The emergence of anatomically modern humans

Science, Anthropology

The Recent African Origin of Modern Humans There are several competing models when it comes to the origins of anatomically modern Homo sapiens. The model that we will be discussing in this paper is the recent African origin model also known popularly as (Recent) Out-of-Africa model. However, the academic circles refer to this model as recent single-origin hypothesis, replacement hypothesis and recent African origin hypothesis.

This is the model that is not only accepted my most anthropologists but was also proposed earlier than any other model. It was proposed by the father of evolutionary sciences, Charles Darwin in his book ’Descent of Man’ in the 19th century. It remained a hypothesis until in 1980s when scientific proof of linkages between mitochondrial DNA and samples taken from fossilized specimens were seen to match. Darwin suggested this model after studying the behavior of African apes at the London zoo. He postulated that all Homo sapiens can trace their roots to east Africa from where they originated and moved to other parts of the world. This was termed as ‘ monogenism’ or single origin. It was not until the 1980s that a scientist named Allan Wilson and his team was able to find substantial proof of this by comparing the mitochondrial DNA of humans to that of chimpanzees. He concluded that the uncanny resemblance and scarce diversity between the two samples of mitochondrial DNA strongly suggests an evolutionary link between the two. Keeping in mind the limited resources of that time, scientists were able to conclude in 1990s that this evolution probably took place about 150, 000 years ago in East Africa.

Another important step in proving this theory to be accurate was the use of Y- chromosome that showed its first signs of diversity after the first

migration from Africa. It is important to understand that the reason why only mitochondrial DNA and Y-chromosome were chosen to conduct this genomic reconstruction was because the mitochondrial DNA is passed from the mother to the child without any mutations so that it is safe to say that the mitochondrial DNA that we possess is very much like the mitochondrial DNA of Eve (Jones & John, 2007). Similarly, the Y-chromosome in every adult male shows the least degree of mutation and is very similar to that of Adam himself. Therefore, the tracing of human evolution is most accurate when these two chromosomes are used for genetic reconstruction of ancient Homo sapiens.

The second part of this theory discusses how the Homo sapiens travelled out of Africa and expanded to other parts of the world. While some scientists believe that there was only one single migration from Africa performed by a small group of people, approximately 150 to 1000, that travelled along the Asian coastline to eventually reach Australia and are known today as Aborigines, others believe that there were in fact two migrations. One of these migrations was along Asian coastline while the other was across the red sea.

Most scientists believe that one of these theories could be the only way to populate the world in the distribution that it is in today. However, there are conflicting views regarding whether other Homo species of that time such as the Neanderthals and the Homo erectus were extinct at that time or not and if they were alive, how would the Homo sapiens have interacted with them. A bigger question is whether or how far these interactions could have altered the genetic make-up of Homo sapiens or whether these alterations might be

steering us away from the real origins of Homo sapiens.

The nature of these interactions is more clearly explained by the closest competitor of Recent African origin model which is the multi-regional hypothesis by Milford Wolpoff. According to this model, the modern Homo sapien is an evolved form of Homo erectus. Thus, this model suggests that there were no infertility barriers between co-existing Homo species and the current racial distribution across the world is simply the result of multiple, small migrations and inbreeding within a single and continuous world population. Although there have been recent discoveries to suggest substance in this model, such as the 4-6% genetic resemblance between Siberian and Melanesian fossils (D, Green, & al, 2010), it is not possible to negate the above 90% resemblance between the genetic make-up of modern Homo sapiens and East African chimpanzees.

While we still work on which model is more accurate, the Recent African Origin model of modern humans continues to be the more widely accepted model by anthropologists.

Works Cited

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