

Johanson's reaction stunned Curtis and Swisher, they say, because Johanson and IHO's other paleoanthropologist, William Kimbel, receive their own funding from the Leakey Foundation and because Johanson knew they were applying for funding from the foundation. Shea notes, however, that Johanson was pursuing the same donor for IHO and did not know his staff was meeting with the donor and the Leakey staffers.

Getty, who is friendly with Curtis, heard about these confrontations and was distressed by them, say IHO board members. Other scientists say Getty was also concerned about rumors that the IHO has angered several researchers working in Ethiopia—a fertile site for fossils—and many worry that these tensions could jeopardize all foreigners' chances of working there.

Although Johanson would not return repeated phone calls to the IHO from *Science*, Shea did respond. She says that while Johanson has a "dramatic personality," he

wasn't the only one to blame for the bad blood with the geochronology lab. He and Curtis have not gotten along well for years, but Curtis fueled those tensions by complaining about Johanson to Getty. As for the charge that Johanson spent too little time doing scientific research, Shea cites the recent *Nature* paper, in which Johanson helped analyze the first nearly complete skull of our oldest known nonape ancestor—widely hailed as a major discovery. Shea also says it was part of Johanson's job to raise funds for the IHO and to educate the public about anthropology. Finally, she says, Getty never discussed these problems alone with Johanson before he sought to withdraw his funding: "Don would have rather have had a conversation with Gordon than hear it like this."

Once the board had heard and rejected Getty's conditions on 3 May, Getty proposed that the board adjourn for 24 hours to plan an amicable split of the institute, including the gradual phaseout of his support. But Koch

moved that the board stop funding the geochronology lab immediately, partly, he says, because he was quite sure that Getty would continue to support the geochronology lab independently.

And that, apparently, will happen. Getty has agreed for the interim to support the lab, which is setting itself up independently as the Berkeley Geochronology Center, with its own board of directors. And despite the contentiousness of the breakup, both groups now seem reconciled to the split and are in negotiations to transfer the lease for the lab, the NSF grants, and lab equipment to the geochronology group.

The IHO, which has been thinned down to a staff of three scientists including Johanson, even has plans for expansion if it can raise the funds—it intends to hire another paleoanthropologist, says Kimbel. He adds: "We're just trying to stay focused on the science. That's what we are—scientists."

—Ann Gibbons

## ARCHAEOLOGY

# England's Oldest Human Bone Steps Out

Last fall, archaeologist Mark Roberts of University College London (UCL) was preparing to close up shop on a decade-long excavation project when a leg prevented him from shutting the door. Roberts had been directing a dig at a 500,000-year-old site at Boxgrove, in West Sussex in the south of England. His team had unearthed a treasure trove of stone tools presumably made by the site's human inhabitants—although they'd found no human bones—but funding for the research was about to run out. Then, in December, amateur archaeologist Roger Pedersen pulled a sturdy-looking bone out of a geologic test trench. It turned out to be the shaft of a human tibia, or shinbone, and is possibly the oldest human bone ever found in Europe.

What has researchers truly excited, however, is not just the 500,000-year-old antiquity of the Boxgrove tibia—which is described in this week's issue of *Nature* by Roberts, his UCL colleague Simon Parfitt, and paleoanthropologist Christopher Stringer of London's Natural History Museum—but the fact that it has been found at a site that is so rich in artifacts. The only other European find from this time period—a jawbone found in 1907 at Mauer, near Heidelberg in Germany—was found alone. "Mauer was a lucky find by some gravel workers.

There was no archaeology with it," says archaeologist Clive Gamble of the University of Southampton. Because the Boxgrove tibia did come with archaeology, researchers think they can begin to connect the earliest Europeans' bodies to their behavior. "[There is] the promise of learning something of the paleobiology of these creatures," says paleoanthropologist Bernard Wood of the University of Liverpool.

Roberts' team inferred the tibia's age from animal remains found in the surrounding sediments, in particular those of an early form of the modern water vole *Arvicola terrestris*, which appears in the fossil record around 500,000 years ago. And those same sediments have preserved what Gamble calls a series of "Polaroid snapshots of what went on 500,000 years ago."

For instance, Roberts' team has uncovered numerous tool manufacturing sites, where the people who inhabited the Boxgrove area stopped to make the two-faced oval hand axes they used to dismember animal carcasses. But while dismembered animal remains indicate these people were expert butchers, they apparently did not plan their butchering activities far ahead, Roberts says. The butchering tools were made on the spot—stone flakes left over from their manufacture were found

all around a butchered horse, for example. "Modern people would have their tool kit with them," says archaeologist Wil Roebroeks of Leiden University in the Netherlands. "These guys didn't." Most researchers believe that comprehensive forward planning—an important skill if you live in areas where food is only seasonally available—emerged only around 60,000 years ago, and the Boxgrove find supports that notion.

At this point, anthropologists seem to know more about the behavior than they know about the place of these early humans on our family tree. Most scientists agree Boxgrove's inhabitants evolved from *Homo erectus*, a human forebear that arose in Africa just under 2 million years ago. What's not clear, however, is what happened to the Boxgrove people's descendants. Many researchers now believe that modern humans emerged in Africa and then spread into Europe, replacing any humans—such as the Boxgrove lineage—previously there. Other scientists, however, think the two groups intermingled to produce today's Europeans.

Unfortunately, an incomplete tibia still gives researchers relatively little information about either taxonomy or biology. Ideally, more bones could shed light on the physical abilities of these people, and researchers could see how that was reflected in their behavior. And, says Stringer, "We are hopeful...that we are going to get more of this individual." Since the researchers stepped forward with the shinbone, English Heritage—the public agency that has backed the Boxgrove project to the tune of \$1.1 million—has agreed to continue funding the dig.

—Peter Aldhous



MARK ROBERTS/INSTITUTE OF ARCHAEOLOGY UCL

**A leg up.** This 500,000-year-old partial shinbone, unearthed in England, may represent Europe's oldest known inhabitants.