

US academy to study lie-detector tests

Washington The US Senate has asked the National Institutes of Health (NIH) to commission a study from the National Academy of Sciences on the efficacy of polygraph testing. The tests may be used by the Department of Energy on thousands of employees at its nuclear-weapons laboratories.

Scientists at the laboratories have expressed deep misgivings about the tests, which they believe to have no scientific basis. Senator Jeff Bingaman (Democrat, New Mexico), who shares their concern, says that the “psycho-physiological phenomena” on which polygraph tests are based fall within the NIH’s technical remit, and attached the request to NIH’s annual funding bill.

NIH in line for massive funding bonanza

Washington The National Institutes of Health (NIH) could receive a funding bonanza next year that is even larger than expected, as negotiators from the House of Representatives and the Senate have agreed an appropriations bill that would increase its budget by \$2.3 billion to \$17.9 billion.

The proposed increase — larger than both the \$2 billion approved by the Senate and the

\$1.3 billion proposed by House appropriators — emerged as supporters of the NIH sought to shelter it from a plan by Republicans to cut 1.4 per cent from the budget of every agency in the federal government. But as budget negotiations between the Congress and the Clinton administration enter their final phase, the across-the-board cut may fail to materialize, leaving the NIH with the full, \$2.3 billion increase.

French charity fraud figures head to prison

Paris Jacques Crozemarie, the founder and ex-president of the French Association for Cancer Research (ARC), was sentenced to four years in prison and fined FF1.5 million (US\$250,000) last week for his role in an embezzlement scandal that cost the charity FF300 million (see *Nature* 379, 103; 1996 and 399, 724; 1999).

Crozemarie will appeal against the ruling and remain free until its outcome is known. Michel Simon, the former chief executive officer of International Development, a public relations company contracted by ARC, was sentenced to three years in prison and also fined FF1.5 million. A total of 19 others involved in the affair received shorter prison terms.

Chinese prawn baculovirus genome fully sequenced

Tokyo US and Chinese researchers have finished sequencing the genome of the C-type baculovirus, or prawn white spot baculovirus (WSBV), a pathogen of prawns that cost China 10 billion yuan (US\$ 1.2 billion) in 1993 (see *Nature* 397, 465; 1999).

The project was the work of the National Centre for Biotechnology Development, the National Human Genome Research Centre, the Third Institute of Oceanography and Shanghai GenCore Biotechnologies. The results indicate that WSBV may belong to a different subfamily from originally thought, or even a new virus family. The 305-kilobase sequence will aid the development of strategies for the prevention and treatment of prawn diseases.

Correction

The illustration used with the article ‘US warms to carbon sequestration research’ (see *Nature* 401, 315; 1999) should have been referenced to ‘Direct experiments on the ocean disposal of fossil fuel CO₂’ by Peter G. Brewer, Gernot Friederich and Edward T. Peltzer of the Monterey Bay Aquarium Research Institute, and Franklin M. Orr of Stanford University (see *Science* 284, 943–945; 1999).

US warms to carbon sequestration research

San Diego

The US Department of Energy (DoE) is investigating whether the sequestration of atmospheric carbon dioxide in oceanic or terrestrial ecosystems might be an effective way of reducing global warming.

The department has given \$9 million for three years to two research centres — one each to study the ocean and land — involving scientists from various institutions. Earlier this month, the DoE solicited proposals for \$18 million in carbon sequestration research, with another solicitation expected soon (see www.fetc.doe.gov/business/solicit).

The budding research initiative — which will eventually require far more funds — is drawing together scientists from a variety of disciplines to study cost-effective and environmentally safe methods for the separation, capture and sequestration of the carbon dioxide emitted from fossil fuel. For instance, it might be possible to draw carbon dioxide from the emissions of a power plant, treat it and inject it deep into the ocean for storage.

The research projects are developing in a complex political climate where there is a broad consensus on the need to reduce emissions of greenhouse gases, but varying views on the most cost-effective way to do this.

Some nations, such as Japan and Norway, have aggressively pursued carbon sequestration research. But the United States has funded little research in this area, partly because of political sensitivities. Industry, which depends on fossil fuels, and its congressional advocates feared added costs, while some environmentalists felt carbon sequestration would not curb the burning of fossil fuels.

Last week, the DoE held a workshop bringing together scientists, industry, environmentalists and government officials to seek guidance for “a research road map for practical carbon sequestration technologies”, and to seek comment on its recently released draft white paper, *Carbon Sequestration — State of the Science*.

Scientists attending the two-day workshop in Maryland described it as an encouraging exercise that showed new cooperation among disparate parties. But they also said that a shortage of data means it will be decades before some new forms of sequestration find large-scale applications.

“There is so much we don’t know,” says Howard Herzog, a chemical engineer at the Massachusetts Institute of Technology’s energy laboratory, “but if we don’t do the groundwork now, we won’t be ready”.

With terrestrial sequestration, carbon dioxide emissions would be pumped into geological formations or old oil wells, reduced by farming techniques (such as eliminating deep ploughing), or offset by forestry procedures such as planting more



Deep thought: the effects of liquefied carbon dioxide on the ocean environment are already being studied by the University of Hawaii.

trees. Small-scale applications of these methods are already being applied in some countries, mostly without controversy.

In contrast, ocean storage of carbon dioxide is seen as having great potential because of the vast areas available; but environmental issues make it a sensitive alternative. Injecting carbon dioxide may change the ocean chemistry, possibly with harmful ecological consequences.

It is these aspects of carbon storage that scientists want to study. Next month, the UK-based Environment Council will hold a workshop in New York to explore whether the injection of carbon dioxide into the ocean is “a robust environmental management strategy”. In May, the organization held a similar workshop in London.

With ocean sequestration, carbon dioxide would be liquefied and then pumped into the depths, where huge amounts of carbon already exist in forms such as carbonic acid or carbonate.

Dispersing carbon dioxide in the ocean is also being considered, but this may be even more controversial, because of concerns

about more widespread ecological damage.

“We are being quite cautious,” says Jim Bishop, a marine chemist at the Lawrence Berkeley National Laboratory who is a co-director of the DoE’s new Center for Research on Ocean Carbon Sequestration. “Before we pump carbon dioxide into the sea, we need to better understand how it will work”.

To that end, a team of scientists in Hawaii is preparing to conduct the most extensive experiment to date on injecting liquefied carbon dioxide into the deep ocean. The \$5-million, four-year project is being funded mostly by Japan, with assistance from the United States, Norway and Canada. Australia is also expected to join.

Stephen Masutani, a mechanical engineer at the University of Hawaii who is one of the project’s leaders, says the plan is to inject liquefied carbon dioxide 900 metres deep off the Kona coast in the summer of 2001.

The injection will use a small, removable pipe laid into the ocean from the Hawaii Natural Energy Laboratory. A remotely operated, mobile platform will monitor carbon dioxide dispersal at the injection site. “The idea is to obtain data for predictive models,” said Masutani. “We want to see what the changes in the sea chemistry are.”

But, despite more than two years of planning and laboratory work, Masutani says the experiment is under scrutiny from local environmental groups concerned about the impact on sea life and water chemistry.

The Hawaii team is spending considerable funds on explaining the experiment. If a full environmental impact statement is required, says Masutani, it would delay the experiment beyond the funding period set by Japan, possibly scuppering it. Decisions on the environmental assessment needed are expected in the next few months. **Rex Dalton**

German museums face cuts

Munich

Publicly funded research at Germany’s six largest science and history museums — including the Deutsches Museum in Munich — is to be cut next year by at least 7.5 per cent.

Areas likely to be immediately affected at the Munich museum include its efforts to promote the public understanding of science, for which it has recently taken on responsibility for nationwide coordination.

Some of the biological research at the Zoological Research Institute and Museum Alexander Koenig in Bonn would be “paralysed” by the threatened cuts, according to Michael Schmitt, a biological

researcher there. “It would mean the end of my research project on the phylogeny of *Chrysomelidae* [leaf beetles],” he says.

The museums’ research departments form part of the Wissenschaftsgemeinschaft Gottfried Wilhelm Leibniz (WGL) — formerly called the ‘blue list’ — a loose association of 82 research and service institutes that makes up Germany’s ‘fourth pillar’ of non-university research.

The WGL is funded equally by the federal government and Germany’s 16 Länder (states), as are the Max Planck Society (MPS) and the university funding organization, the Deutsche Forschungsgemeinschaft (DFG).

The MPS and DFG will see their budgets