

Chernobyl

Fusion may be a better way

ONE lesson to be learned from last month's nuclear accident is that there should be a renewed effort in thermonuclear fusion. This was the opinion offered last week by Academician Evgenii Velikhov, vice-president of the Soviet academy and a member of the investigating commission at Chernobyl, speaking at a press conference in Moscow.

The same point was echoed at an international conference on nuclear technology in Yalta last week. Academician Boris Kadomtsev, director of plasma physics at the Soviet Atomic Energy Institute, called for greater international collaboration in the field. The Soviet Union is a partner in the International Atomic Energy Agency's project for the design of a thermonuclear reactor and also has a number of bilateral agreements on collaboration on fusion work.

The main emphasis of Velikhov's statement was that the clean-up operation at Chernobyl has presented those involved with unprecedented problems. Little had been done in advance, he said, to construct models that would assist in the management of the damaged reactor, while such data as were available were often contradictory. The mound of concrete, lead and boron under which the damaged Number 4 reactor is now buried prevents access, so that it will be necessary to estimate its future behaviour by extrapolation. Even so, it appears that it has been possible to install sensors for temperature and radiation intensity in and around the reactor.

After the burial of the reactor, the main task has been, according to Velikhov, that of trapping airborne particles, for which purpose a special film of polythene has been used. Velikhov added that, in any case, only a "certain percentage" of the fission products in the reactor core has reached the atmosphere.

As the most urgent problems were dealt with, others emerged. As well as the pollution of agricultural land and livestock, the forests of the Polesye region and their wildlife aroused concern. These forests — mostly managed plantations of conifers (although the original tree-cover was deciduous) — appear to have taken the brunt of the pollution. Valerii Brezhnev, deputy minister for forests of the Ukrainian SSR, said last week that many plantations will have to be felled and the clearings ploughed up, while veterinary monitoring of wild animals (elk, roe deer, boar and other species) has begun.

Boris Paton, chairman of the Ukrainian Academy of Sciences, also said last week that there are plans for establishing "artificial geochemical barriers" on the "migration paths of radionuclides in the

groundwater". The river Pripyat' and the Kiev reservoir were mentioned specifically. Paton was presumably referring to techniques more specific than the emergency mechanical barriers thrown up to prevent the run-off of rainwater from Chernobyl into the river Pripyat', and which were said to have been completed two weeks after the accident.

On the future of nuclear energy in the Soviet Union, there seems to be a conflict of opinion. The first deputy minister for electrification of the Soviet Union, Alexsei Makukhin, said somewhat off-handedly last week that the accident at Chernobyl had been a "hitch" in the "mastering of the atom". Velikhov was more cautious, saying that although it is unlikely that reactors of the Chernobyl type will be closed down, "it is unlikely that they will stay in the same form".

Vera Rich

Counting the score on transplants

Washington

PROFESSOR Robert Gale, normally to be found at the University of California, Los Angeles, but who has spent most of the past month in Moscow carrying out bone marrow transplantations on victims of the Chernobyl accident, has contributed an account of the present status of marrow transplantation to a new journal *Bone Marrow Transplantation*, first published this week. Gale estimates that there will be some 2,500 transplantations worldwide during 1986, not many fewer than the 4,000 such operations reported to the International Bone Marrow Registry during the past decade.

Radiation exposure is a comparatively rare cause for transplantation, which is most commonly used in the treatment of leukaemia and other diseases of the blood-forming process. The international registry is meant as a means by which data about the effectiveness of transplant operations can be compiled and compared.

Gale's article, which is the first in the new journal, cannot fail to be widely read by those elsewhere than in the Soviet Union who are concerned to know what part marrow transplantation should have in case of future nuclear accidents.

The new journal, published by Macmillan from the United Kingdom, is meant to be a quarterly in the first instance. The editor is Dr John Goldman from the Medical Research Council's leukaemia unit at the Royal Postgraduate Medical School, London. Dr Gale is the journal's co-editor for the United States and Canada. □

British universities

Reputation by repute

BRITISH academics learned last week a great deal more about the reasons why their institutions had done relatively well or badly in the carve-up of the public subsidy for the impending academic year (see *Nature* 321, 459; 1986). The explanations are contained in letters sent to the heads of academic institutions by the University Grants Committee (UGC), and together constitute the most detailed survey of the state of British universities ever.

The two successive sheaves of letters are the first steps in UGC's policy of concentrating resources considered to be inadequate on what are deemed to be the institutions of the highest quality. In this first stage, UGC has made relatively modest steps in that direction, but in the autumn a further word-processing exercise will tell universities what they can expect to receive from public funds in the succeeding three academic years (1987-90).

Apart from providing universities individually with an inkling of how the harsher winds will be blowing in the autumn, last week's letters give the university system as a whole warning of far-reaching and unexpected structural changes. In particular, it is now clear that UGC intends to give less on account of the cost of student education to universities (Oxbridge and some others) organized in a collegiate fashion, and that it will in future exercise its right to deal individually with the member institutions of federal universities.

The first change arises because the collegiate universities and the several colleges to which students are required to belong are able to charge separate tuition fees, mostly paid in respect of British students by local education authorities. The universities chiefly concerned are Oxford and Cambridge, but Durham, Kent, Lancaster and York charge similar but smaller fees. By deciding that half the income derived from college fees should be subtracted from the annual recurrent grant, UGC is in the short run releasing funds to spend in universities under greater pressure. With the prospect that the time will come when British students' fees will not automatically be paid by local authorities, UGC is requiring Oxbridge to choose between conformity and the privatization of at least their collegiate functions.

Last week's sheaf of letters also explains why both Oxford and Cambridge were placed below the middle of the previous week's league table, with increases of cash income of zero and 0.7 per cent respectively, compared with the average for the system as a whole of 1.0 per cent.

UGC's decision to circumvent the

federal structure of the University of London by providing its constituent colleges with an account of what the future holds for them (the University of Wales has always been dealt with in this way) is also potentially far-reaching, and could presage the break-up of the university. Imperial College has been able to talk directly to UGC since the early 1960s, but the other member colleges have had to wait on the university court for the reallocation of UGC's grant to the university as a whole. Now that the university has been reorganized into only five general colleges and the number of its medical schools is shrinking by amalgamation, the proof of the case for the continuation of what is widely thought to be an inefficient system will fall to the central organization.

The consequence of last week's letters from UGC which cannot as yet be calculated is the effect of its opinions on student recruitment. All university departments have been categorized on the basis of their research performance as average, below

average and above average, while departments whose research attainment is judged to be of international character are singled out for special mention. UGC has said separately that it will attempt to categorize departments by the quality of their teaching when there are tools available for carrying out that task. Meanwhile, however, it must be expected that students will flock to the departments praised by UGC and will shun the others, which may accelerate the selectivity exercise.

Many academics are complaining that the time remaining between now and the autumn is not sufficient for the implications of UGC's judgement to be grasped. A crucial unknown quantity is whether the new Secretary of State for Education and Science, Kenneth Baker, will be able to write extra funds from the Treasury. Nothing was heard of Baker last week. □

• The grant for 1986-87 for the University of Essex has not been reduced (as reported last week) by 0.5 per cent but, rather, increased by 1.7 per cent.

Chilean physicians

Campaign against torture grows

Philadelphia

CHILEAN physicians are leading a new national movement demanding an end to the dictatorship of General Augusto Pinochet. The Chilean Medical Association (Colegio Medico de Chile, CMC), which has for the past four years been investigating and exposing physicians' cooperation in torture by the security forces, has been joined by 17 other professional organizations in a new national assembly (Asamblea Nacional de la Civilidad) that is calling for immediate national democratic elections. With the expiration last week of the assembly's 31 May deadline for its demands, CMC is likely soon to be at the centre of an escalating series of strikes.

The president of CMC, Dr Juan Luis González, and its general secretary, Dr Francisco Rivas, were in Philadelphia last week at the annual meeting of the American Association for the Advancement of Science (AAAS) to receive on behalf of CMC the AAAS award for scientific freedom and responsibility. AAAS has been monitoring human rights in Chile since the early 1980s. The award was shared with Dr Victor Paschkis of the United States, who founded the Society for Social Responsibility in Science.

CMC was honoured for its efforts to track down physicians who cooperated in torture of government prisoners during the 1970s. Some 10,000 civilians, including 80 physicians, were murdered by the secret police or disappeared in the period between 1973 and 1978, and the use of torture is said to have been widespread.

CMC represents 14,000 physicians, more than 90 per cent of Chile's total. It

was run by puppet officers appointed by the government until 1982, when Pinochet gave in to demands for election of officers in order to avoid a showdown with the profession. González and Rivas, who head a council of 23 members, were elected on a three-point platform of solidarity in the profession, peaceful protest against the government's health policies, and investigation of physicians who participate in torture.

As a result of the torture investigations, two physicians, Luis Losada and Manfred



Jurgensen, have been expelled from the association. They admitted examining and certifying as healthy a government prisoner, Frederico Alvarez, who had been tortured and who died a few hours later from respiratory insufficiency due to multiple rib fractures. Two other members of the association accepted suspension for a year for examining a blindfolded

prisoner who was being forced to remain standing, and CMC is continuing investigations of five others.

Rivas suspects that between 70 and 80 CMC members have cooperated in government torture, although in most cases firm evidence is lacking. The association conducts its investigations by examining court records (many of the torture deaths have been examined by the judiciary, although usually to no effect) and by interviewing torture victims or their families. In addition, files left over from the period when CMC was a government organization have provided many clues; the outgoing puppet officials apparently made no attempt to destroy evidence that would help the new CMC council.

Rivas stresses that those under investigation are allowed to retain the lawyer of their choice, at CMC's expense if necessary. Penalties are recommended by CMC's ethics committee and are decided finally by the full 23-member council.

After the most brutal period of Pinochet's rule in the 1970s, there was a lull in political repression in Chile during the early 1980s. But, according to Rivas, the reemergence of organized opposition parties and the end of a temporary economic boom has increased discontent, so that repression is once again on the rise. Recently the Reagan administration has backed away from its policy of "quiet diplomacy" towards Chile, and spokesmen have started to refer to the administration's opposition to dictatorships both of the left and the right.

CMC has already held one and two-day strikes of its members to protest against the government's summary dismissal of the head of Santiago Medical College, Dr Ricardo Vaccare. According to Rivas, a neurosurgeon in private practice whose work for CMC is unpaid, 85 per cent of members supported the strikes. It is therefore not surprising that CMC's activities have attracted the government's unfavourable attentions. Rivas says that CMC officials frequently receive anonymous death threats to themselves and their families and are often shadowed by secret police. In recent months CMC's headquarters in Santiago has been under constant overt police surveillance.

Among the organizations supporting CMC in calling for a return to democratic rule is the National Association of Academics of Chilean Universities. CMC has received expressions of moral support from most major national medical associations, although representatives of governmental organizations such as the World Health Organization have declined to offer their support for fear of compromising their impartiality. But the medical profession has already become a significant political force in Chile. Supported or not, physicians seem determined to make a still larger impact.

Tim Beardsley