British Scientific Instrument Research Association.

THE British Scientific Instrument Research Association has recently issued its third annual report, which gives a very brief account of the further development of the organisation of the association and of the researches in progress. The membership comprises some twenty-five or more of the principal instrument-making firms of the country; the director, Sir Herbert Jackson, is assisted by a scientific staff of seven members, in addition to the secretary. The present chairman of the association is Mr. Campbell Swinton.

Three years are a short time in the life of a research institution. Much of the time has, no doubt, been spent in the preliminary planning of the programme of research, in securing staff, and in providing and installing what must still be a somewhat modest equipment. It is to the credit of the staff that they have already succeeded in producing results, along more than one line of investigation, of definite value to the members of the association, and, no doubt, ultimately to the users of scientific apparatus and to science generally. The lines of work which have been mainly followed are clearly indicated by the report, though, since the knowledge acquired by a research association remains, for a time at least, confidential to its members, the details given of the results achieved are somewhat limited.

Experiments have been made in the production, on a small scale, of optical glasses of new types, directed more particularly to the provision of a substitute for alum in apochromatic lenses and some other special requirements in optical design. Information has been obtained with regard to neutral-tinted glasses of uniform spectral absorption and coloured glasses for photographic purposes, which it is hoped may lead to production on the manufacturing scale. The durability of optical glasses has been the subject of special study, and research on the viscosity of glass has been promoted, and has led to a new method of determining viscosity applicable to glass at high temperatures.

Much attention has been devoted to abrasives and polishing powders. In this work considerable success has been attained, and results of theoretical interest, as well as of practical value, have been secured. It is understood that a general account of these will be published. Cements for prisms and lenses have been investigated and some improvements are recorded. Other materials to which attention has been given are a wax mixture for use as a temporary adhesive and solders of high and of low melting point. The progress made should be of definite value to optical instrument-makers as well as in other allied industries.

The other main section of the work relates to electrical and X-ray apparatus. Probably the most notable success so far achieved by the research staff of this section has been the production of a convenient regulator of new type for X-ray tubes, which enables the tube to be "hardened" or "softened" as desired, thus considerably extending the life and usefulness of the tube. An investigation is in progress which it is hoped will lead to manufacturing improvements in the focussing of X-ray tubes. The wave-form for use in the generation of X-rays is also being studied. Other investigations which have been undertaken relate to the magnetic properties of materials used in galvanometer coils and to insulators and insulating varnishes and enamels.

Many of the research associations so far formed have few facilities for carrying out research under their own immediate control, and, in common with others, the British Scientific Instrument Research Association has devoted some portion of its funds to the promotion of investigations by other institutions and individual workers into problems of importance to its members. The National Physical Laboratory is collaborating with the association in an investigation relating to radio-luminous paint. Work of great importance to the electrical instrument-maker has been done at the laboratory in the production of a resistance material of small temperature coefficient similar to "manganin," samples of which are being supplied to the association for trial by its members under manufacturing conditions. Researches undertaken by individual investigators include the examination of liquids suitable for level bubbles, the work already mentioned on the viscosity of glass, the study of magnet steels, and questions arising out of an investigation of tissue-paper as a wrapper for polished glass surfaces. The design and construction of an integrating nephelometer may also be mentioned.

The aim of a research association must be to improve British industry and enable it to compete more successfully in both home and foreign markets by the utilisation of the most advanced scientific knowledge and methods. This implies the cordial co-operation of its members for the common good, and the extent to which this principle is brought into operation affords some measure of the advantage which the members are likely to derive from their association. The principle appears to have been adopted more fully by the British Scientific Instrument Research Association than by some others, and this is of good augury for its future success. The list of subordinate investigations with which the report concludes, due to individual inquiries, indicates how valuable the assistance of such an association may be to its component members if the director and his staff are allowed reasonable freedom in the use of their knowledge and experience to remove the difficulties met with by individual members in the course of their work and in giving advice for the improvement of their products. Investigations carried out for one of the associated firms are paid for by the firm, and thus add to the revenue of the association. The help which can be given in this manner will increase steadily in importance as the staff gains experience in dealing with the technical problems of the instrument-maker.

Arctic Medusæ.

WE have received copies of parts of the Report of the Canadian Arctic Expedition, 1913–18; the Medusæ and Ctenophora are dealt with by Dr. H. B. Bigelow, the Polychæta by Dr. R. V. Chamberlin, and, in the portion devoted to the Crustacea, the Cumacea by Dr. W. T. Calman, the Isopoda by Mr. P. L. Boone, the Amphipoda by Mr. C. R. Shoemaker, and the parasitic Copepoda by Dr. C. B. Wilson. The collection of Medusæ, which is only the second which has been made on the Arctic coast of America, comprises species well known either from some part of the North Atlantic or from its Arctic tributaries. One species only is new. Dr. Bigelow refers to the importance, especially to the oceanographer, of estab-

lishing definitely which of the Arctic Medusæ are certainly produced in those seas; for such floating buoys are sometimes of great assistance in indicating the origin, northern or southern, of the constituent waters of ocean currents. The Medusæ have the advantage, as compared with Arctic diatoms, of larger size and easy identification. Dr. Bigelow points out that there is at least one Anthomedusa, *Sarsia princeps*, which has now been recorded from so many parts of the Arctic and from currents flowing from it (*e.g.* the Labrador current), but from nowhere else, that it can safely be taken as an indicator of Arctic water. The report on the Isopoda has been extended to include other material from the Arctic, and forms a summary of our present knowledge of the Isopoda of that region. The Amphipoda reported are, for the most part, well-known Arctic species, but one—a species of Synurella—is new, and this genus is recorded for the first time in American waters. *Katius obesus*, known previously only from the Atlantic, is now reported for the first time from the Pacific. Appended to the report on parasitic Copepoda is a useful list of the species which have been recorded from the Arctic up to the present.

University and Educational Intelligence

BIRMINGHAM.—The Huxley lecture is to be delivered on November 25 by Prof. C. Lloyd Morgan, who has chosen as his subject "A Philosophy of Evolution."

CAMBRIDGE.—A congratulatory address to Dr. G. D. Liveing, for forty-seven years professor of chemistry in the University, was read by the Public Orator at the Congregation on November 5. The address was presented by the Vice-Chancellor to Dr. Liveing at St. John's College on Sunday, November 13.

Dr. J. Chadwick has been elected to a fellowship at Gonville and Caius College.

MANCHESTER.—The University has received from Messrs. Lewis's, Ltd., an offer of 1000*l.* a year for three years. A portion of this sum is to be utilised in providing scholarships each of the value of 200*l.* for one year, to encourage further study on the part of graduates who propose to enter industry and commerce. Under the proposed scheme one scholarship would be offered annually in each of the subjects, economics, commerce, and applied psychology. It is proposed that these scholarships should be open to graduates of any approved university, and that they should be awarded by the University. They will be known as the "Lewis's Scholarships in Commerce." The council has accepted the offer with gratitude. Detailed proposals for the scheme are at present under consideration, and will be announced in due course.

Mr. R. W. Palmer, of the Geological Survey of India, has been appointed senior lecturer in geology.

Mr. Stanley Wyatt, investigator to the Industrial Fatigue Research Board, has been appointed special lecturer in psychology.

MR. J. W. SCHARFF has been appointed lecturer in biology at King Edward VII. Medical School, Singapore.

THE *Times* announces that Sir Philip Magnus, member of Parliament for London University for the last sixteen years, has written to Sir Forrest Fulton, president of the London University Unionist Association, stating that, as he has entered his eightieth year, he has decided not to offer himself for re-election at the close of the present Parliament.

IT is announced that five or more commercial research fellowships of the approximate value of 500*l.* each are to be instituted by the executive council of the British Empire Exhibition, 1923. The fellowships will be identified with those towns the chambers of commerce of which obtain the highest aggregate of guarantees for the exhibition in proportion to their membership, and these bodies will also have the right of selecting the recipients. Each fellowship includes a first-class return ticket to the Dominion or Dependency to be visited, and research will be carried out under the following headings:—(1) The best means of promoting inter-Imperial trade in a selected staple industry; (2) the methods by which the forthcoming exhibition can promote this trade; (3) the potential resources in raw material of the country visited and the best means for their exploitation in the mutual interest of the producing country and Great Britain; and (4) the means whereby undeveloped resources may be adequately represented at the forthcoming exhibition and brought to the notice of the industrial and financial groups concerned. The subject for investigation will be determined by the local chamber through which the fellowship is awarded, and the fellows selected must proceed to their destinations before the end of March next. The closing date for entries for the competition is December 15, and the results will be announced on December 24.

BULLETIN No. 42, 1920, of the United States Department of the Interior, Bureau of Education, provides evidence that American colleges are suffering in the matter of staffing in much the same way as British universities and colleges, and for the same reasons. The bulletin contains reports of conferences on education for highway engineering and highway transport. The American colleges are very desirous of helping in the solution of highway problems, but they are limited in many ways, and especially in the matter of money. A large number of college faculty members are leaving because manufacturers offer higher salaries than the colleges can pay. "Under war conditions the teaching staffs were badly disorganised. Last year there was a tremendous influx of new students, and the appropriations have, in general, been far less than the enlarged needs. Salary budgets have not been revised to meet the competition of industrial engineering organisations, with the consequent loss of very many of the best qualified professors and instructors." There is a great deal more to the same effect, and the committee recommends that more ample funds must be provided from private sources, from co-operative efforts with industries, and from taxation.

WE have received two papers on "International Language in English and Ido," by Prof. Otto Jespersen, and a pamphlet on "The Auxiliary Language Ido," by M. L. de Beaufront. These papers trace the origin of Ido as a development from Esperanto, and claim that it is free from many defects to be found in the earlier artificial language. In 1907 an International Committee met in Paris to decide which artificial language was the most suitable to be introduced for international communications. After much discussion the Committee decided in principle to adopt Esperanto, but with the reservation that several changes should be made by a Permanent Commission. The changes made by this Commission were, however, not accepted by the supporters of Esperanto, so that the auxiliary language finally adopted by the Commission, instead of taking the place of Esperanto, appeared as a rival language under the name of Ido. The recent report of the Committee on an International Auxiliary Language made to the meeting of the British Association at Edinburgh recommends an invented language, and adds that Esperanto and Ido