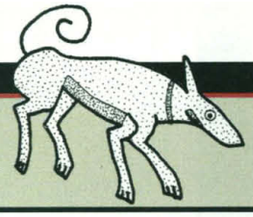

FOCUS

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Tussle over Albanian archaeological site

LEAD STORY 898
The 3-decade battle over salt and blood pressure

Icelandic Cancer Society in tracking down cancer genes. Although the company says it could work without the health care system data if it had to, its entry into the field is "a godsend," says Sigurdur Gudmundsson, chair of the National Bioethics Committee, "because it will make the discussion about monopoly much more focused and real."

So far, the bill's opponents have found little support among the general public. In a Gallup poll commissioned by deCODE, 82% of the respondents said they were in favor of the database, and 51% believed that deCODE would be the best party to develop it. "We are bringing tangible benefits to the community, and they have embraced us," says Stefansson. Critics say, however, that the public has been lured by a slick public relations campaign and unrealistic expectations. DeCODE promises that Icelanders will get any drugs or diagnostics based on their genes for free during the patent period—a promise Eyfjord calls "a joke. ... How many drugs do you think are going to be developed, and how many people will really benefit from that?"

But members of parliament, too, seem more impressed with the benefits of the plan than with its possible downsides. "Judging from their initial comments," says Gudmundsson, "they love it. I'm almost certain that [the new bill] will fly through parliament." But deCODE will still need to win over the medical community. Says Zoega: "If we do not cooperate, it simply will not work."

–MARTIN ENSERINK

Martin Enserink is a science writer in Amsterdam.

SOLAR PHYSICS

Hopes Rise After SOHO Calls Home

Earlier this week, ground controllers reestablished full radio contact with the Solar and Heliospheric Observatory (SOHO). Many had given SOHO up for lost after a series of command errors caused it to spin out of control and fall silent early on 25 June, but the renewed dialogue with the satellite has raised hopes of bringing the $1 billion spacecraft back to life.

The first useful transmissions from SOHO carried readings from dozens of onboard temperature and voltage sensors. The message they conveyed is dryly summarized by Francis C. Vandenbussche, the SOHO spacecraft manager from the European Space Agency (ESA) who heads the recovery team: "It's a little bit chilly." That chill, suggesting frozen fuel tanks, is to be expected: The spacecraft had been tumbling without power for 6 weeks before controllers achieved sporadic contact on 3 August. Full contact came just under a week later, after controllers managed to recharge an onboard battery. Now an expert team of engineers will begin evaluating data from many kinds of sensors on SOHO and come up with a strategy to bring the spacecraft back from the brink. "This was a big, big step" toward recovery, says Bernhard Fleck, the SOHO project scientist for ESA, which operates the craft jointly with NASA. "You can imagine the relief."

ESA/NASA

Cool signal. SOHO radioed temperature data indicating its fuel tanks are frozen.

The debacle on 25 June occurred when SOHO went into a spin that left its solar panels unable to collect sunlight and generate power. Those first sporadic responses on 3 August meant that the panels were in a position to collect some sunlight again. But controllers received only a so-called carrier signal from the spacecraft—"analogous to lifting your phone and getting a dial tone," says Joseph Gurman, the SOHO project scientist for NASA. Later, 10- to 15-second bursts of signals arrived carrying slight modulations, which encoded information that controllers were initially unable to read.

The reestablishment of partial contact was soon accompanied by a second bit of good news: A separate effort, in which radio waves were bounced off SOHO using the 305-meter dish at Arecibo, Puerto Rico, determined a precise spin rate for the craft of one rotation in about 53 seconds. "That's good from a structural point of view," says Gurman. "A bad number might have been 10 times that," or a rotation every 5 seconds. The information also told engineers why the carrier signal turned on and off: Solar panels face the sun only during half a rotation, and then the spacecraft lost power and went silent again. On 8 August, controllers told SOHO to use the power from its panels to charge up one of its batteries. The operation succeeded, permitting minutes-long establishment of full communication with SOHO by the following day, says Gurman.

As the expert team, drawn from engineers at ESA and Matra Marconi Space—the company that built SOHO—plots the next moves in the recovery mission, it will face several key decisions. A critical judgment will involve the strategy for gradually returning power to SOHO's many heaters, which normally keep the craft at about room temperature. That would allow controllers to thaw the tank of hydrazine that fuels SOHO's thrusters—which would have to be fired to stop the spin. But the operation could be tricky; it will require a close knowledge of structural details combined with thermal and other information so that the warm-up does not damage frozen components. That effort "is still missing some pieces of the puzzle," says Vandenbussche. Over the next couple of weeks, he hopes the signals streaming from SOHO will provide those pieces.

–JAMES GLANZ

ASTROPHYSICS

Ultraenergetic Particles Slip Past Cosmic Cutoff

TOKYO—Every so often, a cosmic ray slams into the atmosphere packing 100 million times the energies reached in the world's largest particle accelerators—the energy of a brick falling from a table packed into a single subatomic particle. Until recently all the cosmic ray facilities worldwide had detected a total of just three of these fantastically energetic particles, so small a number that they might have been the few outliers at the very top of the cosmic ray energy spectrum. Now, however, the Japan-based Akeno Giant Air Shower Array (AGASA) collaborat.ion has recorded a further handful of ultraenergetic events—enough to conclude that the upper limit to cosmic ray energies is not yet in sight. And researchers expect more such sightings from new detectors scheduled to come on line in the next few years.

"It's pretty darn exciting," says James Cronin, a physicist at the University of Chicago, because these particles are somehow evading a cosmic speed trap. A cosmic