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## WHAT'S NEW IN HUMAN EVOLUTION?

Four articles in current popular science journals focus on new developments in human origins research.

Featured in the March and April issues of *SCIENCE* 81 are two excerpts from *LUCY: THE BEGINNINGS OF HUMANKIND*, a new book by the anthropologist, Donald C. Johanson and Maitland A. Edey, a science writer. "Lucy, The Inside Story" (March 1981) tells the fascinating account of how Johanson and his co-workers determined that his new fossil, Lucy, represented a new species and the earliest known common ancestor of all the later hominids from the Pliocene and Pleistocene epochs. The article also details the subsequent argument with the Leakeys over whether Mary Leakey's equally ancient new finds from Laetoli should be included with Lucy (Johanson's view) or recognized by themselves as the earliest ancestor of our own genus *Homo* with Lucy and the australopithecines relegated to the sidelines (Leakey's view).

Other anthropologists continue to argue over the validity of the new species, *Australopithecus afarensis*. Is it just a smaller and earlier version of *Australopithecus africanus*? Is it really different enough to merit species



distinction?

"How Ape Became Man" (April 1981) discusses Owen Lovejoy's theory that caring for infants, not a new feeding pattern (meat-eating), was the driving force behind the basic human adaptation of bipedalism. Bipedalism is a terrible way to get around since it slows us down, but it does help us carry food and infants. Lovejoy's vision of females sitting around camp raising young while males provide all the food seems extreme. The basic idea of involving males as additional providers in the family unit through a monogamous relationship, however, accords with the facts: human females have very few offspring, do not advertise their periods of maximum fertility (estrous), and are remarkably similar to males in size. Lack of marked sexual dimorphism correlates with monogamy not only among primates but among mammals generally. Exclusive male provisioning of females and young, however, tends to occur only among carnivores.

The NEW YORK TIMES science writer, Boyce Rensberger, gives an excellent short review of new views on human origins from Ramapithecus to Cro-Magnon, in the April issue of SCIENCE DIGEST ("Ancestors: A Family Album"). The article covers not only Pilbeam's views on the distinctive non-hominid nature of Ramapithecus and Johanson's views on Australopithecus afarensis, but also new conclusions about early Homo (habilis) derived from Richard Leakey and Glyn Isaac's work at East Turkana (formerly Lake Rudolf). New dates for Homo erectus derived from the same sites, the earliest engravings and crayons from Europe, and the possibility that Homo sapiens may have evolved in southern Africa are also discussed.

The fourth article "Neanderthal the Hunter", in the January issue of NATURAL HISTORY, is a poor comparison to the other three. Valerius Geist, "an authority on the ecology of un-

gulates", argues that Neanderthals needed to hunt large animals exclusively in order to meet the nutritional demands of their families during the winter. He asserts their hunting took the form of confronting the animal at close quarters, killing it with a hand-ax, gnawing the meat off the barely thawed carcass, and tossing the bones into the fire. Since they did not have storage facilities, they had to live in small groups in the midst of large herds and had to hunt often. The demise of the Neanderthals is supposedly explained by the demise of their large prey around 35,000 B.C., during a warm period in the Ice Age.

Unfortunately, this theory is based on a very limited knowledge of the Neanderthal data as well as on many misconceptions about the people who succeeded the Neanderthals. Most Neanderthal sites were excavated at a time when archeologists did not use screens; hence the bones of small prey were rarely recovered. Special deep pit hearths with air flues suggest that bones were used by both Neanderthals and Cro-Magnon people as fuel, not dropped into a wood fire accidentally.

The fact that modern hunters do not use Neanderthal tool types (although the Australian aborigines came close) does not mean that no parallels can be found between modern and ancient hunters. Contrary to the author's assertion, many archeologists (including some women) have had "the strength" to duplicate the tools of Neanderthals, as well as some of the wear patterns. Cro-Magnon people did not preserve meat to an obviously greater degree than Neanderthals, nor did they invent spear-throwers until the very end of the Ice-Age. Nor did Mesolithic people kill and eat each other in large numbers to ward off protein starvation in the wake of Pleistocene extinctions. Finally, all hunters roast meat in the ashes and experience considerable tooth wear from the grit on their food. This cannot be used to explain Neanderthal molars, which were not continuously growing in any case as the author claims.

(cont'd)



This article is an unfortunate exception to the generally excellent quality of anthropology reporting in NATURAL HISTORY.

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