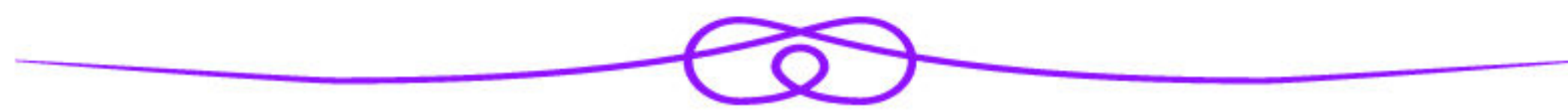


www.edenias.com

EDEN IAS

ANTHROPOLOGY

Concept Series



by

PRIYA KANDOLA

(Follow the series of articles on EDEN IAS WEBSITE UPDATES)

9311092321 | 9354344200 | 9315227819

01_EVOLUTION

WHAT IS EVOLUTION?

Evolution is a phenomenon by which **species gradually change over generations by way of natural selection**. For example, the evolution of modern humans (*Homo Sapiens*) from apes. This happens by genetic variations which even changes the appearance (phenotype) of the species. Individuals possessing characteristics which are more conducive to the environment survive for longer years and hence carry forward their genes to the next generation. Those individuals who are poorly adapted to their environment have lesser chances of survival & hence it is less likely that their genes would be transferred to the next generation. Scientific evidence shows that the physical and behavioral traits shared by all people originated from apelike ancestors and evolved over a period of approximately six million years.



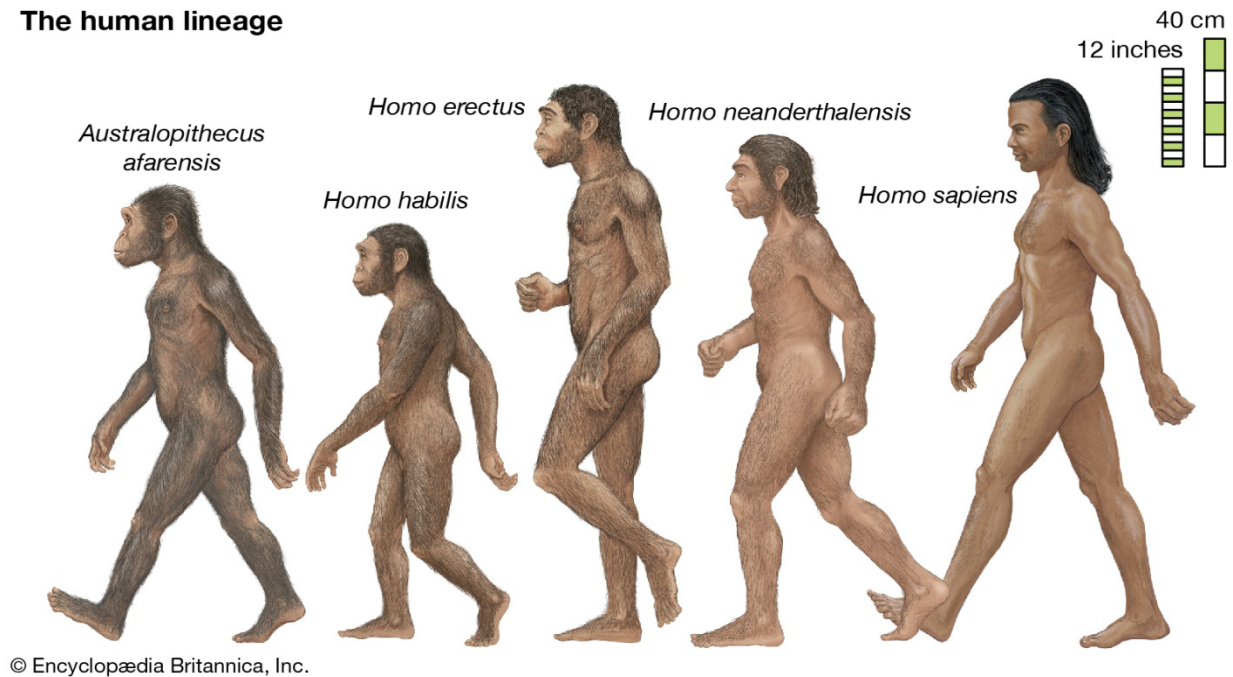
Scientists have found out many physical & genetic similarities between the primates & humans. Human beings, more specifically, are very similar to apes. Humans & the great Apes of Africa share a common ancestor which existed about 8 to 6 million years ago. **Evolution is believed to have first happened in Africa** because all the fossils of early humans have been discovered there. About 15 to 20 species of early humans have been discovered by the scientists. Early humans first migrated out of Africa into Asia probably between 2 million and 1.8 million years ago. They entered Europe somewhat later, between 1.5 million and 1 million years. People first came to Australia probably within the past 60,000 years and to the Americas within the past 30,000 years or so. The beginnings of agriculture and the rise of the first civilizations occurred within the past 12,000 years.



For example, the **longevity of the dark colored moths increased after the onset of Industrial Revolution in Britain**. The Industrial Revolution had resulted in a rise in pollution levels due to which the leaves of the trees in the vicinity also turned to blackish texture. Since the color of the dark colored moths blended with that of the color of the leaf, the dark colored moth was less susceptible to an attack by predators. Subsequently, light colored moths were an easy target for the predators & their populations dwindled. This change in the environment resulted in darker moths being more common than the lighter moths. This is called as the theory of natural selection. Nature favours those genes which are the best (**Survival of the fittest**).

One of the earliest known humans is *Homo habilis*, or “handy man,” who lived about 2.4 million to 1.4 million years ago in Eastern and Southern Africa. Others include *Homo rudolfensis*, who lived in Eastern Africa about 1.9 million to 1.8 million years ago (its name comes from its discovery in East Rudolph, Kenya); and *Homo erectus*, the “upright man” who ranged from Southern Africa all the way to modern-day China and Indonesia from about 1.89 million to 110,000 years ago.

The human lineage

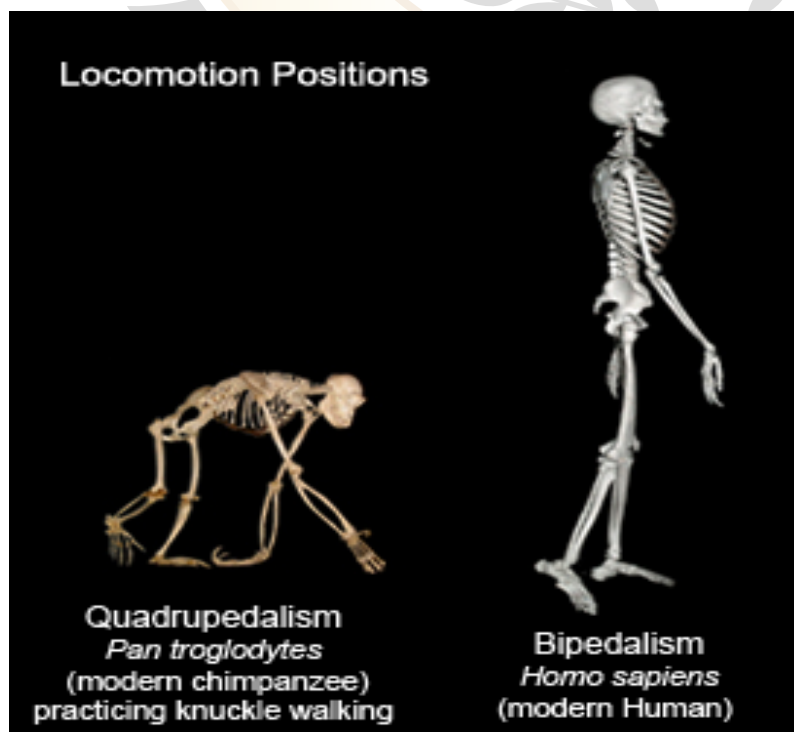


© Encyclopædia Britannica, Inc.

Scientists have also found a “**superarchaic**” group of humans that separated from other humans in Africa around 2 million years ago & mated with the ancestors of Neanderthals & Denisovians. The “archaic” group of humans includes the **Neanderthals & Denisovians** who are known to have been mating with each other & also with modern humans. One of the earliest defining human traits, **bipedalism**, the ability to walk on two legs evolved over 4 million years ago. Other important human characteristics such as a large and complex brain, the ability to

make and use tools, and the capacity for language developed more recently. Many advanced traits including complex symbolic expression, art, and elaborate cultural diversity emerged mainly during the past 100,000 years.

That’s why; human evolution is called as a “braided stream” rather than a classical lineage.



02_KINSHIP, MARRIAGE & FAMILY

"To live and to cause to live, to eat food and beget children, these were the primary wants of men in the past, and this will be the primary wants of men in the future as long as the world lasts." All animals mate, but only human beings marry. Thus marriage is a feature only of human societies, and every society makes some regulations and provisions for this relationship between the sexes. In the early years, anthropologists were of the opinion that human beings lived in a state of promiscuity where individual marriage did not exist. In such a society all the men had access to all the women and the children thus, born were the responsibility of the society at large. This slowly gave rise to **group marriages** to bring regulation and general order in the society where either many men were married to several women or several men were married to a single woman and vice-versa.

However, later on monogamy marriages were introduced to restore harmony in the society. **George Peter Murdock** (1949) has defined marriage as a universal institution that involves residential co-habitation, economic co-operation and the formation of the nuclear family. **Westermarck** had emphasized on marriage as a recognized union between a man and a woman, that the spouses live together and that the couple have clearly recognized mutual sexual rights. **Kathleen Gough** (1959) in her study of the Nayers has defined marriage as a 'relationship established between a woman and one or more other persons, which provides that a child born to the woman under circumstances not prohibited by the rules of the relationship, is accorded full birth-status rights common to normal members of his society or social stratum'. This definition took into account **polyandry** which was not covered by the earlier anthropologists. **William N. Stephens** defined marriage as 'a socially legitimate sexual union, begun with public pronouncement undertaken with the idea of permanence, assumed with more or less explicit marriage contract which spells out reciprocal economic obligations between spouses, and their future children'.



Prescribed & Preferential Marriages

All societies have certain rules & regulations with respect to marriages. While selecting one's mate one has to follow certain rules and choose the bride/groom within these norms. A man/woman might be prohibited from acquiring a mate who does not fall under the suitable category as for example in the *Hindu society a woman belonging to a higher caste cannot marry a man belonging to a caste lower than her.* Such rules when strictly followed even though when very few members of the suitable category are available is termed as prescribed norms. The rules which are preferred but not strictly followed are known as preferential norms. **Cross cousin marriage** in many societies is seen as a preferential norm. Incest taboo is a universal norm for almost all societies, which pertains to restrictions in marriage and sexual relations among certain categories of close relatives generally related by blood like father and daughter, mother and son and sometimes also parallel cousins.

Endogamy refers to marriage within a group, while **exogamy** means marriage outside the group. Endogamy encompasses marriage within the believers of the same faith or religion, caste in Hindu society and within members of the same tribe. In societies where endogamy is prevalent parallel cousin marriage is the preferential norm. Among such societies marriage between first cousins is permitted, though where the rule of lineage exogamy is practiced cousin belonging to different lineage is preferred. In many of the Islamic societies a man marries his father's brother's daughter known as **parallel cousin marriage** which is a very rare form of endogamy. **Levirate** is a marriage form, in which after the

decease of an elder brother the younger brother is obliged to marry the widow.

Types of Marriages

Monogamy is a form of marriage in which the practice is to have only one spouse at one time. In the western world the divorce rate is increasingly higher and serial monogamy is witnessed. **Polygamy** is a term derived from the Greek word polys gamos meaning often married. It is a form of marriage in which an individual has more than one spouse at any given time, or married to more than one individual. **Polyandry** type of marriage a woman is married to more than one man. **Polygynandry** another variety of polygamy pertains to a marriage where several men are married to several women or a man has many wives and a woman has many husbands at any given time. Such marriages were prevalent among the Marquesans of Polynesia and also among the *Todas of the Nilgiri hills* and the Khasas of Jainsar Bawar of India.

Functions of Marriage

- The most important function of a marriage is to beget children.
- Marriage leads to an economic co-operation between men and women ensuring the survival of every individual in a society.
- Marriage is the way to forming a family. A marriage sanctions the status of both husband and wife in a society and thus, they are also collectively accepted by society as husband and wife. In many societies there are norms where only a married person can take part in the rituals.

03_GMOs (Genetically Modified Organisms): TO BAN OR NOT TO BAN?

Genetically engineered food promises to deal with the nutritional deficiencies people harbor all over the world. Examples of GM food range from golden rice which is vitamin A rich, bananas which are used to administer vaccines, tomatoes & broccoli which are rich with cancer fighting chemicals or fortified cooking oil and salt. GM foods certainly seem to a promising technology in the field of agriculture & health. They have also been condemned all over the world as "frankenfoods" which is an equivalent term for a monster.

Genetic engineering involves the use of cross-breeding, radiation & chemicals to induce the desired characteristics in a certain food crop. The whole debate around GM foods is centered on the safety of their consumption. Though, ill effects have not been reported yet due to GM food consumption, their long term effect is the issue in question & the human lifetime is considered to be too short a time span to actually generalize about the effects of GM crops. Apart from these applications, genetic engineering also has wide applications in the pharmaceutical industry. The issue concerning genetically modified organisms is that, it may prove toxic to human beings in the long run; though no concrete evidences have been brought about in this regard. Potential health risks to humans include the possibility of exposure to new allergens in genetically modified foods, as well as the transfer of antibiotic-resistant genes to gut flora. Horizontal gene transfer of pesticide, herbicide, or antibiotic resistance to other organisms would not only put humans at risk, but it would also cause ecological imbalances.

The brighter side of the use of GM crops cannot be completely ignored. GM technology allows us to grow crops which are drought resistant, heat resistant, crops of enhanced nutritional value, increased yield, reduced costs for food or drug production, reduced need for pesticides, enhanced nutrient composition and food quality, resistance to pests and disease, greater food security, and medical benefits to the world's growing population. Advances have also been made in developing crops that mature faster and tolerate aluminum, boron, salt, drought, frost, and other environmental stressors, allowing plants to grow in conditions where they might not otherwise flourish.

Bt Cotton: A Successful example

Bt cotton, for years, have been cultivated on a large scale in India. It is genetically modified to provide protection against the pest, bollworm. The toxic gene sequence is extracted from Bacillus thuringiensis (soil bacteria) & inserted into the cotton seed. When the seed starts growing into a plant, the toxic gene expresses itself and when the pests try to eat the leaves of the plant, they get killed because the leaves also have the toxicity of the Bt gene. Bt cotton has been successfully used across nations for a while now. However, in the recent years Bt cotton is under attack by the pink bollworm. This has again raised concerns about the viability of Bt crops. Similarly, sweet corn (Mon863), Bt Brinjal & other food crops have also been produced.



Many industries stand to benefit from additional GMO research. For instance, a number of **microorganisms** are being considered as future **clean fuel producers** and **bio-degraders**. In addition, genetically modified plants may someday be used to produce **recombinant vaccines**. In fact, the concept of an **oral vaccine** expressed in plants (fruits and vegetables) for direct consumption by individuals is being examined as a possible solution to the spread of disease in underdeveloped countries, one that would greatly reduce the costs associated with conducting large-scale vaccination campaigns. Work is currently underway to develop plant-derived vaccine candidates in potatoes and lettuce for **hepatitis B virus (HBV)**, enterotoxigenic *Escherichia coli* (ETEC), and Norwalk virus. Scientists are also looking into the production of other commercially valuable proteins in plants, such as **spider silk protein** and polymers that are used in surgery or tissue replacement (Ma *et al.*, 2003). Genetically modified animals have even been used to grow transplant tissues and human transplant organs, a concept called **xenotransplantation**. The rich variety of uses for GMOs provides a number of valuable benefits to humans, but many people also worry about potential risks.

04_ FAMILY

Family is defined as the smallest social unit into which a child is born in. The word family has its origin in the Latin word *familia* meaning servant. It endows the child with social norms, values, rules and regulations through the process of enculturation. The relatives connected through the *father or the patriline* are called as *agnates* and those connected through the *mother or matriline* are called as *uterine*, a combination of these or all relatives from side of both parents are called as *cognates*. Every adult belongs to two families, one in which he/she is born and another that is established through marriage; these are known respectively as the *family of orientation and the family of procreation*. Today when we use the term family it covers all the various groups of relatives representing a household (all the individuals living under one roof), *gens* (all those descended from a common ancestor), *agnatics* (relatives on the father's side) and *cognatics* (relatives on the mother's side, and then by extension all blood relatives). It is universal in nature & found in all societies & cultures. *Morgan's evolutionary theory* first identified the forms & types of marriages. *Westermarck* did a detailed study of the institution of marriage concluded that the family emerged due to male possessiveness and jealousy. In his work *The History of Human Marriage (1922)* he asserted that with the growing concept of property, males started the institution of family to protect and safeguard their property.

TYPES OF FAMILY

1. **Nuclear Family** consists of a married couple (man and woman) with their children own or adopted. This family is very compact in nature and is the most popular form of family type prevalent in almost all societies today.
2. **Composite family** is composed of two or more nuclear families which can be divided into polygamous family and the extended family. The polygamous family includes three variants based on marriage polyandry, polygyny and polyandrous. An extended family consists of two or more nuclear families affiliated through extension of the parentchild relationship.
3. **Patrilocal family** is composed of two or more nuclear families residing at the same house, it is an extension of the father son relationship. Such a family comprises of a man and his wife and their sons and the sons' wives and children.
4. A **matrilocal family** is founded with two or more nuclear families affiliated through an extension of mother daughter relationship. It consists of a family comprising of a woman her daughters and the daughters' husbands and children.
5. The **bilocal extended family** is a combination of patrilocal extended family and matrilocal extended family. The extended family consists of two or more lineally related kinfolk of the same sex and their spouses and offspring occupying a single household and under the authority of a household head.
6. The **Avunculocal extended family** consists of two or more nuclear families affiliated through an extension of maternal-uncle and sisters son relationship. Such a family includes a nuclear family formed by a man his wife and daughters and the nuclear family formed by his sister's son and wife and children.
7. The **Fraternal Joint Family** is a family system, like a patrilineal extended family wherein the family comprises of a man and his wife and their sons and the sons' wives and childrens. We can say that in such a family three generations of kins live together.



8. **Family by Choice:** A relatively newly recognized type of family, again especially in industrial countries like the United States, is the family by choice. The term was popularized by the LGBTQ (Gay, Lesbian, Bisexual, Transgender, Queer) community to describe a family not recognized by the legal system. Family by choice can include adopted children, live-in partners, kin of each member of the household and close friends. Increasingly family by choice is being practiced by unmarried people and families who move away from the consanguine family.

Examples: The *Khasis* of Meghalaya and the *Garos* of Garo Hills of Meghalaya are two matrilineal societies where, in the first society the husband comes to live with the wife's family, while in the latter the husband is a visiting husband. Dominantly, Indian tribes are patrilineal in character.

05_ NEANDERTHAL MAN

Neanderthal Man/ *Homo neanderthalensis*

Neanderthals are an extinct species of genus *Homo* who appeared between 200,000 and 250,000 years ago. They are closely related to modern humans, differing in DNA by just 0.12%. Their fossils have been found in Eurasia, Western Europe, and Central & Northern Asia. For the first time, their fossils were discovered in Neander valley in Germany. The Neanderthals lived during Last Inter-Glacial to Last Glaciation period and the geological time was Middle to Upper Pleistocene period. In the year 1864, **William King** coined the name *Homo neanderthalensis*. Later, it was named as *Homo sapiens neanderthalensis*, a subspecies of *Homo sapiens*. The physical structure of the Neanderthal, as evidenced from the fossil records, was found to be well suited for survival in cold climate; their barrelled chests and stocky limbs stored body heat in a better manner. However, the rapid fluctuations of weather caused ecological changes to which the Neanderthals could not adapt. Neanderthals died out in Europe between 41,000 and 39,000 years ago which coincides with the start of a very cold period. Modern humans co-existed with them in Europe starting around 35,000 years. Neanderthals inhabited European continent for a long period of time before the arrival of modern humans.



Some defining features of their skulls include the large middle part of the face, angled cheek bones, and a huge nose for humidifying and warming cold, dry air. Their bodies were shorter and stockier than ours, another adaptation to living in cold environments. But their brains were just as large as ours and often larger proportional to their brawnier bodies. Neanderthals made and used a diverse set of sophisticated tools, controlled fire, lived in shelters, made and wore clothing, were skilled hunters of large animals and also ate plant foods, and occasionally made symbolic or ornamental objects. There is evidence that Neanderthals deliberately buried their dead and occasionally even marked their graves with offerings, such as flowers. No other primates, and no earlier human species, had ever practiced this sophisticated and symbolic behavior.

DISCOVERY

Neanderthal 1 was the first specimen to be recognized as an early human fossil. When it was discovered in 1856 in Germany, scientists had never seen a specimen like it: the oval shaped skull with a low, receding forehead and distinct browridges, the thick, strong bones. In 1864, it became the first fossil hominin species to be named. Geologist William King suggested the name *Homo neanderthalensis*, after these fossils found in the Feldhofer Cave of the Neander Valley in Germany (*tal*—a modern form of *thal*—means “valley” in German). Several years after Neanderthal 1 was discovered, scientists realized that prior fossil discoveries in 1829 at Engis, Belgium, and in 1848 at Forbes Quarry, Gibraltar were also Neanderthals.

SURVIVAL

Compared to early humans living in tropical Africa, with more abundant edible plant foods available year-round, the number of plant foods Neanderthals could eat would have dropped significantly during the winter of colder climates, forcing Neanderthals to exploit other food options like meat more heavily. There is evidence that Neanderthals were specialized seasonal hunters, eating animals were available at the time (i.e. reindeer in the winter and red deer in the summer). Scientists have clear evidence of Neanderthal hunting from uncovering sharp wooden spears and large numbers of big game animal remains were hunted and butchered by Neanderthals.

There is also evidence from Gibraltar that when they lived in coastal areas, they exploited marine resources such as mollusks, seals, dolphins and fish. Isotopic chemical analyses of Neanderthal bones also tell scientists the average Neanderthal's diet consisted of a lot of meat. Scientists have also found plaque on the remains of molar teeth containing starch grains; concrete evidence that Neanderthals ate plants.

Neanderthals used tools for activities like hunting and sewing. Left-right arm asymmetry indicates that they hunted with thrusting (rather than throwing) spears that allowed them to kill large animals from a safe distance. Neanderthal bones have a high frequency of fractures. Neanderthals also controlled fire, lived in shelters, and occasionally made symbolic or ornamental objects.

Physical Features of Neanderthals

- Males were 164-168 cm (65-66 inch) and females about 152-156 cm (60-61 inch) tall.
- Skull was dolichocephalic.
- Average length and breadth of the skull were 208 mm and 156 mm respectively.
- The average cranial capacity was 1650 cc.
- The posterior part of the skull was comparatively broader than the anterior part for which it looks like a barrel from the back.
- Forehead region was retreating and the nuchal region was rugged.
- Face as a whole was robust and projecting forward having large incisors and canines.

06_RELIGION

The relationship between religion & society has been a subject of study for long now. In traditional societies it has regulated the lives of the people in different aspects that included economy, polity, life cycle crisis, etc. Even in the present day societies, it plays a very significant role in controlling and regulating lives of people. Put differently, religion and society are intricately related, be it tribal, rural, urban, traditional or modern. By and large, what we notice in traditional societies is that religion is community oriented, while in the modern societies it is, to a certain extent, individual driven. **Anthropological approach** of studying human societies as integrated wholes, considers religion as a part of culture. Each culture is unique in its own way and each culture can be studied and described. The recent thinking is that the world can be viewed in multiple ways and, therefore, the representation of culture cannot be **monological, authoritative** and **bounded**. Thus, the anthropological perspective of religion is the way its practitioners see the world, interpret and see themselves different from others.

The important concepts that appear in the study of religion include supernatural beings of polytheistic and monotheistic beliefs, forms of religion animism, animatism, totemism, ritual, myth, religious symbolism, ancestor worship, magic, witchcraft and sorcery. Some concepts have been discussed in detail below:

1. **Animism**

The term was coined by **E. B. Tylor (1871)** to describe the belief in soul or life force and personality existing in animate and inanimate objects as well as human beings. Several of the tribal religions hold such beliefs. His theory is that human beings are rational beings, and attempt to interpret mysterious phenomena like sleeping, dreams and death with the idea of soul.

2. **Animatism**

R. R. Marett (1866-1943) considered that humans believed in impersonal forces in nature and certain objects. This sort of belief had created in humans religious feelings of awe, fear, wonder, respect, admiration, and other psychical effects. He believed that primitive man could not distinguish between the natural and supernatural and

also between living and dead. This condition that prevailed before the development of the idea of soul is called animatism, which Marrett named after mana which means power in Polynesia.

3. **Naturism**

Max Muller contended that since the gods in various societies were originally from natural phenomenon, such as sun, thunder, trees, animals, mountains, forests, lakes, rivers, oceans and so on, the human perception of nature must have had very powerful agencies for origin of religion. Nature was the greatest surprise, a terror, a marvel, a miracle which has also been permanent. They are believed to have great influence on the affairs of human beings.

4. **Totemism**

It is a system of belief in which certain objects, plants or animals have kinship relationship with social groups. Such animate and inanimate objects stand as emblems giving identity to the groups and form representations of the groups. They create religious feelings among the members and form the objects of worship, reverence and sacredness. According to Durkheim, ***totemism is the earliest form of religion*** and it is quite prominently found among the **Australian tribes**, and such phenomena are also noted among the American tribes as well.

5. **Taboo**

It refers to something, use of which is collectively and strictly forbidden in religious context. The violation of a taboo has different consequences of temporary defilement, crime to be punished and attracts the sanctions of supernatural beings and so on.

6. **Myth**

Believed to be truthful accounts of the past, the narrative that gives religious sanctity and sacred character to the account, and is often associated with ritual is called myth. Well-known myths are creation myths. Myth is different from legend as the characters in the myth are usually not humans. They may be supernatural beings

or animals or other animate and inanimate objects and sometimes they are ambiguous characters. Myths generally offer explanations for the customs and practices. On the other hand, legends are about culture heroes, historical figures located in historical events, which are believed to have taken place, that very easily transit into the contemporary life. Folk tales are not considered sacred but regarded as stories or fiction meant basically for entertainment. These tales may also include supernatural elements, yet are essentially secular in nature.

7. **Cult**

The concept of cult is derived from French *culte* meaning worship or a particular form of worship. It has been used in both neutral and negative sense. In the neutral sense of the term it means '*care*', '*cultivation*' and '*tended*', it is a deity or idol or image of a saint who is venerated and it is concerned with devotion. However, in the negative sense it refers to the practice of a deviant religious group or new religious dogma arising out of syncretism, cultural mix of ideas and practices of different religions.

• **RELIGIOUS KNOWLEDGE & PRACTICES**

Worship of deities through rituals is though common practice, the ancestor worship is more often associated with the little tradition. The great tradition generally includes the worship of single or multiple deities. However, in Asia, Africa and other parts of the world, there is the common practice of venerating ancestors; it is believed that the ancestors continue to hold power over their progeny and affect the society. Magic refers to certain activity or method by which the supernatural is believed to interfere in the affairs of humans and bring about particular outcome. For more detailed explanation of these concepts, different anthropological approaches exist (evolutionary approach, psychological approach, functionalist approach & structuralist approach).

07_ECOLOGICAL ANTHROPOLOGY

HUMAN ECOLOGY

Human ecology examines the way human-resource relationships affect the ***human adaptation to diverse type of ecosystems*** such as desert, arctic, forest and others. For example, the way in which humans adapt themselves in freezing cold environments, in deserts, etc. It also scrutinises the role that resource requirements needed to withstand a population play in shaping local differences in behaviour, residential distribution, household composition and structure, community, social and political organisations, inter-population relationships and other social behaviour. Human ecology ***also examines contemporary ecological concerns*** that results from population growth and industrial development. The idea of contemporary human ecology has been expressed since the 18th century by **Adam Smith, Malthus, Darwin and Hoppes.** The anthropological perspective of human ecology deals with the question “how man copes with his environment”. Since human relations are not mainly biological therefore the development of culture context is necessary.

In Anthropology, monitoring consists of recording individual responses to similar environmental conditions and intra population differences. Thus the specific response of different races or ethnic groups remains in the field of classical anthropology and the old approaches have been modernized in the light of the concepts of major genes or complex linked genes or populations. The monitoring of the state of the environment is extremely complex, as the number of environmental factors affecting humans is almost unlimited. The physical factors include climate, nutrition, and pollution of air, water, food and noise. In addition, social and economic factors indicating living conditions are also considered.

TYPES OF ADAPTATION

- Genetic adaptation, the evolution of advantageous characteristics
- Developmental adaptation (plasticity)
- Long term acclimatisation acquired over the years but reversible under environmental change
- Seasonal acclimatisation, which reverses itself during the annual cycle
- Short term acclimatisation, it manifests in daily or irregular responses to conditions.

ACCLIMATIZATION & EXTREME COLD

In extreme cold conditions, the pressure of oxygen in the atmosphere is low. The body now tries to cope with the severe environment by way of increased rate of breathing & shivering (to create heat inside the body). The human body at rest begins to combat against ***hypothermia*** at the air temperature of approximately 310C (87.8°F). This temperature is known as the ***critical temperature***. Consequently, the individual reduces the loss of heat from body to the environment and produces heat to increase body temperature. A major mechanism for conserving heat is ***peripheral vasoconstriction***. Constriction of the capillaries below the skin prevents warm blood from reaching to the surface of the skin, where much of the body's heat would be lost to the air. Additional body heat is produced voluntarily by exercise and involuntarily by shivering. A high degree of muscle activity yields heat.

ACCLIMATIZATION TO DESERT HABITATS

The sweat glands become sensitive and produce sweat. Sweat also contains salts, and much sodium is lost through sweating. With time, the concentration of salt in sweat is reduced, although the relatively high salt concentrations found in desert water easily compensate for salt loss. ***Urine volume also reduces***, thus conserve water in the body. People also adopt various behavioural adjustments to the hot climates. In desert regions people tend to ***reduce***

physical activity during the heat of the day, thereby reducing heat production by the body. Also, assume a **relaxed body posture** that increases the surface area of the body from which sweat may evaporate. Desert dwellers cover their bodies to protect the skin from ultraviolet radiation as well as to reduce the amount of heat from the sun which otherwise is absorbed by the body. Such clothing is designed to permit the free flow of air between the clothing and the body. This airflow is necessary to carry off the water vapor formed by the evaporation of sweat.

FACTORS INVOLVED IN CLIMATIC ADJUSTMENTS

Twin studies indicate that variations in body-shape, size, fat deposition, growth pattern, skeletal and physiological maturation are all determined by genetic constitution to a larger extent than by totally environmental factors. Population Differences rest undoubtedly on distinct genotypes or multifactorial recombination, e.g. nose-shape or the ratio of limb length to trunk length remains unaffected by change in environment. The situation is, however, more complicated, because of the action of climate on body-weight and growth rate of non-indigenous peoples. Europeans in the tropics possess body-weights lower on the average than those in colder environments.

Ethics Open Webinar

Grab your copy of book - *"70 Thinkers & 70 Thoughts"* by T. Roychowdhary Sir



Tirthankar Roychowdhary Sir



12th - 13th Oct 2020
11:30 AM - 02:00 PM

EDEN IAS
CLASSES



9311092321



www.edenias.com

Scholarship Test

"Avail upto 70% scholarship"

Join the Indian Civil Services and contribute to Nation-building.

**LAKSHYA - 2 & 3 YEARS
FOUNDATION**

**UTKARSH - 1 YEAR
FOUNDATION**



Total Seats Available - 50 | Scholarship Seats - 20

Scholarship date

30- 09 - 2020

9311092321 | 9354344200

BATCH - 05th Oct 2020

www.edenias.com

EDEN IAS

ANTHROPOLOGY

FRESH BATCH - 20th Nov 2020

9311092321 | 9354344200 | 9315227819