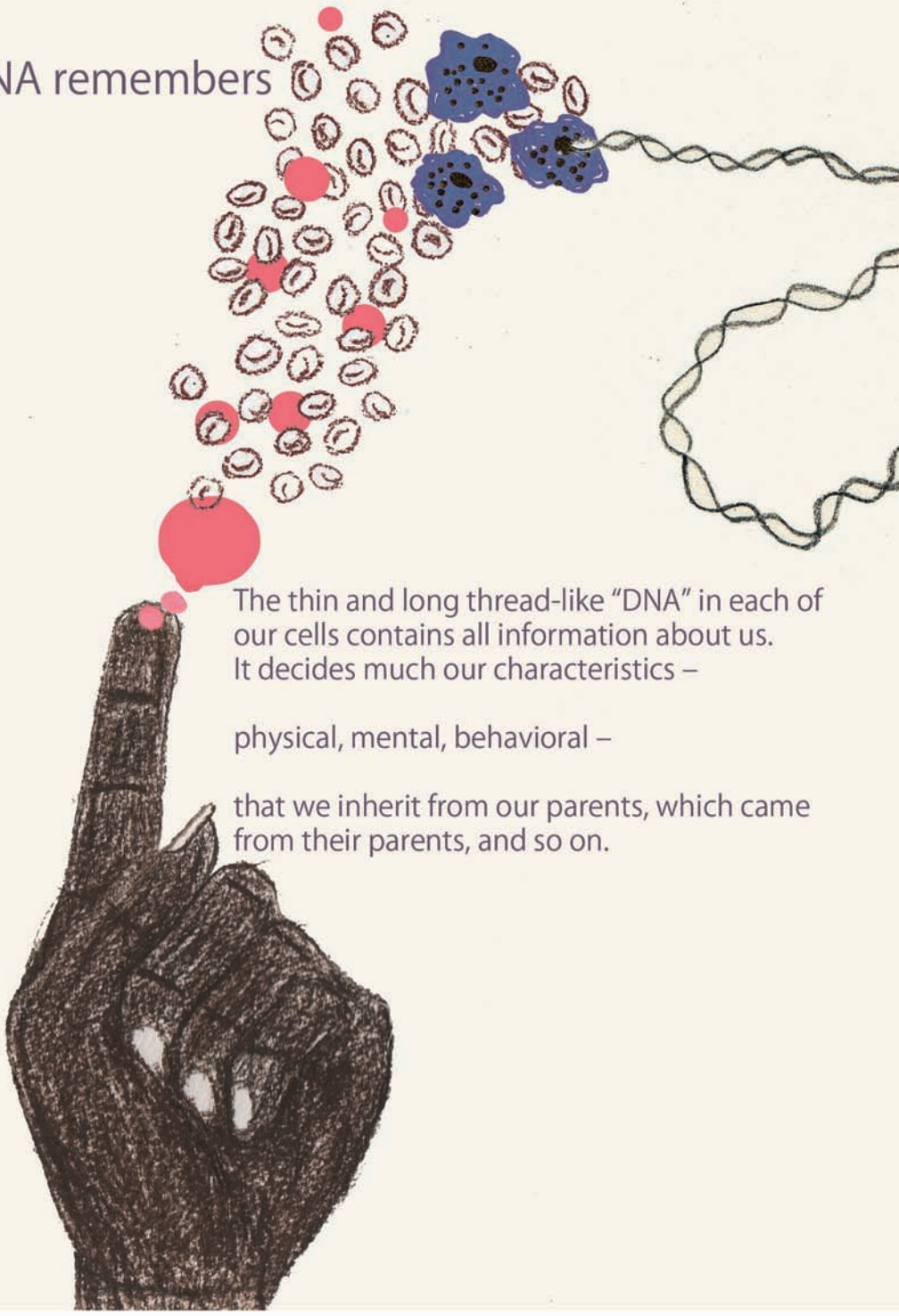
Who are we?

The popular belief divides Indians into distinct Aryan and Dravidian origins. It says the Dravidians were the original inhabitants of the continent, while the Aryans invaded from Europe.

Is it really true? How can we know about it?

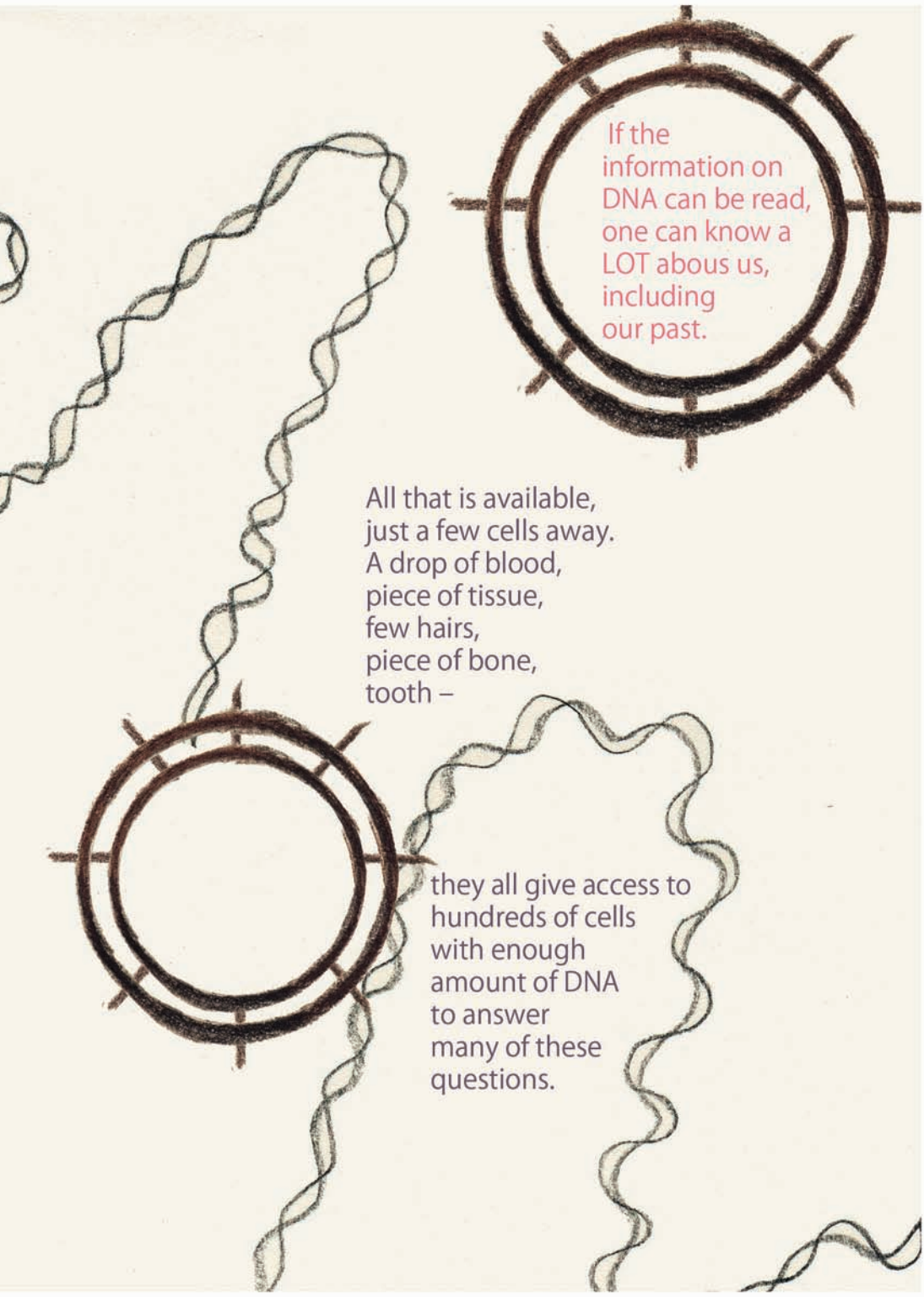
DNA remembers



The thin and long thread-like "DNA" in each of our cells contains all information about us. It decides much our characteristics –

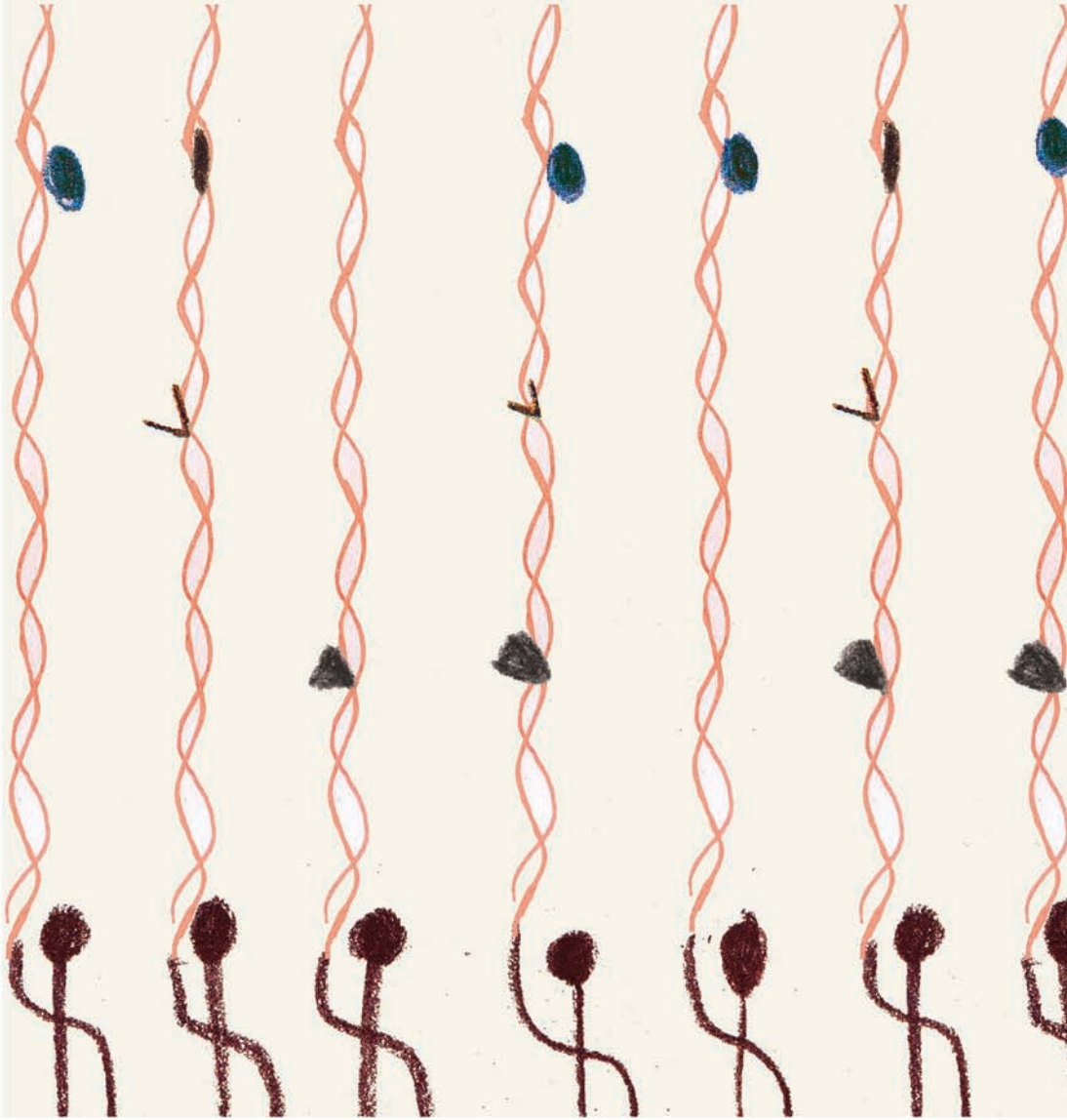
physical, mental, behavioral –

that we inherit from our parents, which came from their parents, and so on.


If the information on DNA can be read, one can know a LOT abous us, including our past.
All that is available, just a few cells away. A drop of blood, piece of tissue, few hairs, piece of bone, tooth –
they all give access to hundreds of cells with enough amount of DNA to answer many of these questions.

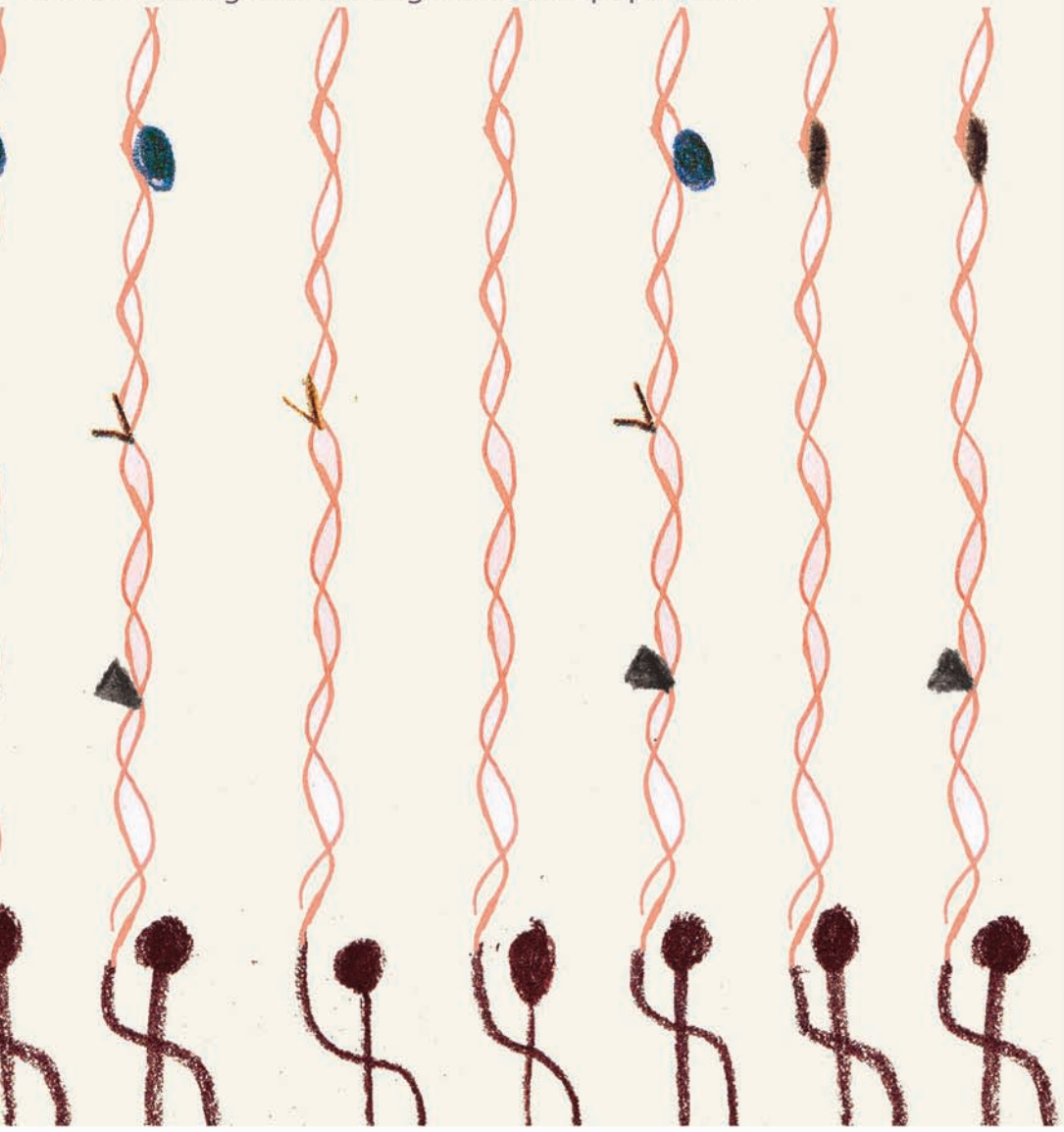
When DNA sequences of a large population are studied it is seen that some parts of the sequence remain fairly constant in all/most while some differ. For example, that is why all humans have the same body parts, say a nose but they look different from each other.

When looked closely enough, one sees these patterns in DNA of family members through generations. Hence, in a family many characteristics, again say the shape of a nose, stays often similar.



We do not yet know which characteristics are coded for, if at all, by 99.8% of our DNA. But the information stored in it is useful for researchers, like in Dr Kumarasamy Thangaraj's lab in CSIR-Centre for Cellular and Molecular Biology (CCMB). They look for patterns in DNA and compare it among populations across the globe. They use these to understand how populations are related to each other.

What they found in the study was totally unexpected and new from what we thought of the origin of Indian population.



India's huge population comprises 4635 ethnic groups speaking 4 classes of languages- Dravidian, Indo-European, Austro-Asiatic and Tibeto-Burman.

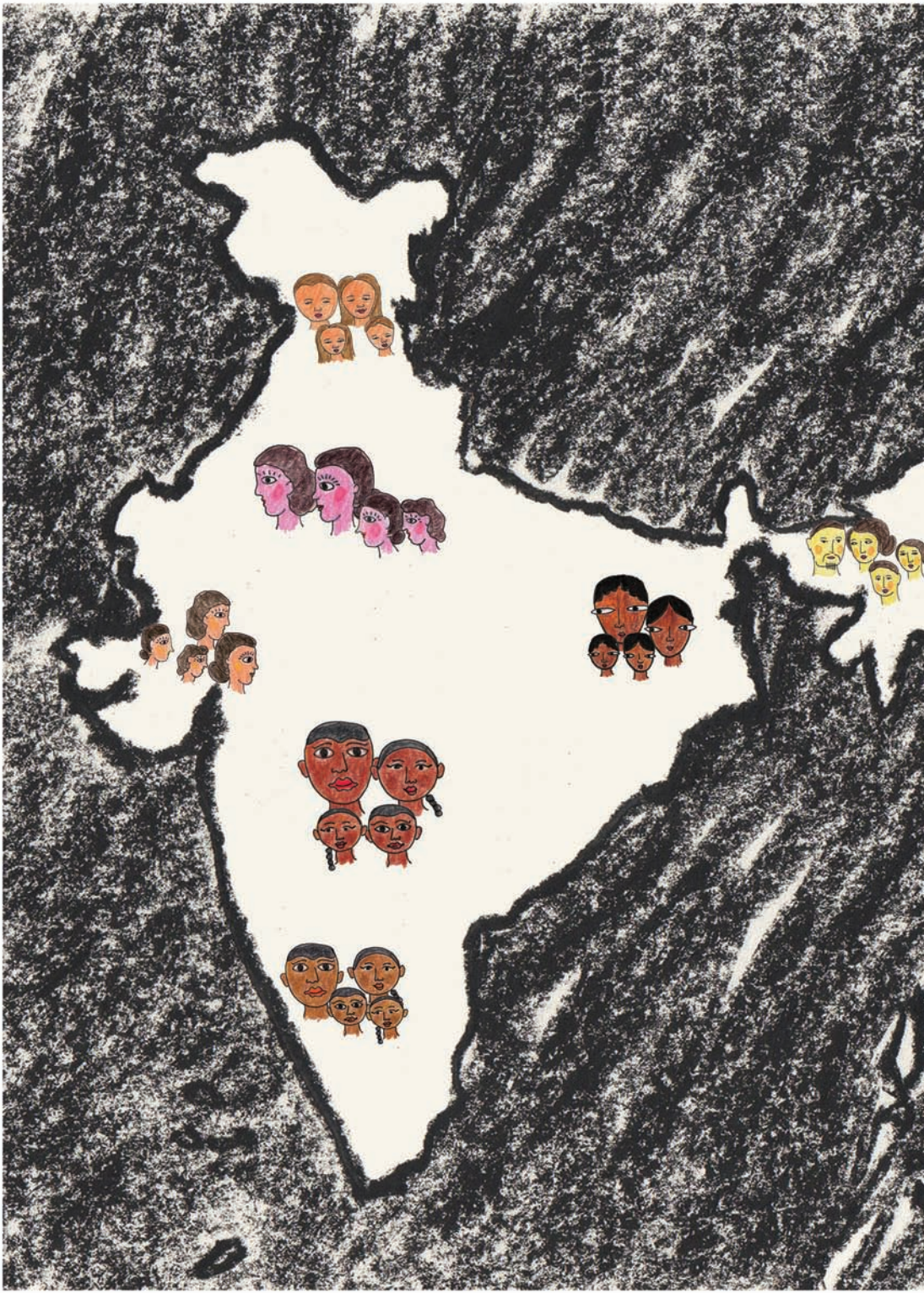
Let's see what their DNA reveals. Do their DNA sequences show they are related to each other?
Or
do they come from different ancestries, such as Aryans and Dravidians?

Origin of Indian population

CCMB found that the Indian population arose from two founding populations – the "Ancestral South Indians" (ASI) and the "Ancestral North Indians" (ANI).
Both ASI and ANI started from the African continent but followed different routes.

During the first wave of migration, they followed the coastal route from Africa, and reached India. Some of them settled in the South India and formed the ASI population. Some of them moved to the Andaman islands (forming the present day Andaman tribes), and some went further ahead to Australia (forming the Australian aboriginal population).

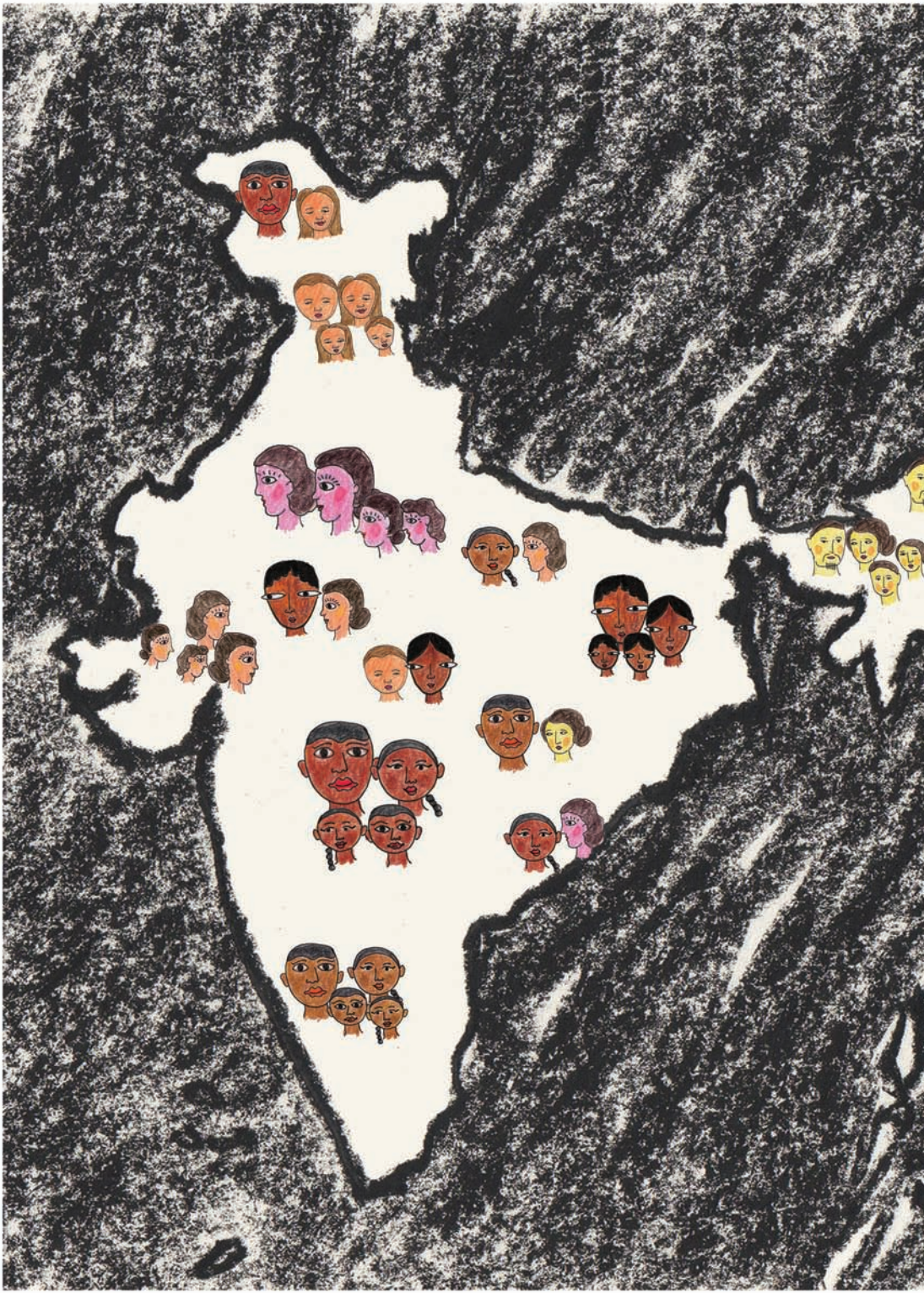
During the second wave of migration, they moved out of Africa towards north. From here some went to Europe while others to the Indian sub-continent through the Middle East, and formed the ANI population.



It was about 65,000 years ago that humans first arrived from Africa to Indian sub-continent via southern coastal route (forming the ASI).

Later movement from Africa to India was through Middle East (forming the ANI). It still remains to be found out how much later this movement happened.

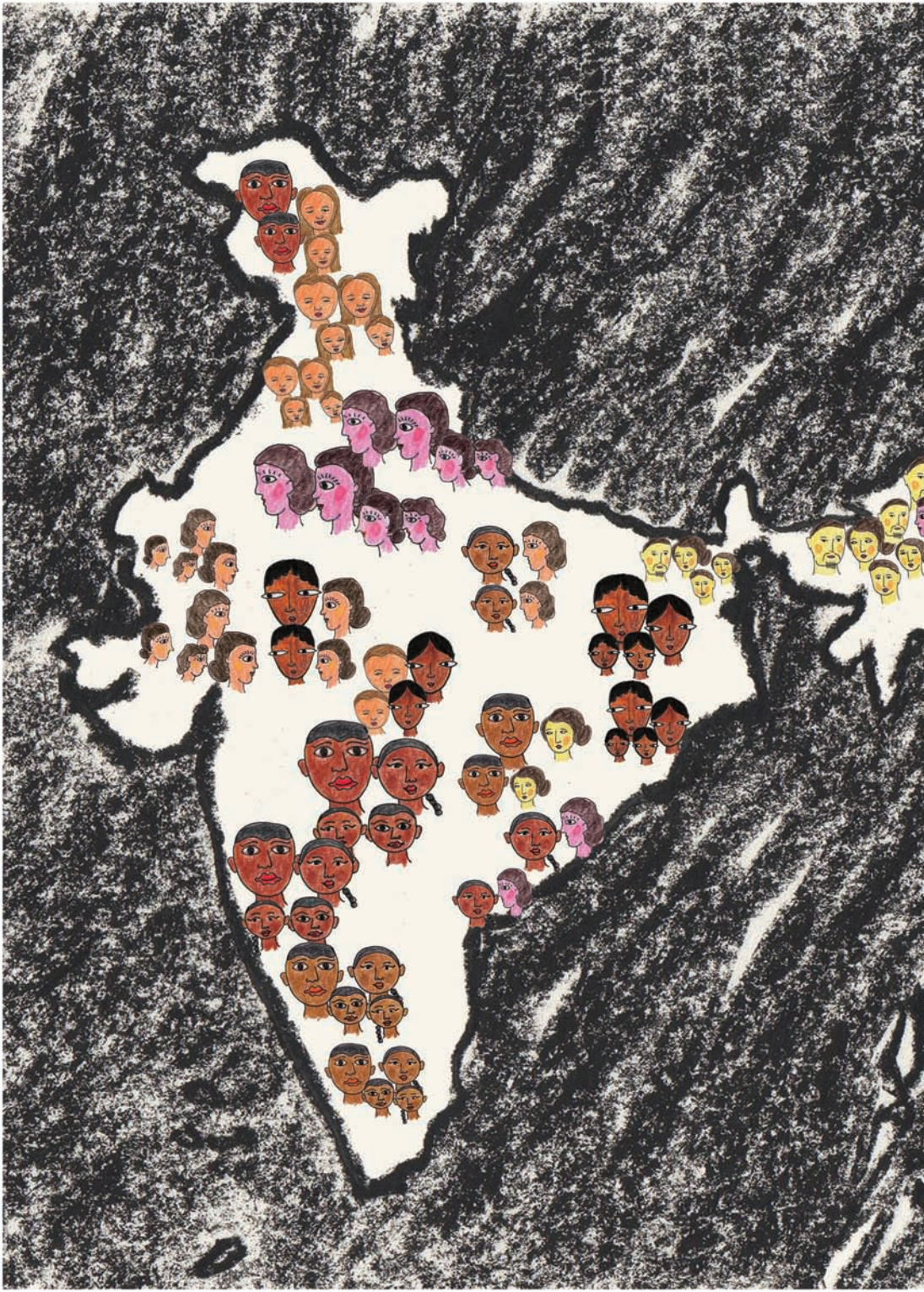
Until last 4000 years, ASI and ANI have independently given rise to several populations.



Then the ASI and ANI mixed and interbred with each other in the last 2000-4000 years. This gave rise to the present day Indian population.

This changed the way we viewed the origin of Indians.

We all largely emerged from the indigenous founding populations- ASI and ANI, with limited contribution from recent migrations.



It doesn't end there

These studies also found that over the last 2000 years, populations have preferred marrying and breeding within their own communities. Owing to this, the DNA make-up of people in these communities is very similar.

All our somatic*cells contain two copies of DNA - one from each of our biological parents. Many people in these communities carry a copy that can causea disease but the other copy protects them. They are called carriers - they don't suffer from the disease.

But children born of two carriers run a risk of getting both the disease-causing copies of DNA, and suffer from the disease. Or they also become carriers of the disease. This has been the basis of many recessive** diseases such as alkaptonuria and sickle cell anemia, and population-specific genetic diseases such as Handigodu disease in Karnataka.

* All our body cells are somatic except the reproductive cells such as sperms and ova.
** Conditions in which one affected copy of DNAis inherited from both biological parents.

The easiest for a community to avoid risks of genetic diseases is to stop marrying within population. It is essential for communities to have variety in their DNA sequences to maintain its health and well-being.

We now know that men and women, both can be carriers of genetic diseases. Today it is also possible to know the particular sequences of DNA, which are known to cause/ be correlated with some of the diseases. So, CCMB researchers advise one to check for these sequences to know if one is a carrier. It helps in choosing partners and/ or deciding to bear healthy children.

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