Hominids bear up, become porpoiseful

Ancient humans are going through changes that no theory of evolution could predict. The oldest known hominoid (ancestor of apes and man) from northern Africa was recently transformed into an ancient species of dolphin, while in east Africa one of the earliest bipedal hominids, or primitive humans, has changed into something like a prehistoric dancing bear. While the changes do not fundamentally alter views of early humanity, they have sparked much discussion about anthropologists' overzealous pursuit of human ancestry.

A single fossil fragment that points to the existence of human ancestors in northern Africa was discovered in 1979 at the Sahabi site in Libya. The bone was described by New York University anthropologist Noel T. Boaz as a hominoid clavicle and interpreted as evidence of humanity — possibly even bipedalism — in the very early Pliocene, 5 million years ago. But according to Tim White, a University of California at Berkeley anthropologist, the fossil is not a collar bone at all, but rather the rib of an ancient dolphin. White has dubbed the hominoid species *Flipperpithecus*.

Boaz has described and discussed the Sahabi evidence in NATURE, the AMERICAN JOURNAL OF PHYSICAL ANTHROPOLOGY and NATURAL HISTORY. He has argued that it resembles the clavicle of a pygmy chimpanzee, which is adapted for arm swinging, and he has suggested that the curve of the bone may even indicate habitual bipedalism — the hallmark of humanity — in the early Pliocene. In his AJPA article, Boaz pointed out 18 characteristics of the bone — depressions for muscle and artery attachments — that match the typical markings of a clavicle.

But White says that Boaz has misinterpreted the markings. In an article to be published in AJPA this summer, he argues that six of the bone's characteristics are actually more typical of dolphin ribs. He compared the fossil with 19 species of marine mammal and six hominoid species, both ancient and modern, and concludes that the Sahabi bone most closely matches the modern Pacific white-sided dolphin. Because the Mediterranean once encroached upon the Libyan Sahara, the discovery of marine fossils at Sahabi is not surprising.

At a meeting of physical anthropologists in Indianapolis last week, Boaz disputed White's interpretation, claiming that White ignored much of the data. He also said that he has a hominoid femur and skull fragment from Sahabi. But other anthropologists were clearly skeptical, some saying that at first glance the bone looks nothing like a collar bone. According to Johns Hopkins University anthropologist Alan Walker, there is a long tradition of misinterpreting various bones as hominoid clavicles; in the past, he says, skilled anthropologists have erroneously described an alligator femur and the toe of a three-toed horse as clavicles. It's an amorphous bone, he notes, and scientists should therefore be very cautious in interpreting it.

In another fossil reassessment, University of Chicago anthropologist Russell Tuttle has examined a set of 3.5-million-year-old hominid footprints at the Laetoli site in Tanzania and has concluded that they are not hominid at all. Instead, Tuttle told SCIENCE NEWS, the five prints seem to be those of a bear who, at least for a few moments during the Pliocene, walked bipedally. The footprints make up what is called the A trail at Laetoli, which was discovered by Mary Leakey in 1976 and initially thought to be hominid (SN: 3/4/78, p. 132). It was at the time the most ancient evidence of bipedalism, but it was soon overshadowed by the discovery of a much longer trail — the so-called G trail, made by a party of three hominids.

Tuttle was invited by Leakey to reanalyze both trails and, while he believes the longer trail does indeed indicate the existence of a 3.5-million-year-old hominid, he says that the shape of the A trail prints (they are very broad, relative to length) cast doubt on their hominid nature. Tuttle recalled that bear tracks have often been mistaken for evidence of the mythical Sasquatch, or bigfoot, so he decided to study bear tracks. He contacted a trainer with the Ringling Brothers-Barnum and Bailey Circus, who agreed to have his dancing bears perform on pressure-sensitive paper and soft soil. He found that the prints of a Himalayan black bear match the Laetoli prints very closely. When bears walk bipedally, he says, they often do not leave claw marks, and some bears, unexpectedly, walk with a very narrow stride width — almost as narrow as the one-inch stride width found at Laetoli. Most important, bears have an outside toe that leaves a distinctive mark; a hominid would have had to cross its legs to leave the prints at Laetoli, he says.

There is no previous evidence of Pliocene bears in east Africa, but there is one "ursid-like" creature, called *Agriotherium africanum*, known to have existed in southern Africa at that time, Tuttle says, so that the possibility of its existence at Laetoli is not unreasonable. But that animal was huge, while the bear who walked in ancient Tanzania was small, weighing only about 150 pounds, Tuttle says; only a one-year-old *Agriotherium* cub could have left the Laetoli trail.

While neither of these revisions significantly alters what is known about early human evolution, they do illustrate what many anthropologists consider a problem in the discipline — the tendency, as White says, "to view the world through hominid-colored glasses." —*W. Herbert*

New ICBMs urged by presidential panel

An alternative MX missile-basing scheme is among key recommendations contained in a report by the President's Commission on Strategic Forces, issued April 10. Asked to review alternative schemes for modernizing the nation's strategic defense — particularly its intercontinental ballistic-missile (ICBM) force — the blue-ribbon panel (SN: 1/8/83, p. 24) concedes it found "no simple solutions."

As a first step in upgrading U.S. ICBM capabilities, the panel would build 100 MX missiles (SN: 12/4/82, p. 356) and deploy them in silos that now house Minuteman ICBMs. The panel also advocated that the United States and Soviets mutually agree to reduce the average number of warheads per ICBM in each nation's arsenal and that the United States design a small (15-megaton) single-warhead ICBM — suitable for use with a mobile launcher — that could be deployed within a decade. Saying this three-step program is a package, the panel noted it was unanimous in its belief that "no one part of the program" can be expected to reduce the risk of nuclear war and its catastrophic aftermath.

The panel pointed out that its suggested move away from "MIRV-ing" — equipping ICBMs with multiple, independent reentry vehicles (or warheads) — would reduce the relative value of each missile. Widely distributed, single-warhead missiles would ensure the Soviets could not knock out more than one U.S. warhead with any of its warheads. The panel added that if arms-control agreements began limiting warheads instead of the equipment used to launch missiles, pressures that might otherwise prompt use of the "nuclear option" might be stabilized.

Former Defense Secretary Harold Brown, an adviser to the commission, said the panel's recommendations "will not eliminate immediately the narrow but significant vulnerability of U.S. ICBMs to Soviet ICBM attack. But the MX deployment would end the asymmetry of the Soviets now being able to threaten all U.S. land-based ICBMs while the U.S. has no corresponding ongoing deployment that might, by a future expansion, ultimately threaten all Soviet ICBMs."

Though "technically preferable," Brown said the idea of placing MXs in new, superhardened silos is not "politically feasible." Notably lacking in the panel's report, and Brown's assessment of it, is any mention of the "dense-pack" MX-basing scheme, recently rejected by Congress. Hoping to avoid a similar rejection of tenets outlined in the new report, panel members have already "consulted widely" with the Congress. Brent Scowcroft, chairman of the bipartisan panel, now believes "our conclusions are inherently persuasive." —*J. Raloff*