

and writer on optics, and Chapter 4, which he contributes, is an outstandingly lucid and comprehensive manual on optical design. Within 130 pages, he clearly distinguishes between the three different types of optical instrument and lists their design parameters, and then describes in detail how the parameters may be determined for particular optical systems and how systems with given parameters may be designed from available light sources, optical materials and detectors. The chapter concludes with an extensive list of references to which the interested student may refer for additional study.

Two important but somewhat neglected topics are considered in Chapters 7 and 8. These are the reliability of instruments and intrinsic safety. Finally, since an instrument is a piece of equipment to be used, the concluding remarks in the brief six pages of Chapter 9 on integrated design are valuable because they serve to remind the designer that instruments should be such as the user will like to handle and which will give him the

information he requires in the most easily assimilated manner.

The Association continues to receive a large number of enquiries from home and overseas, and the Enquiry Service has been dealing with an average of 400-450 a month. A new leaflet directing attention to the service is being prepared for distribution to members. The card index system used to answer enquiries has been brought up to date. The Publicity Committee has been concerned with the improvement of Press relations for the greater dissemination of information about the instrument industry, and arrangements have been made in conjunction with the Central Office of Information to commission a series of articles on new developments and applications in instrumentation. The articles will be offered in the language of the country to technical journals overseas and also to selected journals in the United Kingdom. Mrs. H. Conway was appointed Press relations officer in July 1962.

S. WEINTROUB

THE NEW YORK ACADEMY OF SCIENCES

THE 145th annual meeting of the New York Academy of Sciences was held on December 5, 1962, at 2 East 63 Street, New York. During the year ending October 31, 1962, considerable progress was made in the recovery of the Academy's financial status, both for improvement of its operating budget and for strengthening its investments. The increase in income permitted an extension of the budget for conference and publication costs, an increase from thirty-nine to fifty in the staff, and the establishment of a medical care and group life insurance scheme for the staff. The financial statements, together with the reports of the Chairman of the Board of Trustees, the Treasurer and the Recording Secretary, are published in the January issue of the *Transactions* of the Academy (25, 265; 1963).

The Sciences, the new publication of the Academy, which was established in 1961, has been brought up to date on its publishing schedule. Thirty-one issues of the booklet, totalling 496 pages, were published during the year under review. In the *Annals* thirty-eight monographs, comprising 6,206 pages, and containing 501 papers by 796 authors, were published. As from January 1963, the publication date of any conference monograph will be within fourteen weeks subsequent to a conference, provided the authors submit their manuscripts within two weeks of the conference. Beginning with Volume 25, the *Transactions* will also follow this schedule. The demand for conferences to be held by the Academy continues to grow and the number of papers independently presented for publication in the *Annals* is also increasing regularly each year. Consequently, the Scientific Council has decided that with the current year, 1963, members of the Academy may select up to twenty

separate monographs listed each year, with the added privilege of purchase of any publications of the Academy at a 20 per cent discount.

During the year, eighty-five meetings were held by the various sections and divisions of the Academy. The section of Biological and Medical Sciences held a joint meeting during January 1962 with the Columbia University seminar on "Genetics and Evolution" and a joint symposium with the division of Microbiology during April. The division of Instrumentation held a series of eight symposia on "Electronics in the Medical Specialties", and the papers in this series will be published shortly as a monograph. Details of the twenty-two conferences held between November 1961 and October 1962 are listed in the annual report.

The membership had a net increase of 622 during the year, with a record total of 16,249 members in October 1962. A maximum of fifty candidates may now be nominated each year to the fellowship of the Academy. The following were elected officers for 1963: C. H. Mushett, president, Rev. J. J. Lynch, president-elect, and K. Maramorosch and C. C. Stock, vice-presidents of the Scientific Council; C. R. Noback, recording secretary, and R. F. Nigrelli, corresponding secretary.

The Academy consists of the sections of biological and medical sciences, chemical sciences, physical sciences, and planetary sciences, and the divisions of anthropology, instrumentation, microbiology, psychology, biochemistry, biophysics, engineering and mathematics. The sections and divisions meet regularly, one evening a month, during the academic year, October-May, inclusive, in the Academy's premises in New York. The conferences are held at irregular intervals.

UNIVERSITY EDUCATION IN INDIA

THE fourth annual Conference of Vice-Chancellors of the Indian universities and institutions 'deemed as universities' was held at New Delhi during October 11-13, 1962. The report of this Conference* includes the inaugural address of Dr. K. L. Shrimali, Minister of Education, Dr. D. S. Kothari's address on some aspects of university education, the address of the Prime Minister, Sri Jawaharlal Nehru, and the recommendations of the

* India. University Grants Commission and Ministry of Education Vice-Chancellors' Conference, 1962. Pp. v+81. (New Delhi: University Grants Commission and Ministry of Education, 1963.) Rs. 2.00; 4s. 8d.; 0.72 dollars.

three Committees dealing with admissions, medium of instruction and related matters; service conditions of college and university teachers, and three-year degree courses; and contents of education and co-ordination of research. The most important feature of Dr. Shrimali's address is the stress laid on the medium of instruction. While any university or college will be completely free to continue to use English as a medium of instruction if it wishes, and use of English has been recommended as an alternative or associated medium by the National Integration Council, Dr. Shrimali is firmly convinced that unless

the universities adopt and develop their own Indian languages, India will not succeed either in the dissemination of knowledge among the Indian people or in the stimulation of research and the creation of new ideas. There was no desire to minimize the importance of the English language and for keeping abreast of science and technology; where knowledge of a foreign language was essential, English was particularly convenient in India. Dr. Shrimali also stressed the importance of the university's function to seek truth and to advance the frontiers of knowledge. This function of research gave substance to teaching and brought the student into contact with the process of discovery, and he welcomed the recent decision of the Indian University Grants Commission to meet the major part of expenditure on the establishment of schools of advanced studies at universities. He also thought it might be necessary to re-group or federate some existing departments in order to strengthen research.

Dr. D. S. Kothari, chairman of the Indian University Grants Commission, who also referred to the medium of instruction, insisted that it was important that the introduction of regional languages should not exclude the use of English in university life and work. More and more instruction would be through the medium of English as the undergraduate proceeded, but it was also important to produce books and literature, particularly scientific

and technical, in the regional languages. Dr. Kothari suggested that the central problem in higher education in India was to raise standards and reduce wastage, and for this energetic steps to improve the quality and strength of the teaching staff, to make good books available at reasonable prices, and to provide reading seats in libraries and hostels were essential. As regards expansion, an increase was needed not so much in pure science as in medicine, engineering and especially in agriculture and veterinary science. Other matters which received attention at the Conference and were discussed briefly in this address included the shortage of teachers, staff appointments, assistance to outstanding teachers, standards of education, the establishment of new universities and centres of advanced study and collaboration between universities and other institutions.

Sri Jawaharlal Nehru also welcomed the use of regional languages as the medium of instruction, but emphasized the desirability of at least one other foreign language besides English if the student was to be in touch with modern thought. He insisted especially on the need to maintain quality, which should never be sacrificed to quantity, and finally referred to the importance of the scientist having some understanding of the humanities and of the non-scientist having some understanding of science.

FREEDOM FROM HUNGER CAMPAIGN: COMBATING DEFICIENCIES OF PROTEIN

MORE than a half the world's population lives in the Far East on a quarter of the total food produced. This is made up of only one-fifth of the world's animal and fish protein and less than one-half of land crops. In contrast to this, 29 per cent of the world's population living in Europe, Oceania and North America has available to it 57 per cent of total supplies, 69 per cent of animal and fish protein and 38 per cent of land crops. The situation in other less-developed regions is also unsatisfactory. These are among the broad conclusions reached in the *Third World Food Survey** recently published by the Food and Agriculture Organization, Rome.

So far as the position in Africa, the Near East and Latin America is concerned, the survey points out that these regions share of the total available food is approximately in proportion to their share of the world's population. It stresses, however, that diets there are low in all-important animal protein and the population is growing at a faster rate than food supplies.

The Food and Agriculture Organization's short-term targets for the developing regions provide for an increase of 5-6 g of animal protein to a total of 15 g per person per day, amounting to 22 per cent of total proteins. The long-term target is 21 g, which is equivalent to 28 per cent of the total.

In the preface to the survey, Mr. B. R. Sen, director-general states "If we are to achieve a reasonable improvement in the level of nutrition, then world food supplies will have to be increased by more than 50 per cent. . . .

By the year 2000 it is expected that the world population will be at least double the present figure, while the population in the less-developed countries will have increased by 150 per cent. . . .

"These figures give some indication of the magnitude of the task confronting us, and indicate how timely and urgent is the Freedom from Hunger Campaign".

The annual report for 1961-62 of the Central Food Technological Research Institute of Mysore, India†, refers to a vigorous programme being pursued in the production and development of protein-rich foods. The Institute's work in this field, based on high-protein low-fat oil-seed meals which are plentiful in India, has been recognized by the joint Protein Advisory Group of the World Health Organization, the Food and Agriculture Organization and the United Nations International Children's Emergency Fund. This has led to the offer by the U.S. National Institutes of Health of the PL 480 funds for the intensification of work on vegetable protein supplements. The report summarizes the research carried out at the Institute in a large number of fields, including biochemistry and nutrition, engineering, processing and storage, infestation control, microbiology, sanitation and packaging.

* Food and Agriculture Organization of the United Nations. Freedom from Hunger Campaign—Basic Study No. 11: *Third World Food Survey*. Pp. vi+102. (Rome: World Health Organization; London: H.M.S.O., 1963). 7s. 6d.; 1 dollar.

† Central Food Technological Research Institute, Mysore. Annual Report 1961-62. Pp. ix+153. (Mysore: Central Food Technological Research Institute, 1963).

APICULTURAL RESEARCH

AS research into bees and beekeeping has expanded and become progressively more scientific it has grown increasingly obvious that a new journal in English was needed for research work which was too technical for the popular beekeeping Press. The Bee Research Association has for some years past published *Bee World*, which contained a mixture of scientific and more popular

articles, plus news items and the very valuable *Apicultural Abstracts*; but the Association has, however, recognized that a separate journal could usefully be devoted to scientific work alone. As a result it has now commenced the publication of the *Journal of Apicultural Research**.

* *Journal of Apicultural Research*, Vol. 1. (Southall, Middx.: Hon. Treasurer, Bee Research Association, 60 North Road, 1963.) 40s. per annum.