of this type, is always to a large extent, orchestrated. A clear example was the intervention of Sharaf Rashidov, Party chief of the Uzbek SSR. Mr Brezhnev had called for a new food production programme. Mr Rashidov suggested that a "tremendous contribution" could be made by diverting the northern rivers to the Volga Basin and the Siberian rivers to the steppes of Kazakhstan and Central Asia. Plans for such proposals, however, are of course already well under way, and a considerable engineering effort earmarked for them in the new Five-Year Plan.

Dr Aleksandrov, however, had a lightertouch. One of his major proposals began as an apparent piece of by-play with Mr Brezhnev and the Leningrad Party chief Grigorii Romanov, about the development of an anti-influenza spray which Mr Brezhnev had requested at the last Congress. (The very fact of such jesting is, in itself, a suggestion that the Academy's auspices are exceptionally favourable at present). The successes which Dr Aleksandrov reported — 10 million doses of the spray produced in 1980, 25 million scheduled for 1981, and the incidence of influenza in Leningrad cut by two-thirds, were simply a build-up. Soviet microbiological production, suggested Dr Aleksandrov, should be reorganized under a special Ministry of the Biotechnical Industry. **Vera Rich**

German nuclear power

Closures and delays

Four German nuclear power stations, representing a third of the country's 10,000 MW of nuclear power, are to close for at least a year for the complete replacement of their primary cooling circuits. The Bonn Nuclear Safety Commission ordered the closures after deliberating for three years over this issue, involving General Electric Company-designed boiling water reactors (BWRs) constructed under licence between 1973 and 1979.

Small leaks and cracks had developed in the primary circuit of these reactors which carry cooling water through the nuclear cores. The cracks appeared to be spreading by stress corrosion (combined effects of mechanical and thermal stress and chemical corrosion). The commission has concluded that uneven quality, poor choice of materials, and a thin gauge of steel for the pipework were to blame, and that the circuits must be replaced to avoid the danger of a potentially catastrophic cooling failure. The cost of replacement has been estimated at DM 1,200 million (£250 million), with an equal sum for the loss of electricity sales. However, the four responsible utility companies have decided not to close down all the reactors simultaneously. One is already being refitted, and should be on-power again by the summer; and the others will be dealt with in sequence.

The boiling water reactors have not been a success, and Germany is now concentrating on the Westinghouse pressurized water reactor design, originally licensed by Siemens. Siemens and the constructors, AEG, are now merged in the company Kraftwerk-Union, and the excessive cost-trimming which may have led to the BWR problems is not expected again.

Meanwhile, the federal government's nuclear policy continues to be threatened by opposition from the left wing of the Social Democratic Party, particularly in Hamburg where construction of the Broksdorf reactor has been brought to a halt by demonstrations. Over the weekend, 50,000 people demonstrated at Broksdorf, and 127 policemen were injured. According to some observers, many of the demonstrators were not local, but represented national left-Social Democratic, Communist and Green Party groups. Brokdorf thus appears to have become a symbol of left-right conflict in Germany. **Robert Walgate**

In addition to the four boiling water reactors (producing 3,300 MW), Germany has another six power reactors producing 6,600 MW. Another nine, to produce around 10,000 MW, are under construction, including the SNR fast breeder research reactor, and a high temperature reactor near Cologne. Construction is halted at two further sites (Brokdorf and Wyhl because of local and political opposition.

Human growth hormone

Pituitary slump

Britain's supply of pituitary glands, from which human growth hormone (HGH) is extracted to treat 600 British children who do not produce it normally, has fallen by at least a third in the past year — to a level too low to keep up with demand. This has happened since responsibility for HGH extraction shifted, in June last year, from two Medical Research Council-funded researchers to the Department of Health and Social Security (DHSS). Bureaucracy has strangled their collection procedure, Dr Philip Lowry, one of the researchers, said last week. The collection rate has now stabilized at around 42,000 glands a year, DHSS claims, accounting for almost all patients who end up in a National Health Service mortuary — but the supply from public mortuaries (where victims of violence and accident are given postmortem examinations) has almost dried up. In the last year of the Medical Research Council scheme, 70,000 pituitaries were collected, said Dr Lowry.

Extraction of the hormone is now done at the Centre for Applied Microbiological Research at Porton Down, which has become increasingly involved in health service functions since it was transferred to the Public Health Laboratory Service from the Ministry of Defence two years ago. Of two processes, depending on the form in which pituitaries are collected, Porton chose the older, using acetone-dried glands. This yields around 8 clinical units of HGH per gland as opposed to 15 by the newer frozen-gland system (which has been adopted in New Zealand and Canada), but collection is easier: the extracted gland needs only to be popped into a bottle of acetone, instead of a container packed around with dry ice. However, says Dr Lowry, who developed the frozen-gland process, clinical trials over the past year have shown that the HGH produced from frozen glands is the more pure, provoking no immune reactions — unlike acetone-dried HGH, which often contains modified and agglomerated versions of the protein, and can be rejected by the child.

The 336,000 units of HGH made available by the Porton process each year in Britain are enough to supply only 430 of the 600 children with a full dose of 15 units a week. So far, Porton has been relying on an excess of material collected through the old system; but soon the reduced supply of glands must have an effect on the supply of HGH. It may then be necessary to buy HGH from foreign producers, where market pressures have pushed up the price to 50 times the cost of home-produced hormone. Porton is also working on producing HGH from *Escherichia coli*, genetically engineered to excrete the hormone, provided by the Swiss firm Kabi-Vitrum in association with the California-based genetic engineering company, Genentech; but production is not likely to be significant for a year, at least until clinical trials, now under way at Great Ormond Street Children's Hospital on Genentech-produced hormone, are complete. Moreover, the genetically-engineered hormone is slightly modified: it has an extra amino acid (methionine) tacked on one end, and there is a possibility that, like agglomerated HGH, it may provoke an immune response.

Meanwhile, the DHSS is trying desperately to restore supplies of pituitaries from public mortuaries. But the department is facing numerous legal and personal obstacles. Legally the coroner must consent, and the relatives give written permission. But a death involving a public post mortem is usually an unexpected one, relatives are shocked, and the case does not seem so compelling as for a kidney or a heart. The DHSS recently sent 200 letters and made as many telephone calls to coroners and pathologists requesting their urgent cooperation — but the department has little hope that the supply will rise much in consequence.

A few months ago, supply problems were even more desperate, when hospitals too were failing to provide the glands. This may have been because morticians, in March 1980, negotiated a new contract

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under which their wages were increased to cover extra duties — which included the extraction of pituitaries. Previously they had been paid on a "piece rate" — 20 pence a gland — so they now had no incentive for their unpleasant task. Pressure from hospital authorities on the workers, however, brought a response. Public mortuary workers also now receive nothing where they received 20 pence per gland before, so this may also be a factor in the HGH supply shortage. Negotiations are under way, says DHSS, on how these workers might be compensated by the area hospital authorities for providing the glands.

Some officials are suggesting that the real cause for the fall in supply is the "regularization" of collection procedures, compared with a little bit of horse-trading before. In the past, acetone sample bottles have been sent through the post; this is strictly illegal (acetone being inflammable) and has now been stopped. Also, extraction is now being done under full containment because of the danger of the propagation of slow virus from an infected gland (the pituitary being nervous tissue).

And were relatives always informed? Dr Lowry claims they were, and that he thus obtained more than half the pituitaries available from public mortuaries in London. The problems he lays squarely at the door of the DHSS. **Robert Walgate**

University of London

Storm ahead

The reorganization of the University of London promises to be a more turbulent process than was foreseen a year ago. The plan that the Swinnerton–Dyer committee should make its final recommendations by the end of this year has been foreshortened by the mounting sense of urgency within the university. The committee has now agreed, with some misgivings, to produce its recommendations before the beginning of the next academic year. Meanwhile, the basis of the committee's interim report has been questioned by a document now circulating within the university, and likely to colour the arguments put by the Association of University Teachers to the committee at a meeting next week.

That document questions the arithmetic leading to the conclusion that the university's income will fall by between £15 and £20 million by the end of this decade. This is held to involve the unwarrantable assumption that the 3½ per cent cut in university finances announced last December will be permanent, the unnecessary assumption that overseas students attending London colleges will be charged only the minimum tuition fees decreed by the government and inconsistent assumptions about the basis used for calculating the loss of income if the numbers of overseas students decline. Briefly, the committee's calculation for the university as a whole is said to exclude the allowance made by the University Grants Committee for part-time students.

This and other documents will form the basis on which the union will draw up a formal reply to the Swinnerton–Dyer committee's interim report, probably before the end of the month. Apart from arithmetical arguments, the union is concerned at the negative tone of the interim report, which is said to have neglected the university's advantages, in particular its attractions for overseas and part-time students and the relatively favourable age structure of its academic staff.

This view is likely to be echoed by the responses from individual colleges in the university, expected by Easter. Another view gaining ground is that the committee's interim report, with its comprehensive analysis of how the university spends its money, is sufficient, and that it should be for the university rather than the committee now to say what should be done.

The pitfalls for such committees are nicely illustrated by the troubles which have befallen the Flowers report on the organization of the medical schools in the University of London. After the rejection of the Flowers recommendations by the senate of the university last October, the Joint Planning Board set up a working party to make a more detailed analysis of the costs of medical education in the University of London. The report, based on an analysis by a firm of professional accountants, suggests that the cost savings obtainable by closing various clinical and preclinical schools are not those forecast by the Flowers committee, and that none of the options so far discussed would yield as large a saving on the total cost of £32.8 million as a modest change in the staff–student ratio.

Soviet activists honoured

Three leading Soviet human rights activists have recently been honoured by Western scientific bodies.

The most prestigious award, foreign associateship of the French Academy of Sciences, was conferred on Dr Andrei Sakharov on 16 February. This, however, according to M. Paul Germain, one of the two secretaries of the academy, was in no way a political act, but was simply in recognition of the great importance of Sakharov's work in various fields of physics.

The Catholic University of Louvain in Belgium however, took a double view. When challenged by the Soviet embassy in Brussels that they should not award an honorary doctorate to Viktor Brailovskii, the Moscow refusnik cyberneticist, on the grounds that he was a "criminal and a prisoner" the rector replied that they were conferring the award in recognition of his contribution to the field of science and for maintaining the weekly seminars (for refusnik scientists).

Finally, the Royal College of Psychiatrists in London, in conferring an honorary fellowship on Dr Semeon Gluzman, did so specifically in connection with his work for human rights, for Dr Gluzman's chief contribution to psychiatry was the co-authorship (with Vladimir Bukovskii) of the *samizdat* "Handbook of Psychiatry for Dissidents" (a manual on how to resist psychological and pharmacological pressure), for which he is now serving a three-year sentence in Siberia following seven years in a labour camp.

Chemical and nuclear weapons

Scientists speak out

Two groups are being set up to give British scientists a stronger voice on the development of weapons of mass destruction. On 26 February, the Russell Committee Against Chemical Weapons, a branch of the Bertrand Russell Peace Foundation, launched a campaign against what is seen as a chemical arms race. And at the end of this month, a conference is being held at the Open University, Milton Keynes, to inaugurate Scientists Against Nuclear Arms, a group committed to providing scientific information on nuclear weapons.

Scientists Against Nuclear Arms says that it has already received several hundred letters expressing interest and support. And 19 signatures were attached to the appeal for names of those opposed to chemical weapons when it was launched last week. One notable signatory, Dr Frederick Sanger, not distinguished as a signer of petitions, is particularly concerned with the possible use of new techniques in biology to develop more sophisticated chemical weapons and with the distortion of research priorities that could result from a chemical arms race. These issues, and uncertainties about the British government's future policy, have prompted the appeal, which asks scientists not to take part in research on chemical weapons and the British government not to stockpile them.

Despite repeated assurances that there are no plans to store or manufacture chemical weapons in Britain, the appeal's organizers fear that the British government's policy may change in response to pressure from the new Reagan Administration to house stocks of new binary chemical weapons on European soil. Last year, the United States announced that it was building a plant to manufacture binary weapons.

Believing the present to be a time of uncertainty, the appeal's organizers say there is an urgent need for public and parliamentary debate. Scientists have an important role, they argue, because the development of chemical weapons could be influenced more directly than that of any other type of weapon by research in non-classified laboratories. **Judy Redfearn**

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