

nature

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Abracadabra: watch it come down

It is no surprise that 'big science', that is astronomy, space research, particle and nuclear physics, is in for a lean time in the next five years in the United Kingdom. News of shrinking budgets for big science has been coming out for a year or more, generally on occasions that a particular project has "with regret" had to be abandoned. The publication last week of the report for 1974-75 of the Advisory Board for the Research Councils (ABRC) (HMSO, Cmnd 6430, 50p) only serves to give the decision a degree of finality (see following article). Nevertheless, since it is the advisory board which is charged with advising the Secretary of State for Education and Science on his responsibilities for civil science and on the allocation of the Science Budget, and since the Secretary of State generally takes that advice, it is appropriate that we should ask, at the time the report appears, how the 'big science' decision was reached, and whether it is in accord with feelings among scientists in general.

Present annual spending in the Science Budget (that is, not by government departments) is £13 million on agricultural research, £29 million on medical research, £19 million on natural environmental research, £9 million on social science research and £96 million to the Science Research Council (SRC). Of this £96 million, £7 million goes on engineering, £24 million on astronomy, space and radio, £35 million on nuclear and high energy physics, £16 million on 'science' (mathematics, physics, chemistry, biology and so on) and the rest on student support and administration. In 1980 the total expenditure is expected to be at exactly the same level in real terms, but the SRC's operations will have shrunk nearly 10% while all the other council's operations will have grown by between 6 and 10%. Within the SRC, the nuclear physics board will have had to cut back its expenditure by roughly 25%, astronomy, space and radio by roughly 16%—others will be slightly up.

The figures are actually bleaker still for big science. There has been some criticism of the growth permitted to all other activities as Buggins' turn, but the ABRC is possibly right in its assessment that increased experimental sophistication and a preponderance of young researchers probably require such financial growth just to maintain existing capabilities. Thus 25% off nuclear physics is probably more than 30% off capabilities. Finally, two major subscriptions, to CERN and the European Space Agency, account for 40% of the present expenditure on big science. These may not be renegotiable; the sum total of all this could be nearly

a halving of the SRC's discretionary activities in big science by 1980.

Why is big science to be cut so severely to maintain the *status quo* elsewhere? The ABRC concedes that in these scientific fields the UK has a high reputation, and it admits that prospects of advance are "particularly good". "On the other hand, the big sciences engage relatively small numbers of research workers . . ." This is an argument with strange echoes from the most recent Commons Select Committee report—too much is in the hands of too few. It is a depressingly bad one for the ABRC to be putting forward, suggesting that, for all the agonising, it is size that has been the criterion, not quality nor even (and this would have been easier to swallow) lack of obvious pay-offs to the taxpaying public.

The ABRC was nearly unanimous in its decision. What is surprising is that the composition of the ABRC should allow it to be such. Big science expenditure is a third of all the science budget yet amongst all the research council heads, chief scientists of government departments and civil servants and academics who served on the board when the decisions were being made, only one out of nineteen had had any first hand experience of big science. Even more surprising, although the board offers seats to departmental chief scientists whose contributions to the support of non-departmental research projects can be as small as a couple of million pounds, it cannot include the Chief Scientist, Ministry of Defence, whose ministry is spending £550 million this year on research and development, but which does not sponsor non-departmental research projects by the Rothschild method. Quite apart from the experiences of the present incumbent, Sir Hermann Bondi, which would have been particularly relevant to recent discussions, it does seem wrong that a ministry which recruits large numbers of graduates and PhDs, which runs the Meteorological Office, and which co-operates in all manner of ways with outside organisations should have no formal say in the shaping of the future of Britain's civil science.

It would obviously be foolish to expect a slavishly democratic ABRC in which every interest was represented proportionally; it is clearly much better that reliance should be placed on a body of people informed by non-partisan commonsense. But there are aspects of the decision on big science and the poorly articulated reasons behind it which should at least make us wonder whether we have yet got the ABRC exactly right.