

Institute of Physics

THE annual report of the Institute of Physics for the year 1937, which has just been published, shows that its membership continues to increase in a most satisfactory way. It was just over a thousand at the end of the year, and is now considered to be representative of British physicists both at home and overseas. The most important activity of the Institute during the year covered by the report was the Second Conference on Industrial Physics held in the University of Birmingham in March 1937, the subject being "Optical Devices in Research and Industry" (see NATURE of April 3, 1937, p. 600). The various branches of the Institute in Great Britain held a number of meetings during the year and the committees of the overseas branches did valuable work in various ways. The report states that there was a further increase in the number of vacancies for physicists of which the Institute was notified, the figure being 197 for the year. Some vacancies for laboratory assistants were filled from among those holding the Institute's certificate in laboratory arts. The report states that the scope of the *Journal of Scientific Instruments*, which is produced by the Institute in co-operation with the National Physical Laboratory, has been enlarged to include items dealing with the applications of physics to industry.

A Proposed Scientific Film Society

A SCIENTIFIC FILM GROUP of the Association of Scientific Workers was formed about a year ago to encourage the growth of good instructional and documentary films, dealing both with 'pure science' and, perhaps even more important, with science as a social force. The Group has accordingly given shows of approved scientific films in London, Cambridge, Oxford and elsewhere, which have demonstrated that there is a considerable public for such films. To enable this work to continue on a more ample scale in London, however, while complying with L.C.C. regulations, it has now become necessary to consider forming a Scientific Film Society. Such a Society would be open to all interested persons, whether members of the Association of Scientific Workers or not, and would give at least four film shows a year in a London cinema on Sunday afternoons. It would not be possible to sell tickets for such shows to the general public, but a limited number of guest tickets would be available to members. Any profits arising from the Society's work would be devoted exclusively to non-commercial purposes such as the making and adapting of scientific films. Further particulars about the proposed Society can be obtained from the honorary secretary of the Scientific Films Committee, Association of Scientific Workers, Kelvin House, 28 Hogarth Road, London, S.W.7.

Joint Committee on Materials and their Testing

UNDER the above title, an interesting new form of collaboration between twenty-five of the major scientific societies and technical institutions of Great Britain has been effected: the Committee has now issued its first annual report, rendered to the councils of the collaborating institutions concerned. The

principal objects of the Joint Committee are threefold: (1) to promote joint discussions on the wider aspects of the subjects of materials and their testing; (2) to assist a co-operating institution or society in the presentation of a paper or group of papers dealing with a more detailed aspect of one of these subjects; and (3) to undertake those duties with regard to international matters which properly devolve on the Joint Committee in accordance with its terms of reference. The main activity in the period reviewed by the report was the organization of a general discussion on "Notched Bar Testing" held in Manchester on October 29, 1937, in which this interesting subject was reviewed in relation to research and opinion at home and abroad. Four comprehensive papers were submitted and these papers, together with a record of the most informative discussion which resulted, are now available in pamphlet form, obtainable on application to the secretary of the Manchester Association of Engineers. The Committee is now organizing a second general discussion on various aspects of "Non-destructive Testing", which will centre around papers presented by selected experts in Germany, Holland, the United States and Great Britain, on the use of X-ray, gamma-ray, magnetic, electrical, aeronautical and other more general methods: this discussion will take place in London in October or November of the present year. The pooling of the efforts of technical bodies in promoting discussions in the wide and most important fields of the materials of construction should go a long way towards satisfying a long-felt want, and the further activities of the Joint Committee will be followed with much interest in scientific and technical centres.

Magnetic Recording in Broadcasting

IN a paper read by A. E. Barrett and J. C. F. Tweed to the Institution of Electrical Engineers on December 1, some of the methods of recording sound, especially those in connexion with their applications to Empire broadcasting, were considered. In Great Britain, very little information has been published on the subject of magnetic recording on steel tape. Dr. Stille, a German engineer, was the first to use steel tape for recording, and he made notable advances in the necessary technique. The British Broadcasting Company first tested the system in 1930 when the Empire broadcasting service was being inaugurated. Extracts from the home programmes were recorded and afterwards reproduced in the Empire transmission. The first important programme to be radiated to the Empire by this means was that on Christmas Day 1932. It included a speech by King George V. Early in 1933, Marconi's Wireless Telegraph Co., Ltd., designed a machine in which many of the mechanical difficulties experienced with earlier models were successfully overcome. It has been developed further by both the Company and the B.B.C. Magnetic recording in its simplest form can be carried out by passing a length of steel tape at constant velocity through an electromagnetic device, called a recording head, which produces variations in the magnetism of the tape. Reproduction is effected by passing the magnetized tape at the same velocity

through a device called the reproducing head, which is sensitive to the changes in the magnetism in the tape. In the ideal case these correspond to the original alternations applied to the recording head. When a new record is wanted, it is necessary to remove the previous variations in the magnetism before recording. This is done by passing the tape through a 'wiping head' which strongly magnetizes the tape. The wiping, recording and reproducing heads used in the experiments described by the authors have different types of coils and pole-pieces, but are in other respects identical.

British Museum (Natural History): Recent Acquisitions

A COLLECTION of 2,300 otoliths or 'ear-bones' has been purchased for the Fish Section of the Zoological Department. These specimens represent 570 different species, and were collected by Mr. G. A. Frost over a period of thirty years. This is the largest and most important collection of otoliths in existence, and it is especially valuable because it formed the basis of a series of papers published by Mr. Frost between 1925 and 1930. The most important gift to the Department of Entomology is the collection of Lepidoptera formed by the late Mr. Edward Meyrick. The collection is estimated to contain more than 100,000 specimens. Among the more important accessions to the Department of Geology is a collection of bones from the Lower Miocene of Kenya, including remains of mastodons, antelopes, rhinoceroses and dinotheres, collected by Archdeacon W. E. Owen; also a very fine series of the remarkable creature *Palaeospondylus* from the Middle Old Red Sandstone of Achanarras, Caithness, collected and presented by Mr. C. Forster-Cooper, now the director of the museum.

PURCHASES in the Department of Mineralogy of the Museum include good crystals of cassiterite (tin-stone) from Bolivia and three remarkably fine nodules of Variscite from Fairfield, Utah. The nodules, two of which are about a foot across, have been cut through and polished to show the beautiful colour of the mineral, which is nearly related to turquoise. From the same source have been obtained five splendid crystals of wulfenite (lead molybdate) from Red Cloud mine, Yuma county, Arizona. In this connexion it is of interest that Mr. A. W. G. Kinsbury, of Chewton Mendip, has recently rediscovered the mineral wulfenite at Higher Pits, Priddy, in the Mendips, and has recently presented specimens to the Museum. Four meteorites new to the collections have been acquired. The Department of Botany has received 582 specimens of flowering plants collected by Dr. Hugh Scott and Mr. E. B. Britton on the recent expedition to south-west Arabia, a district little known botanically, but historically famous by the collections made in 1775 by Linnæus's student Forskal. Also a collection of 382 specimens collected in Greenland and Ellesmere Land has been presented by Mr. R. W. Feachem. The purchases include 2,000 paintings of fungi by the late Dr. Knauth which will be of very great value in making identifications.

Research at Millport

THE annual report of the Scottish Marine Biological Association for 1936-37 shows that much good work is in progress. A scheme has been prepared for extension of accommodation which it is hoped will soon be carried out. Among other things, the library space will be considerably enlarged. Work on the growth and food of the herring has been continued by Drs. Orr, Marshall and Nicholls, mainly on the young herring. In 1935 the life-history of the herring was followed from hatching in March to metamorphosis at the beginning of June. Since July 1936 catches have been made every fortnight up to the present time in the immediate neighbourhood of the laboratory. The largest numbers were caught at dusk. Work on algal ecology has been continued by Dr. D. C. Gibb, and on animal ecology by Mr. A. J. Haddow on the growth of *Sertularia*, and by Dr. E. E. Watkin on the Amphipod genus *Bathyporeia*. In view of the failure of the herring supplies during the winter, a number of fishermen have turned their attention to "clams" as *Pecten maximus* is called locally. Preliminary work on this mollusc indicates that at five years it measures 4 inches wide, growth being indicated by winter rings, and it takes four years to reach a marketable size. It therefore grows too slowly to maintain for long the call now being made on the reserves of the species. Interesting results from examining the stomach contents of shags and coromorants are shown. The shags visiting sandy areas feed on shrimps and polychaetes and on rocky shores eat prawns (*Leander*).

Vitamin B₁

WE have received from Messrs. Merck and Co. an illustrated brochure of upwards of fifty pages entitled "The Story of Vitamin B₁", which gives an up-to-date account of the chemistry, physiology and nutritional value of the vitamin. To each section is appended a useful bibliography, from which those interested can obtain more detailed information than it is possible to give in a summary review. The information supplied, nevertheless, covers the field remarkably well and brings together work which is scattered in numerous journals, so that the reader obtains a picture of our present knowledge of the vitamin in all its aspects and is readily able to see how far the work of different authors is in agreement or otherwise. After an account of the chemistry and synthesis of the vitamin, a useful section is devoted to the question of its standardization and the relationship of the different "biological units" to the international unit, information which is not readily available in summary form. Our knowledge of its physiology is then reviewed, and the following sections are devoted to its value in human and animal nutrition, the normal human requirements and the effects of a subnormal intake. The brochure is not intended for general distribution, but will be sent to investigators in the field of vitamin therapy, to medical specialists, food chemists, research workers in human and animal nutrition, colleges and universities, Government agricultural and experiment stations, and manufacturers of pharmaceutical and proprietary products.