Anthropology

From St. Louis at the annual meetings of the Paleoanthropology Society and the American Association of Physical Anthropologists

Boisei's adaptable ways

Australopithecus boisei, a member of a lineage in the human evolutionary family that died out around 1 million years ago, combined huge jaws designed for heavy-duty chewing with a relatively small brain. So it comes as a surprise that, at least in one part of eastern Africa, *A. boisei* apparently inhabited a greater variety of environments than larger-brained australopithecines, which had closer links to modern humans.

In northern Kenya's Turkana Basin, *A. boisei* frequented forested areas near water as well as arid, open grasslands, reports Anna K. Behrensmeyer of the Smithsonian Institution in Washington, D.C. In contrast, australopithecines such as *A. afarensis* and *A. africanus* hung out mostly in wooded locales. "It's a revelation to me that *A. boisei* was the most adaptable [of these creatures]," Behrensmeyer says.

She and her coworkers examined fossils of 3,011 mammal species at 348 Turkana Basin sites. *A. boisei* appears in areas containing large numbers of tree-dwelling monkeys and at spots bearing animals that grazed on open vegetation. Smaller-jawed australopithecines turn up mainly in conjunction with the monkeys and other forest animals, Behrensmeyer notes. —*B.B.*

Ancient apes' contested family ties

Excavations in eastern Africa last year unearthed new lower-body remains of a roughly 14-million-year-old ape, *Kenyapithecus*, that appears to have been an ancestor of living African apes and humans, reports Monte L. McCrossin of Southern Illinois University in Carbondale. However, a fossil analysis of ancient African, Asian, and European apes conducted by David R. Begun of the University of Toronto suggests that the Asian and European apes, not the creature found by McCrossin, represent the most likely ancestors of the human family (see also p. 239).

Arm, leg, and foot bones of *Kenyapithecus* contain features in common with later African apes and humans but not fossils of Asian apes dating to around 12 million to 8 million years ago, McCrossin contends.

Begun argues that a comparison of 240 anatomical features in 13 fossil and living genera, including *Kenyapithecus,* finds the greatest similarity between modern and fossil Asian apes and members of the human evolutionary family. A migration of apes from Africa to Europe and Asia may have occurred around 15 million years ago, he proposes, followed by a return to Africa of human ancestors or their ape precursors between 13 and 8 million years ago. —*B.B.*

Neandertal teeth get a hand

Right-handedness may have occurred about as frequently in Neandertals as in modern humans, according to an investigation of scratch marks on a set of Neandertal teeth that had previously been found in a Croatian cave.

David W. Frayer of the University of Kansas in Lawrence and C. Lalueza Fox of the University of Barcelona in Spain used a scanning electron microscope to examine more than 80 front teeth from 20 Neandertals. Those teeth, unlike cheek teeth from the same individuals, exhibited scratches around their tips produced by clenching abrasive material, Frayer says. Incisions on the front surfaces of the teeth were probably made by sharpened stone implements that were used to maneuver pieces of food or other objects clenched between the teeth, he suggests.

Incisions angled to the right, apparently the result of right-handed tool use, characterized 18 individuals; the remaining two Neandertals had left-angled tooth incisions typical of left-handers, Frayer maintains.

If right-handedness indeed occurred in 9 out of 10 Neandertals, that figure coincides with the frequency of right-handedness in modern human groups, he notes. —*B.B.*

Biomedicine

Update on the mammogram debate

For fortysomething women, the rules on how often to get a mammogram to detect breast cancer have shifted again.

Late last month, the Atlanta-based American Cancer Society (ACS) changed its recommendations and now advises women in their forties to get a mammogram every year. Previously, the society had suggested a mammogram every 1 to 2 years.

The ACS adopted the more aggressive stance toward mammography for women in this age group in order to give women the "best chance of detecting cancer early."

Breast cancers grow faster in women in their forties than in older women, notes the ACS. Therefore, it is betting that studies of regular mammograms will eventually demonstrate a clear survival advantage for women in this age group who get the tests.

That edge has yet to be proved. Indeed, a federal advisory panel said recently that regular mammograms for most such women had no demonstrable value (SN: 2/22/97, p.124). Even more recently, however, a presidentially appointed group weighed in with a different conclusion.

On March 27, the National Cancer Advisory Board voted to advise women in their forties to obtain mammograms every 1 or 2 years if they are at average risk. Women at higher-than-average risk may need more frequent screening, starting before age 40, the board said. Such women should talk to their doctor about how often they should be screened.

Women at above-average risk of breast cancer are those who have had a breast cancer, have a mutant gene that makes them vulnerable to developing breast cancer, come from a family many of whose members have had breast cancer, already have a benign breast disease, have hard-to-read mammograms, or had their first baby at age 30 or later.

The National Cancer Institute in Bethesda, Md., accepted the board's recommendations and vowed to develop new educational materials to inform the public about the risk of breast cancer. —*K.F.*

Foretelling prostate cancer

This year, an estimated 334,500 men will get a dreaded diagnosis: cancer of the prostate. Often, that diagnosis will have been reached with the aid of a blood test that detects a protein called prostate-specific antigen, or PSA. As good as the PSA test is, researchers know that up to 40 percent of men with prostate cancer do not show elevated concentrations of PSA in the bloodstream. For such men, a PSA screening test offers a false picture of prostate health.

Donald J. Tindall of the Mayo Clinic in Rochester, Minn., and his colleagues hope that a blood test for a protein known as human glandular kallikrein will improve the detection of prostate cancer. Strikingly similar to PSA, the novel protein is produced by prostate cells and may play a role in the growth and metastasis of prostate cancer.

The team developed a test that identifies high concentrations of kallikrein in the bloodstream and used it on blood samples drawn from 65 men who had already been diagnosed with prostate cancer. All had tested positive on the PSA test. Ditto for the new test. Tindall reported these findings March 26 at the American Cancer Society's 39th Science Writers' Seminar in Reston, Va.

Such preliminary results suggest only that the test may be as good as PSA at detecting cancer of the prostate. Can the new blood test identify malignancies that PSA fails to find? The researchers plan to find out, Tindall says.

Having a prostate cancer screening test that identifies men with a negative or unclear PSA result would certainly be helpful, comments Donald Coffey of Johns Hopkins Medical Institutions in Baltimore. "This could be a very important tool," he says. —*K.F.*