

Physics successes

SIR—John Maddox made an unfortunate remark in his article (*Nature* 328, 375; 1987) on the meeting at Bristol to commemorate the 1947 discoveries of the pion and the V-particle. I did not detect in the nostalgia of the Bristol meeting any indication "that these developments should have turned out to be the last important contributions of British experimentalists to the field...". On the contrary, I believe they were simply the first.

British physicists have taken a prominent part in all the major experiments at the European Organisation for Nuclear Research (CERN) and Deutsches Elektronen-Synchrotron (DESY) over the past decades (University College London and Oxford in the discovery of neutral currents in 1973; Birmingham, the Rutherford Appleton Laboratory and Queen Mary College in the discovery of the W and Z particles in 1983; Manchester, Lancaster, Oxford and Imperial College London in the discovery of gluons in 1979). They also played a leading role in neutrino and muon scattering experiments at CERN over the past decade, identifying partons with quarks and providing the first quantitative support for the theory of interquark forces (quantum chromodynamics). Even the Kendrew committee paid tribute to the quality of their work.

Because the people concerned work in large international teams, the role of individuals is not as clear as it was in 1947. But to dismiss the post-1947 achievements of the UK particle physics community is indefensible and just plain wrong.

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Geology departments

SIR—The University Grants Committee's Report of the Earth Sciences Review concludes that resources in this area in the United Kingdom are too thinly spread and that significant benefits would result from their concentration into a smaller number of large departments. Although several reasons are given why research productivity might be favoured by large size no firm evidence is presented. To shed light on this issue, I analysed the published research output and citation rates of 33 university departments of geology or earth sciences in UK universities.

An indicator of the quantity of published work of each department was derived from the *Science Citation Index* (SCI). Citations are collected from a full coverage of every item published in 3,250 journals as well as selective coverage of other publications. The Corporate Index volumes of SCI provide a convenient

source of information classified by university and department. A count of substantial items was made for the three years 1982 to 1984.

The information on the volume of publications was supplemented by an analysis of citations, allowing distinctions to be drawn between work that has exerted a significant impact on a research field and that which has not. As citations are listed by individual, a list was made of names of individual members of each department as given by the *Commonwealth Universities Yearbook* for 1985; only full-time academic staff were included. For these individuals, citations in SCI were counted for the period used in the analysis of publications. Information on number of faculty in each department was also used to calculate *per capita* rates for publications and citations and as the indicator of size.

The correlation coefficient for the relationship between size of department and numbers of publications per member of faculty was 0.112 and that with number of citations per member of faculty was 0.256. Neither is significant at the 0.05 level. The results therefore provide no evidence of any significant relationship between research productivity (as measured here) and departmental size. Whatever the other merits of a concentration of resources, the view that this would enhance research productivity should be treated with some scepticism.

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South African view

SIR—As a South African expatriate I am struck by the muddled thinking in the recent correspondence over an academic boycott. Analyses such as those of J.G. Wilson (*Nature* 328, 288; 1987) and Max Wallis (*Nature* 328, 374; 1987) lead nowhere except back to their original ideological premises.

Like many South African-born families lucky enough to have the choice, my family left (in 1975) when it seemed that, whatever political options were chosen, there was no acceptable solution. While opposed to apartheid in principle, and abhorring many of its practical evils (the separation of black families, imprisonment without trial, the ultrahypocritical actions of many whites), we saw no political alternative to which to aspire.

The simplistic approach of 'one man, one vote' was not tenable. Like it or not, lumping together large groups of people with diverse cultures creates a sure-fire setting for political nightmares, as is evident in many of the world's worst trouble-spots. Although W.D. Stein (*Nature* 328, 374; 1987) claims this would not be as catastrophic for blacks as for whites, the

history of independence in Africa suggests otherwise. This is not to argue that majority rule should be implacably resisted — it is only wise, when faced with the inevitable, to prepare for it. One must, however, be an especially confident ideologue to demand particular changes regardless of the trauma they invite.

These feelings support two conclusions: (1) there are no easy options for the white electorate in South Africa and (2) boycotts will not force whites to choose political platforms that serve no one except the next tribally based clique to assume the reins of government.

The question for outsiders thus boils down to a personal view of how to ease the tribulations that South Africans of all colours must undergo in the transition to majority rule. At present, this means adopting tactics that temper, as far as possible, the more brutal and reactionary aspects of the Nationalist regime. It argues for a strong dose of pragmatism.

Boycotts have had a significant political impact on South Africa. In sport, they may have done some good by forcing white electors to recognize the repugnance with which apartheid is viewed by nations they would call friends. In trade and economic cooperation, the issue is more difficult because black workers are more immediately affected than whites.

But what can be achieved by an academic boycott? The state the universities in South Africa, as in most places, is of virtually no concern to people in the street. They could hardly care less about the scientific well-being of academics. Neither, therefore, do the politicians care a rap. Nor will a boycott by scientists prevent South Africans from obtaining the technology they require. Yet the damage to liberal thinking in South Africa by isolation of the universities would be profound.

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SIR—While it is probably inadvisable for a resident to comment on the views expressed in the recent correspondence following your article on the academic boycott of South Africa, I should like to record that in my second-year organic chemistry class this year there are 24 Indians and 5 Africans, the balance being 52 of European origin.

A few years ago, the class was of a similar size, but completely European. Although we are not allowed to increase the size of our intake, the racial composition is changing rapidly.

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