

Briefings

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Galileo Antenna: 1 JPL Engineers: 0

Late last month controllers at the Jet Propulsion Laboratory in Pasadena tried to unstick the balky antenna on the Jupiter-bound Galileo spacecraft by baking it in the heat of the sun. This first effort to salvage the antenna—and the mission—failed, and engineers are left hoping that future temperature extremes will do the trick.

The umbrella-like main radio antenna stuck part way open on 11 April after controllers commanded it to unfurl (*Science*, 3 May, p. 638). Since its launch in October 1989, Galileo has followed a circuitous route, swinging by Venus—far closer to the sun than originally planned—and out past Earth, toward the chill of the asteroid belt. Engineers figured that if temperature changes somehow caused the antenna to stick, one more change might free it.

So on 20 May the heat was

A Fat-free Survey

Fat—already an unpopular tissue among the health and beauty conscious—is now unwanted even for many toxicological studies. A panel appointed by the National Academy of Sciences has recommended ending a \$1-million-per-year EPA program, the National Human Adipose Tissue Survey (NHATS), that has been monitoring human exposure to environmental chemicals through samples of fat tissue from cadavers. In place of the fat, the panel advised looking for toxins in blood samples from living subjects.

The toxicologists, pathologists, epidemiologists, and other environment and health experts appointed to review the program judged it to be outmoded. “When that program first got started in 1967, the chemicals they were concentrating on were organochlorine pesticides—things like DDT—and these are the ones that tend to

concentrate more in the fat,” says panelist H.B. Matthews, chief of experimental toxicology at the National Institute of Environmental Health Sciences. “Now, most of those have been banned.”

For monitoring today’s environmental toxins, blood samples would work as well or better, according to the panel. For one thing, blood sampling could include a wider cross section of the population. About 90% of fat samples come from cadavers in urban hospitals, biasing fat studies against rural populations and people who are young and healthy. Getting fat samples from healthy donors is possible, but it requires big needles, “and it hurts a lot,” says Matthews.

There’s another advantage to using blood, Matthews notes. Living donors of blood samples can be interviewed about occupational exposure, health history, and other factors. Cadavers don’t have much to say.

turned up by pivoting the spacecraft so that the disabled antenna was bathed in full sunlight for 2 days. Even then the antenna did not budge.

No one is discouraged, though. At Galileo’s present position, beyond the orbit of Mars, the antenna could not soak up much warmth. Greater extremes lie ahead: The chill will be deepest next February, and then Galileo will loop back

toward the sun for a December encounter with Earth, when it will warm up again. At one extreme or the other, engineers hope something will give.

Teaching Davids vs. Research Goliaths

Getting admitted to the salon-style Gordon Research Conferences, where groups spanning

the scientific spectrum convene in bucolic settings to share their cutting-edge research, can be tough for faculty from small colleges that cater to undergraduates. They often don’t have publication lists that can compete with those of faculty from prestigious research institutions.

That inequity is about to change—at least a little. The Gordon Conferences’ board of trustees has approved a “Teaching and Research Program” (TARP), which they hope will help small-college applicants make the cut for 1991. A peer group will evaluate these candidates separately.

“This is intended to help the applicant from Podunk College who has produced eight PhDs” but may not have a lot of published research to show, says Richard W. Zuehlke, assistant to the director of the Gordon Research Conferences.

In addition to helping faculty from undergraduate schools join the Gordon Conference club, organizers also hope that TARP will serve as a conduit for piping the excitement of frontier research—famously intense at the conferences—directly to college classrooms.

One or two successful TARP applicants will be admitted to each of the 300 or so Gordon Conferences. About 100 researchers typically convene for each conference.

House Vote Revives Fermilab Injector

High-energy physicists at the Enrico Fermi National Laboratory in Batavia, Illinois, may yet get a shot at finding the top quark this decade, if appropriations decisions made last week in the House of Representatives hold up. For several years, Fermilab has been pinning its hopes on a new Tevatron main injector—a 150 GeV accelerator designed to boost the luminosity of the collider’s proton and antiproton beams enough to enhance greatly the laboratory’s chances of detecting the so far elusive particle.

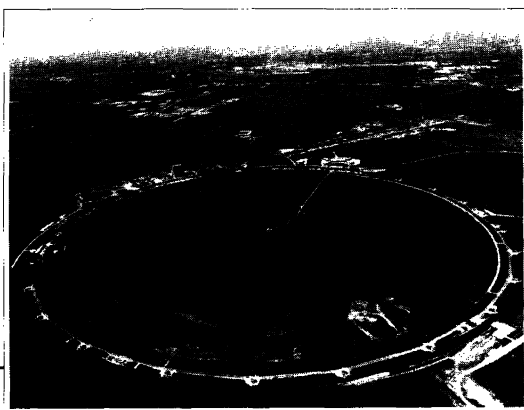
Last month, the energy appropriations subcommittee deleted from the energy and water appropriations bill \$43 million that the Department of Energy (DOE) had requested for the injector. The Illinois delegation, however,

successfully sponsored an amendment on the House floor that restored \$10 million for the project. But physicists might want to temper their enthusiasm, since the amendment includes a corresponding \$10-million cut in DOE’s budget for general accelerator physics.

The bill also approved \$434 million for the Superconducting Super Collider (SSC), upholding a \$100-million cut the energy subcommittee had made in the Administration’s request. That cut will delay the SSC’s construction schedule by 3 months and add \$100 million to the project’s

total cost, says Deputy Energy Secretary W. Henson Moore.

The appropriations bill now moves on to the Senate, where the SSC has always enjoyed strong support. As for the main injector, its future probably rides with the clout of the Illinois senators.



Due for a boost? The main ring of the Tevatron.