

More pressures on Rothschild system

Geology project threatened by more cuts

The Rothschild principle, whereby British government departments ("customers") commission research from research councils ("contractors"), already corrupted in medical and agricultural research, is now showing signs of strain elsewhere. The latest development is that two of the customers of the Natural Environment Research Council, the Department of the Environment and the Department of Industry, are threatening to cut the amount of geological research they are prepared to commission.

At stake are the Geological Survey and the mineral reconnaissance programme, both run by the council's Institute of Geological Sciences. The Department of the Environment, which currently contributes £1.5 million to the £4.5 million annual budget of the Geological Survey, is cutting its contribution to geological generally from £3.5 million in 1980-81 to £2.6 million in 1981-82. Although the department has not yet specified its priorities, it is expected that the cuts will be made in the Geological Survey and the engineering geology and bulk minerals resources programmes. The Department of Industry, which is the sole supporter of the mineral reconnaissance programme, is threatening to cut that budget from about £1.2 million in 1980-81 to £0.8 million in 1981-82.

Both departments say that they no longer want to fund research which is not directly relevant to their work. Thus the Department of the Environment will only fund those parts of the Geological Survey related to planning permission. Alternative funds for the survey are unlikely to be forthcoming and it will have to make do with less. Dr G. M. Brown, director of the Institute of Geological Sciences, finds his planning hampered by the Department of the Environment's delay in deciding its new priorities.

The Department of Industry is hoping that the mineral reconnaissance programme will find alternative funds from industry. Since 1972, this unit has been searching for metalliferous ores in Britain, especially in the Scottish Highlands, North Wales and Devon and Cornwall. Although deposits of several minerals — in particular copper and tungsten — have been found, only one, a barites deposit in Scotland, has led to an application for mining rights by private industry. Nevertheless, industry is interested. Companies consider that the

results provide useful information for assessing mining profitability in the light of future market trends. But hitherto, there have been no direct commissions from industry.

The Natural Environment Research Council has been trying to establish whether it could act a contractor for private industry. Meetings with the mining houses have thrown up several problems such as that of confidentiality (reports have previously been publicly available) and the assignment of mining rights. Industry itself is keen that the programme should

continue, but considers that financial support for it is properly the duty of central government.

Time is now running out. The new financial year begins in April, and twenty of the mineral reconnaissance staff have already moved to oil surveys of the North Sea, paid for by the Department of Energy. The Department of Industry has not finally decided to cut its support, but is thought by several observers to be in a mood to say that if private industry does not produce some cash, it will be a sign that the programme has little practical relevance. **Judy Redfearn**

Carter's last budget asks for more

Washington

Determined to enter the history books on an optimistic note, the outgoing Carter Administration has proposed to Congress a budget for the next fiscal year that contains a 4.3 per cent real growth in support for basic research.

"This is the best budget for the past four years for science and engineering research", said Dr Frank Press, the President's Science Advisor and director of the Office of Science and Technology, commenting on the budget proposals last week. He added that it confirmed President Carter's commitment to the support of science and technology "as an investment in the future".

In addition to the intended growth above the expected level of inflation, Dr Press singled out several initiatives that were being proposed by the outgoing Administration "to solve problems that we have known about for a number of years".

One of these is the proposed inclusion in the budget of the National Science Foundation of a \$75 million fund to improve university research equipment and laboratories. Their rapidly deteriorating state was highlighted in a recent report from the Association of American universities.

Two other proposals involve traineeships and other awards to avoid potential manpower shortages in fields such as computer science and energy engineering, and efforts to meet the present difficulties of engineering schools where, according to Dr Press, "faculty and equipment are not on a par with what one would expect in industry".

The big question, of course, is how much of this increase will escape the rapidly sharpening budget knife of the incoming Administration of President Ronald Reagan. For many social welfare programmes, the writing is already on the wall, but for science and technology the signals are mixed.

On the one hand, Mr Reagan's budget director, Mr David Stockman, has been talking about the need to rewrite the Carter budget "from top to bottom". Mr

Stockman has previously placed the National Aeronautics and Space Administration (NASA) among his "low priority" agencies which might absorb significant cuts. In the same vein, a group known as the National Tax Limitation Committee put out a report last week suggesting, for example, reduced spending on the Galileo mission to Jupiter — already being delayed a year by NASA because of delays with the launch vehicles — on its list of "expenditure control opportunities". The group is also raising questions about the appropriateness of government support for the space shuttle, and suggesting a re-examination of the future cost-benefit ratio.

At the same time, however, members of the various transition teams which have been established by the Reagan Administration to look at research and development programmes have been making optimistic noises, insisting that the new president is committed to the support of "science, technology and productivity".

Part of the increase in defence spending supported by both the Carter and the Reagan Administrations, for example, is likely to have beneficial spin-offs for research support, particularly in areas where the large aerospace companies have a stake. "I have been looking in teacups for the past two months, and each time I look I see a different picture", said outgoing NASA director Dr Robert Frosch last week.

The details of the Carter budget proposals contain several proposed new scientific starts. The NASA budget, for example, contains funding for the development of the Venus Orbiting Imaging Radar — announced by President Carter shortly before the election — as well as a new Geological Applications Program (GAP) which will use remote sensing satellites to study geological resources which might contribute to the discovery of new oil and gas deposits.

Reflecting the delays in the space shuttle programme, the proposed commitment to start work on a fifth shuttle orbiter, the

additional costs of science projects such as the space telescope, and the new projects described above, the total requested budget for NASA comes to \$6,700 million. This would be a 20 per cent increase over the budget for the fiscal year 1981 which began last October, and if it is allowed to stand, would be the largest annual increase in the agency's budget since the early 1960s.

The National Science Foundation has also put in for a hefty 23.5 per cent increase, from \$1,096 million in the current year to \$1,353.5 million next year. Most of this reflects the Carter Administration's keenness to support both research and training in engineering fields. The new engineering directorate will receive a 20 per cent increase in its research budgets.

At the National Institutes of Health (NIH), the proposed increase for biomedical research is less spectacular. On the basis that whatever the president asks for is traditionally increased by Congress, Mr Carter is suggesting that the NIH budget for basic research be raised by 9.4 per cent. Allowing for inflation, this would result in a drop of 1.1 per cent between 1981 and 1982.

At the Department of Energy, increased support for research into synthetic fuels and nuclear power — particularly fusion energy — has resulted in a requested increase of 9.4 per cent in real terms for basic research, second only to that of NASA.

Many of these figures will remain only as indications of the "good intentions" with which the Carter Administration is leaving office. Perhaps of more lasting significance are the figures prepared by Dr Press to demonstrate the main trends of federal support for science during Mr Carter's four years in the White House.

These reveal, for example, that overall the biggest winner as far as support for basic research is concerned has been the Department of Defense. If the proposed 1982 budget figures are taken into account, the Pentagon's basic research efforts will have grown by almost a quarter — 22.6 per cent — between 1978 and 1982.

Next come NIH. Congressional enthusiasm has raised the NIH research budget by 13.3 per cent over the four years, compared with a growth of 12.8 per cent at the Department of Energy.

The National Science Foundation, even if it is granted this year's large increase, will still only have seen its basic research grow by 9.2 per cent. And at NASA, reflecting the pressures which the space shuttle has imposed on the space science programmes, the basic research budget actually fell, in real terms, by 0.6 per cent over the same four years.

Overall, the growth in basic research, including the 1982 proposals, would come to 10.8 per cent for the period of the Carter Administration. In current dollars, the budget would grow by 58.2 per cent, from \$3,704 million to \$5,801 million.

Ironically, the research and development budget shows an identical increase of 58.2 per cent from \$26,388 million to \$41,734 million.

"Anyone who says that we do not engage in long-term planning is proved wrong by these figures", quipped Dr Press — expected soon to be elected president of the National Academy of Sciences — although he added that the agreement was actually fortuitous and that "the figures just happened to fall our this way". In practice, he will not be required to explain why it should be otherwise.

David Dickson

Argentinian power

Soviets help

Argentina has bought five tonnes of heavy water from the Soviet Union under International Atomic Energy Agency safeguards, the Argentinian Comisión Nacional de Energía Atómica announced last week. It is intended for "topping up" the Atucha-1 nuclear station, which needs on the average an annual heavy-water replacement of 1.5 tonnes.

The sale is part of the growth of Soviet-Argentinian trade since January 1980, when Argentina refused to back President Carter's embargo of grain sales to the Soviet Union. The Soviet Union is now Argentina's main market for agricultural products. In July of last year, Argentina's Secretary of Commerce, Alejandro Estrado, signed an agreement to supply the Soviet Union with 20 million tonnes of feed grain and soya beans during the next five years. There are also persistent rumours that a major agreement to export meat to the Soviet Union is now being negotiated.

In return, the Soviet side has shown considerable interest in Argentina's nuclear programme. Argentina has been conspicuous among third world countries since the early 1950s for its nuclear programme aimed at ultimate autonomy in both research and technology. The commission has announced that the target will be for practical purposes attained by the end of 1981, when the Córdoba uranium processing plant will begin producing an estimated annual production of 150 tonnes. Rafael Coppa, the director of the plant, said last year that Argentina will then have full control of the primary uranium cycle, from prospecting for

Promises for President Reagan to deny

Specific proposals included in the budget are as follows.

- Major difficulties with the development of a vehicle to launch the two Galileo spacecraft on their journey to Jupiter from the space shuttle have caused NASA to propose delaying the Galileo project for one year and switching to a new launch vehicle, a converted Centaur rocket.

- The Carter Administration proposes that the National Institutes of Health should aim to stabilize support for both competitive research grants and research traineeships. Last year, the Administration promised to provide enough money to keep the number of new and renewing competitive research grants constant at about 5,000. Given general fiscal constraints, however, this meant cutting back severely on the number of traineeships, a move which brought strong protests from various sectors of NIH, and was subsequently overturned by Congress.

- Defense Department support for research on US campuses seems destined to

continue to grow faster than support from any other federal agency. According to the budget request for the fiscal year 1982, military funding for research and development at US universities and colleges will be 21 per cent greater than in 1981, totalling \$639 million.

The proposed figure, most of which will be spent on unclassified basic research projects, is part of a 16 per cent increase in all military-sponsored basic research expenditure.

- One major new start proposed by the National Science Foundation (NSF) is the detailed design and initial construction of a 25-metre millimetre-wavelength radio-telescope which is planned for installation at Mauna Kea in Hawaii.

Plans for the new telescope have generated widespread support in the radioastronomy community. NSF has asked Congress for funds as part of a 29 per cent increase in the NSF budget for astronomical sciences, rising from \$58.5 million to \$75.6 million.

- The Carter Administration is proposing to cut support for research and development in the Environmental Protection Agency (EPA) from \$364 million to \$345 million. At the same time, the outgoing Administration wants to earmark an extra \$28 million to improve its review of the environmental impact of proposed major energy projects in the west of the country — particularly in connection with the synthetic fuels programme — and to launch a government-wide research programme on the effects of acid rain.

- The Carter Administration wants to give a major boost to research into magnetic fusion. The 1982 budget proposals include an increase of 28 per cent in fusion research, to a total of \$520 million in budget obligations. \$32.8 million of this would be spent on a new centre for magnetic fusion energy, as proposed by the Administration following a thorough review of the magnetic fusion programme last year. Research on magnetic confinement systems would increase from \$119 million to \$151 million.

David Dickson