

QUEST TO BREAKING THE CASTE BARRIERS IN INDIA AND ACROSS THE WORLD



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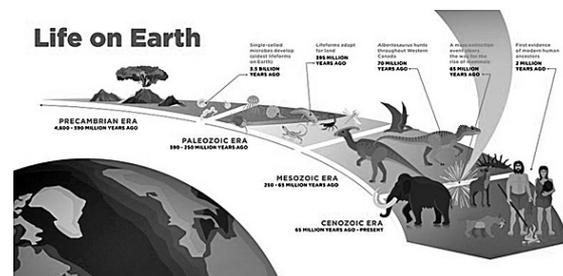
Abstract: *In the 200,000 years of human evolution, most of the growth has taken place only in the last 10,000 years. In theory, all women of today have the same genetic material from one woman – the Mitochondrial Eve, and that should have served as a unifying factor in all humans. But, in India we have divided ourselves in the name of caste and religion.*

The Hindu codebook 'Manusmriti' is the reason for such division. This caste-based segregation of people continues even today, and is a barbaric practice with untouchability still being a part of it. There is still Dalit discrimination in educational institutions in India and other countries like the USA, where there is a significant migration of Indians. No civilized society should be practicing the caste system.

SAHA intends to conduct extensive mtDNA testing of females of our society from different walks of life, belonging to different castes, socio-economic backgrounds and trace their mitochondrial DNA, as far back as possible, to prove that we all share the same genetic material and are the children of the same mother. Caste system is a fake system and to

end the discrimination that it advocates, we will use Genetics & Science in the modern age, to educate our fellow citizens, in the paths as that of Dr. Ambedkar and Periyar.

It is imperative for me to go back to Earth's origin and present some basic evolutionary biology before I start the topic of the caste system. You will understand why as you go forward into the article. While Earth is understood to be 4.543 billion years old, Life started 3.5 billion years ago. From a self-replicating single-celled organism, modern humans have evolved to where we are today, and we continue to do so.

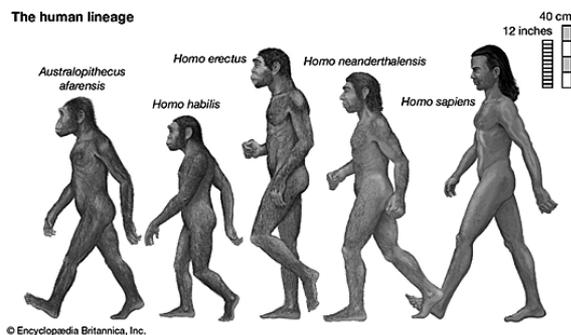


Human evolution is a long process by which human beings developed on Earth from now-extinct primates. In the words of Russell H. Tuttle, Professor of Anthropology, Evolutionary

Biology, History of Science and Medicine at the University of Chicago, *"the exact nature of our evolutionary relationships has been the subject of debate and investigation since the great British naturalist Charles Darwin published his monumental books On the Origin of Species (1859) and The Descent of Man (1871)"*.

Contrary to popular belief, Darwin never claimed that "man descended from the apes." You would come across many people who question the theory of evolution based on this misrepresentation of Darwin's words. Today's scientists unanimously agree that both humans and apes had a common ancestor that existed millions of years ago. (This is in theory, and we have not been able to identify that primate yet).

Dr. Tuttle further opines that "The human "family tree" may be better described as a "family bush," within which it is impossible to connect a full chronological series of species, leading to Homo sapiens, that experts can agree upon). The illustration below explains one possible line of evolution of humans agreed upon by today's scientists.



Evolution of Modern Humans

This is one of the most debated issues in evolutionary biology. It is the most debated among the religious and the nonreligious. It is also one of the most studied and sought-after subjects for anthropologists and evolutionary biologists, and (many) other fields of research.

Scientists worldwide are continuing to study this topic, and while we anticipate the possibility of future research changing our current understanding of the origin of human evolution and migration, considering the various proposed theories, I take the liberty of using the most supported model by the majority of scientists till date. As new research emerges, as any responsible scientist would do, I will be open to amending this article in the future.

(I have used several sources as the basis for my article, and you will find the bibliography at the end).

Where did we come from?

While modern humans' exact origin is long debated, I choose to base my arguments on the 'Out of Africa' theory. I am not in support of the 'multi-regional' model proposed by some researchers as the current genomic evidence contradicts it. Please note that there is evidence of 1-3% of 'admixture' (mixing of genomes), which suggests humans' interbreeding in Asia and Europe. This was concluded from the studies conducted on the extinct hominids, Neanderthals and Denisovans.

The 'Out of Africa' is still the most widely accepted model and a testament to Charles Darwin's astuteness in coming up with the idea that human-life started in Africa. It remains the leading theory to date. David Begun, an anthropologist at the University of Toronto and Elmar Heizmann of the Natural history Museum of Stuttgart, suggested that the human-life may have started in Eurasia based on their re-examination of a 7 -9million old fossil found in Greece.

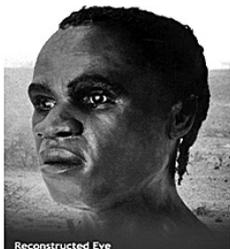
Even if their Eurasia theory gains popularity in the future, the foundation of my argument on the topic I choose to present in this article today should not change, i.e. **All humans have**

originated from one source; hence we are the offspring of the same mother with mild genetic variations that happened over time due to several environmental and genetic factors.

Mitochondrial Eve

In the year 1987, Cann, Stoneking, and Wilson published the results of their worldwide study (most extensive to date) in Nature magazine. Its main point was that "all mitochondrial DNAs stem from one woman" and that she probably lived around 200,000 years ago in Africa. Mitochondrial DNA is only passed down the maternal line and **can be traced back to one woman**.

It doesn't imply that she was the only modern woman alive at that time; rather, it indicates that only her descendants survive to the present day.



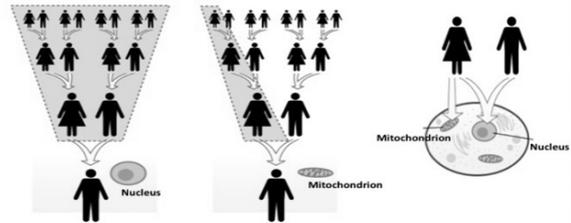
Mitochondrial Eve
 ↓
 Her daughters
 ↓
 Their daughters
 ↓
 All 21st-century women

As per this theory, all women today share the same genetic material, that of this Mitochondrial Eve (not to be confused with biblical Eve). This extraordinary theory is the basis for SAHA's DNA project.

We only need knowledge of basic biology to understand this. The human cell has many components, two of which are the Nucleus and Mitochondria. Deoxyribonucleic acid, commonly known as DNA, is responsible for carrying the genetic instructions in human beings (and all living things) and, it is present in both these components of the cell. While the nucleus' DNA is known as Nuclear DNA (nDNA), the

one present in the mitochondria is known as mitochondrial DNA (mtDNA). This illustration provides a simple explanation.

I hope this picture has helped you understand how in theory, all women of today have the same

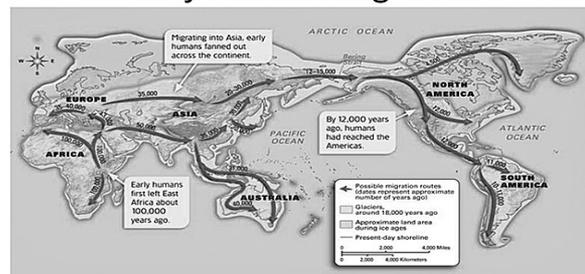


Nuclear DNA is inherited from all ancestors (left panel); Mitochondrial DNA is inherited from a single lineage, maternal (center panel); mitochondria are passed from mother to child only, whereas the genes in the nuclei of your cells come from both parents (right panel). From the University of California Museum of Paleontology's Understanding Evolution (<http://evolution.berkeley.edu>).

genetic material and why we see it as a unifying factor in all humans irrespective of where they are born and how they look?

As per the current understanding, humans originated in East Africa about 100,000 –

Early Human Migration

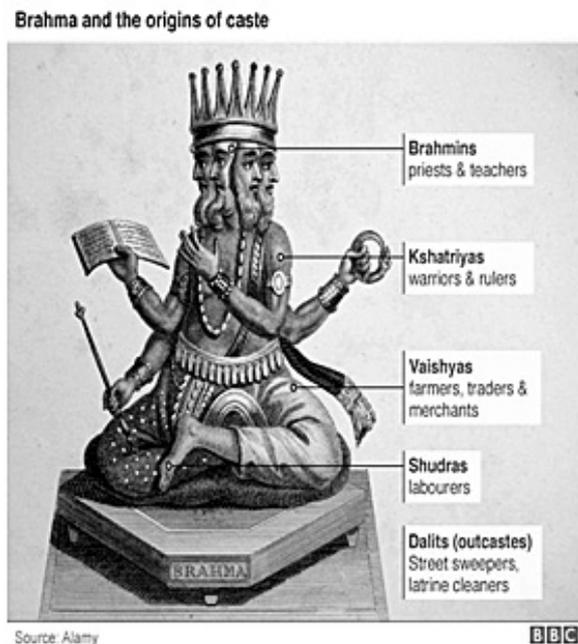


200,000 years ago and migrated to several parts of the world. The then Africans reached the area we now call India, approximately 60,000 years ago. The migrations happened in several batches at different periods, explaining the genetic variation among us due to mutations caused by several environmental and genetic factors (mistakes when DNA is copied). Despite all the differences, we have retained some common genetic material, which is the basis for this article and SAHA's DNA project.

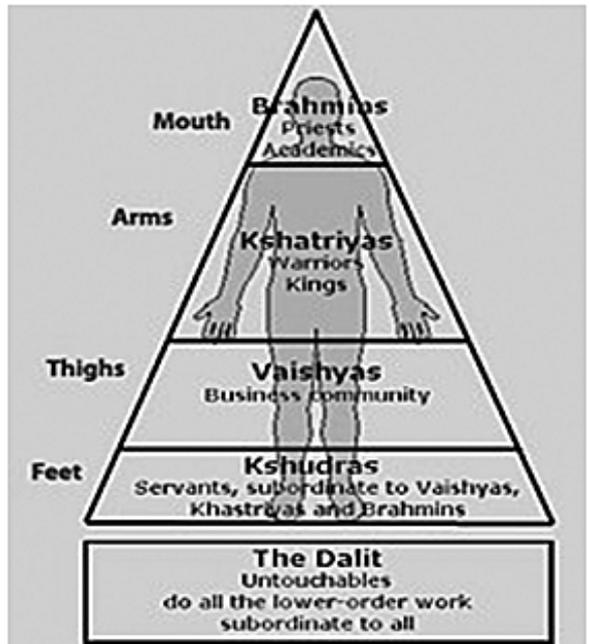
In the 200,000 or more of human history, most of the growth and development we see

today has taken place only in the last 10,000 yrs. We have gained an unbelievable amount of knowledge quickly, and while we did that, we have also divided ourselves in the name of race and religion. 'Manusmriti' is the reason for such division in an ancient religion we now refer to as Hinduism.

Varna/Jāti/Caste Systems in India have been introduced only 2000 – 5000 Years Ago.



people lived, whom they married and what they could do. To this day, only a particular caste of people are employed to do manual scavenging. To this day, young men and women are killed by their families for marrying outside their caste. To this day, many people will not accept food or water from a Dalit. Dalits are not allowed in most temples, and even the president of India was not spared from this humiliating practice. There is Dalit discrimination in educational institutions



One of the theories widely in circulation is that the Hindu god of creation, Brahma, created people from different parts of his body. Outside of this Hindu caste system were the 'achhoots' or the 'untouchables' now referred to as Dalits. It is shocking to know that there are 2000 castes and 25000 sub-castes today and castism is prevalent among all of them.

While many Hindus would argue with you that the caste system was the doing of the British, a brief look into the works of Dr. BR Ambedkar and the likes, we can easily understand that we had had this in practice for centuries before the British arrived in India. Caste dictated where

in India and countries like the USA, where there is a significant migration of Indians. If we look in the newspapers, we will find news of lynching, rape, and murder of Dalits on a daily basis, and it is growing. As per the latest statistics, 10 Dalit women are raped everyday in India and these are only reported cases. This practice has gone on forever, but most are coming to understand the gravity of the situation because of social media. At the same time, some of us continue to deny caste-based oppression exists today.

While Dalit oppression is one aspect, the other is the constant fight of the so-called 'middle-upper' castes for supremacy. These

former 'Shudras' who, with time were able to climb up the social ladder mainly by land possession, have eventually turned oppressors occupying most of the political scene. There are divisions and competition among these castes, with people of each caste trying to prove their uniqueness. There are people claiming that their blood cells have a particular discipline because of their caste or that their birth is blessed by the gods. One caste organization leader went on to say that God must be born in his caste. I came across one person who boasted that Periyar was from his caste. You will come across many ridiculous claims if you pay attention to what is going on in our current society. Some states have it worse than the others, and this practice has expanded to include Christian, Muslim, Sikh, Jain, and other religious communities. In the broad picture of all of us originating and migrating from Africa, it is illogical to let this caste practice continue. Progress is not only in the field of science, medicine, and technology; if, as a society, we do not become progressive in our thinking, we will forever remain a backward country and community.

Is the system legal?

No, it is not. "Independent India's constitution banned discrimination based on caste, and, in an attempt to correct historical injustices and provide a level playing field to the traditionally disadvantaged, the authorities announced quotas in government jobs and educational institutions for scheduled castes and tribes, the lowest in the caste hierarchy, in 1950".(BBC).

Dr. BR Ambedkar, born a Dalit who authored the Indian constitution, was instrumental in implementing the system of reservations for the oppressed classes. He has worked tirelessly for the annihilation of caste, which did not happen in his lifetime.

Manusmriti is widely regarded to be the most important and authoritative book on Hindu law and dating back to at least 1,000 years before Christ, "acknowledges and justifies the caste system as the basis of order and regularity of society." I would not be crossing the line to suggest that specific religious communities are trying to bring it back to its old glory while the fight for the caste system (current modified version) continues.

This caste-based segregation of people today, in its current form, is a barbaric and abhorrent practice with untouchability still being a part of it. No civilized society should be practicing it. It may be unthinkable to some people who have never faced oppression, but it is the reality of millions of oppressed Indians living in India and around the world. It has spread to every country where Indians migrated to and is currently one of the most rapidly progressing social stratification forms.

There are several theories on how these Jathi, Varna or Caste systems have evolved. There is no way to know that without extensive anthropological and genetic studies.

This author does not care about who started, when, or why they began this social stratification system but only about what it is doing to society today. The deep concern is about what it is doing to people, how it divides them, and how it oppresses some.

While many choose to be in denial of the oppression of the Dalits, most of us born in India are aware of the atrocities against Dalits and Adivasis (tribal people). (Instead of acknowledging and doing their bit to help the historically oppressed, quite a few are fighting to end reservations that were introduced only 70 years ago. I urge the readers to think about the rationality behind that argument. Two thousand years of oppression and 70 years of marginal help in the form of reservation. There should be no contest. Well, that

is a topic for another article. Please find the images that show the current statistics of Dalit atrocities at the bottom of this article.

What I propose through this article and what our organization intends to do is to conduct extensive mtDNA testing of females of our society from different walks of life, belonging to different castes, socio-economic backgrounds and trace their mitochondrial DNA as far back as possible to prove that we all share the same genetic material. We want to announce to people on a public platform that we are the children of the same mother.

Is it wishful thinking? Is it going to be too hard to achieve? Will there be resistance from specific caste communities? Yes, most likely, all of these questions have the same answer, YES. We have brilliant scientists in genetics who have previously done some similar work; the difference is that we have better technology available to us today. We will need financial resources to pay to the institutes to conduct the testing. We will need many volunteers to enroll. Even if we succeed in achieving this difficult task, will it bring any change in people? If it does, will it be a lasting one? Those are valid questions, and we won't know the answers until we get there.

One might wonder what makes us even think of attempting this near-impossible task knowing that greats like Dr. Ambedkar and Periyar could not achieve the annihilation of caste in their lifetime? Our audacity comes from our confidence in science, the genetic advancement we have acquired, which was not available to those great activists.

We also hope that the word would reach all science enthusiasts who will directly or indirectly support this venture. I want to acknowledge Dr. Ajay Potluri, who proposed this idea to me while venting my frustration

over the caste system. My colleagues and I at SAHA took over his core idea to become our adventurous project. We await the chance for implementation soon.

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About the Author:

Dr. Madhvi Potluri is a staunch humanist and human rights advocate, and a strong proponent of free speech and free thought. She currently holds the position of Secretary-External relations for South Asian Humanist Association (SAHA). Dr. Madhvi represented SAHA at the Humanists International (formerly IHEU) Annual Congress in 2017. Since its inception, she has participated in many humanist activities catering to the South Asian diaspora. By representing SAHA, she built a strong relationship with the Norwegian Humanist Association and Indian Humanists. Dr. Madhvi is also part of the core founding leadership team of "Science For Society." She has been instrumental in providing expertise and thought leadership to promote and popularize science in the emerging world countries.

