

## Ancient reproduction gets pelvic thrust

Human ancestors who lived from millions to tens of thousands of years ago are succumbing to the pelvic examinations of scientists and yielding new insight into the evolution of reproduction and birth.

The reconstructed pelvis of the *Australopithecine* (the genus preceding *Homo*) dubbed Lucy, who is about 3.5 million years old, indicates that she could have delivered a baby the size of a newborn chimpanzee, report anthropologists Robert Tague and C. Owen Lovejoy of Kent (Ohio) State University. But giving birth would not have been as easy for Lucy as some researchers have suggested, said Tague last week at the annual meeting of the American Anthropological Association (AAA) in Washington, D.C.

"We don't know how large *Australopithecine* fetuses were," notes Tague, "but it's not unreasonable to assume a chimp-sized fetus could have been delivered. The birth process, however, would have been slower and more difficult [for Lucy than for a chimpanzee]."

Tague and Lovejoy compared the ancient female pelvis with modern female pelvises from chimpanzees and humans. Lucy, who was about 3 feet 8 inches tall and weighed around 65 pounds, has a

"potentially spacious pelvis," says Tague. It is 12 percent smaller than the chimpanzee pelvis and appears to have been evolving in the direction of the modern human pelvis. But it is not narrow enough to suggest that *Australopithecines* had gestations as short as the nine months of modern females, resulting in the birth of babies requiring extended parental care, says Tague.

Scientists who found a 1.6 million-year-old male *Homo erectus* skeleton last year recently reported that measurements of his pelvis suggest that females of his species had narrow birth canals and accelerated births.

This fits into new data on the *Neanderthal* pelvis, presented at the AAA meeting by anthropologist Karen Rosenberg of the University of Michigan in Ann Arbor. "The birth canals of *Neanderthals* [who lived from about 125,000 to 35,000 years ago] are the same size as those of modern females of the same body weight," she reports. "There is no evidence for major reproductive changes from *Neanderthals* to modern humans."

Rosenberg first measured the pelvises of females in several modern human populations of different body proportions. Females who are heavy relative to their height, such as Alaskan Eskimos—whose



Lucy's reconstructed pelvis (below) and a modern human female pelvis.

body size is similar to that of the slightly heavier *Neanderthals*—had the largest birth canals. The pelvises of three *Neanderthal* females indicate, says Rosenberg, that their birth canals were the same size as those of comparably heavy modern females.

Although *Neanderthal* mothers were heavier than their current counterparts, she says, birth canals and gestation periods of the two groups are comparable.

— B. Bower

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**Why should** SCIENCE NEWS be dressed in the same dull cloak as scientific journals? These covers reflect the *task* of wading through passages that are as exciting as watching paint dry. SCIENCE NEWS covers reflect the accessibility of this magazine to us common folk—and isn't it published by Science Service, an "institution for the public understanding of science"?

Les Calaway  
Director of Laboratories  
Griffin Industries, Inc.  
Butler, Ky.

**The language** of science is filled with pun opportunities. I am a biologist, and most of the scientists I know are incorrigible punsters. Your magazine reflects this spirit wonderfully, and gets out the message: Science is fun!

Please do not allow someone with little or no sense of humor to "color" your artistic creativity.

Noel Rendleman  
Berkley, Mich.

**I do not** understand what Judith Kurland finds either distasteful or unappealing in the use of the description "The Geomagnetic Jerk." I was delighted to find the word "jerk" used in the sense you did. For years now I have been teaching my students about the concept of "jerk," the name given to the derivative of acceleration. Our entrapment by the Newtonian system seems to limit our analysis of the world around us to the concept of acceleration, particularly constant acceleration as

taught in physics courses. Why can't acceleration change, and why not describe this change? My students were interested to see that somewhere beyond my classroom the concept of "jerk" had found some use. I understood immediately what the geomagnetic field was doing!

Derwin H. Stevens  
Professor of Physics  
Ulster County Community College  
Stone Ridge, N.Y.

### New twist on old tradition

In his letter on software ownership (SN: 11/16/85, p. 318), John Barrer seems shocked that university professors would be allowed to profit from writing software. But writing salable software is just a new form of an old academic tradition.

"Publish or perish" has long been the rule in academe. Professors are expected to write but are generally not paid for it by the university. The only money they get for their writing is whatever the publisher pays (which usually isn't much). Writing and selling software is an updated version of this tradition.

Barrer asks whether universities should support this software-writing research. In fact, universities support only part of the research that goes on inside them. My recent graduate work at Ohio State is a good example: Three entities helped pay for it.

Ohio State provided the facilities, and for part of my graduate career they paid me to do research on a half-time basis. The National Science Foundation paid for some of the equipment, and for part of my graduate career

they paid me to do research (again, on a half-time basis). In addition, they paid the university an "overhead fee" for the privilege of paying me. I also paid; for part of my graduate career, I paid the university for the privilege of doing research. Even when I was paid, I did a lot of the work in my "spare" time.

Who owns the fruits of my labor—Ohio State, the National Science Foundation or I? All three of us have valid claims.

Ownership was settled by an agreement I signed before I started work. Ohio State gets patent rights on any hardware. I get the copyright on my thesis. If I had written any software, who should have the rights to it? Perhaps the university would get the rights, since software needs hardware to run. Perhaps I would get the rights, since I would include a listing of the software in my thesis. The question, as you pointed out in "Bits of Ownership" (SN: 9/21/85, p. 188), is tricky.

Brent Warner  
Laurel, Md.

*Correction: Alan Dressler, mentioned in "Galaxies that Came in from the Cold" (SN: 11/16/85, p. 316), is associated with the Mt. Wilson and Las Campanas Observatories of the Carnegie Institution of Washington, not the Carnegie-Mellon University in Pittsburgh as stated.*

*Correction: In "Herpes babies" (SN: 10/12/85, p. 232), 66 of the 190 infants with neonatal herpes reported to the Centers for Disease Control had been delivered by cesarean section, not all of the cases as had been reported.*