

the science vote of the Department of Education and Science — may tell. He is reluctant to challenge the Rothschild principle, to which he still adheres firmly — while recognizing the dangers of multi-customer arrangements. He and his staff will redouble their efforts to get new contracts for support for projects in Third World countries. **Robert Walgate**

London university

Medical schools stay

Two of the medical school of the University of London, whose survival has been in doubt since March this year, were reprieved last Wednesday (29 October) by a resolution of the university Senate. The decision is regarded, within the university, as a sign that the more far-reaching inquiry into the organization of the university as a whole now under way will be less radical than some have feared.

The two medical schools concerned are Westminster Hospital Medical School and King's College Hospital Medical School (which includes a pre-clinical school at King's College proper and a clinical school at King's College Hospital, in south-east London). The disbandment of the two schools was recommended to the university in March by the report on medical teaching in the university prepared by a committee under Lord Flowers, rector of Imperial College.

The politics of last week's narrow Senate decision have a particular interest for the future reorganization of the University of London. The resolution eventually adopted by the Senate was proposed by Dr Bryan Thwaites, principal of Westfield College, one of the smaller institutions of the university. Thwaites and the others supporting the resolution argued that the university should not attempt to coerce constituent academic institutions into courses of action they found unpalatable.

This line of argument has an obvious bearing on the general inquiry into the organization of the university being conducted by a committee under Sir Peter Swinnerton-Dyer and set up by the vice-chancellor, Lord Annan, earlier this year. One possible outcome of that inquiry is a recommendation that the smaller institutions within the university might be merged with larger college or with each other. If however the principle of self-determination has been established, proposals involving loss of independence are less likely to be seriously put forward.

The battle over the independence of the two medical schools is not yet over. Although the decision may in principle be overturned by the Court of the university, this is unlikely without further consideration. A more likely course is that the Academic Planning Board, to which the issue has been referred, will come to a different decision from that of the Senate last week.

Séveso scare

Bloat, not poison

A flurry of fear last week that dioxin had reared its head again at Séveso has quickly abated. The local community was alarmed when 150 sheep died after spending a single night on a forbidden field, out of bounds to grazing animals for the past four years. The dead sheep were part of a flock of 250 driven 50 miles from the dry uplands of northern Italy.

First thoughts had blamed dioxin. The field was one of the most exposed when a chemical factory exploded at Séveso in 1976, distributing dioxin over the neighbourhood, and it had not yet been cleared for farming. (The shepherds say they did not see the notices.) But the sheep died too quickly for dioxin poisoning, and the levels in the field are now thought to be quite low. In fact the Séveso special office, headed by Senator Luigi Noé, was planning shortly to open nearby fields for cereal growing, but these plans were halted after the death of the sheep.

IMAGE
UNAVAILABLE
FOR
COPYRIGHT
REASONS

Dead sheep, dead landscape

However, the necropsies now show that the sheep died of bloat — severely distended gut, caused by the over rapid fermentation of wet hay, rye and grass in the stomachs of the hungry animals.

The result has been backed up by analysis of the livers of the dead sheep at the Mario Negri pharmacological research institute in Milan, which first detected dioxin in Séveso goats during 1976. According to Dr Luciano Manara, head of

the drug metabolism laboratory at the institute, the sheep had liver dioxin levels below 1 ng per g — compared with 1 µg per g in the most exposed goats in 1976.

Senator Noé has declared himself satisfied with these results, and has restarted the plans to open the Séveso fields. **Robert Walgate**

Bovine tuberculosis

Badgers at risk

Tuberculous badgers are more of a threat to themselves than to the cattle they infect. This is the nub of Lord Zuckerman's report on the British practice of gassing badgers, suspended a year ago after protests from conservationists (see *Nature* 28 October). Immediately after the publication of his report, *Badgers, cattle and tuberculosis* (HMSO, £5.20), the Secretary of State for Agriculture, Fisheries and Food announced that the practice of gassing infected badger setts is to be resumed as soon as possible and then reviewed after a three-year trial period.

Bovine tuberculosis is most common in south-west England, chiefly in the counties of Avon and Cornwall. The British badger population is to some extent concentrated in southern England, but the agriculture of the eastern counties is more concerned with cultivation than with cattle-rearing.

Evidence in the Zuckerman report for the association between bovine and badger tuberculosis is largely circumstantial. The incidence of bovine tuberculosis is correlated with that of badger tuberculosis and with the density of the badger population. There is also evidence that transmission from one species to the other is feasible. In Britain, the association (long suspected) became the basis for official policy on badger control only in 1971, after experience in New Zealand suggested that opossums were there a feral reservoir for bovine tuberculosis.

The issue has been contentious in Britain for the past decade. The Badger Act of 1973 gave badgers specific protection over and above the provisions of the Protection of Animals Act of 1911, but the Ministry of Agriculture was given power to control badgers (and even to enter farmers' land for that purpose) by later legislation in 1975 and 1976.

The causative organism of bovine tuberculosis, *Mycobacterium bovis*, is the chief cause of tuberculosis in badgers. The most arresting data in the Zuckerman report are those for the incidence of *M. bovis* infection in badgers. The most extensive series of measurements is that carried out by ministry laboratories of badger carcasses submitted for autopsy, usually after being killed on roads. In south-west England, more than 4 per cent of adventitious carcasses yielded *M. bovis*, while elsewhere in Britain isolation of the bacillus from dead badgers was sporadic and not statistically significant. In another

Popperfoto

survey of more than 4,000 badgers, 14 per cent were found to be infected.

The rate of badger infection on farms on which outbreaks of bovine tuberculosis have occurred is often much greater, approaching or even exceeding 50 per cent. The report says that the course of the disease among badgers is that of a virulent infection, with pups especially at risk.

In principle, there is no reason why wild animals other than badgers should not be infected with *M. bovis*, which has been found in small numbers of foxes, rats and moles. The Zuckerman report asks for a continuing survey of the occurrence of *M. bovis* and of other related bacilli, including *M. avium*, which has been found in deer, hares and hedgehogs, in particular.

Swedish Academy

Plugging Nobel gap

A Swedish industrialist, Dr Holger Crafoord, has given £500,000 — with more to come — to the Royal Swedish Academy of Sciences to institute a new series of scientific prizes in fields of science neglected by the Nobel awards — geosciences, biosciences (emphasizing ecology), mathematics with astronomy, and arthritis. The fund, called the Anna-Greta and Holger Crafoord Fund after Dr Crafoord and his wife, will amount to some £1 million by 1984 and the academy estimates it will yield interest of 13 per cent.

Only one third of the interest, perhaps £45,000 a year, will be spent on prizes. A quarter will go back to capital, and the rest

will go on research grants, to be awarded by international competition. The details of the award system are being worked out by a special commission, which will report to the academy early in 1981 in the hope that the first awards can be made that year. The intention is to avoid the season of the Nobel awards, traditionally made in late September and early October. There will probably be one prize in a single subject each year, rotating on a four-year cycle.

The subjects emphasized in the new award are the result of a few months' consultation between Crafoord and the academy. Dr Crafoord, who is general director of the biomedical firm Gambro AB of Lund, suffers from rheumatoid arthritis — hence the attention given to that disease.

Asked why he made the awards, Crafoord said last week "I had money enough!" Crafoord owns Gambro, which has some 20 per cent of the world market for kidney dialysis units. He felt he wanted to leave money to science, and asked the academy what fields were short of money. The allocation to research grants, as opposed to prizes, was made at his request. "I chose the academy because it was founded in the seventeenth century — it gives some guarantee that the fund will be maintained."

The academy does not see the awards as a chance to improve on the present system for the selection of Nobel prizewinners. "We are very happy with that" said an academy spokesman. "If we could match it for the new prizes we would be pleased."

Robert Walgate

Brazilian biology

Humus from wood

A scheme for turning sawdust into humus, and exporting 600,000 tons of it to the Middle East, is being developed by Nutri-Humus Laboratories of Sao Paulo. This is the latest step in a long-term plan for liberating Brazilian agriculture from dependence on petro-dollars conceived by the bacteriologist Mario Nogueira de Oliveira, who founded Nutri-Humus 20 years ago.

The company began in a small way, supplying a few Brazilian farmers with the fermentation vessels, worms' eggs and organic fertilizers needed for the process. Now that rising oil prices are making the method economically competitive, and there is increased ecological consciousness, there is large-scale acceptance of the new approach.

On the farm, raw vegetable matter (sawdust, rice husks or bagasse from sugar cane) is spread over the fields at 10 to 20 tons per hectare, mixed with two 60-litre bags of pure humus and "earthworms' eggs" as a "primer", plus a third of a ton of natural phosphate obtained as a by-product of mining in the area. Next comes the novel part of the process — the land is sprayed with four types of brew, labelled enigmatically A, B, C and D.

Being something of an empiricist, and not wanting to release too many details of what might be a profitable enterprise, Nogueira does not explain his methods in full. But the additives include *Rhizobium* species bacteria such as *R. japonicum*, nitrogen-fixers and antifungal agents. It is claimed that the process manufactures organic fertilizer in 60 days instead of the usual 4 years at nature's own pace.

Industrially the plan is to use sawdust and wood chips which are the by-products of the timber industry of the Lages area of Santa Catarina state. The wood is hydrolysed with 0.3 per cent sulphuric acid before use and the exportable end-product is the "organic fertilizer", that is, 60-litre plastic bags containing the final humus breakdown products. This is now being made on fields in the Lages area and its market price is one-tenth that of chemical fertilizers in Brazil. It is hoped that a contract will soon be signed with the Libyan and Saudi governments for the sale of 200 shiploads of humus following the successful demonstration of alfalfa production on sandy terrain using Nutri-Humus.

Nogueira's long-term aim is self-reliance for Brazil's agriculture. He proposes a reduced cultivated area for sugar cane to serve as a generator of organic material. Each hectare of cane would fertilize 30 hectares of land in a year. As well as being freely available and high-yielding, sugar cane contains saccharose which facilitates the fermentations on which the Nutri-Humus process is based. **Maurice Bazin**

Franco-Soviet jaunt to Halley?

A joint Franco-Soviet mission to visit Halley's comet in 1985 has been announced. This comes as a surprise to many French astrophysicists, including those already involved in the European Space Agency (ESA) mission to the comet which, it seems, the Franco-Soviet experiment will to a large extent replicate. ESA officials confirmed that there is no possibility of France withdrawing from the European effort — participation is mandatory on all members.

France has always had a special relationship with the Soviet space programme. President de Gaulle was the first and so far the only Western leader to visit the Baikonur space centre. French participation in Soviet launches has included a laser experiment aboard the Lunokhod Moon-rover and a joint ionosphere experiment using high-altitude rockets launched from the Arctic and Antarctic ends of the same line of force. And two French cosmonaut candidates are now in training at the Gagarin space centre.

The propaganda value of these trainees, one of whom will become the first Western European to fly aboard a

Soviet spacecraft, has not been overlooked. At the beginning of October, Moscow radio commentator Boris Belitskii, after censuring the British media for neglecting the significance of the joint Soviet-Cuban flight, claimed that the training of the two French cosmonauts was even more "significant in terms of missed opportunity" for Britain. In the Soviet Union, he said, television viewers could watch cosmonauts carried aloft to work on a space programme geared to human needs, whereas in Britain the only rockets to appear on the television screens were American cruise missiles, plus, of course, science fiction epics.

Belitskii's message was clear — a Britain without US military missiles would be eligible for consideration as a future partner for the Soviet Union in space. He made no mention of the financial cost. Judging from the latest Franco-Soviet proposal, this need not be excessive in cosmic terms. The trip to Halley's comet — including the launching of French balloons above Venus — will cost France a mere 150 million francs (£15 million). **Vera Rich**