

for heavy communications satellites.

Brazilian plans are more tenuous. For a decade, the government has been talking of launchers to place remote sensing and meteorology satellites into orbit, though little seems to have been done.

Judy Redfearn

Polish science advice

Reforms in limbo

One of the casualties of the Polish government's sudden suspension of the Solidarity trade union at the weekend may well be the draft bill that would have made it obligatory for government agencies to consult "scientific experts" before making important decisions. News of the bill came in a communiqué issued last month after a meeting between the Prime Minister, General Wojciech Jaruzelski, the Primate of Poland, Archbishop Jozef Glomp and Lech Walesa, leader of Solidarity.

To be effective, the proposed bill would have had to ensure that consultations were more than an empty formality. In some cases it would seem, past governments acted without even an appearance of consulting scientists. A notorious case was the siting of vast industrial plants — the Skawina aluminium smeltery and the Lenin steel mills — just outside Krakow. The decision to develop industry in the area in the 1940s had political overtones but meteorologically Krakow is a very poor site because of the limited circulation of the air. The toxic fumes from industry have undermined the health of the population and made the produce of farms unsafe within a radius of 50–60 km.

Until September 1980, any public discussion of such issues was impossible. Within a month of the signing of the Gdansk accords, however, a new Club of Polish Ecologists was established, based in Krakow, which early in January succeeded in having the obsolete production lines at Skawina (which had been emitting hydrogen fluoride) closed down. General Jaruzelski has been a strong supporter of moves to give scientists a louder voice, and he seems committed to continuing with consultations. But exactly who will be involved in any future talks is now unclear, as a new format is likely to emerge after a brief hiatus.

A second new bill now being prepared is aimed at reforms in the Academy of Sciences. The academic secretary of the academy is at present directly responsible to the prime minister and has himself quasi-ministerial rank. In recent months there has been a considerable movement within the academy to change this anomalous status by making the academic secretary responsible only to his fellow academicians. It seems likely that the prevailing "state of emergency" will mean a considerable weakening of provisions in the bill aimed at increasing the independence of the academy. **Vera Rich**

Creation on trial

Battle engaged

Washington

While a federal judge in Little Rock, Arkansas, listened to the closing arguments this week in a case claiming that a new state law which requires the teaching of "creation science" violates the separation of church and state, both sides in the dispute were already sharpening the arguments for the next round of what promises to remain an escalating battle of wits.

In Washington, the National Academy of Sciences held the first meeting on Monday of a committee made up of prominent scientists and legal advisers who will prepare a legal brief on the scientific status of the theory of evolution to be presented by the academy as an *amicus curiae* ("friend of the court") document, either to the Arkansas court if there is enough time, or in any future legal proceedings.

Meanwhile the creationists are working on a revised version of their "model bill" used as the basis of the Arkansas law passed in March, requiring equal efforts to be devoted to teaching the theory of evolution and creation science in school biology classes. The new bill is designed to meet some of the legal challenges thrown up in the Little Rock proceedings and elsewhere.

Whichever way the Arkansas verdict goes, there is a good chance that the fight will make its way up to the Supreme Court. And the supporters of creation science are unlikely to be put off by an adverse legal ruling, since they claim to be backed by a groundswell of popular support.

The academy panel is being chaired by Dr James Ebert, vice-president of the National Academy of Sciences and president of the Carnegie Institution of Washington. Others on the panel include Dr Steven Weinberg, professor of theoretical physics at Harvard; Dr Preston Cloud, professor of biogeology at the University of California, Santa Barbara; and Professor Norman Newell, curator emeritus in the department of invertebrates at the American Museum of Natural History in New York.

Several legal experts have been included on the panel to advise on the constitutional issues raised by the creationists. These include Mr Peter Barton Hutt, previously general counsel of the Food and Drug Administration, and Dr Richard Maserve, a staff member of the Office of Science and Technology Policy under the Carter Administration. Both are now members of the Washington law firm Covington and Burling.

The legal brief will concentrate on providing an academy-endorsed statement on the definition of science which, it is hoped, will help both courts and state legislatures distinguish the philosophical status of the theory of evolution from creation science.

The academy is also considering

producing a booklet to summarize current thinking on evolutionary theory.

The main claim being put forward by the state attorney general, Mr Steve Clark, in Little Rock is that, since holes can be picked both in the theory of evolution as a conventional science and in creation science as a conventional religion, the two are "just as scientific" and "just as non-religious" as each other.

The American Civil Liberties Union (ACLU), which has filed the case against the state of Arkansas on behalf of several local religious groups and school teachers, has so far had no difficulty in generating substantial support, from both the legal and the scientific professions, in preparing its case. A prominent New York law firm for example has been providing free legal support — including extensive research and the services of eight back-up attorneys in Little Rock — which would normally cost many hundred thousand dollars.



"Next witness"

ACLU has received help and advice from between 60 and 70 scientists in preparing a brief. Among those called to the witness box who gave a vigorous defence of evolutionary theory and challenged the claims of creation science were Professor Francisco Ayala of the department of genetics at the University of California in Davis, a member of the new National Academy of Sciences committee; Dr Gary Dalrymple, a geologist who is an associate director of the Western region of the US Geological Survey; and Harvard evolutionary biologist and historian Dr Stephen Jay Gould.

In contrast, although the state attorney general's office is presenting a number of scientists to put the creationist interpretation of human origins, few have significant standing in the scientific community. Attorney General Steve Clark complained last Thursday that several scientists had refused to testify in defence of the new law, suggesting that they had been subject to "peer group pressure".

Not all creationists have been happy with the way that their case is being handled. Two of the more prominent attorneys associated with the creationist movement, constitutional expert Wendell Bird and Virginia attorney John W. Whitehead, complained that they had been excluded

from playing a major role in preparing a defence of the law, and that the state had therefore prejudiced its own chances of defeating the law suit.

Both, however, are now preparing for the legal battles that lie ahead. And even if ACLU wins in Little Rock — as seems likely, given the liberal background of Judge William Overton and the way he has handled the case so far — next time round the arguments could be tougher to defeat.

One passage in the Arkansas bill, for example, speaks of creation science being based on the explanation that the world was created *ex nihilo*, a passage which theology professor Langdon Gilkey of the University of Chicago described as “the most religious” of various statements implying the involvement of a God, since “there are no other sources at work”. The new version of the model bill, however, which is being circulated by Mr Paul Ellwanger of Citizens for Fairness in Education of South Carolina, merely states that creation science must be based on “evidences that indicate creation of the Universe, matter and energy suddenly”.

Given the fact that challenges from creationists are unlikely to evaporate, even if they lose the Arkansas case, ACLU is asking the judge for a “finding of fact” that any science must be based on natural laws and must be explanatory, falsifiable and tentative, criteria which they hope will rule out creation science as a genuine science, however it is described.

David Dickson

UK cancer research

Unequal shares

If the Medical Research Council's (MRC) reshuffle in the allocation of funds for cancer research in Britain was intended as a bid to save money, it has been largely unsuccessful. The complete withdrawal of financial support from two cancer research institutes in Manchester and Glasgow has saved the council a paltry £0.5 million.

Instead, it seems, the changes — announced last month in the council's annual report — were aimed at a rationalization of administration in the Patterson and Beatson cancer research institutes in Manchester and Glasgow. Since 1970 the two independent laboratories have been financed by a joint committee of the Cancer Research Campaign (CRC) and the MRC, with the two bodies taking equal financial responsibility. “The MRC's decision to relinquish financial commitment to the CRC,” says Dr John Paul, director of the Beatson laboratories, “has made administration here much easier. Working for two paymasters can become complicated.”

The Beatson and Patterson laboratories may benefit from dependence on the publicly-supported CRC, but the Institute of Cancer Research in London (ICR) is left as pig-in-the-middle. It had been hoped

Painful adaptation at cancer institute

The problems of the British Institute of Cancer Research (ICR) stem largely from the events of four years ago, when its funds were substantially cut and put on a basis unusual for a British institute. The block grant to ICR has been tapering away for the past few years. From next April, research groups will have to compete exclusively for funds with other applicants to the Medical Research Council and the Cancer Research Campaign. To make matters more complicated, block funding of laboratory services has now also been withdrawn so that, for example, a research group which needs electron microscopy is now expected to obtain sufficient funds to pay for it as a properly costed service; consequently ICR will be able to maintain an electron microscopy facility only if there is sufficient demand and cash from the research units to support it continually.

Worse still, in the period between the sudden early retirement of the previous director of ICR, Dr Thomas Symington, in August 1977 and the appointment last year of Dr Robin Weiss, little had been done to adjust to the new circumstances. Indeed, ICR had gone on spending almost as though its total funds had not been cut by about 18 per cent, with the result that Dr Weiss inherited a deficit of about £1 million even though the Imperial Cancer Research Fund had donated about the same amount to help stave off the day of reckoning.

Since his arrival, Dr Weiss has had to clear the £1 million deficit and adjust to an annual budget that is now about £6.5 million — £4 million from the Medical Research Council and the Cancer Research Campaign, the rest from legacies, the National Health Service, endowments and granting bodies. About £400,000 a year has been saved by early retirements, the freezing of

vacancies and other means — for example, ICR no longer has laboratory cleaners. (Has anybody noticed?) About 45 members of staff have gone, a loss offset because Dr Weiss, with separate funds linked with his appointment, has brought in about 20 new people to establish a core of molecular and cellular geneticists.

But now, Dr Weiss and his newly appointed deputy director, Dr Tony Davies, have to find more savings. Unless some means can be found to spread the contraction over four years or so, by which time more natural or voluntary retirements will have done the trick, it looks as if there will have to be perhaps 50 compulsory redundancies.

One immediate threat is to the Division of Tumour Immunology under Professor Peter Alexander at the Sutton branch of ICR. As a result of recent site visits, the Medical Research Council and the Cancer Research Campaign have very substantially cut the funds of this division, leaving uncertain the future of all the tenured staff.

Dr Weiss is not convinced of the justification of this drastic cut when he sees little or no evidence that either the council or the campaign is cutting back on tumour immunology in their own units. By similar reasoning, he also fears for the future of radiobiological research at ICR. With the Medical Research Council about to continue its large Radiobiology Unit under a new director, and with the Cancer Research Campaign committed to its Gray Laboratory in Northwood, Dr Weiss wonders if they will see fit to continue support for radiobiology at ICR, in spite of its good record and close links with clinical radiotherapeutics. Dr Weiss holds that the institute is better placed to integrate radiobiology with other research activities than other establishments.

Peter Newmark

that the MRC could allocate further funds to the ICR because of its divorce from the other two laboratories. But in practice the council has stepped up its commitment to the ICR by just 10 per cent, leaving the funding shared 60:40 with the CRC. This year the council also gave the institute £0.5 million for equipment, but this cannot be guaranteed in the future, says the MRC.

Dr Robin Weiss, ICR director, maintains that the reshuffle has had no immediate effect on the institute. But he is concerned about the future: “With the present arrangement of joint funding, I sometimes worry that we become neither's ultimate responsibility.”

In this financial crisis, it would seem logical to predict that the CRC would be loyal to its wholly CRC-funded bodies and that the MRC's responsibility would rest preferentially with its own units. That

leaves the ICR in a rather vulnerable position. For there is no agreement, says Dr Weiss, that the financially healthier CRC should make good where the MRC falters.

Perhaps, though, the concern of the ICR for its future stems from its rough ride through the cuts of 1977. And the MRC is not last to admit that the financial status of the institute is far weaker than that of the Beatson or Patterson laboratories.

And while the CRC and MRC swear allegiance, one message emerges loud and clear, affirming Dr Weiss' concern. The CRC, dependent as it is on finance from the public, can in no way guarantee to act as back-up to the MRC with its government funding under continual threat. It is understandable that the ICR, funded by both bodies, should look nervously towards future government cutbacks.

Susan Douglas