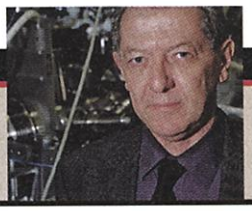
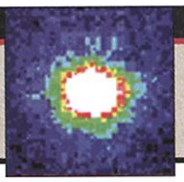




Fisher-Hoch and others note that VECTOR has expertise in some of the world's nastiest viruses. It is one of two centers in the world sanctioned to maintain and study samples of smallpox virus. (The Centers for Disease Control and Prevention in Atlanta is the other.) It also has extensive experience with arboviruses, such as tick-borne encephalitis, and hemorrhagic fever viruses that are endemic in Siberia. And because it is located in southern Siberia near the borders of Kazakhstan and Mongolia, ICERID would provide "access to an important part of the world," says NIH medical epidemiologist David Morens. He is the U.S. co–principal investigator with VECTOR on a 2-year planning proposal being submitted to the U.S. Department of Health and Human Services' Biotechnology Engagement Program, which supports work at former Russian bioweapons labs.

Merging expertise. U.S. and Russian aerosol experts suit up for bilateral project.

Initially, ICERID's scientific staff would be drawn from VECTOR's 340 researchers. Although Sandakhchiev says he hopes to employ "almost all" these scientists, Morens feels that for ICERID to work, VECTOR "will have to become leaner and meaner." In a move that would break new ground for a Russian former weapons lab—and virtually assure a clean break with the past—Sandakhchiev says ICERID would eventually hire foreigners. This could best be accomplished, he says, if ICERID were modeled after labs established through intergovernmental agreements, such as CERN, the European particle physics laboratory near Geneva, or the Joint Institute for Nuclear Research in Dubna, Russia. ICERID member states would kick in contributions scaled according to their gross domestic products.

Some experts have qualms about the proposal. Although VECTOR has a talented staff, they have been too narrowly trained on bioweapons threats like smallpox and Ebola virus, says one U.S. virologist, adding that VECTOR researchers have been slow to shift into hot areas such as research on foot-and-mouth disease or West Nile virus. "The staff do not think outside the box," he contends. Other critics are amazed by the amount of money VECTOR is hoping to raise. "It's a great way to float an entire institute," says one U.S. defense scientist, but "I don't like block grants, and I see ICERID as a block grant." Another concern is that ICERID scientists would lack the grantsmanship needed to compete for Western grants. Morens acknowledges this challenge. "They haven't thought through all the roadblocks yet," he says, adding that "the basic concept is a good one."

Sandakhchiev hopes that latter message comes through when he presents the center concept at the Sam Nunn Policy Forum to be held next week at Georgia Tech. Nunn chairs the Nuclear Threat Initiative, an organization the former senator launched in January with Turner, who has promised the initiative $250 million over 5 years. Besides helping fund ICERID, Sandakhchiev hopes Turner will try to persuade President George W. Bush and Russian President Vladimir Putin to establish ICERID's legal status as an intergovernmental center and provide some baseline funding. After all, says Sandakhchiev, honing his sales pitch, ICERID "would be far less expensive than the partnership on the international space station." –RICHARD STONE

PALEOANTHROPOLOGY

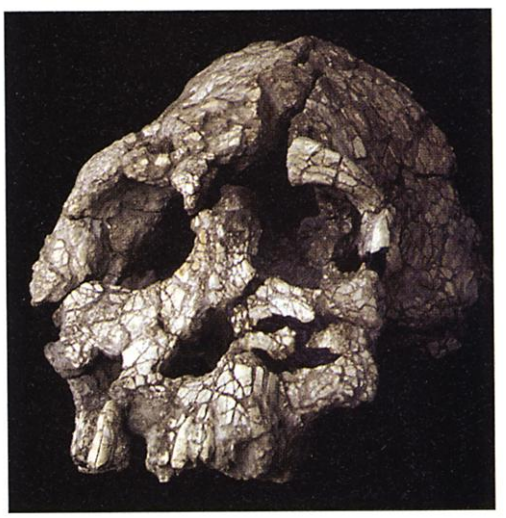
Fossil Tangles Roots of Human Family Tree

The discovery of a 3.5-million-year-old hominid skull and other fossil remains in northern Kenya is shaking the human family tree at its very roots. The new find, reported in this week's issue of *Nature*, shows that this bushy tree started sprouting branches even earlier than researchers had realized. And the discovery is the second new fossil evidence described in the past month that challenges the exalted status of *Australopithecus afarensis*, a hominid best known from the partial skeleton "Lucy" and long the leading candidate as the common ancestor of later australopithecines and our own genus, *Homo*.

The latest hominid bones—an almost complete cranium, a bone from the temple, parts of two upper jaws, and assorted teeth—were discovered in 1998 and 1999 by a team led by paleontologist Meave Leakey of the National Museums of Kenya in Nairobi. They were found in well-dated volcanic deposits west of Lake Turkana, whose shores have yielded a trove of hominid fossils.

Experts say that the new hominid's characteristics—a small braincase and small molars set in a large, flat face—have never before been found together in one skull. "When I first saw it, I couldn't believe it," says Daniel Lieberman of George Washington University in Washington, D.C. "Nobody would have dreamt of this combination of features." In contrast, *A. afarensis*, the only other hominid known from this period, has large molars and a much smaller, projecting face. Bernard Wood, also at George Washington, says the new fossils "show that human evolution before 3 million years ago is likely to be every bit as complex as in its later stage," when many hominid species walked the Earth at the same time.

The team has named its find *Kenyanthropus platyops*, "the flat-faced man of Kenya." Although Lieberman is not convinced that the specimen justifies a new genus, others think the team is on firm ground. "The authors make a very good case," says Laura MacLatchy of Boston University. And Ian Tattersall of the American Museum of Natural History in New York City, who has long argued that some colleagues are too timid when it comes to creating taxa, praises the team for having



Low-profile cousin? Kenya's flat-faced man is causing a stir.

CREDITS: (TOP TO BOTTOM) VECTOR; FRED SPOOR/NATIONAL MUSEUMS OF KENYA

"the courage to recognize diversity in the hominid fossil record."

Experts are unanimous in the opinion that *Kenyanthropus* will complicate efforts to trace the convoluted course of human evolution. This task is especially mind-bending because, beginning about 3 million years ago, hominid species began sprouting like wildflowers across Africa. But for the period between 3 million and 4 million years ago, things had seemed relatively simple. After decades of searching, most researchers had concluded that *A. afarensis* was the only clearly identified hominid in Africa at that time. Winding the clock back farther, a 4-million-year-old australopithecine, *A. anamensis*, seemed a likely ancestor to Lucy. But the new discovery, dated smack in the middle of this critical million years, could put a kink into any straight-lined phylogeny, because it doesn't share key features with either *A. afarensis* or *A. anamensis*. "It certainly puts a big question mark over the status of *A. afarensis* as the sole ancestor" of all later hominids, says Chris Stringer of London's Natural History Museum.

Indeed, just last month, a Paris-based team led by Martin Pickford and Brigitte Senut described a 6-million-year-old candidate hominid from Kenya's Tugen Hills, named *Orrorin tugenensis*, which had small, humanlike molars (*Science*, 23 February, p. 1460). Pickford and Senut argued that Lucy and her large molars could not have given rise to humans. In the *Nature* paper, Leakey's team says that *Kenyanthropus*'s small molars might also sideline *A. afarensis* as a human ancestor. "If the hominid status of *Orrorin* is confirmed, it would support the suggestion that small molar size is the primitive condition," says Leakey's co-author Fred Spoor of University College London. And Lucy co-discoverer Donald Johanson, director of the Institute of Human Origins in Tempe, Arizona, says he isn't surprised that Lucy has a rival in *Kenyanthropus*. "The presence of a single [species] between 3 and 4 million years ago," he says, "just didn't make any sense."

On the other hand, few researchers, Leakey's group included, are suggesting that *Kenyanthropus* necessarily lay on the path to *Homo*. Rather, experts say, the importance of the new discovery lies in its demonstration that the roots of the human evolutionary tree are pretty tangled. "Those of us who have been suggesting that human evolution is more like a bush than a ladder," says Wood, "may not have been far off the mark."

–MICHAEL BALTER

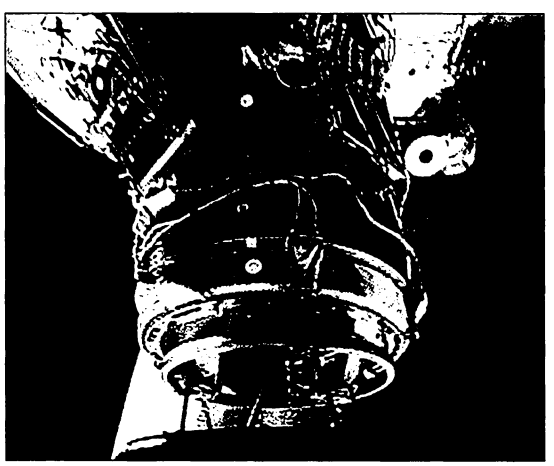
CREDITS: (LEFT TO RIGHT) NASA TV/AP; CHARLES TASNADI/AP

SPACE BIOLOGY

New Cuts in Station Could Spark Walkout

U.S. researchers eager to use the international space station are threatening mutiny if NASA carries out plans to trim facilities and crew in the wake of exploding costs. A biological sciences advisory group has called the proposed cuts a "betrayal of the public trust" that undermines the scientific rationale for the station. Although critics have long questioned the station's likely scientific payoff, what's new about the latest attack is that it's coming from the station's staunchest scientific supporters.

Last month, NASA announced that the station, now under construction, faces a $4 billion overrun. In response, agency managers plan to cancel a habitat module and a rescue vehicle, and reduce the size of the crew and the amount of power available. Further cuts, such as delaying or canceling a centrifuge module critical for non-human biological research, are pending. Even so, administration officials insist that the $60 billion station will meet NASA's promise to the science community and its international partners to operate a world-class research facility with a sustained human presence. "We can continue to maximize research," says Joe Rothenberg, NASA's space flight chief.



Destiny diminished. Cutting back on crew size could hamper research aboard the space station's laboratory, Destiny.

Not true, say members of NASA's space station biological research project science working group, made up of a half-dozen outside advisers. "We were [already] at the extreme edge of maintaining a credible science endeavor," writes Martin Fettman, a veterinarian at Colorado State University in Fort Collins and chair of the working group, in a 9 March letter to Rothenberg. If NASA goes ahead with the proposed cuts, the panel adds, "we might as well completely discon-

ScienceScope

Role Reversal Maybe science is bipartisan after all. Last week the Republican and Democratic leaders of the House Science Committee made an unexpected departure from politics as usual on a front-page environmental issue.

During a hearing on climate change science, panel chair Representative Sherwood Boehlert (R–NY, right) took fellow Republican George W. Bush to task for a "misguided and unjustified" decision to drop a campaign promise to regulate emissions of carbon dioxide and other greenhouse gases. "I wish the Administration would have waited to hear from experts" before reversing course, Boehlert said.

But the president's reversal won support from an equally surprising source, Democrat Representative Ralph Hall. A Texan with close ties to the Bush family, Hall said he was skeptical of the global warming threat and pleased that Bush had "clarified his position."

What to make of the exchange? Joked one House aide, "[The panel] is either boldly independent—or just confused."

Energetic Defense California legislators have pulled a new and heavily publicized state research initiative off the chopping block after pleas from the governor and university scientists.

Last week a state budget panel restored $75 million that Governor Gray Davis (D) has requested for the three California Institutes for Science and Innovation, 2 days after removing the money to bolster an emergency fund to deal with the energy crisis. The new institutes (*Science*, 15 December 2000, p. 2052), which involve scientists at seven University of California (UC) campuses, cover biotechnology and quantitative biomedical research, nanosystems, and information technology and telecommunications. But legislators failed to restore a $33 million request from the governor to create a fourth institute that would apply information technology to critical societal problems.

"We hope that they will continue to fund this investment," says UC administrator Susanne Huttner, noting that the money must still survive votes later this spring. With the return this week of rolling blackouts, however, it's not clear whether legislators will continue to see the light.