Biological anthropologists question claims for human ancestry

February 16 2011

"Too simple" and "not so fast" suggest biological anthropologists from the George Washington University and New York University about the origins of human ancestry. In the upcoming issue of the journal *Nature*, the anthropologists question the claims that several prominent fossil discoveries made in the last decade are our human ancestors. Instead, the authors offer a more nuanced explanation of the fossils' place in the Tree of Life. They conclude that instead of being our ancestors the fossils more likely belong to extinct distant cousins.

"Don't get me wrong, these are all important finds," said co-author Bernard Wood, University Professor of Human Origins and professor of Human Evolution Anatomy at GW and director of its Center for the Advanced Study of Hominid Paleobiology. "But to simply assume that anything found in that time range has to be a human ancestor is naïve."

The paper, "The evolutionary context of the first hominins," reconsiders the evolutionary relationships of fossils named Orrorin, Sahelanthropus and Ardipithecus, dating from four to seven million years ago, which have been claimed to be the earliest human ancestors. Ardipithecus, commonly known as "Ardi," was discovered in Ethiopia and was found to be radically different from what many researchers had expected for an early human ancestor. Nonetheless, the scientists who made the discovery were adamant it is a human ancestor.

"We are not saying that these fossils are definitively not early human ancestors," said co-author Terry Harrison, a professor in NYU's

Department of Anthropology and director of its Center for the Study of Human Origins. "But their status has been presumed rather than adequately demonstrated, and there are a number of alternative interpretations that are possible. We believe that it is just as likely or more likely that they are fossil apes situated close to the ancestry of the living great ape and humans."

The authors are skeptical about the interpretation of the discoveries and advocate a more nuanced approach to classifying the fossils. Wood and Harrison argue that it is naïve to assume that all fossils are the ancestors of creatures alive today and also note that shared morphology or homoplasy – the same characteristics seen in species of different ancestry – was not taken into account by the scientists who found and described the fossils. For example, the authors claim that for Ardipithecus to be a human ancestor, one must assume that homoplasy does not exist in our lineage, but is common in the lineages closest to ours. The authors suggest there are a number of potential interpretations of these fossils and that being a human ancestor is by no means the simplest, or most parsimonious explanation.

The scientific community has long concluded that the human lineage diverged from that of the chimpanzee six to eight million years ago. It is easy to differentiate between the fossils of a modern-day chimpanzee and a modern human. However, it is more difficult to differentiate between the two species when examining fossils that are closer to their common ancestor, as is the case with Orrorin, Sahelanthropus, and Ardipithecus.

In their paper, Wood and Harrison caution that history has shown how uncritical reliance on a few similarities between fossil apes and humans can lead to incorrect assumptions about evolutionary relationships. They point to the case of Ramapithecus, a species of fossil ape from south Asia, which was mistakenly assumed to be an early human ancestor in

the 1960s and 1970s, but later found to be a close relative of the orangutan.

Similarly, Oreopithecus bambolii, a fossil ape from Italy shares many similarities with early human ancestors, including features of the skeleton that suggest that it may have been well adapted for walking on two legs. However, the authors observe, enough is known of its anatomy to show that it is a fossil ape that is only distantly related to humans, and that it acquired many "human-like" features in parallel.

Wood and Harrison point to the small canines in Ardipithecus and Sahelanthropus as possibly the most convincing evidence to support their status as early human ancestors. However, canine reduction was not unique to the human lineage for it occurred independently in several lineages of fossil apes (e.g., Oreopithecus, Ouranopithecus and Gigantopithecus) presumably as a result of similar shifts in dietary behavior.

Provided by New York University

Citation: Biological anthropologists question claims for human ancestry (2011, February 16) retrieved 29 April 2024 from https://phys.org/news/2011-02-biological-anthropologists-human-ancestry.html