present for controlling the content of national television broadcasting. Over the years, all liberal governments have laid down rules for guiding the operations of those with a licence to broadcast electromagnetic signals — and from time to time they have prosecuted those who have chosen to violate their airspace as if they were literally pirates. If international broadcasting proves financially feasible, governments will have to reconcile themselves to having less direct control. (They may even be faced with the prospect that national politicians denied the exposure they would like on their national network would go off and hire time elsewhere, a development that might serve to put political broadcasting in perspective.) But this is a prospect that must in any case be faced. Other technical developments, cable television for example, are similarly a threat to the traditional paternalism of governments and their regulatory bodies.

It will also be necessary to look again at the mechanism by which the ITU sets out to allocate positions along the geosynchronous orbit. For more than the coming decade, and until still higher electromagnetic frequencies are useable, the geosynchronous orbit will be a scarce resource. It is absurd that it should be shared out like a pack of cards. Means of counting need in the calculations should urgently be sought. And some thought should be given to the use of satellites as a means of making television signals internationally accessible by individuals with the wish to enjoy this luxury (and the willingness to pay for it). Television as such is valuable.

Let Finniston cool his heels awhile

THE British Government is taking its time in responding to the report of the Finniston Committee on engineering education published last year (*Nature* **279**, 352; 1979), and with good reason. The Department of Industry is planning to make public some kind of an opinion late this summer, but the Department of Education and Science will still then be taking outside opinion. It is exceedingly unlikely that the government will have hit on a policy before this year is out. Others than the impatient members of the Finniston Committee, some of whom appear to have mistaken their report for the Mosaic Tablets, will welcome a breathing space before an important part of British higher education is thrown in the melting-pot.

British governments, like their taxpayers, have been worrying about engineering education ever since the end of the Second World War. At first, the chief concern was that universities were not producing enough graduate engineers to take their places alongside those trained in more traditional ways, essentially by apprenticeship. That defect has now been remedied and the annual output of graduate engineers (from polytechnics as well as universities) approaches 20,000. Concurrently, its traditional route has been closed. More recently, interest has centred on the character and even the quality of engineering education, provoked chiefly by the reflexion that the faults of British manufacturing industry must somehow be attributable to the engineering professors up and down the country.

Few would argue that British engineering education is blameless. It is, for example, difficult to understand how British universities are confident that three years of higher education will enable a man or woman to function as an engineer (albeit under the supervision for a time of one of the engineering institution) when most other educational systems consider three years insufficient. There is also ample if anecdotal evidence to suggest that British engineering education is too much dependent on lectures, too theoretical and too much detatched from the practical problems of practising engineers. Not even the Finniston Committee has thrown light on questions such as these, however. Although it is possible to understand why it concentrated instead on the problems of how best to enhance the public prestige and the self-esteem of the engineering profession, a valuable opportunity has thus been missed. And the engineering departments, conscious as many of them are of the need for qualitative change, have no solid foundation on which to base reform.

While the Finniston Committee was sitting the initiative was stolen by the University Grants Committee, which announced two years ago a scheme under which selected universities (seven in total) would be given extra resources in order to provide four-year engineering courses for more able students differing from those of conventional pattern in that their curriculum would be "enriched" with elements of management science, industrial relations and the law. The UGC courses were also devised so that students would spend some of their time gaining first-hand experience of what was considered two years ago to be the sector of British industry most in need of improvement — manufacturing industry. A few years from now, when the first graduates of these courses are in jobs, it may be possible to tell whether the experiment has been successful, although the chances that an objective assessment will be possible are diminished by the lack of formal criteria by which that might be done.

On the engineering curriculum, the Finniston Committee accepted that the UGC's experiment should be the model for training the most able engineering students. To that extent, the experiment is an experiment no longer. The committee's chief educational concern was to ensure that there would be funds enough to support such courses (and the student following them) wherever in Britain engineering is taught. To this end, the committee asked that its proposed Engineering Board, whose function it would be to supervise professional standards, should also have at its disposal funds with which to supplement existing ways of chanelling public money to universities and students.

This proposal is beguiling but is also a trap. Naturally it has the appearance of virtue at a time when the belief persists that a *something,* almost anything, must be done. Understandably, engineering departments are also sympathetic to the notion that more funds should come their way. But changes of the kind proposed, while helping to change the education of engineers in a direction not yet proven, would certainly change the character of British universities in a way that cannot be welcome. In their essentials, these Finniston proposals are tantamount to asking that engineering departments in British universities should be dealt with differently — and more generously, than other departments, and that engineering students should often receive higher stipends. Little imagination is needed to guess how divisive these provisions would be. And there is no evidence that their promised benefits would materialise. It is no wonder that the government's response is hesitant.

Already there are signs that British universities are more jealous of their autonomy than they are skilled at exercising it. Will their interests in the long run be served if an important part of their contribution to the national interest is controlled and financed from outside? (Although there are similarities with medical education, Finninston's proposals for engineering education go much further than the General Medical Council would dare dream.) May it not be that the universities' best course of action, in this as in other matters, would be to carry out their own more constructive examination of the problem? Nobody would be surprised if it then turned out that what is wrong with British engineers is that industry makes too little use of them.

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