the Number of Races of Mankind.* American Anthropologist 57: 996-1001.

Harrison, G. A., Tanner, J. M., Pilbeam, D. R. and Baker, P. T. 1990. *Human Biology. An Introduction to Human Evolution, Variation, Growth and Adaptability.* 3rd Edition. Oxford: English Language Book Society/Oxford University Press.

Hirschfeld, L. and Hirschfeld, H. 1919. *Serological Differences Between the Blood of Different Races: The Result of Researches on the Macedonian front.* Lancet 197: 675-679.

Hooton, E. A. 1926. *Methods of Racial Analysis.* Science 63: 75-81.

Hulse, F.S. 1962. *Race As An Evolutionary Episode.* American Anthropologist 64: 929-945.

Hulse, F. S. 1963. *The Human Species*. New York, Random House.

Huxley, T. H. 1865. On the methods and results of ethnology. In: *Man's Place in Nature and Other Anthropological Essays.* London: Macmillan.

Huxley, J. S. and Haddon, A. C. 1936. *We Europeans*. New York: Harper.

Livingstone, F. B. 1962. *On the non-Existence of Human Race*. Current Anthropology 3: 279-281.

Mayr, E. 1969. The Biological Meaning of Species. *Biological Journal of the Linnaean Society* 1(3): 311-320.

Montagu, A. 1942a. *The Genetical Theory of Race, and Anthropological Method.* American Anthropologist 44: 369-375.

Montagu, A. 1942b. *Man's Most Dangerous Myth: The Fallacy of Race*. New York: Columbia University Press.

Montagu, A. 1945. *On the Phrase "Ethnic Group" in Anthropology.* Psychiatry 8: 27-33.

Montagu, A. 1950. *On Being Human*. New York: Henry Schuman.

Montagu, A. 1962. *The Concept of Race*. American Anthropologist 64: 919-928.

Ottenberg, R. 1925. *A Classification of Human Races Based on Geographic Distribution of the Blood Groups.* Journal of the American Medical Association 84: 1393-95.

Retzius, A. 1842. *Om Formen of Nordboarnes Cranier*. Stockholm: Fork. Skand. Naturf. tretje, Moll.

Roberts, D. F. 1968. *Genetic Effects of Population Size Reduction.* Nature (London) 220: 1084-1088.

Slotkin, J. S 1965. *Readings in Early Anthropology*. Chicago: Aldine.

Snyder, L. H. 1926. *Human Blood Groups: Their Inheritance and Racial Significance.* American Journal of Physical Anthropology 9: 233-263.

Stewart, T. D. 1951a. *Scientific Responsibility [editorial].* American Journal of Physical Anthropology 9: 1-3.

Stewart,T. D. 1951b. *Objectivity in Race Classifications.* American Journal of Physical Anthropology 9: 470-472.

Strandskov, H. H. and Washburn, S. L. 1951. *Genetics and Physical Anthropology [editorial]*. American Journal of Physical Anthropology 9: 261-263.

Templeton, A. R. 1998. *Human Races: A Genetic and Evolutionary Perspective*. American Anthropologist 100: 632-650.

Thieme, F. P. 1952. The *Population as a Unit of Study.* American Anthropologist 54: 504-509.

UNESCO. 1956. *The Race Question in Modern Science*. New York: UNESCO.

Washburn, S. 1951. *The New Physical Anthropology.* Transactions New York Academy of Sciences, series 2, 13: 298-304.

www.newworldencyclopedia.org

Suggested Reading

Boyd, W. C. 1958. *Genetics and the Races of Man*. Boston;Boston University Press.

Buettner-Janusch, J. 1969. *Origins of Man*. New Delhi; Wiley Eastern Private Limited.

Coon, C. S. 1962. *The Origin of Races*. New York; Alfred A Knopf.

Garn, S. M. 1961. *Human Races*. Springfield Illinois; Charles C Thomas.

Montagu, A. 1942. *Man's Most Dangerous Myth: The Fallacy of Race*. New York;Columbia University Press.

Sample Questions

1) Discuss early attempts to classify humans into races.
2) Describe genetic classifications of human races.
3) Give an account of various causes of biological diversity in man.
4) Write an essay on non-existence of the human races.
5) Write short notes on the following.
    a) Ethnic groups
    b) Clines
    c) Modern thought on race