

Closer industrial liaisons will, however, make for a more effective transfer of science and technology from research laboratories to British industry. That has been a constant part of the government's recent opinions. The argument has some force, but not all industrial liaisons with research are desirable or can even be expected to lead to worthwhile commercial enterprises. There are many fields of research (software development, for example) in which it is more important that universities and public laboratories should remain impartial sources of advice for a whole sector of industry. And the ragbag of innovations the universities are likely to produce under the new arrangements for their exploitation will not amount to a new industrial pattern for Britain, however valuable some of them may be. There is nothing wrong with the government's wish that British civil science should be more directly productive (than by the provision of manpower) of prosperity, but the naivety of the assumptions often implied about the nature of major industrial innovation suggest that some enterprising university might profitably design an elementary course in economic history for the British cabinet.

Part of the British government's difficulty in this connection is that it lacks machinery for considering these issues in the round. (The Advisory Committee for Applied Research and Development is a group of part-timers which seems to have gone to sleep.) But there are important issues crying out for remedy beyond the immediate boundaries of the Department of Education and Science. The steady erosion of the research budgets of the other civil ministries (other than the Department of Trade and Industry) suggests the government has abandoned the inconvenient Rothschild principle that all ministries should be competent to pursue research. Is it wise that such a state of affairs should come about by neglect?

The problems at the Ministry of Defence are the opposite: research and development costs not much less than the whole of what the government spends on civil science, and is growing. Yet it is now nearly two years since the Prime Minister and the Secretary of State for Defence promised in public that defence research would be made more accessible to British industry. Ministers are busy people, so that it is understandable that such tasks, full of bureaucratic minefields, should be set aside. What puzzles and demoralizes those who work in civil research is the zeal with which change has been ordained in the universities and the research councils.

Morale

Morale, not money, is what matters in the end. The dictum that the management of success in research requires the creation of an intellectual climate in which good ideas (and their authors) can prosper is none the less true for being over-used. And although research managers (in universities as well as public laboratories) could have done more to protect creative people from the corrosive insecurity that afflicts them, these same people read the newspapers and learn what government spokesmen have been saying about the value of their work. Sir Keith Joseph's own white paper on higher education (see *Nature* 23 May, p.270) is the most striking recent example of the genre. By dodging questions whose answers might have resolved uncertainty, by its view of higher education and research as an input/output system and by its repetition of a naive view of where industrial innovation comes from, it can only have made British academic researchers think the time had come to go elsewhere. It seems a pity to hazard the productiveness of a whole community for modest savings at its margin.

The British government's weakness is that few of the changes now decreed, many of them well-intentioned, have been carefully thought through. If the proper calculations had been made, change would have been more deliberate, not necessarily slower. And even at this late stage, much could be done to put things right. Making the system more coherent, perhaps by appointing a Minister of Science (part-time) would be the best course. Taking careful stock in the hope of learning where the research enterprise is heading would be worthwhile. Replacing the policy of management by cash limits with something more intelligent is

essential. And, for the time being, the issue is not one of party politics: with the general election in Britain two years or so away, the erosion of morale is too rapid to allow an opposition the conceit that it might be possible to wait until then to earn the kudos of reform, for there may be little left by then. □

The tax man cometh

President Reagan's recent reforms go only part of the way towards fairness.

FORMER President Richard Nixon used to speak of various of his administration's actions as "the greatest (fill in the blank) since the Creation"; President Ronald Reagan may thus be forgiven for calling his tax reform proposal merely "the Second American Revolution".

Amid the hundreds of pages of simplification in Reagan's plan is the retention of the research and development tax credit, a provision that, according to independent economists, has cost the Treasury \$1,000 million a year to stimulate \$700 million worth of research and development. High technology and biotechnology companies, while grumbling along with other industries about the net 25 per cent increase in corporate taxes embodied in the Reagan plan, are full of praise for the wisdom of keeping the research and development tax credit. Sentiment in Congress is mixed, and since it seems unlikely that the Reagan proposal will be disposed of this year, and since the research and development credit is due to expire this year, it will take a special action by Congress to retain it.

The tax credit was passed under a banner of stimulating the United States' supposedly lagging investment in the research and development that tomorrow's products will depend upon. Research and development costs had, of course, always been deductible as an ordinary business expense; the tax credit provides an extra bonus — an outright rebate of taxes equal to 25 per cent of a company's research and development spending that exceeds its average outlay in this area of the preceding three years.

Yet, as recent studies have shown, the credit has probably done little to stimulate new research. In fact, the credit has in effect been a reward for those companies that had already decided to invest in research and development. To those who know the politics that were at work in passing the enabling legislation four years ago, that is probably no surprise.

Of course, the sponsors of the legislation did not come out and say so. But the authors of the legislation will now admit privately that the true purpose of the bill was to equalize what the high-technology companies saw as unfair treatment in the tax code. Heavy manufacturers were reaping a windfall through the investment tax credit (which gives a tax rebate of 6-10 per cent on new purchases of machinery) and accelerated depreciation. So lucrative have these provisions been that many leading US manufacturers have paid no taxes for years. The high technology companies, whose products depend more on research and development than machines, did less well. Thus was born the research and development tax credit.

If tax simplification is truly the President's goal, then such backhandedness has no place in the tax code. The whole story of special interest politics has been one of obscure provisions masquerading as lofty general principles but in fact carefully crafted to benefit group X (sometimes company X) that gave a nice campaign contribution to the right congressman. And the whole principle of tax simplification is the elimination of special treatment for some in favour of lower rates for all.

The administration is proposing to bite the bullet and eliminate the over-favourable treatment of capital investment: under the Reagan proposal, both the investment credit and accelerated depreciation would be repealed. And a new minimum corporate tax would put a further effective cap on the benefits that the heavy manufacturers can reap from capital investment. The cause of simplification and fairness might further have been served by going further with the minimum tax, and eliminating the research and development credit. □