

certain diseases, such as angina pectoris and cancer in various situations, and the risk of laryngeal involvement in smoking by tuberculous patients. General unanimity, however, seems to prevail as to the injurious effects of smoking by the young or by the subjects of cardiac neurosis or peptic ulcer.

Food Preservation by Refrigeration

THE publication, by the Australian Council for Scientific and Industrial Research, of a survey and scheme for research in refrigeration as applied to the preservation and transport of foodstuffs is a matter of importance at a time when attention is being focused on means of improving and extending export trade. The report has been prepared by Dr. J. R. Vickery, who is in charge of the newly created Section of Food Preservation. Information is particularly required as to the possibility of exporting beef in a chilled rather than frozen condition, and since there appears a considerable outlet in Great Britain for Australian bacon pigs, and good ham and bacon can be manufactured from frozen carcasses, investigations are needed to determine the best methods of freezing, storing, and thawing them so that the curing process may be most successfully carried out. Fruit, particularly apples and pears, forms another large branch of Australia's export trade, but much loss is sustained annually through wastage during transport. Besides the need for more definite information as to the best type of storage conditions, knowledge is lacking as to where temperature and humidity are particularly important, and how far pre-picking factors such as orchard conditions and degree of maturity of the fruit, etc., may affect its subsequent storage life. The report concludes with recommendations for the establishment of two laboratories with attached cold storage facilities, at Brisbane and Melbourne, the former to study problems in meat export trade and in the transport of tropical fruits, and the latter to investigate the preservation and transport of non-tropical fruits.

Estimation of Food in a Bird's Stomach

THREE methods have been employed in estimating the quantity of food in a bird's stomach, in order to discover whether a bird is beneficial or harmful: the materials found may be weighed; they may be measured by volume; they may be counted. The weighing method is not practicable, because quantities are sometimes exceedingly small, and besides, relative weights of vegetable and insect matter convey no real information about the economic status of the bird. The second method, of estimating by volume beneficial insects and injurious insects, useful vegetation and useless vegetation, has been almost universally adopted, following the practice of the experts in the Bureau of the Biological Survey of the United States Department of Agriculture. A reaction from this method is noticeable in a monograph on the food-habits of the Californian brewer and red-winged black-birds by Pablo S. Soriano (*California Fish and Game*, 1931, p. 361). Here percentage by volume has been used only in estimating the space occupied by vege-

table food or animal food or pebbles in the stomach, since the presence of one limits the presence of the others. But, since the degree of injury or benefit that an animal does depends directly upon the total number of injurious organisms that it destroys, the numerical method, of actually counting the specimens, has been followed in taking the percentage of the different kinds of foods. So an old method, once universally used, but ousted by the volumetric method, returns to favour again.

Advancement of Science in Australasia

THE twenty-first meeting of the Australian and New Zealand Association for the Advancement of Science is to be held in Sydney, during the week commencing Aug. 17. The president is Mr. E. C. Andrews, Government Geologist, Sydney, and the president-elect Sir Hubert Murray, Lieutenant-Governor of Papua. According to the preliminary programme, the following presidents of sections have been appointed: Section A (Astronomy, Mathematics, and Physics), Prof. C. E. Weatherburn, University, Perth; Section B (Chemistry), Prof. L. S. Bagster, University, Brisbane; Section C (Geology), Prof. H. St. J. Summers, University, Melbourne; Section D (Zoology), Prof. G. E. Nicholls, University, Perth; Section F (Anthropology), Mr. E. W. P. Chinnery, Government Anthropologist, Rabaul, Mandated Territory of New Guinea; Section G (Economics, Statistics, and Social Science), Mr. E. C. Dyason, 92 Queen Street, Melbourne; Section H (Engineering and Architecture), Mr. J. R. Kemp, Main Roads Commission, Brisbane; Section I (Medical Science and National Health), Dr. R. W. Cilento, Director of Tropical Hygiene, Brisbane; Section K (Agriculture and Forestry), Prof. J. W. Paterson, University, Perth; Section L (Veterinary Science), Dr. W. A. Robertson, Director of the Division of Veterinary Hygiene, Department of Health, Canberra, F.C.T.; Section M (Botany), Dr. R. S. Rogers, 118 Hutt Street, Adelaide; Section N (Physiology and Experimental Biology), Dr. C. H. Kellaway, Director of the Walter and Eliza Hall Institute, Melbourne Hospital, Melbourne; Section P (Geography and Oceanography), Dr. P. Marshall, Department of Scientific and Industrial Research, Wellington, New Zealand. The honorary general secretary of the Association is Dr. A. B. Walkom, Science House, Sydney.

X-Ray Crystal Analysis and its Applications

THE discourse to be given by Sir William Bragg at the Royal Institution Conversazione on Friday evening, May 6, will be related to the various developments in pure and applied science which have depended on the use of the X-ray methods of analysing crystal structure. In order to supplement the discourse, which cannot refer to more than a few of the more important points, an exhibition is being arranged in the rooms of the Royal Institution which will demonstrate more fully the work that has been done. The contributors will be those who have carried on research work in this subject in various British labora-

ories, so that the result should be interesting and, so far as space allows, comprehensive. Members of scientific societies or senior students of universities and technical institutions, and others interested in this work, are invited to view the exhibits at the Royal Institution, 21 Albemarle Street, London, W.1, between 10 A.M. and 6 P.M. on Monday, May 9, or Tuesday, May 10. The Managers of the Royal Institution would be glad if such visitors would leave their names and addresses.

Announcements

LORD RUTHERFORD will open a discussion on "The Structure of Atomic Nuclei" at the Royal Society on April 28, at 4.30 P.M. It is hoped that the following will take part: Dr. J. Chadwick, Dr. C. D. Ellis, Prof. R. H. Fowler, Prof. J. C. McLennan, Prof. F. A. Lindemann, and Mr. N. F. Mott.

THE first Royal Society conversazione this year will be held in the rooms of the Society, Burlington House, on Wednesday, May 11.

At the meeting of the London Mathematical Society on Thursday, May 19, at 5 P.M., at Burlington House, Prof. H. Levy will deliver a lecture on "A Numerical Study of Differential Equations". Members of other scientific societies who are interested are invited to attend.

SCIENCE Service announces that Dr. Oscar Rice, of Harvard University, has been awarded the Langmuir prize of one thousand dollars of the American Chemical Society for work on the application of modern theories of physics to chemical problems, including the application of quantum mechanics to reactions between gases, and of modern theories of statistics to the study of metals and electro-capillarity. The award is given to a chemist in North America, man or woman, less than thirty years of age, in recognition of outstanding research in pure chemistry.

HIS MAJESTY THE KING has approved the award of the Royal Medals for 1932 of the Royal Geographical Society as follows: *Founder's Medal* to Mr. H. G. Watkins, for his work in the arctic regions, especially as leader of the British Arctic Air Route Expedition; *Patron's Medal* to H.R.H. the Duke of Spoleto, for his work in the Himalaya as leader of the Karakoram Expedition of 1929. The Council of the Society has made the following awards: *Victoria Medal* to Prof. A. P. Coleman, of Toronto, for his contributions to the geography and geology of Canada; *Murchison Grant* to Dr. K. S. Sandford, secretary of the Commission of the International Geographical Union on Pliocene and Pleistocene Terraces, for his personal work in that investigation during the past six years; *Back Grant* to Mr. Hugh Clutterbuck, for his expedition to Akpatok Island; *Cuthbert Peck Grant* to Miss Gertrude Caton-Thompson, for her investigations in the historical geography of Lake Moeris; *Gill Memorial* to Dr. E. B. Worthington, for his studies of East African Lakes.

A PRELIMINARY programme has been issued of the forty-third Congress of the Royal Sanitary Institute,

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to be held at Brighton on July 9-16, under the presidency of Lord Leconfield. Among the subjects to be discussed are: prevention of measles mortality, vaccination, birth control, food and nutrition, illumination in industry, mental hygiene, aerobic and anaerobic organisms in sewage treatment, and teaching of hygiene and mothercraft in schools. Prof. C. E. A. Winslow, professor of public health at Yale University, will deliver the lecture to the Congress, and he will take as his subject "Current Tendencies in American Public Health". A Health Exhibition has been arranged in connexion with the Congress in the Dome and Corn Exchange. The Town Clerk and the Medical Officer of Health of Brighton are acting as the honorary local secretaries.

IN connexion with the tours in the U.S.S.R. referred to in NATURE of April 2, p. 503, it has been found that certain of them will clash with meetings of the British Medical Association and the International Physiological Congress at Rome. An additional tour has therefore been organised to leave London on June 18, returning about July 12. This party, however, can only be arranged if sufficient definite applications are received not later than May 20.

MESSRS. Dulau and Co., Ltd., 32 Old Bond Street, W.1, have just issued a catalogue (No. 198) of some 600 second-hand works at popular prices, dealing with the subjects of botany, entomology, ornithology, and general zoology.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A full-time woman assistant pathologist at the Elizabeth Garrett Anderson Hospital, Euston Road—The Secretary, Elizabeth Garrett Anderson Hospital, 144 Euston Road, N.W.1 (April 28). A full-time lecturer in mechanical engineering at the Heanor Mining and Technical Institute—The Director of Education, County Education Office, St. Mary's Gate, Derby (April 30). Two Imperial Chemical Industries' scholars at the Constantine Technical College, Middlesbrough—The Director of Education, Education Offices, Middlesbrough (April 30). A lecturer in geography at University College, Rangoon—The Secretary, Universities Bureau of the British Empire, 88A Gower Street, W.C.1 (April 30). An assistant lecturer in agricultural economics in the University of Leeds—The Registrar, University, Leeds (May 2). An assistant lecturer in chemistry (with subsidiary botany, or pharmacognosy, or pharmacy) at the Belfast Municipal College of Technology—The Principal, Municipal College of Technology, Belfast (May 3). An assistant lecturer in chemistry at the Liverpool Central Municipal Technical School—The Director of Education, Education Offices, 14 Sir Thomas Street, Liverpool (May 6). A woman principal of the Bingley Training College for Women—The Education Officer, County Hall, Wakefield, Yorks (May 9). A woman principal of the Municipal Training College for Women Teachers, Portsmouth—The Secretary for Higher Education, Municipal College, Portsmouth.