US elections

Key posts held

Washington

Last week's congressional elections, which gave the Democrats a 26-seat gain in the House of Representatives, returned all but two of the senators and congressmen who hold key positions on science and environment committees. The two losers were Senator Howard Cannon (Democrat, Nevada), the ranking Democrat on the Commerce, Science and Transportation Committee, and Senator Harrison Schmitt (Republican, New Mexico), a former astronaut and the only PhD scientist running for the Senate.

Cannon, who lost in a close race in his increasingly Republican state, has been a senator for 24 years. He was recently instrumental in pushing through legislation to guarantee continued funding of the Landsat remote-sensing programme.

Schmitt, who is completing his first term, has been a staunch supporter of President Reagan's economic policies, although he recently went against the Administration in sponsoring legislation to increase spending on science education. Schmitt also supported a shift in funding from the Department of Defense to the National Aeronautics and Space Administration for shuttle operations and for increased space and aeronautics research.

Three supporters of environmental legislation in the Senate who faced strong opposition in the election will all be back: Robert Stafford (Republican, Vermont), George Mitchell (Democrat, Maine) and John Chafee (Republican, Rhode Island).

In the House of Representatives, all the key players on science and the environment committees will be returning, although George Brown (Democrat, California), a strong advocate of science education and research, was pushed to sending out a plea during the campaign for financial support from scientists and educators.

At the other extreme, Senator William Proxmire (Democrat, Wisconsin) of Golden Fleece Award fame proved much more popular among his constituents than among the nation's scientists. He wound up with 64 per cent of the vote, having spent less than $150 on his re-election campaign.

A resolution calling for immediate negotiations toward a bilateral nuclear freeze was passed in eight states. Although the resolutions are not binding, the Reagan Administration had campaigned heavily for their defeat, arguing that a freeze would endanger US security. Voters in Massachusetts, Michigan, Montana, New Jersey, North Dakota, Oregon and Rhode Island passed the measure by a wide margin. It narrowly passed in California and failed in Arizona, the only other state where it was on the ballot paper.

Stephen Budiansky

West Germany science

Federal plans

The implications for science of the change in government in West Germany are emerging only gradually. The new CDU/CSU/FDP coalition is clearly going to be cautious in what it does at least until after the federal election next March. In any case, the vast and decentralized structure of German science makes it impossible to implement changes quickly. An indication of the new team's plans has been given by Dr Heinz Riesenhuber, CDU minister at the Research and Technology Ministry (BMFT) in speeches at a joint industry/BMFT seminar on technology transfer and at a meeting of the Fraunhofer-Gesellschaft in Munich.

Dr Riesenhuber made it clear that direct support of individual projects will be run down in favour of indirect support through tax relief, low interest loans, allowances and subsidies. The rundown can be seen as a continuation of the previous administration's policy under which barely half as many projects were started in 1981 as in 1979. Dr Riesenhuber hopes that indirect support will encourage more market-oriented research and he singled out the energy saving programme for particular criticism, saying that the returns for the DM 4,350 million (US $1,700 million) spent are quite inadequate.

In a similar vein, at the technology transfer meeting, the minister demanded that work at the 12 large state-supported research centres should concentrate more on market-oriented work and suggested that there should be more independent co-operation between research and industry. He expressed a belief that there is a pool of research results which could lead to industrial innovation at little or no cost. This seems questionable, for while it may have been possible to carry out development on a shoestring fifty years ago, modern requirements for quality and reliability in products and processes have made the step from research to production both expensive and time-consuming. If Reisenhuber's pronouncements are a foretaste of the kind of shift in emphasis that has occurred in science budgets in the United Kingdom and in the United States during the past decade, scientists working in basic research and on long-term projects will have to fight hard for their corners.

In more concrete terms, the draft budget for 1983 shows that the immediate effects will be small. The total research budget is DM 6,911.8 million (US $2,710 million), a decrease of 2.4 per cent compared with the draft budget of the previous government and of about 2.2 per cent compared with 1982. Details have not yet been announced and the proposals may be modified when they are discussed in the Bundestag on 11 November.

J.S. Dunnett

Interferon therapy

Side effect scare hits French trials

Paris

Four patients out of eleven being treated for cancer with French alpha-interferon have died from the same cause this year in France — myocardial infarction, a failure of a section of heart muscle through the loss of local blood supply. As a result, Jack Ralite, the French minister of health, has cancelled the trials, at least until Institut Pasteur Production (IPP), which produces the drug, can repurify its stocks and perform new toxicity tests on the material.

The deaths could be attributable to the interferon itself, or to impurities in it, or it could be just a run of bad luck. Several other countries are performing human trials with interferon and there have been no reports of the heart disease syndrome, and IPP uses essentially the same production method as Dr Kari Cantell, who has supplied much of the world's alpha-interferon: extraction from blood-bank leukocytes.

But the sequence of four similar deaths was too much to ignore. The scientific council which was set up to advise Ralite specifically on trials with the IPP interferon (the only French source) advised him to halt the trials. According to the president of the council, medical statistician Professor Robert Flamant, suspicions were first raised when the first two patients both died of myocardial infarction near the end of their treatment. They were both women 50–60 years old with acute breast cancer, who had been treated by other drugs and with radiation. The deaths led to "discussions" in the council, but they were dismissed as coincidence.

There was no problem with the third patient treated — nor any cure. But the fourth, a kidney cancer case, died of myocardial infarction actually during one of the interferon infusions.

At this point the council decided to change the method of introduction of the drug, which until then had been the "more aggressive" intravenous route rather than the intramuscular route which is usually preferred but which limits the size of the doses. This was fine for six patients, but in the seventh, with a slight increase of dose, there was another myocardial infarction. It was "less clear" in this case that interferon might be to blame, as the patient had a history of slight heart trouble. But it was enough to lead the council to stop the tests, especially since they also noted that a child had suffered great shock — and just survived — when given an injection of the interferon for a virus infection.

Flamant, however, expects his council to reauthorize the trials when IPP has

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repurified its stock (leukocyte interferon is always contaminated with various other proteins besides interferon) and if the toxicity trials — to be performed on dogs — are completed successfully. This may take two months, he estimates.

There is anxiety, however, about non-French interferon, over which Flamant's council and the minister himself have little or no control. The council deals specifically and solely with IPP interferon because it arose as a *quid pro quo* when the government first offered a guaranteed market to IPP for its product. Having guaranteed the cash, the government also wanted to ensure proper statistical control of the trials and so established the council.

But non-French interferon enters the country with no more than an import licence — and some of it, it is suspected, without any licence at all. This foreign interferon is being used for phase 1 and phase 2 human trials without any control, and with little knowledge on the part of the ministry.

It is therefore being suggested that the foreign interferon material, and other experimental drugs as well, should be controlled under a comprehensive oversight scheme. Thus questions raised over the purity of a particular kind of French interferon may also affect other drugs, both French and foreign.

Robert Walgate

Anglo-Australian bomb tests

Government traces victims

Canberra

It seems that the dust has not settled over Maralinga or at a site 200 kilometres to the north of it called Emu, both in South Australia, nor over the Monte Bello Islands off the coast of Western Australia. It was in these remote spots that the British government conducted a series of 12 atom bomb tests between 1952 and 1957 (see table). In addition, in the following six years, weapon experiments involving radioactive fallout, though not from explosions, were undertaken at the testing range of Maralinga — an aboriginal word meaning "field of thunder".

The federal government is now trying to trace people associated with the tests, some 15,000 in all, in order to establish if there might be a link between mortality and morbidity of this group and the tests. On 22 October, the Minister for National Development and Energy, Senator Sir John Carrick, announced that questionnaires seeking medical data were sent to all the 8,000 people whose whereabouts are known through sifting administrative records, and he appealed for help to find the rest. The Department of National Development and Energy, which is conducting the survey, is also unearthing death certificates for information on the number and causes of death among this population. Furthermore, the government commissioned an independent body of experts, the Australian Ionising Radiation Advisory Council (AIRAC), to examine the adequacy of safety precautions at the time and the possibility of ill effects from fallout. This report, now in its final draft, was expected to be released in a month but it will now be delayed until next year, partly because it contains some classified information awaiting clearance by British authorities.

The survey is both a response to and an attempt to allay growing public disquiet in the past three years over newspaper reports, mainly from South Australia, of illness and death among servicemen involved in the tests. Another story, just as alarming, which may not be apocryphal, is about a tribe of the Pitjantjatara aboriginals wandering into ground zeros during the tests unbeknown to the British. An attempt by the South Australian Health Commission to authenticate that claim only served to highlight the difficulties of obtaining information from a small nomadic and dispersed group and the lack of control data for comparison.

Of the many compensation claims lodged at the office of the commissioner for employee compensation, liability has been acknowledged in 5 cases — 3 for deaths from cancer, 1 for the aggravation of an existing nervous complaint, and 1 for a thyroid disease. The largest sum, A$32,000, was paid to the widow of Mr Frank Eaglen who died of cancer. Claimants are aided by the fact that the onus of proof rests with the government.

Australia and the United Kingdom agreed to establish a testing range at Maralinga in August 1954 and it was approved by cabinet in May 1955. Subsequently the Atomic Weapons Safety Committee was instituted, whose job it was to ensure that the tests were conducted to the satisfaction of the Australian government. This committee of scientists had the power to veto, until the moment of firing, any test not meeting its safety criteria. After its closure, the range was partially decontaminated in 1964 and again in 1967 (operation "Brumby") by British teams. However, as a consequence of Australia's ratification of the nuclear non-proliferation treaty, Britain was asked to "repatriate" half a kilogramme of plutonium existing as a single discrete mass buried at Maralinga and the material was removed in 1979, the same year in which the Department of National Development and Energy completed a programme of waste management and rehabilitation in accordance with AIRAC recommendations.

Vimala Sarma

UK atomic tests in Australia 1952–57

Code	Location	Firing site	Date	Size
Hurricane	Monte Bello	Off Trimouille Island	3 Oct 1952	Kilotonne
Totem 1	Emu	—	15 Oct 1953	Kilotonne
Totem 11	Emu	—	27 Oct 1953	Kilotonne
Mosaic G1	Monte Bello	Trimouille Island	16 May 1956	Kilotonne
Mosaic G2	Monte Bello	Alpha Island	19 June 1956	Kilotonne
Buffalo	Maralinga	One Tree	27 Sept 1956	Kilotonne
Buffalo	Maralinga	Marcoo	4 Oct 1956	Low yield
Buffalo	Maralinga	Kite	11 Oct 1956	Low yield
Buffalo	Maralinga	Breakaway	22 Oct 1956	Kilotonne
Antler	Maralinga	Tadje	14 Sept 1957	Low yield
Antler	Maralinga	Biak	25 Sept 1957	Kilotonne
Antler	Maralinga	Taranaki	9 Oct 1957	Kilotonne

Source: Australian Ionising Radiation Advisory Council Reports Nos 4, 5 and 7 tabled in the House of Representatives on 30 May 1979, 13 November 1979 and 22 May 1980 respectively.

Radiation exposure

Unions agree

A scheme for compensating the dependants of radiation workers who have died from cancer has been agreed between British Nuclear Fuels Ltd (BNFL) and its trade and staff unions. The scheme will apply to present and past employees, but requires that dependants will be eligible for compensation only if there is evidence that the cancer may have been caused by occupational radiation exposure.

British Nuclear Fuels is the publicly owned monopoly for reprocessing and fabricating nuclear fuel. The distinctive feature of the new agreement is that compensation will be determined by the probability that a cancer has been induced by radiation, thus avoiding the "all or nothing" conundrum that has complicated earlier legal cases.

The scheme is hailed as a "pioneering deal" by Mr John Edmonds, National Energy Officer of the General and Municipal Workers Union (the main union involved in the negotiations). It is certainly a unique scheme in the nuclear industry, although large employers in other industries run compensation schemes that work along similar lines. Previous claims in respect of radiation-induced disease made through the courts have resulted in very long delays in payments; several substantial out of court settlements have been made.

The new procedure is voluntary, but the unions involved will recommend claimants to make use of the scheme. The option of taking a case to court instead is not

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