

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 Caterina 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**