

so. What is needed is effective international legislation to control effluent discharges.

The Swedish legislation which you cite has been introduced because of the chronic pollution of some Swedish lakes and rivers and, indeed, of the Baltic. The pollution situation in the Baltic, where water takes thirty years to move from Stockholm through to the Skagerrak, is far more acute than the situation in the North Sea. The public awareness of environmental pollution in Sweden is, however, impressive. Newspaper articles and radio and television programmes have focused on the problem and indeed the Scandinavian Pavilion at the 1970 Osaka World Fair has a theme of "Environment Protection".

In addition to the banning of DDT, aldrin, dieldrin and lindane, the Swedish Nature Conservancy Office has a £20 million budget for a five-year period from 1969-70 to subsidize the installation of equipment to control pollution. A special board has also been set up to examine individual applications for effluent disposal systems, and to recommend effective waste-treatment systems. Industrial and municipal companies will have to obtain a pre-establishing franchise from the board. The board may prohibit construction of plants that would have a detrimental effect on the environment. It may also prohibit continued activity where anti-pollution measures have proved insufficient.

Such overall control of environmental pollution by a single board (as outlined in your article) is desirable in an increasingly industrialized society such as ours.

Yours faithfully,

J. S. GRAY

University of Leeds,
Wellcome Marine Laboratory,
Robin Hood's Bay,
Yorkshire.

Molecular Biology in the UK

SIR,—In *Nature's* on the whole admirable survey of science policy in Europe (222, 845; 1969), I was astonished to see that it opened its remarks about the United Kingdom with the statement that "the boom continues . . . in molecular biology". What on earth is *Nature* referring to? I should have thought that one of the salient features in recent British biology had been the almost total stagnation of significant new funding for this subject, apart from a few dribs and drabs to support outfits consisting of one man and a boy. Of course, the great well established MRC laboratories at Cambridge and King's College London have made some progress; but there has not been any new addition to the only two other groups—the departments of molecular biology and genetics, both at Edinburgh and both relying mainly on MRC finance—which pass the minimal tests for activities which can rank as significant expressions of policy. The most important test is a super-critical number of independent scientific staff (above eight, I should say), deployed over a wide range of related topics, and if possible intimately involved in university teaching. So far as I know, no one is even seriously working towards the establishment of any new centre of this kind. Frankly, I am not surprised, because, having done the job myself, I don't see why anyone should be mug enough to expend the necessary time, energy and fortitude against the "slings and arrows".

The difficulties do not arise from the policy-making administrators in the research councils, but from the passive resistance of more classical biologists. I started seriously trying to set up a laboratory of molecular developmental biology in 1952. The idea was enthusiastically accepted by the MRC administrators; but when they came to refer it to an "expert" biology committee, it was turned down flat, much to their surprise. The plan was

revived again some years later, and this time the MRC took more care to steer it through hoops, so that it actually got authorized in 1962. Even then, they could not build anywhere to put it; but they gave me what help they could to raise elsewhere the money for building. Since then, far from booming, the financial resources have remained almost static; there has been a slight rise for under-estimated devaluation, but the impact of the sophistication factor has resulted in actual contraction in the number of scientists on the staff.

The basic difficulty is very simply identified. Molecular biology as a whole is more expensive than classical experimental biology; and this applies with special force to studies on the differentiation of eukaryotic systems, where one is trying to put tabs on the activity of small fractions of the total genome. The experienced molecular biologists who drew up the budget for the projected EMBO laboratory put a round figure of \$4,000 per annum, per worker (excluding graduate students), for consumables, and the Kendrew Report¹ states that in three out of four established British laboratories the figure is between £1,000 and £1,200. But there is no experienced molecular biologist on any research council in Britain, and I think only one on the next level of advisory committees which do the actual vetting of proposals. The classical experimentalists and biochemists of these committees accept about \$1,000 as the standard level of expenditure on consumables. The result can be seen in Kendrew's Report that much of the work "is at best dull and at worst trivial".

It is for these reasons that I have at last come round to whole-hearted support for what *Nature's* review has to say about EMBO: an international laboratory is needed (222, 836; 1969). I was responsible for first suggesting that EMBO should get started by a programme of fellowships, training courses, seminars and so on; and I have been no more than lukewarm about the establishment of a central laboratory, on the grounds that the harm this would do to universities by draining away their best people would not certainly be compensated by any advantages. The experience of the last three or four years has convinced me that significant decentralized advance is not actually a practical proposition in the present set-up in Britain. A central European laboratory (or perhaps a small number of regional laboratories) will in the short run almost certainly damage existing laboratories and university departments, but I now see it as the only practical way forward to adequate developments in the long term.

Yours faithfully,

C. H. WADDINGTON

Department of Genetics,
University of Edinburgh.

¹ Council for Scientific Policy, *Rep. Working Group on Molecular Biology*, July 1968, Cmnd 3675 (HMSO, London, 1968).

Isaac Newton Telescope

SIR,—An editorial in *Nature* (222, 211; 1969) is critical of the management of the Isaac Newton reflector. We do not wish to comment on that, which is purely a national matter, but we cannot ignore the unrealistic description given by your anonymous editorial writer on the way successful observational astronomy actually proceeds. You stress that "expert and highly paid astronomers are taken away from their jobs to operate equipment which can be run equally well by proficient technicians". Although some routine observing is necessary in any collection of data, it is the experience of highly trained astronomers, themselves working at the telescope, which turns otherwise routine programmes into major advances of a fundamental kind. It is the insight of observers who are in nightly contact with the subject which carries the work above mere data collection. Do you imagine that

Herschel would have led British astronomy to its early world position if a proficient technician had made his observations?

The astronomer is at the telescope as much for the discovery of new problems as for their solution, and must be capable of adapting his observing to meet what he discovers. In this context we would agree that, if you substituted "unsuccessful observational astronomer" for "proficient technician" you would have a point, but not the one you were striving for.

There have been observatories in both the UK and the USA that have attempted to operate on the hierarchy system you propose. They have been successful in compiling data, and in finding what they intended to find. But what they missed is what we would expect *Nature* to be the first to criticize them for missing—the unexpected, unforeseen, and subsequently the undeveloped: in short, the life blood of modern astronomy.

Yours faithfully,

OLIN EGGEN
ALLAN SANDAGE

Mount Stromlo and Siding Spring Observatories,
Canberra, Australia.

University News

Dr J. F. Nye has been appointed professor of physics at the **University of Bristol**.

Dr G. T. Williams, International Agency for Research on Cancer, Lyons, has been appointed to the chair of statistics at the **University of Bristol**.

Dr H. Heywood, Department of Chemical Engineering, has been appointed to a personal chair at **Loughborough University of Technology**.

Mr A. C. Bajpai, Department of Mathematics, has been appointed to a personal chair at **Loughborough University of Technology**.

Appointments

Professor F. W. Shotton, University of Birmingham, and **Mr T. A. L. Paton**, Sir Alexander Gibb and Partners, civil engineering consultants, have accepted invitations from the Secretary of State for Education and Science to become members of the Natural Environment Research Council. Professor Mitcheson, Mr Rowntree and Professor Runcorn have retired.

Announcements

The New Zealand Government has established a research fellowship, to be administered by the **Royal Society of New Zealand**, to commemorate the bicentenary of Captain Cook's first landing in New Zealand. Applications are invited from persons of senior status who wish to carry out research in New Zealand or the South West Pacific in any appropriate field. The fellowship, to be taken up during February 1970, will normally be tenable for two years, and must be held at a New Zealand university or research institution. Further details may be obtained from the Executive Officer, Royal Society of New Zealand, PO Box 196, Wellington, New Zealand.

ERRATUM. At the end of the article by A. G. Levin, S. Friberg and E. Klein, "Xenotransplantation of a Burkitt Lymphoma Culture Line with Surface Immunoglobulin Specificity" (*Nature*, 222, 997; 1969), the support of the "Institutet of Stockholm Foundation" was acknowledged. This should be the IOS Foundation.

International Meetings

October 6–8, **International Electronics Conference**, Toronto (Dr R. de Buda, Technical Programme Chairman, International Electronic Conference, 1819 Yonge Street, Toronto 7, Canada).

October 6–8, **Antiparasites**, Milan (CONGITA, Via Barberini 86, 00185 Rome, Italy).

October 6–10, **Congress of International Society of Orthopaedic Surgery and Traumatology**, Mexico (Dr J. Farill, Morena 854, Narvarto, Mexico 12, DF Mexico).

October 6–10, **Project Planning by Network Analysis**, Amsterdam (Secretariat, Holland Organizing Centre, 16 Lange Voorhout, The Hague, Netherlands).

October 6–10, **Neoplastic Diseases**, Heidelberg (Dr R. H. Jackson, 10607 Miles Avenue, Cleveland, Ohio 44105, USA).

October 6–11, **Radiology**, Tokyo (Kempo Tsukamoto, President Elect, c/o National Institute of Radiological Sciences, 9–1, 4-Chome, Angawa, Chiba, Japan).

October 6–11, **Rheumatic Diseases**, Prague (Secretariat, Na Slupi 4, Prague 2, Czechoslovakia).

October 6–13, **Agricultural Engineering**, Baden-Baden (Organizing Committee, Zeil 65/69, 6 Frankfurt am Main, Germany).

Sabbatical Itinerants

In the hope of providing some practical assistance in the good cause of mobility between laboratories, *Nature* advertises the needs for housing of families about to take up periods of sabbatical leave. To begin with, no charge will be made for advertisements like this. It is hoped that a period of experiment will show what form these advertisements could most usefully take and whether they are effective.

Vacant: From early September 1969, for 1 year, 4 bedrooomed furnished detached house in Bearsden, Glasgow. Electric central heating, garden, easy access to universities. Please contact Dr A. D. Weaver, Department of Surgery, Glasgow University Veterinary Hospital, Bearsden, Glasgow.

Vacant: From September 1, 1969, to September/October 1970, 2 bedroom furnished house in Bickley, Kent. Garden, garage and full central heating. Frequent train service, 26 minutes to Victoria or Holborn Viaduct. Please contact Dr T. Powell, Department of Physics Applied to Medicine, The Middlesex Hospital Medical School, London, W1P 6DB.

Vacant: 3 bedrooomed semi-detached house in Baildon, Shipley. Convenient for Leeds and Bradford, on the edge of the Yorkshire Dales. Electrical central heating, garage. Available August 1969 for up to 2 years. Please contact Mr D. Robinson, School of Chemistry, University of Bradford, Bradford 7, Yorkshire, UK.

Wanted: Furnished 3–4 bedroom house for visiting professor in Edinburgh within easy access of the university (Institute of Animal Genetics) from September 1969 to August 1970. Please contact Dr B. H. Sells, St Jude Children's Research Hospital, Memphis, Tennessee, 38101, USA.

Wanted: Accommodation with 2–3 bedrooms in or near Southampton for research officer and family, October 1969 to October 1971. Please contact D. D. Shaw, Forest Research Laboratory, PO Box 4000, Fredericton, New Brunswick, Canada.