

COVER

Like our parents



New study argues that the first Americans looked like Africans, which increases the controversy over man's arrival in the Americas

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Published in April 2011



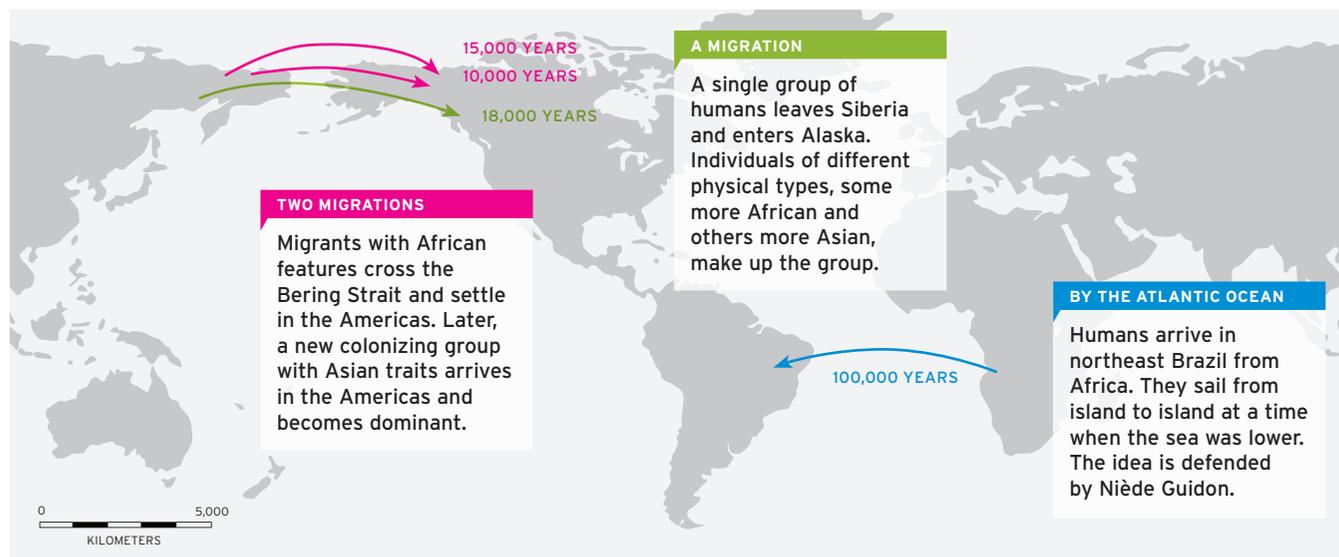
Skulls from Lagoa Santa: American with African traces

Homo sapiens was not separated into distinct races with distinctive physical types before settling throughout the Americas, the last great, habitable land block conquered by the species, according to a new study. The initial group of hunter-collectors reached the Americas from Asia more than 15,000 years ago along a path now submerged by the Bering Strait. They had an anatomical structure very similar to that of the first population of modern humans migrating out of Africa between 55,000 and 70,000 years ago. After leaving the cradle of humanity, *H. sapiens* entered Asia, which served as a base from which to reach Europe and Australia, and then later the Americas. “Until 10,000 years ago all *Homo sapiens* present on any continent had a standard African cranial morphology,” says bio-anthropologist Walter Neves of the University of São Paulo (USP). “The racialization process had not yet begun.” The appearance of distinct races such as the Caucasians and Mongoloids (Asians with almond-shaped eyes and a flat face) was a very recent biological phenomenon that occurred after man had spread over almost the whole Earth.

Neves defends this controversial hypothesis in an article published in the March edition of the *American Journal of Physical Anthropology*. He has two co-authors, both of whom are physical anthropologists: Brazilian Mark Hubbe, from the Archaeological Investigation Institute and the Museum of Catholic University of the North (Chile), and Greek Katerina Harvati, from the University of Tübingen (Germany). Neves, Hubbe and Harvati identified 24 anatomical characteristics of the skulls of human beings living between 10,000 and 40,000 years ago in South America, Europe and East Asia. They then compared these characteristics to those of individuals from the present day from these three regions. The fossils were also compared to people currently living in Sub-Saharan Africa, Oceania and Polynesia. In all, 48 ancient skeletons were compared (32 from South America, 2 from Asia and 14 from Europe) to 2,000 present-day skeletons. “Regardless of their geographical origin, members of the ancient populations are much more like their contemporaries from the past than they are like humans of today,” comments Hubbe. In other words, the physical features of those humans who first left Africa and those who settled 40,000 years later in the Americas were practically the same. According to this view, the conquest of the world was a rapid phenomenon; *Homo sapiens* used coastal routes that were efficient and easily traversed. This rapid spread gave humans almost no time to adapt physically to their new environments.

The results of the study support the settlement model of the Americas that has been defended by Neves (whose work is largely funded by FAPESP) for over 20 years. According to this hypothesis, the Americas were colonized by two migratory waves of distinct peoples who crossed the Bering Strait at different times. The first group crossed 15,000 years ago and was comprised of humans who still possessed a “pan-African” morphology, to use the term employed by Neves. Members of this initial band of hunter-collectors are likely

THREE VIEWS OF ARRIVAL IN THE AMERICAS



to have resembled Luzia, the famous 11,000-year old female skull found in the Minas Gerais region of Lagoa Santa. These humans had broad noses, wide eye sockets, forward-projecting faces and narrow, elongated heads. Although it is impossible to determine with any degree of certainty the color of their skin, they were probably black. All of their descendants disappeared mysteriously at some point in pre-historic times and left no representatives among the tribes present on the South American continent today.

The African features of these early humans fit with Neves' settlement theory. Later, this group of settlers was supplanted by a second migratory movement of humans from Asia to the Americas. This new group entered the New World between 9,000 and 10,000 years ago and exclusively comprised individuals with the physical characteristics of the so-called Mongoloid people, the descendants of whom are like current Asian races and the indigenous tribes still alive today in the Americas. Humans with this Asiatic appearance, which possibly arose as an adaptation to the extremely cold climate of Siberia (and possibly the Arctic), cannot have been part of the first migratory group to the Americas. Neves, Hubbe and Harvati claim that the reason is simple: at the time of that

first migration, this Mongoloid physical type had not yet appeared.

There is far from a consensus on this settlement model of the Americas. DNA analyses taken from extinct and living indigenous populations of the continent, especially from the sequences contained in the mitochondrial genome (the maternal line, i.e., inherited from the mother) and from the Y chromosome (the paternal line), tell a different story. These results support the hypothesis that there was just one movement of individuals from Asia towards the New World, and that this crossing occurred thousands of years before the date suggested by the archaeological evidence. "Practically all the biological diversity of current human types was already

present in the single migratory group that entered the Americas," says geneticist Sandro Bonatto, of the Pontifical Catholic University of Rio Grande do Sul. "Only the Eskimos, a population that represents the most extreme and latest case of the so-called Mongoloid morphology, still had not originated and were not part of this group."

In October 2008, Bonatto, along with colleagues from Brazilian and Argentinian institutions, published a scientific article in the *American Journal of Physical Anthropology*, the same journal that published Neves' work. The study analyzed 10,000 pieces of genetic information and the anatomy of 576 skulls of extinct and current populations from North and South America. According to the article, a fairly physically heterogeneous group of hunter-collectors had already left Siberia and settled in Alaska approximately 18,000 years ago. This first band contained humans with Asian features and humans with more African features. This model also differs from Neves and Hubbe's because it maintains that before entering the New World, these colonizers were forced to stop in Beringia, the dry land (now submerged by the Bering Strait) that once connected Asia to the Americas.

This stop on the divide between the two continents occurred between 18,000 and 26,000 years ago, a period in which giant glaciers blocked entry

THE PROJECT

Origins and microevolution of man in the Americas: a paleoanthropological approach III - n° 2004/01321-6

TYPE

Thematic Research Grant

COORDINATOR

Walter Neves - Institute of Biosciences of USP

INVESTMENT

R\$ 1,555,665.94 (FAPESP)

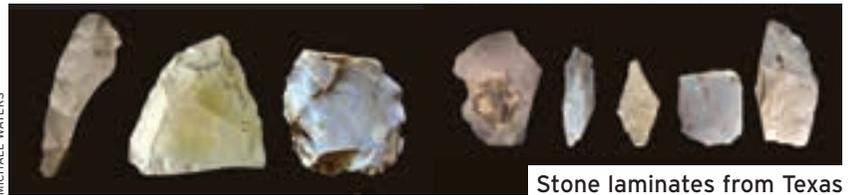
to the Americas. When the route finally opened up, the final leg of the migration took place. However, according to this hypothesis, the necessary stop in Beringia produced specific mutations in the DNA of the population of humans imprisoned between the two land masses. These genetic alterations are not found in the peoples of Asia but were passed on to the descendants of the earliest Americans. A recent study, in which Brazilians took part, suggests that one of these mutations favored the accumulation of cholesterol and is found in Indians from the continent.

The models described, which are only two of the theories about how the Americas were settled, seem irreconcilable. But the Argentinean physical anthropologist, Rolando González-José, of the National Patagonian Center in Puerto Madryn, a frequent collaborator and co-author with Neves and Bonatto, sees strengths and weaknesses in both approaches: "I agree that many variations present in the skull of man are of recent origin, but it also needs to be said that the ancient populations may have been fairly heterogeneous", says González-José. "Neves' model is not totally wrong, but it's difficult to question the genetic data and it shows that all American Indians descend from a single population."

There are other views on the settlement process of the Americas, and some of them are even more controversial. According to archaeologist Niède Guidon, the founder and president of the Museum of the American Man Foundation (Fumdham) and administrator of the Serra da Capivara National Park in Piauí, man was already in northeast Brazil 100,000 years ago. Humans came from Africa by sailing from island to island and taking advantage of times when the sea was far lower than it is today. "Navigation is a lot older than is thought," claims Guidon. "I don't believe that *Homo sapiens* colonized the Americas via the Bering Strait."

With almost 1,300 pre-historic sites full of beautiful rock paintings, the Serra da Capivara National Park has already supplied 33 human skeletons and more than 700,000 stone artifacts for the museum's collection. The dates supplied by Guidon indicate a human

THE OLDEST SITE IN THE USA



MICHAEL WATERS

Stone laminates from Texas

A new and important piece of the complicated puzzle regarding when *Homo sapiens* entered the Americas appeared at the end of March 2011. A team of researchers led by Michael Waters from the University of Texas A&M publicized its discovery of the oldest trace of human presence in North America. Located in Buttermilk Creek, Texas, the Debra L. Friedkin site houses some 15,500 artifacts made by humans an estimated 15,500 years ago. These artifacts are essentially blade-like objects, many of them unfinished and some two-sided, made from a type of quartz. "The site is in the center of the state, and it must have taken man some time to find this location," said Waters in an interview with *Pesquisa FAPESP*. "It's possible that [man] arrived in the Americas before then, but how much earlier, I couldn't say. Only time and more hard work can tell us."

The artifacts were dated using the luminescence technique. This method measures the energy from the last rays of the sun (or from final exposure to intense heat) that were trapped in the sediment of the 20 cm thick geological layer in which the pieces were found. No bones were found in the location, but scientists say that the objects were undoubtedly hewn by *Homo sapiens*

and could have been used as knives or spearheads. They may even have formed part of an assortment of items that ancient humans carried with them in their wanderings.

The study was rolled out with much fanfare. After all, the ancient inhabitants of Buttermilk Creek lived 2,500 years before the so-called Clovis culture, which got its name from an archaeological site in New Mexico where 13,000-year old stone spearheads were found around 80 years ago. Until the 1980s, the predominant and largely unquestioned theory was that the Clovis culture was the oldest in the Americas. However, over the last few decades, the discoveries of other sites as old or older than Clovis, both in North America and Central and South America, have increasingly undermined this theory.

The new findings in Texas seem to bury, once and for all, the theory that the ancient inhabitants of New Mexico were the first to settle in the Americas. Because the blade-like objects from the Debra L. Friedkin site were found close to fragments of Clovis-style spearheads, and because the two objects bear similarities, the researchers believe that the Clovis culture may have derived from the earlier Buttermilk Creek culture.

presence in northeast Brazil for at least 50,000 years, but these findings are questioned by many of her peers. Guidon does not risk speculating on the physical appearances of those responsible for the park's prehistoric drawings, although some preliminary studies suggest that they may have been similar to Luzia and her tribe. ■

Scientific article

HUBBE, M. *et al.* Paleoamerican Morphology in the Context of European and East Asian Late Pleistocene Variation: Implication for Human Dispersion Into the New World. **American Journal of Physical Anthropology**. v. 50, n. 3, p. 442-53. Mar. 2011.