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The peopling of the Americas

The current issue of the English version of *Pesquisa FAPESP* contains a number of prominent articles that appeared between January and April 2011. The cover feature focuses on a new study on the earliest Americans, which suggests that they entered the continent more than 15,000 years ago, coming from Asia via the Bering Strait (*page 12*). They seem to have had an anatomical structure similar to that of the first population of modern humans that left Africa in search of other lands some 55,000 to 70,000 years ago. The occupation started with Asia, continued toward Europe and Australia, and finally reached the Americas. The research in question indicated that 10,000 years ago the cranial morphology of all the *Homo sapiens* on every continent had an African pattern. This means that the differentiation of physical types, such as Caucasian or oriental, is a very recent phenomenon that took place after humans had already established themselves on all quadrants of the Earth.

The study was conducted by two Brazilian researchers, one from the University of São Paulo, in Brazil, and the other from the Catholic University of the North, in Chile, together with a Greek researcher from the University of Tübingen in Germany. They compared 24 anatomical features of the craniums of humans who lived 10,000 to 40,000 years ago in South America. The results support the hypothesis that the Americas were colonized by two migratory waves of different peoples that crossed the Bering Strait into the continent at different times. The first is thought to have occurred 15,000 years ago by people with a “pan-African” morphology. These humans with African traits are believed to have been

replaced, according to this theory, by a second migratory wave that arrived between 9,000 and 10,000 years ago. A second, older theory advocates that a single group of humans with varying physical types left Siberia for Alaska 18,000 years ago. The third hypothesis proposes that man first arrived in the Brazilian northeast coming from Africa by sea and stopped along the way at several islands at a time when the sea was low. As one can see, the study underlying the cover of this issue expands the discussion on the peopling of the Americas.

Two other articles merit mention. The first concerns the fight against dengue fever, an infectious disease that is one of the main public health problems in tropical countries, such as Brazil (*page 34*). Through genetic manipulation, a population of laboratory-raised male *Aedes aegypti* mosquitoes received a protein that kills the offspring resulting from their crossing with normal females. The objective is to suppress a large number of individuals of this species, to reduce spraying with insecticides, and consequently to diminish the incidence of the disease among humans. The genetically modified mosquitoes were released in inner-state Bahia at the beginning of this year.

The second article shows how high precision measurements of the force of gravity appear to point to a deformation of the supposedly perfect sphere of the Earth as seen from space (*page 28*). For example, the highs and lows of the ocean surface, which constantly adjusts itself according to the field of gravity, might indicate that “sea level” does not even exist. It is well worth exploring this entire story.

All these researches were directly or indirectly supported by FAPESP.

Enjoy your reading.