

# RANDOM SAMPLES

edited by CONSTANCE HOLDEN

## The Big Ear Is Listening

The 305-meter radio telescope at Arecibo, Puerto Rico—the world's largest—is doing some heavy eavesdropping these days. In addition to NASA's 10-year search for extraterrestrial intelligence (SETI), which begins on Columbus Day, another search for other civilizations is already under way at the giant telescope.

On 10 April, a University of California, Berkeley, group mounted an instrument on the dish's focal point that is capable of simultaneously monitoring 4 million radio channels. For the next 5 years, in a project called SERENDIP III, the instrument will swing around the sky, riding the telescope wherever radio astronomers take it in the course of their other observations. Thanks to such piggybacking, says project leader Stuart Bowyer, the instrument will be able to scan continuously for curious signals, surveying a fifth of the sky every 6 months—at a bargain-basement cost of about \$70,000 per year. The analyzer—designed by electrical engineer Daniel Werthimer with a \$30,000 private donation—simply looks for signals above the background level, which it records for later analysis.

The strategy does have a drawback, however, says NASA SETI investigator Frank Drake of the University of California, Santa Cruz: Since the Berkeley people don't control the telescope, they can't reexamine interesting signals quickly—and the signal may be gone before the telescope can return for another look.

Still, thanks to the breadth of coverage and Arecibo's signal-gathering ability, the search should rank among the most powerful of the dozens of SETI projects done since 1960, says Bowyer. He adds that the search won't become redundant after NASA weighs in with its \$100 million, 15-million-channel effort. That's because Bowyer and his colleagues are scanning a different band of the radio spectrum—on Earth, it's

the band that carries cellular telephone traffic. The Berkeley group is hoping it will be just the place to receive a friendly call from the stars. What would most excite them, says Bowyer, would be a signal that slowly drifts from one channel to the next, as if it were coming from a planet orbiting another star. "That would be dynamite."

## Post-Pinatubo Cooling on Target

"Nature's own great climate experiment"—the global cooling engineered by the explosion of Mt. Pinatubo—is progressing much as predicted, climate modeler James Hansen noted last week. And that can only bode well for researchers using the same computer models to predict greenhouse warming, said Hansen, director of NASA's Goddard Institute for Space Studies in New York, at a press conference called by the American Geophysical Union.

The veil of debris that the Phil-

ippines volcano spewed into the stratosphere last June began to cool the lower atmosphere noticeably within a few months. Since then the cooling, although geographically uneven, has followed the schedule Hansen and others foresaw last fall. Hansen had predicted that the Pinatubo cloud might reflect enough sunlight back into space to cool the lower atmosphere about 0.5°C by late 1992. Sure enough, as of April, satellite soundings showed a cooling of about 0.4°C, averaged around the globe. "The preliminary results suggest that the models are in the right ballpark," said Hansen.

And that adds to Hansen's confidence in the models' prediction for the next couple of years: "We will see a temporary reversal of the global warming trend of recent years," Hansen, unlike other climate experts, has no doubts about attributing the hot years of the 1980s to the continuing rise of greenhouse gases. But whatever their views on the cause of

the warming, other researchers are inclined to agree with Hansen that Pinatubo has put any warming on hold for now.

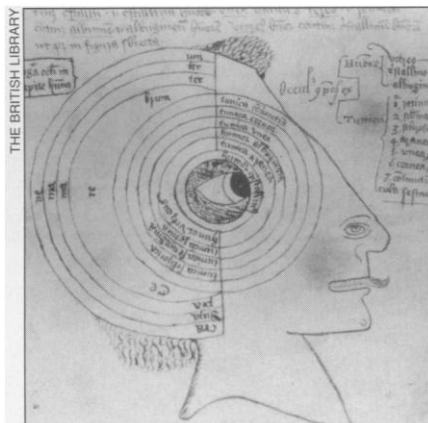
Exactly how the rest of the experiment plays itself out may depend on the El Niño now holding sway in the tropical Pacific. This buildup of unusually warm waters tends to warm the globe, but "it appears Pinatubo has overwhelmed the El Niño effect, as we predicted," said Hansen. He would just as soon Pinatubo keeps the upper hand. "It would be nice if El Niño peters out soon. If it hung on a couple more seasons, it would sort of mess up our experiment."

## Time for a Brain Landing

Congress hasn't yet put its money where its mouth was when it proclaimed the '90s the Decade of the Brain. But researchers studying brain disorders haven't forgotten—and they're doing their best to keep their cause in the spotlight.

Last week, at the third annual brain decade symposium in Washington, D.C., the National Foundation for Brain Research released a study showing that the direct and indirect costs of brain disorders amount to about \$401 billion a year—or 7% of the gross domestic product. That breaks down to \$160 billion a year for alcohol and other substance abuse, \$136 billion for psychiatric illnesses, and \$104 billion for neurological disorders. The last figure includes costs for dementia, which alone "exceed those for cancer and heart disease," says the report, prepared for the foundation by the consulting firm of Lewin-ICF. Foundation chairman Dominic Purpura, dean of Albert Einstein College of Medicine, claimed at a press conference that even members of the foundation were "astounded at the outcome of the study."

Next to the costs of brain disorders, the survey found, the level of federal expenditures on research is minuscule—only \$1.8 billion. Purpura said that number



**Mind's eye.** Fourteenth-century ophthalmological illustration. Crescent shape at back of head is labeled "cerebrum."

## Psychology for the People

Psychology, at least the pop kind, is the stuff of TV talk shows and countless self-help bestsellers. But in spite of the public fascination with human behavior, laments the American Psychological Association (APA), there is a "noticeable absence of this topic from major science museums." So 9 years ago, the APA, in collaboration with the Ontario Science Center in Toronto, set about designing what it calls "the first museum ex-

hibition ever devoted to the discipline of psychology."

The results are now on display at the Smithsonian Institution in Washington, D.C. "Psychology: Understanding Ourselves, Understanding Each Other," is an interactive exhibit where visitors can learn first hand things about how their minds work, including how the brain plays perceptual tricks, and how to control the galvanic skin response recorded by lie detectors. All of which should show visitors that there's more to psychology than what they see on "Geraldo."

The exhibit, timed to coincide with the APA centennial, will be at the Smithsonian through Labor Day.

needs to be raised to at least \$8 billion a year by the end of the decade. Even a single major breakthrough, such as a drug that could interrupt schizophrenic thought processes, could have a “a multiplier effect of enormous proportions,” said Purpura. And “nothing—not landing on the moon, or discovering the ripples in the universe—[would] compare with something that stops the degenerative condition of the brain” in Alzheimer’s disease.

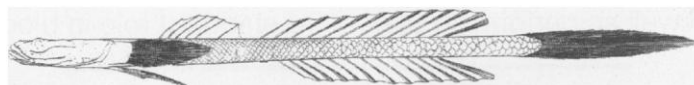
### Faint Praise for Science Reporting

Guess what? Science reporters have a higher opinion of science news coverage than scientists do. A recent survey of 150 reporters and 252 scientists reveals that 70% of the journalists but only 54% of the scientists rate science and health reporting as good or excellent. No surprises there, but the survey, by Peter Hart Research Associates Inc. of Washington, D.C., uncovered some interesting nuances. Almost everybody was happy with the reporting in professional journals. But while half the reporters thought newspaper coverage was good, only 21% of scientists agreed. Most respondents took a dim view of TV coverage—although, surprisingly, even fewer reporters (7%) than scientists (16%) liked it.

As for obstacles to better coverage, both groups complained about pressure to hype “hot” stories. Scientists in particular were also bothered by the rush to print—78% felt reporters hurry to present new findings at the expense of more thorough investigation. Most scientists (71%) also felt that reporters had a hard time communicating with them. But reporters didn’t seem to think uncooperative scientists are a major problem.

Both groups thought higher standards should be applied to reporting. A story should note, for example, whether a new finding has been replicated. But scientists evidently didn’t think higher standards would suffice—79% (as opposed to 43% of the

DRAWING BY T.B. GRISWOLD



### Your Esteemed Goby Fish

**Japan’s Emperor Akihito has received many honors in his lifetime, but no doubt they all pale next to the latest one, bestowed upon him by scientists at the Smithsonian’s National Museum of Natural History—an unusual new species of goby fish now bears his name. Henceforth, the *Platy gobiopsis akihito* will go down in the annals of ichthyology along with the *Gobiopsis exigua* and *Gobiopsis springer*, among others.**

**It seems that the emperor, who is a marine biologist, has a longstanding interest in goby fish, and so two American biologists thought it would be fitting to give his name to a new species they discovered swimming in the tropical waters off Flores, Indonesia. “He does very fine work on this particular group of fishes,” says Smithsonian biologist Victor G. Springer, himself a goby eponym. “We thought it would be a nice thing to do.”**

**He insists that the naming had nothing to do with the distinctive appearance of this bottom-dwelling fish, which has “an unusually flat head and body.” And unlike the emperor, the fish does not lead a life of glamor: It favors the murk and slime of bay bottoms, where it hovers in muddy burrows, according to biologist John Randell of Hawaii’s Bishop Museum, who netted the fish. Despite the strange habits of the goby fish, the emperor presumably was pleased with the honor—his office of protocol did not protest the naming.**

reporters) said more reporters with academic or professional backgrounds in science would make a big difference.

The two groups also differed on the urgency of some issues. Choosing from a list of selected topics, reporters put highest priority on AIDS (40%), the health effects of high fat diets (25%), the health risk of secondhand smoke (14%), and toxic waste management (12%). Scientists worried less about AIDS and more about toxics: Corresponding percentages were 29, 16, 18, and 25.

### MIT Techies Help Keep the America’s Cup

Science has helped the United States retain sailing’s most coveted prize—the America’s Cup—against a heavily funded challenge by an Italian boat. According to MIT engineer Jerome Milgram, a leader on the design team of the America’s Foundation that successfully defended the cup last Saturday, “We had more Ph.D.s working on this than any other group by far.”

The man who brought the science and most of the \$65 million

to the successful cup defense was chemical engineer, oil industrialist, and MIT alumnus William Koch. Koch’s philosophy was that an ordinary fellow like himself (he took up sailing only 8 years ago) could win the cup if he brought good science and teamwork to bear (*Science*, 31 January, p. 538).

So Koch built a team of faculty from MIT and other universities, students, and experts from companies such as Boeing and Her-



**Scientifically sleek.** Above and below the waterline, America<sup>3</sup> benefited from the best science money could buy.

cules Aerospace. Scientists expert in fluid mechanics joined with traditionally “more artistic” naval architects to divine the shape of the narrow hull and small keel that let America<sup>3</sup> slip through the water with ease. Materials scientists constructed revolutionary lightweight “liquid crystal” sails of carbon fibers sandwiched in polymers. And the net effect of these and other innovations was a boat with dominating speed—a full 1% faster than the Italian runner-up, whose effort cost \$100 million.

Even Dennis Conner, the U.S. skipper in the previous four cup finals, was impressed by the results. Watching helplessly as America<sup>3</sup> overtook him in a race during his ill-fated bid to sail in a fifth final, he was dumbfounded: “There’s nothing I can do...he’s just fast.”