chance) will avoid the trap of thinking that research and development will enable inherently uneconomic industries to survive. At this stage, the most important need is that the attempt to reinvigorate American industry by research and development should be openly regarded as an experiment, not as a sure-fire remedy. American governments have some experience of the support of industry by directly financed research programmes, but the conspicuous successes are in fields such as agriculture. The most serious danger is that, presented with the opportunity to help shape the pattern of public support for industrial research and development, Congress will fail to resist the temptation to play pork-barrel politics with a programme that deserves a fair chance.

The record of Congress in the past six months has, after all, been no better than that of the Administration. Chopping and changing is bad for all public programmes where continuity is essential, and especially for research and development. By amending its budget for the coming financial year almost as frequently as the British budget was amended by Mr Denis Healey in his heyday as Chancellor of the Exchequer (between 1974 and 1976), the Administration has inevitably damaged confidence and continuity among researchers. Congress has a right, even a duty, to scrutinize the way in which public funds are spent — that is a large part of its constitutional role. On technical matters, however, Congress is inclined to make judgements of budget proposals on the basis of their declared objectives. Feasibility matters less. This year, no doubt because it is an election year, Congress has been unusually trying. One result is that the budget for the coming financial year beginning in a few weeks is still far from settled. Is it not time that the US government as a whole found a less chancy (and costly) way of deciding how funds should be spent on research and development? As things are, there can be no certainty that the brave schemes the Administration has been hatching will be given a fair trial.

That the schemes themselves are adventurous, nobody will dispute. Apart from the restoration of the March cuts of the January budget, which will mean that agencies such as the National Science Foundation and the National Institutes of Health will have more to spend on research grants, there are plans to re-equip university laboratories, to set up "generic technology centres" in partnership with industry and to foster relationships between industry and universities. Sensibly, there are to be consultations between the Administration and the interested parties — universities, industry, and professional and scientific societies — before final decisions are made. In other words, the Administration seems anxious to avoid the trap of imposing a theoretical framework of its own ideas on the pattern of its new spending. That is a sign of grace but also one of the best ways of avoiding obvious pitfalls.

In the long run, however, success will also be determined by broader considerations, many of which have been overlooked in the design of Mr Carter's economic recovery package and the subsequent discussion of it. Whatever may be the merits of the individual components in the package, there is no doubt that the overall effect will be to increase the government's deficit by between $30 billion and $50 billion a year. New expenditure, as on research and development, is tiny compared with the cost of the proposed tax concessions and depreciation allowances. Paradoxically, all this has come about when figures suggest that money supply is increasing again, and rapidly. Neither Keynesians nor monetarists would think this a time when the American economy needs further stimulation by deficit financing. Indeed, the consequence of the economic recovery package (if enacted) may be more inflation and more of the damaging consequences for innovation and investment which have become apparent in the past few years. In short, the underlying problems of American industry may be the problems now unhappily familiar elsewhere.

Scares about genetic manipulation

One of the hopes, perhaps unrealistic, of this new decade was that the arguments about the hazards of this or that new scientific development would be couched in more moderate language than used to be the fashion in the 1970s, when Dr George Wald was one of those given to drawing analogies between would-be genetic manipulators and Hitler's would-be eugenicists. And it is true that, for the most part, the argument about genetic manipulation has taken a turn for the rational, partly because experience has shown that the hazards are less serious than some had fairly thought but also because it has become clear that many of the problems thrown up by the practice of genetic manipulation are different in kind from those originally foreseen — problems occasioned by commercial links between academic scientists and industrial companies, for example (see *Nature* 24 July). Yet, it appears, the old Adam lives on, as can be told from a statement put out last week by the Peoples (*sic*) Business Commission, a pressure group in the Nader mould and based in Washington.

The latest declaration from 1346 Connecticut Avenue is, however, such a travesty of the truth that it deserves to be even more widely known than to those on the commission's mailing list. On Wednesday last week, the *New York Times* carried an account of how Dr Francis H. Ruddle and his colleagues at Yale University have been able to incorporate adenovirus and SV-40 genes into the DNA of mouse embryos. The newspaper quite properly quoted the investigators as saying that they had been able to demonstrate the presence of viral genes in somatic cells of mice developed from the manipulated embryos, but emphasizing that they knew nothing as yet of the physiological function (if any) of the genes concerned. They also pointed out that they have not been able to check whether the exogenous genes survive from one generation to the next, but that they hope to do so when their mice are sexually mature. The occasion for the appearance of this newspaper report was the imminence of a meeting in Berlin at which the work will be described; it is said to be due for publication in the journal *Cell*.

Plainly, last Wednesday was a black day at the Peoples Business Commission. The statement issued later in the week says that the report "marks the beginning of a eugenics program for America". Messrs Jeremy Rifkin and Dan Smith, described as directors of the commission, say that the development represents "the greatest potential technological threat to the sanctity of life since the beginning of human history". The statement goes on to say that "a few people and institutions now have it within their power to irreversibly alter the biological structure of millions of other men and women and their descendants for all time".

Many will say that foolishness of such a plainly exaggerated form is best ignored. That is too tolerant a view. For small though its direct influence may be, the Peoples Business Commission is well placed to help keep the pot of anxiety about genetic manipulation boiling unnecessarily. It should therefore be widely known that the commission's statement is, put simply, a misstatement of the truth, born possibly of ignorance. For Rifkin and Smith, diligent readers of the *New York Times* though they may be, do not read the scientific literature as carefully. For then they would know that the phenomenon in which endogenous virus genes are naturally incorporated into mammalian genomes is now familiar, and biologically important; that techniques similar to those attributed to Ruddle *et al.* have previously been used with other viruses (and not always in the United States); and that the investigation of this phenomenon may be of the utmost importance in the understanding of diseases such as leukaemia. No doubt the time will come when the *New York Times* reports the incorporation of a human gene into a human genome, but even when that happens it will be hard to justify such an intemperate statement as that put out last week. Is it not high time that the commission's sponsors, whatever their sympathies, found a more level-headed vehicle for prosecuting the case against genetic manipulation?

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