

## United Kingdom

## Science Research Council cuts top grants

BRITAIN'S Science Research Council has been forced to reject £2.2 million worth of "alpha" quality applications for university research, a spokesman said last week.

The Science Board, one of four grant-allocating boards of the SRC (the others are Astronomy Space and Radio, Nuclear Physics and Engineering), meets three times a year to decide allocations. At its first meeting this year the board managed to stave off cuts, except for all "beta" applications — worthy research which "wouldn't disgrace the British taxpayer" but without the star quality of the alphas. Beta research — about a quarter of all applications — has not been funded for the past three years.

But at the Science Board's recent second allocation of the year, it proved impossible to avoid cuts even in the alphas. A total application for £7.1 million was cut back to £4.9 million by applying an across-the-board 30% cut to all of the Board's 10 committees. The committees range from basic biology, maths, physics, and chemistry to science-based archaeology and cognitive science.

The Board spends some £16 million annually on direct research grants to universities, compared to about £3 million each for the astronomy and nuclear boards and £19 million for the engineering board. The cuts thus represent a substantial loss of direct science spending in universities.

"We are most worried about the very few people now going in to new posts in universities" said the spokesman. "We used to be able to be a little generous and allow for the enthusiasm of these 27 to 30 year olds. But there is no more room for the benefit of the doubt. We are cut to the bone."

However, the picture shows some signs of improvement. At the next meeting, the Science Board hopes to have to cut only 15 to 20% of its "alpha" applications, as a result of money beginning to be freed from long term commitments. These are principally the spallation neutron source being built at the Rutherford Laboratory, the synchrotron radiation source at Daresbury, and Britain's one third share of the Institut Laue Langevin at Grenoble. The major part of the spending on these facilities should be over in three years, releasing some £2-3 million a year; and as grants run typically over three years, some of these savings can begin to be accounted now. □



*Thaumatooccus . . . sweet discovery*

## Gene machining sweeter gum

TATE and Lyle, the British sugar manufacturers, are to apply recombinant DNA techniques to improve production of the protein thaumatin — a substance 2,500 times sweeter than a 10% sugar solution.

Thaumatin is produced by the berries of the African bush *Thaumatooccus danielli*. It was discovered in a 1968 survey for new sweeteners conducted by the UK Ministry of Agriculture; and already Tate and Lyle have plantations of the bush in Ghana, Liberia, and Malaysia producing "hundreds of tonnes" of the berries annually.

One tonne of berries produces a kilogramme of thaumatin, which at present is sold only in Japan. Japan accepts thaumatin as a "natural product" which does not require toxicity testing; other

countries require extensive toxicity tests. An application on the basis of preliminary tests by Tate and Lyle has been with the UK Ministry of Agriculture, Fisheries and Foods since January 1978.

Dr John Higginbotham, who is in charge of the thaumatin project at Tate and Lyle's Reading laboratory, estimated future markets as a tonne annually to Japan, with five times that in Europe and ten times in the US. This 150-fold increase could come from increasing the cultivated area of *Thaumatooccus* — but the plant will only propagate in hot climates. The company could avoid "politically uncertain" crops in Third World countries if it could transfer the gene for thaumatin production from the plant to a bacterium, which could then be grown in fermenters anywhere.

Professor Ken Stacey, director of the biological laboratory of the University of Kent, has taken on the task, backed by a £90,000 grant for three years. Professor Stacey thinks three years should see them through to expression of the gene; development of a production process will take longer.

The first task is to isolate the relevant messenger RNA, he says. And ultimately there may be the problem that the bacterial cytoplasm will not encourage the formation of the eight disulphide bonds required in the folded thaumatin molecule. Thaumatin has a molecular weight of some 20,000, around three times that of insulin.

The size of the molecule, compared to that of sugar, is one drawback to its wide application as a sugar substitute, said Dr Higginbotham. It is less mobile on the tongue, and so takes "a second or two" to register its sweetness. Lemonade, for example, sweetened with thaumatin, would taste first bitter (from the citric acid) and then sweet (from the thaumatin). Consequently it is only likely to be used in substances like toothpaste, which stay in the mouth for a long time. □

## France

### Reprocessing plant close to disaster?

THE French nuclear reprocessing plant at Cap de la Hague, near Cherbourg, apparently lost all electrical power on 16 April for an hour, closing down cooling systems on high active waste tanks and ventilation over nitric-acid filled reprocessing vats. Full power was not achieved for another 11 hours.

According to a report in the *Guardian*, a major catastrophe was averted only because the plant was not yet in full production. Auxiliary power was not available because the failure was caused by a fire in a transformer room through which passed both the main and back up circuits. Pierre Tanguy, Head of Safety at the French Atomic Energy Commission (CEA) told *Nature* last week that the back up circuit was not necessarily at fault but "it

would be looked at".

According to Tanguy, there was no radioactive release and no hazard to the workforce or environment. "It was nothing serious" he said. However the French union the Confédération Française Démocratique du Travail have argued in a booklet "Le Dossier Electronucleaire" that a particular danger in reprocessing is "the possibility of cooling caused by the failure of the main and back-up electricity supply". But the accident was not predicted in any official safety studies, says the *Guardian*.

COGEMA, the government-owned company which controls reprocessing in France, have said that the plant would be open again this week.

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