# THE INSTITUTE OF PHYSICS AND THE PHYSICAL SOCIETY

THE fifth annual report of the Council of the Institute of Physics and the Physical Society * covers the period ending on December 31, 1964, and incorporates details of the activities of the various committees, branches and groups of the Institute and Society, together with the financial statement and account for the year. The report was presented and adopted at the annual general meeting held on July 6, 1965, at the headquarters of the Institute and Society, 47 Belgrave Square, London.

During the year under review, 970 applications for election or transfer to the various grades of membership were received, compared with 1,165 in 1963. The total membership of 9,750 on December 31, 1964, consisted of 1,416 Fellows, 3,558 associates and 2,444 graduates of the Institute and 1,256 Fellows of the Physical Society, in addition to students and subscribers. Although this represents a net increase of 280, the rate of growth has declined during the past two years, and the Council in its report expresses considerable concern. It is known that many physicists qualified to become members attend the scientific meetings and conferences organized by the Institute and Society, but nevertheless do not apply for membership. Various methods to improve recruitment are under active consideration by the Membership and Education Committee. A new grade of membership, Licentiate, intended for assistants in laboratories possessing a knowledge of physics not quite so extensive as that required for graduateship, and for certain teachers in schools and technical colleges, became operative at the beginning of 1965.

Representatives of the Institute and Society visited five technical colleges, and the applications of three of these colleges for recognition or extension of recognition for the purpose of the membership regulations were approved. Sixty-two technical colleges presented 892 candidates for the Ordinary National and forty-one colleges 614 candidates for the Higher National Certificate in applied physics; 589 and 418 respectively were successful. Examinations for the Higher National Diploma in applied physics were held for the first time during 1964. Twelve of the thirteen candidates entered by two colleges were successful. The seven question papers set in Part 2, and the four compulsory papers and the general paper in Part 1 of the graduateship examination were published in the October issue of the *Bulletin* of the Institute and Society, and also as a separate booklet. Of the 97 candidates for Part 2, 27 passed (two with honours), and of the 79 for Part 1, only 12 were successful.

An enquiry conducted by the Membership and Education Committee revealed that 1,597 students were admitted at the beginning of the session 1964–65 to the 1,907 available places in the physics departments of the universities (excluding the University of Cambridge) in England and Wales. The corresponding figures for 1963 were 1,524 and 1,708 respectively. A report on the survey of salaries and emoluments received by the members of the Institute as at August 1, 1964, was published in the January 1965 issue of the *Bulletin*. This was the sixth survey carried out by the Institute and the first since the amalgamation of the Institute and the Society. A subcommittee of the Membership and Education Committee is now completing a revision of the first draft of a statement on professional conduct which deals mainly with terms and conditions of employment and consulting work. The revised draft is to be printed and submitted to members for comment and revision before adoption.

The Institute and Society were responsible for the organization of the international conference on magnetism held during September 7–11, 1964, at the University of Nottingham. More than 500 attended the conference and some 230 papers were presented. The text of the 1963 Guthrie Lecture, on the subject of magnetic processes in weak and moderate fields, which was delivered by Prof. L. F. Bates on September 9 during the conference, has now been published (*Proc. Phys. Soc.*, **84**, 625; Nov., 1964). The lecture had been specially postponed so that Prof. Bates might deliver it in his own Department at Nottingham. Many other conferences and symposia were organized and held during 1964, both by the Meetings Committee and the Nuclear Physics and Solid-state Physics Sub-committees of the Institute and Society and by the twelve branches and eleven specialist subject groups. Details of these are given in the annual report.

The 1964 Guthrie Lecture, which was delivered by Prof. M. Ryle on October 1 during the autumn conference of the Electronics Group at the University of Keele, was entitled "Radio Telescopes" and the text appears in the February 1965 issue of the *Proceedings of the Physical Society* (**85**, 201; 1965). Dr. P. H. Fowler, who gave the 1964 Rutherford Memorial Lecture on September 9 during the conference on "Low- and Medium-energy Nuclear Physics" at the University of Sussex, spoke on the subject of "Pi-mesons versus Cancer" (*Proc. Phys. Soc.*, **85**, 1051; June 1965). Dr. A. R. Lang received the Charles Vernon Boys Prize for his development of the technique of X-ray topography, and Dr. W. Marshall the Maxwell Medal and Prize for his contributions to the theory of magnetism. The presentations were made at the annual dinner of the Institute and Society in London on May 5, 1964. Prof. J. Friedel was awarded the 1964 Holweck Medal and Prize for his work on the electronic structure of metals. The Council has decided that after 1965 the Guthrie and Rutherford Lectures will be replaced by the awards of medals and prizes.

The forty-eighth annual exhibition of scientific instruments and apparatus was held during January 6–9, 1964, in the two halls of the Royal Horticultural Society, London. The *Journal of Scientific Instruments*, in its May 1964 issue, contained several articles and a special survey devoted to equipment displayed at the exhibition. The careful selection of exhibits and the section devoted to educational instruments and experiments were commendable features. The *British Journal of Applied Physics* revised its format to that of the *Proceedings*, but retained the original colour of its cover. A reorganization of subject-matter between the two journals was made. The volume of material submitted to the Institute and Society's three journals continues to increase, but the report directs attention to the growing number of papers which in the form received are unacceptable for publication. The Council had decided to launch a new monthly journal, the *Journal of Physics Education*, principally for sixth-form teachers of physics. In co-operation with other scientific bodies the Institute and Society have urged that closer collaboration be established between editors of physics journals so that by better choice and improvement of articles and by uniformity of presentation the standing and sales of British journals may be enhanced. The *Student Monograph Series* of books, commenced in 1953 and intended for students of the Higher National Certificate in applied physics, has since been widened in scope for undergraduate and graduate students, but since there are now adequate publications of this kind it has been decided to complete the series with the publication of "Subjective Limitations on Physical Measurements" by C. A. Padgham. The volume entitled "Dimensional Analysis and Scale Factors", by R. C. Pankhurst, was published during 1964.

The financial statement refers to the gratifying increase of £13,964 in members' fees and to the increases in the exhibition receipts and in non-members' conference fees. The increase in activities and the general rise in costs

* Report of the Council of the Institute of Physics and the Physical Society for the year 1964. Pp. 25. (London: The Institute of Physics and the Physical Society, 1965.)

combined to raise the total expenditure, and the total reserves at the end of the year of £158,673 still fell short of the aim to obtain a sum equal to the amount required for one year's working.

The report gives prominence to the proposal by the Council in July 1964, and the agreement in December 1964, to purchase the Fulmer Research Institute. The reasons for the bold venture were announced in the February issue of the *Bulletin* when the purchase was made. Not only will the staff at the Research Institute benefit from close association with the Institute and Society, but investment by the Institute and Society in sponsored research, regarded solely as a business venture, will be evidence that the Council is of the opinion that the application of physics to industry is a paying proposition. The purchase was made possible by the generous terms of the owners' offer and by a substantial interest-free loan made to the Institute and Society by Imperial Chemical Industries, Ltd. It is intended that surplus revenue from the Fulmer Institute will be used to help to replace the income at present derived from the seven-year covenants signed by a number of industrial firms in favour of the Physics Trust Fund and which will stop in 1967 and 1968.

S. WEINTROUB

## SCIENTIFIC RESEARCH IN NEW ZEALAND

THE National Research Advisory Council, New Zealand, was established by the National Research Advisory Council Act of 1963 to advise the Minister of Science on matters related to scientific research in New Zealand. Its first annual report covers the year ending March 31, 1965*.

At its first meeting in April 1964, the National Research Advisory Council decided to set up 16 working parties to review and report on research and service in various fields. The reports of these working parties cover: (1) *agriculture and forestry*, the dairy industry, field crops, forestry, horticulture, meat and wool; (2) *secondary and tertiary industry*, building and construction, manufacturing and engineering, and transport; (3) *earth and related sciences*, the atmospheric sciences, mineral resources, oceanography, limnology and fisheries and solid earth sciences; (4) *basic sciences*, training and services, atomic energy (scientific services for Government departments and agencies are appended); (5) *manpower, education and training* (this report was deliberately delayed until the working party was able to consider the recommendations of the other working parties and to obtain additional information on manpower).

Meanwhile, the Council is satisfied that the implementation of its present recommendations is feasible and would not be jeopardized by a shortage of trained manpower.

For the year ended March 31, 1965, the estimated expenditure on scientific research and services was about £7·5 million and in addition £827,000 was scheduled for expenditure on new laboratories for Government departments and research associations; the total expenditure represented about 0·48 per cent of the gross national product. Of the £7·5 millions, £6·1 millions was provided on the votes of eleven Government departments and, of this, £661,000 went in grants to other research organizations. These figures probably underestimate the total expenditure on science since no allowance is made for expansion by the Post Office, railways, the Broadcasting Corporation, or for the salaries of university staff, accommodation or services provided from university funds and used in part for research.

Between 1954–55 and 1964–65 expenditure on science in New Zealand increased from £2·73 millions at about 10 per cent annually, and the scientific staff in Government departments increased in the same period from 568 to about 800. The Council suggests that investment in research for an industry should depend on such criteria as the annual value of production; the national importance of the industry; the significance and number of problems affecting the industry; the chances of a solution being found to selected problems, taking into account the amount of existing scientific information required; the calibre of the staff available and the availability of suitable facilities; the application of results, bearing in mind the problem of implementation because of difficulties of liaison and information services and the time-lag in the application of research results.

The Council recommends that every effort should be made to increase the research effort directed towards New Zealand's agricultural and pastoral products, particularly those of the meat, wool and dairy industries, and that over the next five years research expenditure in this area should be increased cumulatively by £320,000 a year. Forestry research also requires expansion, and a cumulative increase in expenditure of £40,000 per year is recommended. Very high priority to research into problems of the transport industry is also recommended, including an expenditure starting at £10,000 a year and rising to £50,000 a year in five years, while a Transport Research Advisory Committee should be set up to advise the Commissioner of Transport on the operations of the proposed Research Unit. An additional £26,000 is recommended for the existing building research units, and increased support for operational research in the Department of Scientific and Industrial Research and other organizations is highly desirable. An increase in the next year of about £3,000, rising to £18,000 in about five years, is suggested, and £50,000 should be granted for implementing the second year's recommendations of the report of the Mineral Resources Committee.

* New Zealand. Report of the National Research Advisory Council for the year ended 31 March, 1965. Pp. 51. (*H.* 41.) (Wellington: Government Printer, 1965.)

## COMPARATIVE STUDY OF HOUSING IN BRITAIN, FRANCE AND WESTERN GERMANY

BROADSHEET No. 490, issued by Political and Economic Planning and prepared by E. G. Howes, deals with housing in Britain, France and Western Germany*.

In Britain, building research is financed to the extent of about £900,000 per annum at the Building Research Station, and some £100,000 is spent by the Civil Engineering Research Council; the Minister of Works and Public Building has placed research contracts to the amount of £50,000 with universities. Most building research is carried out privately, but whether this is adequate and whether the information gained is accessible is regarded as very doubtful. In Germany the Federal Government and the Regents devote considerable funds to research and the nationalization of techniques and procedure, and also

* *Planning*, **31**, No. 490 (August 1965): *Housing in Britain, France, and Western Germany*. By Eric G. Howes. Pp. 215–270. (London: Political and Economic Planning, 1965.) 7*s*. 6*d*.