

Cassini finds Titan's lakes after two-year search

Before Cassini reached Saturn, astronomers were excited about the chance of finding lakes of liquid methane or ethane on the planet's moon Titan. It is certainly cold enough there, and they figured that the gaseous hydrocarbons in Titan's atmosphere must be coming from somewhere.

But when Cassini started sending back images after its first flyby in July 2004, apparent river channels and seabeds were dry. And the Huygens probe, which landed on Titan in January 2005, found only solid, if damp, ground.

Now astronomers have found what they were looking for. Cassini's 17th close flyby — the first to scan Titan's colder northern hemisphere — has at last confirmed the presence of giant lakes. Further images should flood in, with 28 more flybys scheduled up to June 2008.

India and Pakistan further their nuclear ambitions

With India poised to receive nuclear aid from the United States, its rival Pakistan has been working on nuclear plans of its own. It seems to be building a massive reactor that could produce 50 nuclear weapons a year.

The construction was discovered in commercial satellite images and made public on 24 July by analysts at the Institute for Science and International Security, a Washington-based arms-control group. The group says that the reactor, which seems to be several years from completion, could enable Pakistan to mass-manufacture plutonium weapons.

Two days later, the US House of Representatives approved further nuclear aid to India by a vote of 359 to 68. Arms-control experts fear that the accord, expected to pass the Senate later this year, will allow India to use domestic nuclear plants to boost its own weapons production.



Nuclear plan: view of Pakistan's Khushab complex, which could produce weapons-grade plutonium.

Ocean hosts a reserve of rare genes

There are 10–100 times more bacterial species lurking in the ocean than previously thought, say marine researchers. By sequencing small snippets of DNA, Mitchell Sogin of the Marine Biological Laboratory in Woods Hole, Massachusetts, and his colleagues have discovered more than 20,000 different kinds of microbes in a single litre of sea water.

The scarcest creatures form what the team calls the 'rare biosphere'. Their role is unclear, but they hold a reserve of genetic information that could help them survive, or even become dominant, if environmental conditions change. The study is part of the ongoing International Census of Marine Microbes, a ten-year project that began in 2000.



B. MORRIS/MICROSCOPE

At last, a bird-flu vaccine that works at low doses

In the event of a bird-flu pandemic, a vaccine that works at low doses would be critical, enabling high numbers of doses to be made using the world's existing vaccine-production capacity. Last week, GlaxoSmithKline announced promising clinical-trial results — two shots of a vaccine containing just 3.8 µg of antigen gave 80% of 400 test subjects a strong immune response to the virulent H5N1 flu strain.

Existing production capacity could in theory produce enough of such a vaccine to treat 1.8 billion people. In contrast, an H5N1 vaccine from the US National Institutes of Health, tested last summer, required two doses of 90 µg — so the same amount of vaccine would treat less than 100 million people (see *Nature* doi:10.1038/news050808-9; 2005).

The company has yet to publish supporting data on the trials.

UK centre offers cheap IVF in return for research eggs

Britain has edged nearer to allowing women to be paid to donate eggs for research purposes. The move is unusual — the US National Academy of Sciences recommended last year that women donating eggs for research should be paid expenses only, partly to avoid financial inducement for the risky procedure.

On 27 July, the UK Human Fertilisation and Embryology Authority gave the Newcastle Fertility Centre at Life permission to charge women less for *in vitro* fertilization (IVF) if they agree to donate any excess eggs to the centre's research. Donors will pay half of the normal £2,500 (US\$4,700) IVF fee. Newcastle researchers say they started receiving enquiries as soon as news of the decision became public.

Alison Murdoch, the centre's director, thinks donors will supply between five and ten eggs per week. Her group, which has created one cloned human embryo, currently uses eggs left over from IVF treatments, and has fewer than ten eggs a month to work with.

Conflicts-of-interest keep hitting US headlines

Conflict of interest is like pornography: most people feel they know it when they see it, but it's deceptively difficult to define. In the United States last week, there was angry debate over various cases.

Some people were outraged by reports that the University of Virginia's Pat Michaels, a climatologist who says global warming is not a problem, has received several hundred thousand dollars from coal-burning power companies. But to Michaels and his supporters it was an above-board consulting deal.

And the Center for Science in the Public Interest reported that 18% of scientists on committees at the National Academies had conflicts of interest. Critics argued that the centre selected the committees most likely to be conflicted, and used impossibly strict criteria.

Political momentum to combat scientific conflicts of interest does seem to be growing, however. The Food and Drug Administration said on 24 July, for example, that it will review its policy of giving waivers to members of its advisory panels who have conflicts of interest. This is probably a bid to pre-empt a move by Congress that would force them to give up waivers altogether.

Correction

The News Feature "The trouble with replication" (*Nature* **442**, 344–347; 2006) incorrectly stated that Dominique Bonnet has derived pluripotent stem cells from human bone marrow. Bonnet has derived such cells from mouse bone marrow only.