Why are we waiting?

ALTHOUGH Mr Mulley, UK Secretary for Education and Science, has had the report of the Williams Working Party on Genetic Manipulation of Micro-organisms on his desk for well over a month, it is due to remain there for at least a "few more weeks". Until then scientists will be in the dark over the details of the code of practice that will apply to recombinant DNA research in Britain. There are several possible excuses for Mr Mulley's tardiness. None of them is good enough.

The Williams Working Party had its origins in a statement published by Professor Paul Berg and his colleagues in July 1974 in which they expressed concern at some of the possible consequences of the research they themselves had pioneered. The improbable pathway to disaster that they foresaw involved the escape from laboratory containment of bacteria whose genes had been experimentally recombined with genetic material from another organism, the survival of those bacteria in the outside world, their colonisation of the human intestine and the expression of their foreign genetic component to the detriment of the human host.

That scenario was taken seriously enough on both sides of the Atlantic that most scientists have since held to a voluntary moratorium on suspect research. American concern, latterly under the auspices of the National Institutes of Health, culminated four weeks ago in the issue of a complex series of guidelines. The British wheels were set in motion in July 1974 with the Ashby Working Party, convened by the Advisory Board for the Research Councils, which reported in December of that year. Seven months later Mr Mulley set up the Williams Working Party to produce a code of practice and to consider the establishment of a central advisory service for laboratories carrying out the procedures in question.

The Williams Working Party report is unlikely to contain many surprises. It will not recommend the proscription of any particular experiments but will suggest the precautionary measures that are appropriate for various categories of research. Few specific experiments will be quoted and no attempt to quantify their dangers will be made. The report is expected to endorse Ashby's suggestion of a central advisory service and to recommend how it might operate.

The scientific community anxiously awaits the report and Mr Mulley's reactions to it. The longer they have to wait for a go-ahead on experiments which in some cases have been on ice for two years, the worse (whatever the precautions suggested) will become the atmosphere of frustration and suspicion that has gradually built up. Inevitably moratorium-breaking has already occurred, and the consequences for those involved have on occasion been unpleasant.

Why then is Mr Mulley keeping us waiting? One possibility is that he is reserving the right to modify his reactions in the light of the response at home and abroad to the American guidelines. If so the delay could well be lengthy in view of the recent clash between Cambridge (Massachusetts) City Council and Harvard University. The trouble arose when the Mayor of Cambridge attempted to block plans to build a high containment laboratory within the Harvard Biological Laboratories; at the moment there is a three-month moratorium during which the council will review the position before deciding on the future of Harvard's genetic engineers. Similar problems are expected in other American cities. Although there is a reasonable chance that such clashes will be avoided in Britain, the longer Mr Mulley delays, the more likely they are to occur.

A second reason for delay may simply be the need for extensive briefing and consultation between departments. If so Mr Mulley must lavishly oil the cogs of bureaucracy. Most likely the delay is due to his consideration of the introduction of statutory controls of recombinant DNA research. Although the Working Party is thought to have been reluctant to recommend statutory controls, they may have made some suggestions in that direction because of forceful representation from the unions. The same pressures, which clearly must be respected since the unions represent those most likely to be directly carrying out the research, may now be holding Mr Mulley back.

The British code of practice, with or without statutory backing, could be very influential. In contrast to the American code, which applies only to NIH-supported research, the British code will apply to all academic institutes and probably also to industry via the Health and Safety Executive. If that breadth is matched by an authoritative depth and practical recommendations, the code could well be adopted by other European countries. That could happen through the European Molecular Biology Organisation which meets to consider the matter on August 12. It would be a great pity if the British code had not emerged by then. □

Solar energy breeders

Malcolm Slesser and Ian Hounam of the Energy Studies Unit at the University of Strathclyde, Glasgow, offer an opinion on a largely ignored aspect of solar energy

SOLAR energy has not been taken seriously as a solution to our energy supply problem and for good reason. It requires considerable land area and the sun has an unhappy knack of ducking behind clouds or withdrawing into a winter solstice. But there is one aspect of solar energy that is significantly in favour of its large scale development, an aspect which has so far received scant attention. This is the potential for solar energy devices to breed energy. No other device can do that. Yet, given the right technology, we calculate that with an initial investment by 1980 in 1 MW of solar power, it would be possible for solar energy to provide 90% of the world's energy needs within 40 years, without placing any burden upon existing energy resources.

The importance of this claim can hardly be exaggerated. If a solar breeder system was in operation, nearly all the energy from North Sea oil could be devoted to current needs and not, for example, to building alternative energy systems that will be needed when oil runs out. If we have a viable solar breeder system, worldwide, then once that system has grown large enough to satisfy the bulk of world demand the price of energy will fall to a trivial value, because after all the sun is a free good. Such a fact would utterly change the basis of a manufacturing or even a service orientated economy.

What, then, is an energy breeder? It is a device which "breeds" capacity to generate useful energy without consuming energy stocks. In this sense nuclear "breeders" are not breeders but extenders, increasing the potential energy of uranium by roughly 100/0.7, where the 0.7 is the proportion of Uranium 235 occurring in natural uranium. But when a solar capture device (SCD) (or any solar induced device such as a wind or wave gener-