

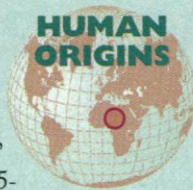
## African Origins: West Side Story

Ask most paleoanthropologists where an ancestral ape took its first humanlike steps, and they're likely to point to East Africa. After all, the oldest known bipedal hominid, 4.1-million-year-old *Australopithecus anamensis*, was found in Kenya, while the slightly younger *Australopithecus afarensis*, typified by the famous skeleton "Lucy," was found in Ethiopia. But the discovery of a 3- to 3.5-million-year-old australopithecine fossil in Chad, some 5400 kilometers to the west in the heart of the African continent, has upset that East African-centric view. "Human origins is not just an east-side story," says Michel Brunet, a paleoanthropologist at the University of Poitiers, who found the partial lower jawbone in January. "It's a west-side story, too."

Brunet's find, preliminarily assigned to *Australopithecus afarensis*—although Brunet himself thinks it may be a new species—is reported in the 16 November issue of *Nature*. It already has scientists backpedaling about previous declarations labeling East Africa the cradle of humankind. "I think that's been a very naive view," says Alan Walker, a paleoanthropologist at Pennsylvania State University, "and so we're going to have to rethink things, which is good for the field."

One idea being heavily rethought is the notion that East Africa's long Rift Valley acted as a geographical barrier to ape populations in the late Miocene, 5 million to 7 million years ago, separating those that became hominids in the savannas of the east from forest-dwelling apes in the west. "Now we have early australopithecines all around Africa," says Brunet, "which makes it impossible to tell the exact place of origin."

Or the cause of that origin. Previously, scientists such as Yves Coppens, a paleoanthropologist at the College de France in Paris and a co-author of the new paper, had suggested that hominids had evolved in the eastern part of the continent because of habitat changes associated with the development of the Rift



**Dislocated jaw.** This new hominid mandible was found in Central—not East—Africa.

Valley. "The rise of the western Rift has been linked to the development of the more open savanna country one finds in East Africa," explains David Pilbeam, director of Harvard University's Peabody Museum and another co-author of the new paper. Open country, in theory, created selective pressure driving apelike creatures out of the trees and onto the ground. "And that, in turn, was seen as causing the origin of the hominids. But I don't think the Rift Valley was the mechanism," he says. The habitat of the Chad hominids seems to have been a dry, grassy woodland, according to animal fossils from the site. "We have rhinoceroses, giraffe, and hipparion [horse], which suggest grasslands, and pigs and elephants, which are more adapted to woodlands," Brunet says.

The finds will focus more attention on Central and West Africa as potential hotbeds of hominid activity. "We've always thought of the [current] West and Central African tropical rain forest as being around forever, while the east became a savanna," explains Rick Potts, a paleoanthropologist at the Smithsonian Institution's Natural History Museum. "That ecological distinction was thought to be the critical marker of the human-ape split. Now it's clear that we don't really know a single thing about what was going on in West Africa at that time."

Brunet hopes that future discoveries at his site will give scientists a clearer view of ancient West Africa—and help him nail down the precise species of the Chad specimen. Currently, Brunet says, the two australopithecines known from that period are *A. afarensis* and *A. anamensis*. "I think we will find that it is something new," he predicts. "I think there were more than just two australopithecines 3.5 million years ago—it was more complicated than that, as we know now their origins were, too."

—Virginia Morell

Center and colleagues redated *H. erectus* skulls from Java to 1.6 million and 1.8 million years old (*Science*, 25 February 1994, pp. 1087 and 1118). And earlier this year, scientists in the Republic of Georgia published an *H. erectus* jawbone, estimated to be 1.6 million to 1.8 million years old, from the site of Dmanisi, Georgia.

But many researchers remain skeptical of all three of the earlier dates. The geology of cave deposits such as Longgupo is notoriously complex, because material falling from above may become jumbled with rocks of different ages, says hominid expert Philip Rightmire of the State University of New York, Binghamton. He's not convinced that the hominids are truly older than the deer tooth dated by ESR. And the Chinese team remains leery of the Java dates. The problem, says Ciochon, is that the Chinese hominid looks more primitive than the Javanese ones. Unless there were two ancient hominids in Asia, it doesn't make sense to have a pre-

*erectus* hominid in China at the same time as true *erectus* in Java. Meanwhile, Swisher and Georgian colleagues are now redoing the paleomagnetism for the Dmanisi site.

But even more contentious than the date is the notion that the travelers were "pre-*erectus*." That conclusion is based on "pretty scrappy evidence," says Rightmire. The hominid fossils are incomplete, and the stone tools are so simple that Rightmire and others wonder if they are really artifacts. "This is not the material on which I'd choose to erect bold new scenarios of Chinese prehistory," he says. As F. Clark Howell of the University of California, Berkeley, points out, partial jawbones of early hominids are difficult to classify. To paleoanthropologist Alan Walker of Pennsylvania State University, who supports the more classical idea that *H. erectus* led to *H. sapiens*, the Chinese hominid is "just early *erectus*." If so, *H. erectus* could have evolved in Africa, then dispersed to Asia, albeit earlier than had

been thought. But the link between *erectus* and *H. sapiens* would be intact.

Other anthropologists have more fundamental concerns about the fossils' identity. Milford Wolpoff of the University of Michigan, who saw the specimens on a trip to China several years ago, isn't even convinced that the partial jaw is a hominid. "I believe it is a piece of an orangutan or other *Pongo*," he says. He bases that conclusion on a wear facet on the preserved premolar, which to him suggests that the missing neighboring tooth is shaped more like an orang's than a human's.

Yet despite the murmurs of doubt, the evidence is mounting in favor of an early excursion out of Africa, accomplished with only crude stone technology. Whether the first travelers are properly called *H. erectus* or something else, the newest work all points to the same conclusion: The urge to wander is an ancient trait that evolved near the dawn of our lineage.

—Elizabeth Culotta