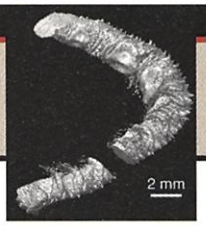
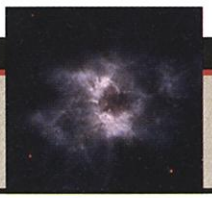


PAGE 2292
Virtually the first mollusk



2293
White dwarfs emerge from the dark

EMERGING DISEASES

Russia, NIH Float Big Plan for Former Soviet Bioweapons Lab

CAMBRIDGE, U.K.—A former bioweapons lab in the heart of Siberia may soon open its doors to scientists from around the world. The head of Russia's State Research Center of Virology and Biotechnology (VECTOR) will unveil a multimillion-dollar proposal next week at a forum in Atlanta to transform the lab—which features the only biosafety level 4 lab in Asia—into an international center for emerging diseases. The U.S. National Institutes of Health (NIH) is helping develop the proposal, which could become one of the most expensive projects ever to beat Russian scientific swords into plowshares. Many experts are supporting it, but some argue that a reincarnated VECTOR would not be able to sustain itself without a Western lifeline of noncompetitive grants.

VECTOR's ambitious plan would require about $25 million up front to modernize its labs to create the center—which would open in 4 to 5 years—and up to $12 million a year to operate it, says VECTOR general director Lev Sandakhchiev. He is hoping to cobble together the money from a variety of sources, including CNN founder Ted Turner and the World Health Organization, which is developing a plan to establish a network of up to a dozen such disease research centers in critical regions. Creating the facility—which would be called the International Center for the Study of Emerging and Reemerging Diseases (ICERID)—will be a challenge, but worth it, argues emerging disease expert Susan Fisher-Hoch of the University of Texas School of Public Health in Brownsville. "In the long term, we would all benefit" by tapping Russian talent, she says.

The effort to transform VECTOR is gaining momentum despite a gloomy outlook for U.S.-funded nonproliferation activities in Russia. The Bush Administration's 2002 budget proposal would cut by nearly 10% the $870 million clutch of Russian nonproliferation programs, which had been slated to increase to $1.2 billion under the Clinton Administration's budget proposal. Backers of ICERID—including the U.S. State Department—hope that the diversity of potential funders will insulate the venture from U.S. budget cuts.

Brewing collaboration. Center could adopt VECTOR's fermenters.

CREDIT: VECTOR

Uncertainty on Bioweapons Treaty

In the depths of the Cold War, the United States made a remarkable decision: It renounced biological weapons, stopped its R&D program, and urged other countries to do the same. About 140 followed this lead, supporting a general ban, the Biological and Toxin Weapons Convention (BTWC) of 1972. But the treaty has a flaw: It lacks an enforcement system, relying instead on public pressure to keep countries honest. Diplomats and technical experts have been struggling for years to come up with a better way of enforcing the BTWC. But their self-imposed deadline for reaching an agreement is looming, and observers fear that negotiations may end this summer with no consensus. That could cast a pall over the BTWC, which is due for a full international review in November.

At a small meeting sponsored by the Carnegie Corp. earlier this month in Washington, D.C., Barbara Hatch Rosenberg, a microbiologist who leads a BTWC verification working group for the Federation of American Scientists in Washington, D.C., gave a bleak report. "The negotiations [on a protocol for verifying BTWC compliance] are certain to go on the back burner for the next 4 years or more," she predicted, unless the parties reach agreement in the 7 weeks set aside for these talks in April-May and July-August. She criticized the Clinton Administration for its "passivity" on BTWC and expressed concern that the Bush Administration—which is reviewing its policy this spring—has a "well-known antipathy to multilateral arms treaties."

"Everyone is waiting" to find out what the Bush policy will be, says Amy Smithson, a bioweapons specialist at the Henry L. Stimson Center in Washington, D.C., adding that, "It's like waiting at a wake." Smithson, who has examined the infrastructure left behind by the Soviet Union's cheating on the BTWC in the 1980s, claims that the U.S. and other governments "haven't done their homework" on technical issues in BTWC enforcement. The resulting lack of data, she argues, has made it more difficult to agree on a protocol.

Gillian Woollett, a BTWC expert at the Pharmaceutical Research and Manufacturers of America, says it is risky to view the November BTWC review as a "make or break" deadline, because compromises made under pressure may lead to a flawed protocol. "We do not think that the only choice is to accept a bad protocol or no protocol." U.S., European, and Japanese industry leaders have agreed on a model approach that would not use surprise onsite visits or routine inspection of industry labs, Woollett says, adding: "We would like to see a good protocol adopted," even if that can't be done by November.

Because the schedule is so tight, most observers doubt that a strong enforcement regime will be in hand by November. But Donald Mahley, the U.S. representative to the negotiations and chair of the Bush policy review on BTWC, argues it's too early to declare the protocol dead, saying, "It's not over until it's over." —**ELIOT MARSHALL**

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

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

PALEOANTHROPOLOGY

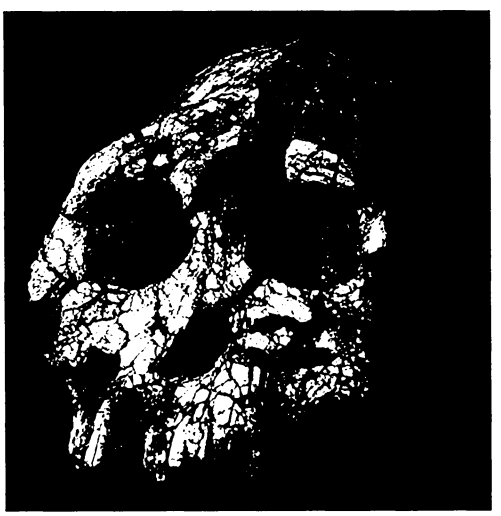
Fossil Tangles Roots of Human Family Tree

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.