RANDOM SAMPLES

edited by CONSTANCE HOLDEN

U.S. Ratifies Antarctic Treaty

A 6-year effort to win global agreement on a plan to preserve the environment in Antarctica moved closer to its goal on 18 April, when the United States finally ratified the Antarctic Environmental Protocol. The protocol is expected to secure Antarctica as a haven for science by compelling the 26 countries that conduct research there to follow approved practices on everything from regulating tourism to cleaning up oil spills.

The United States is the 24th country to ratify the treaty. Two countries—Japan and Russia—have not yet done so, but legislation pending in both nations is thought to have a good chance of passage.

The next step is creating an international structure to enforce the treaty. Now that the United States is on board, preliminary talks may be held later this month at a meeting in New Zealand. "We're already following its terms," says Cornelius Sullivan of the National Science Foundation, which manages the U.S. Antarctic program. "But having it on the books offers some protection against the conduct of a rogue nation."

HOFMAN/THE ANTARCTICA PROJECT

Living in harmony. Antarctic treaty sets rules for eco-friendly interactions.

Earth's Magnetic Field May Be More Fidgety

Complete flip-flops of Earth's magnetic field are old hat to paleomagneticians, who read the past behavior of Earth's field recorded in lavas and sediments. But what the magnetic field has been doing between reversals has been more controversial.

Since the last reversal 780,000 years ago, there have been two or three occasions when natural variations in the magnetic field are known to have become unusually intense. But last week, paleomagneticians returned with new data from the deep sea hinting that there have been at least 14 such episodes. If most of these so-called "excursions"—which last on average about 1000 years—turn out to be real, says paleomagnetician Bradford Clement, of Florida International University in Miami, "the magnetic field looks to be a whole lot more active than we thought."

The history of these events is written in bottom muds cored off of Florida and the Bahamas by the National Science Foundation Ocean Drilling Program's drill ship *JOIDES Resolution*. The area attracts a lot of scientists because of the huge quantities of sediments deposited by deep currents. In this expanded sediment record, even short-term paleomagnetic changes can be discerned. "There's no comparable record anywhere in the world," says Steven Lund of the University of Southern California, who was on the ship with Clement.

The excursions in the new records tend to occur during long periods of moderately heightened magnetic field variability, notes Lund. That suggests to him that the churnings of Earth's molten-iron core, which produce the field, may often shift into a new, more variable mode of operation that favors excursions of extreme variability. If so, today's sedate field would be a far cry from the magnetic commotion that the core can manage.

WIM VAN EST/AMC

Early SIV host? Researchers failed to find DNA in bones, such as this skull, of mummified baboons.

SIV Hunt Leads to Baboon Virus Discovery

Researchers have discovered a new retrovirus in baboons that may add to the growing controversy over the field of xenotransplantation—giving humans organ or tissue transplants from other species.

The virus was identified in the course of a project—headed by virologist Jaap Goudsmit of the Academic Medical Center in Amsterdam—designed to find out more about simian immunodeficiency virus (SIV), which is widespread in African monkeys but doesn't make them sick. Last year, Goudsmit led an expedition to the Sacred Animal Necropolis in Saqqara, Egypt, where his team sought to find traces of DNA from ancient, lethal forms of SIV in 2000-year-old mummified baboons. He hoped a comparison of the ancient and present-day forms would cast light on attenuation—the process whereby a virus loses virulence over time—and so aid development of AIDS vaccines.

Goudsmit's team was unable to find any baboon DNA. But the project wasn't a total loss. Back in the Netherlands, the scientists had been sorting through the genes of modern-day baboons. And in the May *Journal of Virology*, they report finding a new virus that they dubbed type-D simian endogenous retrovirus (SERV). Because of the growing potential of xenotransplantation, such viruses are of great interest to scientists: Some retroviruses that are dormant in their original hosts appear to get a fresh start when installed in a new species.

Finding SERV in the baboon—which some view as a leading organ donor candidate—is "scary," says Goudsmit. Its genome was found to be intact, which suggests, he adds, that "it's one of those viruses that might become activated" in a new host. Biologist Robin Weiss of the Institute of Cancer Research in London says researchers already knew that baboons carry similar viruses. Still, he says, the discovery "adds to the argument that these kinds of primates are perhaps not useful for transplantation."

In March, Weiss's team showed that a retrovirus from a pig, a common donor of heart valves, can infect human cells. Now, says Goudsmit, "everybody wants to know what else is hidden in these [animals'] genomes."

Waterman for Condensate

Physicist Eric Cornell, who was involved in the first demonstration of the long-sought Bose-Einstein condensate, is this year's winner of the National Science Foundation's prestigious Alan T. Waterman Award for young researchers.

Cornell, 35, adjoint [sic] professor at the University of Colorado (UC), Boulder, and a physicist at the National Institute of Standards and Technology, will get a half-million dollars over the next 3 years.

Along with UC physicist Carl Wieman, Cornell was the first to demonstrate Bose-Einstein condensation in a gas (*Science*, 14 July 1995, p. 198). This is a state, predicted by Albert Einstein, in which atoms at very cold temperatures slow down and merge into a "superatom" that behaves as a single entity.

Cornell