

Dr. C. Sykes, studied metallurgy in the University of Sheffield under Prof. C. H. Desch, graduating B.Met. in 1923 and M.Met. in the following year. He collaborated in research on the die-casting of alloys of low melting point for the Non-Ferrous Metals Research Association, at first in Sheffield and later at University College, Swansea. In 1928 he was appointed to a lectureship in metallurgy in the University of Birmingham, where he obtained the degree of D.Sc. Since 1935 he has been on the staff of the research laboratories of the Mond Nickel Co., Ltd.

Dr. Allen's published investigations, undertaken on behalf of the Non-Ferrous Metals Research Association, have dealt with the effects of gases on non-ferrous metals and alloys, and in a series of papers he has described new methods of examining the solution and release of gases from molten alloys, chiefly of copper, and of the relations between the nature and amount of dissolved gases and the porosity of the resulting ingots and castings. The work involved the design of apparatus for applying both high and low pressures to the alloys when molten, and has been of material help in dealing with problems of porosity in non-ferrous alloys, at the same time providing interesting thermodynamic data.

Chair of Aviation, Imperial College: Mr. A. A. Hall

THE Department of Aeronautics at the Imperial College of Science and Technology is the largest activity of its kind in the British Empire. The announcement of the appointment of Mr. A. A. Hall as the new head, to succeed Prof. Leonard Baird as Zaharoff professor of aviation, is therefore of great interest. Mr. A. A. Hall will be one of the youngest professors in the country. If the course of the War makes it possible for him to take up his new appointment in October 1945 he will then be just over thirty years of age. He comes from Liverpool. Educated at the Alsop High School, Liverpool, and at Clare College, Cambridge, he obtained first-class honours in the Mechanical Sciences Tripos of 1934, with distinction in aeronautics, in thermodynamics, in applied mechanics and in the theory of structures. He was awarded the Rex Moir prize in engineering, the John Bernard Seely prize in aeronautics, the Ricardo prize in thermodynamics, and the Robins prize of Clare College. After a short period at the Royal Aircraft Establishment, he returned to Cambridge with an Armourers and Braziers' research fellowship to pursue aerodynamic research under Sir Melvill Jones and Sir Geoffrey Taylor. The work he did then, on the turbulence in a free stream and on the laminar and turbulent boundary layer, was an outstanding contribution to the subject. He joined the staff of the Royal Aircraft Establishment in 1938 and his activities there have covered a wide field—aerodynamics, wind tunnel design, and jet propulsion, followed since the outbreak of war by investigations on night interception of aircraft and on many scientific and engineering problems in the field of aircraft armament. In all he has shown high qualities of original thought and of leadership—the best augury for his future in a most responsible position.

Miss Grace Wigglesworth

MISS GRACE WIGGLESWORTH retires in September from the Manchester Museum, where she has served in the Botanical Section as assistant keeper since

1910. An old pupil of the Manchester High School, she entered Owens College in 1900 and graduated B.Sc. with honours in botany in 1903. In the same year "The Victoria University of Manchester" received its title, and Miss Wigglesworth continued her botanical studies in the University as an honorary research fellow until 1907. During this period she published several papers, the first in 1902 in vol. 1 of the *New Phytologist*, entitled "Notes on the Rhizome of *Matonia pectinata*, R.Br.". This was followed by "A Note on the Cotyledons of *Ginkgo biloba* and *Cycas revoluta*" (*Ann. Bot.*; 1903), "The Papillae of the Epidermoidal Layer of the Calamitean Root" (*Ann. Bot.*; 1904) and "The Young Sporophyte of *Lycopodium complanatum* and *L. clavatum*" (*Ann. Bot.*; 1907).

In 1907 Miss Wigglesworth was appointed lecturer in botany at the L.C.C. Clapham Day Training College, but in 1910 she returned to Manchester as assistant keeper in the Museum. She was able to devote some time to research, and further published papers are "The Development of *Cœnobia* from Resting Spores in the African Water Net (*Hydrodictyon*)", 1928; "A New Californian Species of *Sphaerocarpus*", 1929; and "South African species of *Riella*", 1937. But much important work remains unpublished. She spent several years working on the developmental morphology of *Polytrichum commune*, and has more recently been working on Prof. W. H. Lang's collection of Malayan Hepaticæ. She is a member of the Bryological Society and has an expert knowledge of hepatics. During her period of office in the Museum Miss Wigglesworth has been responsible for the reception, housing and care of the valuable herbaria of Leo Grindon and Cosmo Melvill. Her intimate knowledge of the contents of the Museum has been invaluable to members of the staff of the Botanical Department of the University who have been able to make use of its resources for teaching purposes. Her personal charm and kindness have endeared her to all who have known her, and her many friends wish her a happy retirement, after a most fruitful scientific career.

Manchester Joint Research Council

THE vice-chancellor of the University of Manchester and the president of the Manchester Chamber of Commerce have announced the personnel of the Manchester Joint Research Council which is being set up jointly by the Chamber and the University. Representing the University are: Prof. P. M. S. Blackett, Dr. C. T. J. Cronshaw, Prof. D. R. Hartree, Prof. J. R. Hicks, Prof. Willis Jackson, Prof. J. Jewkes, Sir William Clare Lees, Dr. J. E. Myers, Prof. W. E. Morton, Prof. M. Polanyi, Sir Ernest Simon, Sir John Stopford (vice-chancellor), Sir Raymond Streat and Prof. F. C. Thompson. The Manchester Chamber of Commerce will be represented by Mr. J. Harold Brown, Mr. E. A. Carpenter, Mr. J. Curwen, Mr. R. H. Dobson, Mr. John S. Dodd, Dr. A. P. M. Fleming, Mr. H. M. Harwood, Mr. A. H. S. Hinchliffe (president), Mr. Frank Longworth, Mr. L. E. Mather, Mr. N. G. McCulloch, Earl Peel, Mr. C. G. Renold, Mr. A. V. Sugden and Mr. John F. West. The first meeting of the Council will be held at the University on October 9.

School Certificate Mathematics

A conference of representatives of examining bodies and teachers' associations was held in April 1944 and drew up a new syllabus designed to sweep

away the traditional divisions of the various mathematical subjects studied at the School Certificate stage. The suggested new syllabus, which has now been printed with specimen papers (Mathematical Association), is arranged under seven headings: numbers; mensuration; formulæ and equations; graphs, variation and functionality; two-dimensional figures; three-dimensional figures; practical applications. The main points of it may be summarized as follows. (1) The whole syllabus is designed to bring mathematics more closely into relation with the life and experience of the pupils. (2) It is intended to be alternative to the existing syllabuses and of equal weight. It is not suggested that it has been framed for weaker candidates by any lowering of the standard. (3) The fusion of the relevant mathematical subjects, particularly geometry and trigonometry, should be developed by the setting of mixed papers, three in number each of $2\frac{1}{2}$ hours duration, so that complete freedom of method should be permitted. This freedom should extend to the use of mathematical tables and instruments. (4) To remove much of the emphasis from formal work, only proofs of key theorems should be demanded. From these key theorems many others can be deduced and proofs of these are unnecessary. The Conference admits that the list of key theorems given is not ideal; but it is about the desired length of the essential formal work. (5) Perhaps the most striking feature of the syllabus is the inclusion of the beginning of the calculus, which should grow naturally and easily out of the consideration of graphs. (6) Heavy arithmetical calculations and algebraic manipulation must be excluded. The omission of these will allow the due emphasis needed on the all-important ideas connected with functionality, which begins with graphs and leads naturally to gradients. The whole report is inspiring, and if the basic ideas of it can be successfully carried out, mathematics should indeed become a really vital subject. Too long have we encouraged the blind manipulation of the symbol, with little or no relation to reality, while the deadening influence of the traditional formality in geometry has almost completely obscured the many ramifications of the subject in everyday life. It is to be hoped that this encouraging beginning will lead to the removal of many more artificial divisions in the mathematical manycomb.

Ley Farming

"ALTERNATE HUSBANDRY", issued as Joint Publication No. 6 by four of the Imperial Agricultural Bureaux (Aberystwyth. 5s.), has been compiled by a number of authors, each of whom deals with different aspects of the subject. It is emphasized that the use of leys in rotation under a wide range of climatic and soil conditions and in combination with a great variety of crops is a question upon which much research is needed, and that the purpose of the publication is largely to provide a basis for that research. The system is flexible, but cannot be applied to all types of agriculture, it being unsuitable, for example, in semi-arid or wet tropical regions where problems of establishment and management multiply considerably. The publication opens with a geographical review in which the trends of development in the practice in fifteen different countries and regions are described. Later chapters deal with the question in more detail, showing among other matters that the type of ley selected depends largely on the climatic factor, and that a closer study of the root systems of

herbage plants is required before the effect of the various species and their different combinations on the soil can be properly assessed. It is generally recognized that a ley is a method for improving the structure of the soil, as it increases granulation, which both benefits the crop and helps to prevent erosion. Other problems such as weed control, soil conservation, plant health and the economic factors involved in the system are also discussed. As regards the animal crop many factors are involved; but it seems likely that the regular ploughing of grassland will reduce the liability to disease even in spite of increased concentration of stock. For those requiring more detailed information, a list of more than three hundred references are arranged in groups appropriate to each chapter.

Birth-rate in the United States

ACCORDING to an annotation in the February issue of the *Statistical Bulletin* (the organ of the Metropolitan Life Insurance Company of New York) the War has caused not only a sudden rise in the birth-rate but also very marked though undoubtedly temporary changes in the seasonal pattern of the birth-record. In contrast with the normal pattern of a major peak in the summer months, a minor peak in February and March, and low points about May and December, in 1942 there was a rise in the birth-rate through most of the year with a high peak in December; the accelerated rise in the last quarter of 1942 represented the increased number of conceptions in the period immediately following the attack on Pearl Harbour on December 7, 1941. In 1943 the births were at a maximum in January with a general trend downwards throughout the rest of the year. There was a seasonal dip in May, but births in that month were higher than in November and December. Births in July and August were lower than in each of the first three months of the year and lower than in June. The experience of the last few months clearly shows that a continuing decline of the birth-rate may be expected for the duration of the War, and for at least a year after the cessation of hostilities.

Irrigation Research in India

THE report for the year 1941 of the Punjab Irrigation Research Institute describes fully the researches on soil grading and soil density, water seepage, movement of silt beds, model investigation of water flow of rivers, weirs and headworks, and land reclamation with particular reference to salt accumulation. In addition to these main researches, many original methods of analysis and measurement are described, and a section deals with the sampling of suspended silt. The volume, which consists of 230 pages and 210 figures or photographs, would be more useful for reference purposes if an index had been provided.

The Royal Institute of Chemistry

THE Council of the Royal Institute of Chemistry recently decided that the offices of registrar and secretary of the Institute, previously held by Mr. Richard B. Pilcher, should be separated. To the office of registrar, the Council has appointed Mr. R. Leslie Collett, who has for nearly twenty years been assistant secretary, and to the office of secretary, Dr. H. J. T. Ellingham, of the Imperial College of Science and Technology. Both appointments will take effect from January 1, 1945.