



Planetary portrait gallery. *Voyager 1 celebrated Valentine's Day by taking an unprecedented set of pictures of most of the planets in the solar system. The rectangles represent areas to be photographed by the spacecraft's wide-angle camera. The images will be made from a position 32 degrees above the ecliptic plane in which the planets orbit the sun. Launched in 1977, Voyager is now about 6 billion kilometers from Earth.*

Among their recent incoming mail was a flier announcing "OUR NATION'S SHAME—EVERY TIME A LOAF OF BREAD IS BAKED, APPROXIMATELY 150,000 YEASTS ARE KILLED. Come to the award-winning 1987 film, 'The Very Small and Quiet Screams'—a cinematic electron micrograph of yeast being *baked*." Among the sponsors: the "Anaerobe Liberation Front," "People for the Ethical Treatment of The Yeasts (P.E.T.T.Y.)," and "Single Cell Rights Eukaryotic Action Movement (S.C.R.E.A.M.)."

Global Warming Petition

About 700 heavy hitters from the scientific community—including close to half the members of the National Academy of Sciences and 49 Nobel Prize winners—have signed a petition urging President Bush to pay serious attention to the dangers of global warming.

The appeal, generated by the Union of Concerned Scientists (UCS), was delivered to the White House a few days before the early February meeting of the Intergovernmental Panel on Climate Change.

The Administration says more study is needed to ascertain whether global climatic change has really begun. But UCS chairman Henry Kendall, physics professor at the Massachusetts Institute of Technology, noted that "the large number of prominent scientists signing this appeal should remove any doubt that global warming is taken seriously within the upper echelons of

the scientific community."

Legal Drugs: A View from Neuroscience

The debate among scholars over drug legalization has been polarized partly along disciplinary lines. Those in favor (such as Milton Friedman and Ethan Nadelmann) have tended to come from economics or political science. Among those whose work is more closely related to biology, such as treatment professionals and addiction experts, the response is generally unfavorable.

Now, Michael Gazzaniga of Dartmouth Medical School, a neuroscientist noted for his contributions to split-brain research, has joined those who contend that legalizing narcotics would reduce crime and would not increase drug abuse.

In an interview published in the 5 February *National Review*, Gazzaniga says public perception of "crack-based misbehavior" is exaggerated. Crack doesn't necessarily cause violent behavior, he says, it just looks that way because criminals are more likely to be drug users.

Nor are there any "solid data" supporting the widely held belief that crack is more

addictive than other drugs, says Gazzaniga. "The casual-to-moderate user very clearly wants to stay in that category." The "purported" higher rate of addiction may be a function of the low cost of the drug.

In Gazzaniga's view, "illegality has little if anything to do with drug consumption. . . . There is a base rate of drug abuse, and it is achieved one way or another."

Who Gets a New Liver?

If only one liver is available for transplantation and two patients need it, who should get it first—a young mother with liver cancer, whose likelihood of surviving with a transplant is only 20%, or a 65-year-old alcoholic, whose chance is 80% assuming he stops drinking?

That was the kind of excruciating medical and ethical dilemma discussed at a recent 2-day meeting sponsored by the advisory board of the National Institute of Diabetes and Digestive and Kidney Diseases.

Liver transplantation has become an established therapy: last year 2000 people got new livers. Yet because of a shortage of livers for donation, 8000 people remained on the waiting list.

The choices are so painful that everybody is trying to avoid being the one to make them. Health insurance carriers have failed to come up with any uniform policies. Three states have opted out of the dilemma by withholding Medicaid coverage for all transplants excepting corneas and kidneys.

And doctors don't want to be

the ones to set the priorities either. Indeed, surgeon Thomas Starzl of Pittsburgh's Falk Clinic said that doctors should not be deciding who gets transplants, but rather should work to expand the benefits: "dividing the pie should not be our business, but making the pie bigger and better should be."

Several physicians said that if exclusionary criteria were too narrow, they could inhibit research aimed at extending the benefits of liver transplantation. "There's no point cutting the pie when it's incompletely baked," Starzl said.

Tritium Production

The aging heavy water reactor at the Department of Energy's Savannah River weapons plant, which makes tritium for nuclear warheads, needs to be replaced. Congress has toyed with the idea of replacing it with linear particle accelerators instead of new heavy water reactors. But several recent reports say the idea faces big stumbling blocks: time, money, and power.

In one report, "Accelerator Production of Tritium," the energy department estimates that an accelerator would cost between \$4.5 and \$7 billion; a new heavy water reactor could be built for about \$3.2 billion. The report also says designing and building an accelerator of the required capacity would probably take a decade.

The General Accounting Office expressed its doubts in a report called "The Feasibility of Using a Particle Accelerator to Produce Tritium." Their report notes that part of the technology's advantages could be lost if the electricity needed to run the facility—some 900 megawatts—is supplied from a new nuclear power reactor.

Accelerator technology nonetheless has potential advantages—tritium can be produced more safely and simply than with a nuclear reactor, and there would be substantially less nuclear waste.



Michael Gazzaniga