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 Grigori 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. Broksdorf thus appears to have become a symbol of left-right conflict in Germany. **Robert Walgate**

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

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 (Broksdorf and Wyhl because of local and political opposition).