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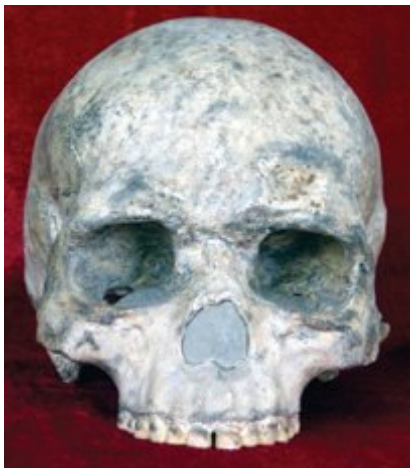
Chinese Roots: Skull may complicate human-origins debate

Bruce Bower December 21, 2002

In 1958, farm workers digging in a cave in southern China's Liujiang County discovered several human bones including a skull. Relying on its resemblance to securely dated human fossils in Japan, scientists assigned this Homo sapiens skull an age of 20,000 to 30,000 years.



ASIAN CONNECTION. If southern China's Liujiang skull is really more than 100,000 years old, this modern Homo sapiens fossil will shake up theories of human evolution.
W. Wang

However, the Liujiang finds may be much older than that, according to a report in the December Journal of Human Evolution. The fossils probably came from sediment dating to 111,000 to 139,000 years ago, says a team led by geologist Guanjun Shen of Nanjing (China) Normal University. He and his coworkers add that it's still possible that the Liujiang discoveries came either from a cave deposit dating from around 68,000 years ago or from one dating to more than 153,000 years ago.

If any of these estimates pans out, "the Liujiang [specimen] is revealed as one of the earliest modern humans in East Asia," the team concludes. The presence of modern humans in this part of the world 100,000 years ago or more would roughly coincide with their earliest fossil dates in Africa and the Middle East.

Evidence of such ancient roots for H. sapiens in China creates problems for the influential out-of-Africa theory of human evolution, Shen's group says. That theory holds that modern humanity originated in Africa between 100,000 and 200,000 years ago and then spread elsewhere, replacing other Homo species. If the Liujiang dates were confirmed, out-of-Africa adherents would need to find older African H. sapiens fossils than they now have or show that modern humans migrated extremely quickly from Africa to eastern Asia.

The new dates also suggest that other, more-primitive-looking Chinese Homo fossils that date to 150,000 to 100,000 years ago represent a lineage that coexisted with modern humans, Shen proposes.

Scientific accounts from 1959 and 1965 of the Liujiang discoveries guided the new determination of the fossils' likely burial site. Shen's team mapped various soil deposits in the cave and calculated the age of crystallized limestone samples by using the rate of uranium decay.

Uranium analyses at other sites support an ancient origin of modern humans in southern China, Shen says. H. sapiens teeth found at two other caves in this region come from sediment that his group dates to at least 94,000 years ago.

Anthropologists with divergent views about human evolution say that the new age estimate for the Liujiang skull remains preliminary. It's still uncertain how the skull got in the cave and where it was originally buried, remarks Christopher B. Stringer of the Natural History Museum in London. Stringer, an out-of-Africa proponent, says that Shen's team members need to date either the skull itself or the calcite clinging to its surface to make their case.

Milford H. Wolpoff of the University of Michigan in Ann Arbor agrees. "I'd love for the Liujiang skull to be as old as Shen proposes, but we'll never know for sure without directly dating the specimen," Wolpoff holds. In his view, modern humanity evolved simultaneously in Africa, Asia, and Europe over the past 2 million years.

Shen says he hopes to work out an agreement with Chinese officials in charge of the Liujiang skull to date the specimen directly.

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References:

Shen, G., W. Wang, et al. 2002. U-series dating of Liujiang hominid site in Guangxi, Southern China. Journal of Human Evolution 43(Dec. 1):817–829. Abstract available at http://dx.doi.org/10.1006/jhev.2002.0601.

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