

account of his scientific interests. His inventive ability soon showed itself, for within a short time of entering his new occupation he took out the first of a long series of patents. In a few years he had become optical manager and soon afterwards a director of the Company.

Fine optical instruments may be the outcome of artistic or of scientific work. The great men of the past—Thomas Cooke himself, for one—took pride in their rightful description as artists. To-day we live in a scientific period. Dennis Taylor belonged to both—he combined in the happiest way both the artistic and the scientific ways of working. When his professional career began there were no books which could be used as guides by the young optician, and Taylor set out to build up a body of theoretical knowledge. He took as his model Airy's work and its development by Coddington. The task extended over many years, but valuable results were reached by the way. For example, by close study of his formulæ, Taylor decided that better photographic lenses could be made by using three separated achromatic doublets. His method apparently consisted in making up an instrument to a specification based on an approximate theory, and observing the character and magnitude of the outstanding defects. Modifications for removing these defects were made on the same theoretical basis, and this process was continued until he was satisfied with the result. To this extent the theory of the original form of Cooke lens preceded practice. The later form composed of three single lenses was evolved by a process in which practice came before theory. Of the Cooke lens itself it is sufficient to say that it is the foundation of many most successful later types, including some of the most recent. Of all existing designs it is

probably the one which an artistically minded designer would most like to have produced.

In his theoretical work, having derived complete formulæ of the first two approximations, Taylor set out to construct a complete system of the third and if possible of the fourth orders. In this he was only partially successful, for the methods he employed were probably inadequate for so difficult a task. The results of his work were published in 1906 under the title "A System of Applied Optics". There can be little doubt that it was the most important book on this subject that had appeared in English for nearly a hundred years, and Taylor showed remarkable magnanimity, which unfortunately has rarely been imitated, in making his work available to other lens designers.

It is only possible to mention one or two of Taylor's many other activities. In 1892 he produced his 'photo-visual' objective, which marked a great advance in telescope construction, and was largely used for mapping the heavens. A valuable little book, "The Adjustment and Testing of Telescopic Objectives", appeared in 1901, and in 1904 he discovered a process for increasing the light transmission of lenses—the forerunner of the modern 'blooming' process.

His work was most appropriately recognized by the award of the Duddell Medal of the Physical Society and of the Progress Medal of the Royal Photographic Society.

Following his retirement from active business, Dennis Taylor went to live in the beautiful village of Coxwold, beloved by him and his ancestors. He leaves a widow, two sons and a daughter. His younger son is the optical manager of Cooke, Troughton and Simms, Ltd., the successor of T. Cooke and Sons.

T. SMITH.

NEWS and VIEWS

Association for Scientific Photography

PHOTOGRAPHY has firmly established itself as an essential scientific instrument, and a wider knowledge of the uses to which it can be put would do much to assist in the solution of the problems confronting workers in science and industry. Many workers either have difficulty in obtaining information concerning photographic techniques, or are unaware of their existence. For these reasons, a group representing widely different fields of science and industry believe that a new organization designed to meet their special photographic requirements would be of considerable value. The Association for Scientific Photography has therefore been formed, the objects of which can be briefly stated as follows:

(1) To promote the advancement of photography in all branches of science, technology and medicine, and to assist its members in the application of photographic methods to the solution of particular problems.

(2) To afford its members opportunities for interchanging opinions and discussing matters connected with photographic techniques. Meetings will be arranged from time to time at which papers and short communications will be delivered and discussed, together with practical demonstrations of apparatus and methods. It is the intention of the Association to publish the proceedings in a journal as soon as conditions permit.

(3) To establish an information bureau containing, so far as is possible, full particulars of the activities of members, and in suitable cases the existence and whereabouts of specialized photographic apparatus. These data will be used by the Association for the benefit of its members as a pool from which information may be drawn on the varied applications of photography to research, industry and teaching.

(4) To endeavour to obtain for members information on practically any photographic problem which may arise in the prosecution of scientific work.

(5) To foster the production of sub-standard films for research and teaching purposes, and to give information on methods of production and presentation of films of scientific interest.

The field covered by the Association must, of necessity, be a wide one in order to carry out its functions. It will embrace photographic processes of all kinds, such as radiography, colour photography, photomicrography, high-speed photography and, in particular, sub-standard cinematography in all its branches. Membership of the Association is open to any person actively engaged or interested in the use of cinematography or photography as a scientific instrument. An announcement of the first meeting will appear in due course. The committee of the Association consists of the following: Prof. J. Yule Bogue (chairman), professor of physiology, Royal

Veterinary College; S. Boyle, Photographic Section, I.C.I. Research Dept.; Miss K. C. Clark, radiologist, Ilford, Ltd.; G. A. Jones, Research Dept., Kodak, Ltd.; E. H. Le Mon, Tanar (British) Corporation; Dr. H. Mandiwall, dental surgeon; C. D. Reyersbach, of W. Watson and Son, Ltd.; G. H. Sewell (treasurer), Ministry of Supply; R. McV. Weston (organizing secretary), Ministry of Supply. Further information can be obtained from the organizing secretary, R. McV. Weston, whose present address is Houndwood, Farley, Salisbury, Wilts.

Committee on Nutrition Surveys

INVESTIGATION on certain aspects of nutrition is at present handicapped by lack of co-operation. In view of the importance, at the present time, of a thorough knowledge of the state of nutrition in Great Britain, the Nutrition Society has accordingly set up a Committee on Nutrition Surveys, with Sir Joseph Barcroft as chairman; the terms of reference are the co-ordination of nutrition surveys dependent on (a) clinical, physiological and biochemical examinations of human subjects, (b) examinations of food budgets, and (c) chemical analyses of food and meals (including collective meals). It will put investigators in touch with others who are working on the same lines or would co-operate; it will supply information, recommend methods and make periodical summaries of the results of investigations. The Committee has the support of the Ministries of Health and of Food and co-operation of the Services. Prof. J. R. Marrack has been appointed as a director serving under the Committee. All who are engaged on or undertaking investigations covered by the terms of reference are invited to communicate with Prof. Marrack at the London Hospital, Whitechapel, E.1.

Soviet Medical and Scientific Men

N. EGOROV writes: The Medical Section of the Allunion Society for Cultural Relations with Foreign Countries is strengthening the scientific bonds of Soviet medical circles with medical institutions, organizations and scientific workers in other countries. At the last plenary meeting of this Section it was announced that the Section has received many requests from medical institutes, societies and individual scientific men wishing to establish or revive connexions broken off by the War. The Section has taken steps to make this possible. It has done much to forward abroad books and articles written by members of medical institutes in the U.S.S.R. and to send greetings from Soviet scientific men to various journals and to workers in the field of medicine. The Section has also dealt with numerous requests from Russian men of science for books and articles not available in Moscow to be sent from Great Britain and the United States. To make widely known the work of Soviet medical institutes, clinics and scientific workers, the Section regularly publishes the *Medical Chronicle*, which reflects current war-time problems of Soviet medicine. It has also selected for foreign countries scientific films on various medical subjects such as "Physiology and Morphology of Bacteria", "Microscopic Study of Living Tissue" and "Physiology and Pathology of the Heart", in the production of which eminent Soviet men of science took part. Nicholas Semashko stated that the Section receives publications issued by the Medical Society of America and a War-time Medical Review from Great Britain published by the Anglo-Soviet Com-

mittee of Medicine. All this literature is handed over to the Central Medical Library and to libraries of various medical institutes, so that wide use can be made of it. Addresses of members of the Section on the report of Prof. Nicholas Semashko discussed the strengthening of scientific ties with medical organizations and individuals abroad. The Section aims at facilitating the exchange of experience in the medical sciences and increased collaboration of Soviet, British and American medical workers. Nicholas Burdenko, of the Academy of Sciences of the U.S.S.R., was presented at the meeting with a complete set of surgical instruments sent to him from Philadelphia.

Science and Reconstruction in Canada

IN a paper, "Science and Reconstruction in Canada", read at a joint session of the Royal Society of Canada at the University of Toronto on May 29, 1942, which has now been reprinted, Prof. J. K. Robertson points out that in the industrial and social fields, the federal and provincial governments in Canada have already shown that they are aware of some of the urgent problems which will have to be met when victory comes. Referring to specific ways in which the services of the scientific worker are essential, Prof. Robertson instanced the increased use of Canada's coal deposits, particularly methods of utilizing coal at its source; and the depletion of existing ore reserves and the desirability of discovering new sources of both old and new materials and developing new processes of extraction, for example, for magnesium. After speaking of the utilization of waste materials, such as natural gas, as a field for research, he referred to schemes intended to promote decentralization or dispersal of industry, the industrial utilization of farm products, and a general improvement in living conditions and in methods of farm operation through more available and cheaper power. Although in part economic questions, the practicability of such schemes depends largely on the work of the man of science. Again, in regard to the farm as a source of raw materials, the position of the plastics industry requires consideration in relation to agriculture. The soya bean, for example, is the raw material, not only for oil but also for a new cloth and for a plastic adhesive for plywood, while such materials as straw and cereal refuse might conceivably also find uses in the plastics industry.

Finally, Prof. Robertson considered the relation of science to society, and suggested that science should be more than the handmaid of the State. Science should recognize that it has a social mission and accept a wider responsibility than in the past. Problems involving co-ordination of the sciences, a wiser application of new discoveries, and quicker and better State action following official reports would be helped greatly by the establishment of a small scientific advisory council to act in a liaison capacity between science and government. It would also be of great value in the consideration of the larger social issues which will have to be faced in the post-war years. Scientific men, collectively and individually, must also do more to educate the general public about the nature of their investigations. They gladly recognize that man does not live by bread alone, but they claim that a type of training which insists on honest inquiry, impartial judgment and a fearless facing of all facts is not altogether remote from the other tradition which puts the emphasis on truth, beauty and goodness.