

Stanford's patent has been made possible by the changes of policy nearly a decade ago at the National Institutes of Health, which made it possible for universities to apply for their own patents even when financial support had come from federal funds. (One irony in the case of the Boyer-Cohen patent is that the University of California never succeeded in negotiating what is called an Institutional Patent Agreement, whence its partnership with Stanford in this venture.) Last year, the doctrine that recipients of federal research grants may nevertheless patent discoveries that arise, and not leave them in the public domain, was extended by the new patent legislation to most agencies of the federal government. The arrangement has some virtues. It provides universities with an independent source of income, and there is a chance that some universities will be more efficient merchants of innovation than the government has been. Given its traditions, Stanford could hardly have stood aside from these developments. In that sense, its bad luck has been thrust upon it.

The university and its members have in the circumstances conducted themselves with the utmost propriety. First, the authors of the discovery have assigned all their personal rights to their respective universities, and will make no financial gain from whatever happens in the next few years. Second, Stanford has apparently consulted widely with the companies likely to be the first in the field with practical applications of the new techniques. Third, patent protection has apparently not been sought outside the United States (but less liberal regulations on prior publication elsewhere might have been an obstacle). Fourth, the terms to would-be licensees are modest, as these things go; neither university seems out to make a quick buck, or an unseemly number of bucks. Even the imminence of the deadline (15 December) before the terms are made stiffer is forgivable, given the advance consultation there has been. And licensees will have to comply with National Institutes of Health guidelines. Finally, Stanford stands out among universities in the United States in having formulated an explicit policy for the seemly division of the spoils from patent exploitation between the university, the inventors and the departments to which they belong (see *Nature* 18 June, p.524); the Stanford faculty will be debating these proposals early in the new academic year.

So why should there be a fuss, if fuss there is? Most probably the commercial companies, especially those which Stanford has consulted in advance, will take out licences promptly and without complaining that they are being held to ransom. They will know that it will cost them more to buy exclusive (as distinct from non-exclusive) licences for particular applications of genetic manipulation from the genetic engineering companies that have mushroomed in the past few years. Even so, a legal challenge to the patent is more than possible if less than probable, either on the grounds that Boyer and Cohen were not the only authors of the research or that, in the early 1970s, the techniques now patented were not as novel as they may have seemed. Stanford seems prepared for such a challenge (see page 573) and may well be right in thinking that it would win its case. What will concern its friends, those who admire and owe an intellectual debt to Boyer and Cohen as well as those concerned for the reputation of scientific scholarship, is that a wrangle about scientific priority in the courts would be damaging to institutions and people.

Another difficulty goes to the root of current policy in the United States on the exploitation of federally sponsored inventions. There is now a danger that, in the years ahead, drafts of papers for publication will be read with an eye not merely for scientific merit but for exploitability. Moreover, Stanford and the University of California at San Francisco apart, it remains to be seen whether the federal government's new liberality on patents will turn out to be a golden goose or merely another addition to the cost of university administration. A more serious problem is that most universities, within and outside the United States, still lack policies for deciding how the commercial benefits of invention should be divided internally among the interested parties; one obstacle is that the financial interests of the faculty are in many cases already too deeply entrenched. The danger now is that the commercialization of academic work will be reinforced

— and that the benefits will be spread throughout the university system more or less at random, according to the chance that some discoveries will be patentable and others not.

Although in the short run some universities may benefit, all must know that precarious income from patents is no basis for running a university system. Worse, they must also fear that the further they go along the money-making path, the harder it will be for all of them to stick to their proper tasks of teaching and scholarship. And while it may be pleasing to be able to demonstrate to governments that universities can turn their hands to business when they are pushed, that proposition conceals a trap. For the universities have always contributed to socially and commercially valuable innovations. If they now accept the notion that they can do so effectively only when they are rewarded, their place in public esteem will be diminished.

Polytechnics in passing

Once upon a time, when there seemed no limit to the growing demand for higher education in the United Kingdom, the late Mr Antony Crosland, in his capacity of Secretary of State for Education and Science, wove a marvellous spell. In a speech at Woolwich fifteen years ago, Mr Crosland brought into being an entirely novel system of higher education, which he called the "binary" system. One half consisted of the traditional universities. The spearhead of the other half was to be 26 technical colleges, which were redesignated as "polytechnics", urged to provide degree courses for their students (which many already did) but to concentrate on practical things such as engineering, technology, business — the "world of work" as it has since been called. In a curious way, Mr Crosland's magic wand marked the beginning of the universities' fall from grace. If the "other" half was to be the provider of practical higher education, how could the universities fail to be thought effete? But now it is the polytechnics' turn to take a tumble.

After two years of blustering, the British government has now issued a discussion document that will spread gloom and despondency in the polytechnics — and among the local authorities which are their titular sponsors (*Higher education in England outside the universities: policy, funding and management*; Department of Education and Science). The government's supporters, if they have the time to read such a specialized document, may also take fright. For the government now seeks to set up some kind of central body to supervise working of "higher education outside the universities". The local authorities know they have no ground on which to stand — the cheques they write each month to pay the salaries of teachers in polytechnics are immediately discounted by the central government. Worse still, there is a suspicion that the local authorities which happen to be the channels of the central government's cash flow towards the polytechnics (now grown in number to 29) would put higher education high among their priorities. There are cheaper ways of catching votes and, in any case, local authorities are probably as disappointed as the rest of the United Kingdom that the performance of the polytechnics has been so disappointing. Those which have chosen not to ape the universities have all too trendily destroyed their claims to intellectual respectability. There are some exceptions.

The government's solution, modestly called "Model B" in the discussion document, is that the polytechnics (and the rest of non-university higher education) should be controlled by a body analogous to the University Grants Committee. The local authorities have lamely countered with what is called "Model A" — a scheme in which their representatives will call the shots. Everybody knows how the consultation will be resolved. The government's supporters (if they had the time) would be horrified to learn that the crucial argument is the case (spelled out) that central planning of higher education is not merely necessary but possible. For some time yet, it will be forgotten that the most immediate need is to bring the two halves of the binary system into some kind of coordination.