



## Eine Grosse Klein Bottle

What is the volume of the world's largest Klein bottle? Zero, of course. But that isn't stopping the world's only Klein bottle manufacturer from

Anticloning forces last week landed a one-two punch in the intensifying fight over legislation to ban copying humans. First, the Senate's only physician, Bill Frist (R-TN), said he'll vote for a pending proposal to outlaw all human cloning including the creation of blastocysts for research. Then President George W. Bush gave a speech strongly hinting that he will veto any legislation that stops short of a total ban.

Forces have been gathering all year for the Senate debate

building one. A Klein bottle is a four-dimensional mathematical curiosity that has neither inside nor outside; if you could slice one in half, you would see that it is equivalent to two Möbius strips sewn together. Clifford Stoll of Oakland, California, best known for tracking down a hacker at Lawrence Berkeley National Laboratory, has a small business devoted to fashioning three-

## Cloning Foes Pick Up Steam

over a cloning ban similar to one passed by the House last year (*Science*, 10 August 2001, p. 1025). Sponsored by Senators Sam Brownback (R-KS) and Mary Landrieu (D-LA), the measure would not only outlaw so-called "therapeutic cloning" but would make it a criminal offense to import any therapy based on cloning. Senate leader Tom Daschle (D-SD) promised action early this year but has not yet scheduled debate, al-

though action is expected before the end-of-May recess. Meanwhile, Democrats including Senator Edward Kennedy (D-MA) are mustering support for an alternative, which would permit therapeutic cloning—which scientists now prefer to call "nuclear transfer"—but prohibit implanting the embryo in a woman's uterus. Proponents of a total ban appear to be gaining ground as people from the religious right have joined hands with left-wing groups who worry about exploitation of women for their eggs and "com-

modification" of the human body. Anticloners addressed a jammed Senate press conference 10 April, warning of "human embryo farms."

The scientific and medical lobbies are fighting back hard: Also last week, the American Society for Cell Biology released a statement signed by 40 Nobel Prize winners opposing a ban on therapeutic cloning. Tony Mazaschi of the Association of American Medical Colleges says that even if the Brownback bill is defeated, "I fear we're going to end up with a situation where the one thing we all support—a ban on reproductive cloning—won't pass [either]."

Five years ago, the late Carl Sagan proposed that the signals might actually be continuous. The failure to sense them, he said, might be explained by gas cloud turbulence in interstellar space—just as stars vary in brightness due to atmospheric scintillation. Tarter and Backus say that, unfortunately, supersensitive follow-up observations fail to back Sagan's idea. SETI hunters don't give up easily, however. Two of the signals have not yet been followed up, Tarter and Backus report in a paper to appear in the July issue of *The Astronomical Journal*. So "we cannot rule out the possibility that one or both of them represent [alien] transmitters."

## Boa's Hold Measured

Another of nature's secrets has been pried from her bosom: Scientists have figured out how to monitor the pressure a boa constrictor exerts while squeezing a rabbit to death.

Engineers at Carnegie Mellon University in Pittsburgh, Pennsylvania, constructed a "constrict-o-meter" at the request of local zookeepers who wanted a visual measure of the snake's coil power for an episode of BBC's *Animal Planet*. The device, a pressure-sensitive, quarter-sized plate mounted on the end of a 30-centimeter-long probe, is placed between the snake and its prey, says mechanical engineer Adnan Akay. Wires carry the information from the probe to a laptop, which plots the pressure. A 5.5-meter python, for example, can create a force of about 1 kilogram per square centimeter on its victim—about six times as vigorous as a firm handshake.

Herb Ellerbrock, who works with reptiles at the Pittsburgh Zoo, says that the collaboration on the constrict-o-meter worked out so well that he and Akay are planning additional experiments. "Now I'd like to see how many pounds per square inch the small snakes can do," says Ellerbrock.



## RANDOM SAMPLES

edited by CONSTANCE HOLDEN

E.T. may be back on the big screen, but he's not to be found Out There. When astronomers looking for alien broadcasts analyzed 60 trillion observations with the 26-meter radio telescope at Harvard, they identified only 11 that could not be explained by natural sources or human interference. Now, Jill Tarter and Peter Backus of the SETI (Search for Extraterrestrial Intelligence) Institute say those probably didn't come from space neighbors either.

The 11 suspect signals from the Megachannel Extra-Terrestrial Assay (META) program have all the signatures scientists expect of an E.T. transmitter: a very small bandwidth, a frequency that is ideal for interstellar communications, and characteristics that do not match any known source of interference. However, they were only spotted once, whereas an alien broadcast might be expected to be continuous.

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## E.T., Where Are You?