

NIH Ponders Massive Biobank of Americans

The National Institutes of Health (NIH) wants to collect health and genetic data on perhaps half a million volunteers to tease out links among genes, environmental factors, and common diseases. But getting the money for such a massive project won't be easy.

The long-term cohort study would be akin to "biobank" projects in Iceland, the United Kingdom, and Estonia that are gathering people's DNA and health records (*Science*, 8 November 2002, p. 1158). U.S. researchers need access to a biobank whose findings will be relevant to the diverse American population, says NIH genome institute director Francis Collins, who described the idea last week in *Nature*. "If we don't do this, in 5 or 6 years we're going to be kicking ourselves," he says.

NIH is accepting comments on the idea (grants1.nih.gov/grants/guide/notice-files/NOT-OD-04-041.html), and a working group hopes to produce an outline by fall. "If it can be pulled off, it would be terrific," says human geneticist Stephen Warren of Emory University in Atlanta, Georgia. Funding will be a big factor: A similar proposed NIH study of 100,000 children has been struggling to attract \$2.7 billion. The first indication of support from the Bush Administration could come next February, when the White House delivers the agency's next budget request to Congress.

—JOCELYN KAISER

NASA Advances Plan for Robot Repair of Hubble Telescope

Following through on its plan for extending the life of the Hubble Space Telescope (*Science*, 14 May, p. 940), NASA this week issued a formal request for proposals to send a robot to service and eventually deorbit the 14-year-old spacecraft. "If we're going to get a robotic servicing mission by December 2007, we've got to get contracts in place by October 1 [2004]," NASA space science chief Ed Weiler told a National Research Council panel studying options for servicing Hubble in the wake of the Columbia accident.

Meanwhile, 26 former astronauts are urging President George W. Bush to override NASA's decision not to send a space shuttle to service Hubble. In a petition forwarded to the White House by Senator Kay Bailey Hutchison (R-TX), the astronauts argue that "the attendant risks of the Hubble servicing mission are no more than the 90 previous manned missions to similar orbits."

—CHARLES SEIFE AND ANDREW LAWLER

near an oncogene. Some other gene therapy trials are using the AAV vector, and more plan to do so. But most are injecting small doses locally into tissues, not the liver artery—into the eye or brain, for example—a practice that is less likely to provoke side effects, notes gene therapy expert Savio Woo of Mount Sinai Medical Center

in New York City. Also, "there are improved [AAV] vectors on the horizon" that are more efficient and can likely be used in smaller doses, says Woo.

But there is one broader lesson from the hemophilia trial, Kay says: "Until you go into humans, you just don't know" if it will work.

—JOCELYN KAISER

PALEONTOLOGY

Controversial Fossil Could Shed Light On Early Animals' Blueprint

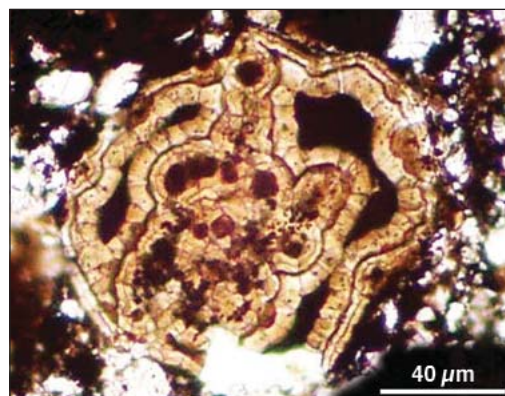
For decades, paleontologists have been eagerly looking for the roots of the so-called Cambrian Explosion—an apparent eruption of many-celled animals about 540 million years ago in which all the major animal body plans appeared. One key question: When did animals first develop mirror-image symmetry and other features (such as a digestive tract) that go with it? Now, researchers claim to have found the oldest known fossil of a "bilaterian" animal. But other experts suspect that the microscopic

Nanjing Institute of Geology and Palaeontology in China has collected thousands of specimens from the deposit. To examine them, Chen teamed up with paleontologist David Bottjer of the University of Southern California in Los Angeles and Eric Davidson of the California Institute of Technology in Pasadena. In 10 cross sections of similar specimens, they identified several key features of bilaterians. These include what appear to be a mouth, pharynx, and gut; layers of mesodermal, endodermal, and ectodermal tissue; body cavities, called coeloms, on either side of the gut; and pits in the soft outer surface that might have contained sensory organs. The researchers dubbed the creature *Vernanimalcula guizhouena*, or "Small Spring Animal," because the Doushantuo Formation was deposited after a glacial period.

Skeptics see it differently. "These may well have started out as fossils, but we can't say much about their morphology," says Stefan Bengtson of the Swedish Museum of Natural History in Stockholm. For example, Bengtson suspects that the presumed tissue layers are really thin, banded mineral crusts. In these rocks, such crusts commonly line the walls of cavities left from decayed organisms, he says. Chen's team says that the fossils can't be artifacts because many specimens show the same structures and are the same size.

If *Vernanimalcula* is real, it could force some researchers to rethink what ancestral bilaterians should look like. Many had pictured a larger, more complicated beast, says Doug Erwin of the National Museum of Natural History in Washington, D.C. Partly, that's because analyses of modern animals imply that these ancestors had genes that could make complex patterns. *Vernanimalcula* "suggests that you don't have to have a complicated animal as a primitive bilaterian," Erwin says.

—ERIK STOKSTAD



Two sides. Fossil "bilaterian" or natural mineral formation? Experts disagree.

specimens might not be fossils at all.

The new animal, described online this week in *Science* (www.sciencemag.org/cgi/content/abstract/1099213), was an oval blob less than a fifth of a millimeter long. The authors say it shows that key features of bilaterians are preserved in rocks some 580 million to 600 million years old—and thus that the genetic tool kit used to assemble more sophisticated body plans was present long before the Cambrian. "If these are bilaterian fossils, they would help tone down the suddenness of that 'explosion,'" says Jere Lipps of the University of California, Berkeley.

The fossils come from the Doushantuo Formation in southwestern China, rocks famous for well-preserved fossils of microscopic sponges and embryos. One group including Jun-Yuan Chen of the

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