

DNA evidence tells 'global story' of human history

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In recent years, DNA evidence has added important new tools for scientists studying the human past. Now, a collection of reviews published by Cell Press in a special issue of *Current Biology* published online on February 22nd offers a timely update on how new genetic evidence, together with archaeological and linguistic evidence, has enriched our understanding of human history on earth.

"To understand what it is to be human, it is essential to understand the human past," says Colin Renfrew of the University of Cambridge, who first coined the term "archaeogenetics" and is the author of a guest editorial in the special issue. "Nearly all civilizations have their own origin or creation myth. Now we can use archaeogenetics to tell a global story that is robust and applicable to all human communities everywhere."

The journey started around 60 to 70 thousand years ago in Africa, where [modern humans](#) evolved more than 150 thousand years ago, and where human diversity is still the highest among all continents in terms of [genetic variation](#) and languages. From there, humans settled Europe and South Asia and reached Oceania. The Americas (apart from the remote Oceanian islands) were settled last.

The course and the extent of these first migrations remains evident in the [genetic makeup](#) of humans living today, but later migrations and the cultural practices that people carried with them—farming in particular—have also left their legacy. That legacy looks remarkably

similar wherever farming spread, in Europe, Africa, and East Asia. Natural selection also left its mark: A review by Jonathan Pritchard of the University of Chicago examines evidence for the genetic basis of human adaptations and the extent to which differences among human populations in characteristics such as lactose tolerance have been selected for over evolutionary time.

Each of the reviews is packed with fascinating insights. For instance, a review by Mark Stoneking and Frederick Delfin at the Max Planck Institute for Evolutionary Anthropology tells of an early migration of modern humans from Africa along a southern route to East Asia. Europe is perhaps the best-studied continent in terms of archaeogenetics, writes Martin Richards of the University of Leeds and his colleagues, and includes what Richards refers to as five major episodes, including the repopulation of Northern Europe after the Late Glacial Maximum. In the case of the Americas, [DNA evidence](#) has confirmed the Asian origin of indigenous Americans and more precise estimates of when Native Americans emerged. Dennis O'Rourke and Jennifer Raff of the University of Utah note, however, that many questions about the date of the initial colonization of the Americas remain.

Overall, the reviews show just how clear it has become that all of us trace our evolutionary roots to Africa, Renfrew says. For most of history, humans were not evolving in isolation on separate continents. When it comes to our more recent history, stay tuned: Many surprising discoveries are likely in store over the next 20 years.

Of course, there are many things about our ancient ancestors we will never be able to know with any certainty, Partha Majumder of the Indian Statistical Institute reminds us in his review of human genetic history in South Asia.

"About 100,000 years ago, a small group of anatomically modern

humans migrated out of Africa," he writes. "We will never know for sure which causes initiated this migration... The process continued for thousands of years; today humans occupy the entire world."

Provided by Cell Press

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