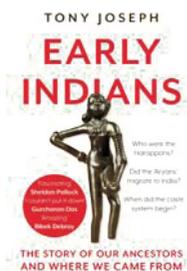


Who Are We Indians?*

T N C Vidya



Early Indians: The Story of Our Ancestors and Where We Came From

Author: Tony Joseph

Published by: Juggernaut Books 2018

Pages: 288 pages

Price: Rs. 699

Who am I and where did I come from is a question that often occurs to children and adults, seeking various levels of explanation. In *Early Indians: The Story of Our Ancestors and Where We Came From*, Tony Joseph delves into genetic, archaeological, and linguistic studies in order to synthesise the findings on the peopling of the Indian subcontinent. In this eminently readable book for the layperson, Tony Joseph discusses various prominent events in the history of humankind that relate to India. The book leans heavily on genetic data because many studies now exist that have sequenced DNA from living humans and also, importantly, from skeletons and fos-

sils, allowing population geneticists to make inferences about our prehistory (before written records were kept).

After a brief introduction to early human evolution, Tony Joseph discusses the chain of reasoning behind the dating of the Out of Africa migration, based on genetic, climatic, and fossil data, and the possible routes taken out of Africa into Asia. It appears that the first modern humans (*Homo sapiens*) with whom we can establish genetic continuity, settled in India about 65,000 years ago. This does not mean that there were no members of any *Homo* species in India before that and, indeed, the Bhimbetka rock shelters in Madhya Pradesh, famous for the rock art of their inhabitants, seem to have been occupied at various points in time from about 100,000 years ago. There are also Paleolithic tools from Attirampakkam in Tamil Nadu dating back to 1.5 million years ago. South Asia seems to have been highly populated for a very long time, but these older lineages who crafted the earliest tools or created the earliest rock art in the Indian subcontinent do not share genetic continuity with us, leading the *Early Indians* story to focus on the period from 65,000 years onwards. What these migrants (called *First Indians* in the book) who entered India about 65,000 years ago might have looked like, and what challenges might they have faced from the previous inhabitants and the climate make for interesting reading.

*DOI: <https://doi.org/10.1007/s12045-019-0827-z>

As you may know, we harbour DNA in chromosomes in the nucleus, but also have DNA inside mitochondria, the organelles inside cells that help with energy production. We inherit mitochondria, and hence, mitochondrial DNA, only from our mothers. Nuclear DNA, apart from that in the sex chromosomes, is inherited from both parents, while Y chromosomal DNA is passed on from father to son. Therefore, mitochondrial DNA can be used to trace female lineages, Y chromosomal DNA, to trace male lineages, and the remaining genomic DNA, to find common patterns between the sexes. By examining genetic variants in a particular kind of DNA (mitochondrial, Y chromosomal, etc.) amongst people and with a knowledge of the mutation rate of that DNA, we can find out how closely or distantly related we are to one another and how long ago we shared common ancestors. It turns out that the ancestry of about 50–65% of our (present-day humans in the Indian subcontinent) genomic DNA comes from the First Indians. The remaining ancestry is from later migrations as we shall see below.

Whereas modern humans were initially hunter-gatherers, agriculture became established between about 11,700–7000 years ago (9700–5000 BCE) in the Fertile Crescent (in West Asia, including the eastern Mediterranean regions and modern-day Iran and Iraq), South Asia, Egypt, and China. It appears, based on genetic studies, that agriculturists from the Zagros region of Iran migrated to the Indus Valley latest by 6700–5000 years ago (4700–3000 BCE). Mehrgarh (in Balochistan)

was “the hotspot of the earliest experiments in agriculture in South Asia” and probably laid the foundations for the Harappan Civilization. There is archaeological evidence for agriculture in Mehrgarh dating back to about 9000 years ago. It is possible that agriculture was either introduced to Mehrgarh by the Zagrosians, developed indigenously in Mehrgarh by the First Indians themselves, or developed partly by the First Indians and synergistically improved upon after the arrival of the Zagrosians. Tony Joseph describes the evidence that leads archaeologists to make inferences about the kind of society that must have existed, the occupations of inhabitants, trade between settlements, and the domestication of plants and animals (see [1] for a review of a book on fox domestication). He also describes in detail, genetic studies based on present-day humans and ancient humans (using ancient DNA extracted from skeletons) confirming the migration of people from the Zagros region /West Eurasia to the Indus area/India.

It took about 5000 years before the establishment of agriculture in Mehrgarh led to the development of the Harappan Civilization between 4600–3900 years ago (2600–1900 BCE). At its peak, the Harappan Civilization covered an area of about 1 million square kilometres (about one-third the size of India) and included cities located in present-day Pakistan, western India, and northeastern Afghanistan. Some of the important cities excavated include Harappa, Mohenjo-daro, and Dholavira. The inhabitants were the descendants of the mixing between the people from



the Zagros region and the First Indians. Tony Joseph provides a fascinating account of the artefacts (including bangles and toys, water buffalo seals, standardized weights and measures, and 'lotas' in toilets that every house seemed to have had!), customs, and city planning in the Harappan Civilization, and trade links with other civilizations. A sticky issue has been that of the language that was spoken in the Harappan Civilization since the script has not yet been deciphered. However, based on the genetic and archaeological findings of the connection between the Zagrosians and the Harappan Civilization, it is possible that the former brought a Mesopotamian language with them, possibly a Proto-Elamite language. Elamite is extinct now but is related to Brahui, which is spoken in parts of Balochistan and is also related to the Dravidian languages of India. I urge you to read the book and, perhaps, other references in it to understand the reasoning behind this hypothesis, based on linguistic comparisons and shared myths and artefacts. It is thought that pastoralists brought proto-Dravidian to southern India about 4800 years ago (2800 BCE) even before the peak of the Harappan civilisation. Proto-Dravidian/Dravidian languages might have been further strengthened as the inhabitants of the Harappan Civilization moved south later when the civilisation decayed and collapsed (likely due to a long drought; Jared Diamond's *Collapse* [2] also provides insights into the collapse of civilisations, especially due to environmental changes).

Austro-Asiatic language (represented by the Munda and Khasi language subfamilies in India) speakers probably arrived in India about 4000 years ago (2000 BCE) or later, at a time when the Harappan Civilisation was beginning to collapse, and share some genetic ancestry with southeast Asians. The Tibeto-Burman language (also including the Meiti and Tani languages in India) speakers share some East Asian genetic ancestry, and they had also arrived in India by about 2000 BCE. Contact with the Chinese civilization, migrations of Austro-Asiatic and Tibeto-Burman language speakers through northeastern India and trade between civilizations also seem to have led to hybridization between Chinese and Indian rice, leading to a boost in productivity. Unfortunately, there is not a lot of detail in this book on the lineages of people who spoke Austro-Asiatic and Tibeto-Burman languages.

Tony Joseph then details the last large-scale migration to India, by the Indo-European-language speakers, who called themselves 'Aryans'. Genetic studies, by analysing ancient DNA from different regions and at different times, showed that these Indo-European-language speakers migrated from the Steppe in Central Asia more recently than 4000 years ago. They were pastoralists and were the descendants of the Yamnaya after the Yamnaya had mixed with other populations. The Yamnaya were dependent on horse-drawn wagons on wheels and had migrated to Europe earlier, about 5000 years ago (3000 BCE), and had replaced the earlier inhabitants and languages of Europe. The 'Aryans' are thought



to have reached the Indian subcontinent during the decline of the Harappan Civilisation, about 3800 years ago (1800 BCE). They mixed with the Harappan people, giving rise to the genetic lineages (found among present-day Indians) called the Ancestral North Indians (ANI). While the ancestry of about 50–65% of whole genomes of most populations in India comes from the First Indians, 70–90% of present-day mitochondrial DNA lineages are descended from the First Indians, and only 10–40% of present-day Y chromosomal haplogroups are descended from the First Indians. Such differences in ancestry between different kinds of DNA result from sex-biased dispersals. If females move into an area and mate with the males there, their male and female offspring will inherit genomic DNA from both the female and male parents equally, but both male and female offspring will inherit mitochondrial DNA of their mothers (the migrating females in this case). The male offspring will inherit the Y chromosomal DNA of their fathers. The ancestry of the Y chromosomal DNA in the population will not change irrespective of whether the new females were more successful or not than the resident females at securing matings. However, if the new females were more successful than the resident females at securing matings, the mitochondrial DNA ancestry in the population will change, reflecting the migrating females' contribution. Conversely, if a migration is primarily through males and those males are more successful at obtaining matings, the mitochondrial DNA ancestry will not change, but the Y chromosomal ancestry will reflect the contribution of

the new males. Thus, only 10–30% of the present-day mitochondrial DNA lineages in the Indian subcontinent have arrived after the arrival of the First Indians, while the majority of the present-day Y-chromosomal haplotypes have arrived through subsequent migrations. Based on this and the identities of the Y-chromosomal haplotypes, the migration from Central Asia seems to have been male-driven, and these males were highly successful in spreading their genes. There have been multiple other subsequent migrants, from Alexander's army to the British, after the 'Aryans', but these migrations have not left a large imprint on the population genetic structure of the country.

The Harappans moved east and south with the decline of their civilisation. In southern India, they mixed with the First Indians who were already there and gave rise to the lineage called the *Ancestral South Indians* (ASI). Populations in India today have different extents of ANI and ASI ancestry. Tony Joseph also discusses the practices of the Harappans and the Indo-Europeans and the connect and disconnect with the Vedas. An Epilogue provides a subjective commentary on the origin of caste and some takeaways from the book.

The author makes an analogy between the population genetic structure of India today with a pizza – the First Indian ancestry forms the base, which is unequal in thickness, the Zagrosian-First Indian mixing forms the sauce (that spread across India), the Indo-European ancestry forms the cheese (sprinkled more towards the north than the south), and other mi-



grant ancestries form the toppings, which are also not uniformly distributed across slices. The pizza is highly diverse and various slices have some differences. However, all of us, belonging to different tribes or castes or linguistic groups in the country, carry a large genetic signature of the First Indians, the pizza base. The toppings, cheese, and sauce are not unique to India, but the base is.

All the evidence at hand suggests that India is a multi-source civilisation, drawing its genetic heritage from repeated waves of migration, from the Out of Africa migrants through the West Asians, the East Asians, the Central Asians, and those who came more recently for trade, conquest, or asylum. These migrations have shaped the traditions, cultures, and languages that prevail in India today. We would do well to celebrate this glorious diversity in the country and enjoy the pizza with all its diversity.

I think *Early Indians* is an important book to read to understand how the peopling of a country can be quite complex. It also allows us to understand the significance of science and social science and the relevance of various lines of evidence in unravelling such complex mysteries. We also find that there is no single pure Indian or other culture. Cultures, traditions, and practices evolve over time, with newcomers adjusting to prevailing practices, previous settlers adopting some incoming ones, and

both often synergistically creating new practices. Another book *Confluences* [3] provides an excellent account of how cultures, ideas, religious traditions, and societies are shaped by the mingling of varied elements and I think that is also a must-read for all people. Thus, there are no “chosen people, unless all are” and we are all interconnected, with varying degrees of mixing. As Tony Joseph ends *Early Indians*, “We are all Indians. And we are all migrants.”

Acknowledgments

I thank the Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru, for support. I am grateful to Prof. Partha Majumder and Prof. Amitabh Joshi for comments on the article at very short notice.

Suggested Reading

- [1] S Deshpande, *Magic of Transforming a Fox Into a Dog! Resonance*, Vol.23, No.8, pp.925–927, 2018.
- [2] J Diamond J, *Collapse: How Societies Choose to Fail or Survive*, Penguin Books, 2006.
- [3] I Trojanow, R Hoskote, *Confluences Forgotten Histories from East and West*, Yoda Press, 2012.

T N C Vidya

Jawaharlal Nehru Centre for Advanced
Scientific Research
Bengaluru 560 064, India.
Email: tncvidya@gmail.com

