

under the genus *Citrus* are listed eleven species and varieties together with certain 'unspecified' species. Following this list, which occupies 180 pages, are 68 pages of useful crop notes on certain species.

The authorities at the Royal Botanic Gardens, Kew, especially Sir Arthur Hill and Mr. H. C. Sampson, are to be congratulated on this very praiseworthy effort to 'stimulate the trials of new crops, and more especially the trial of other varieties

of crops already under cultivation'. With this aim in view, it will prove indispensable to tropical and subtropical agriculturists; but we feel, apart from this, that if the general subject of botany were taught and studied as it should be, then as a reference list the brochure would be necessary to the equipment of every 'academic' botanist, for as a source of information and guide to further study it will prove invaluable to him.

## Nutrition and National Health

**I**N the Cantor Lectures for 1936 before the Royal Society of Arts\*, Sir Robert McCarrison presented a strong case for the fuller recognition of the importance of nutrition in determining the health and efficiency of human beings, as it has long been recognised in the case of domestic animals. Observations on the dietary habits of different races of men in India have convinced him that the kind of food habitually eaten is responsible not only for striking differences in physique, vitality and endurance, but also for equally striking differences in their susceptibility to diseases of various kinds. His numerous experiments in the laboratory have amply confirmed the field observations and have demonstrated the poor physique and increased liability to disease of animals reared on faulty diets similar in composition to those consumed by large sections of the populations both of India and of Western countries.

The analysis of the dietary factors concerned in the maintenance of good nutrition is proceeding rapidly, and new light is being shed on the origin of a great number of common human diseases and disorders. Insufficient supplies of mineral elements and vitamins have been shown not only to lead directly to the deficiency diseases, but also to be important predisposing causes to other diseases of infective or metabolic origin. Deficiency of one or more of the factors calcium, phosphorus and vitamin

D, which dominate the calcifying processes of the body, is one of the commonest faults in Great Britain. Iron deficiency is responsible for a great deal of ill-health both among infants and among women of the child-bearing period of life. In parts of the world, iodine deficiency is concerned with the appearance of endemic goitre and its associated cretinism and deaf-mutism.

Though but few diseases caused directly by gross deficiency of specific food elements are commonly met with in Western countries, lesser degrees of dietary deficiencies are of great importance in determining the onset of some of the common illnesses of mankind. The geographical distribution of such diseases as tuberculosis, gastric and duodenal ulcer, rheumatism, nephritis and heart-disease in India suggest that nutrition plays an important part in their causation. There is no reason for supposing that nutrition is not an equally important factor in determining the susceptibility of individuals in Western countries to similar diseases.

There is increasing evidence that in Great Britain faulty nutrition is by no means a rarity and is not confined to the poorest classes of society. Two measures are strongly recommended to bring about that raising of the standard of nutrition which should result in a general improvement in physique and a lessening of the amount of disease. The first is the laying of greater emphasis by the medical schools on the instruction of their students in the general principles of nutrition; the second is the teaching of the elements of nutrition to school-children.

\* The Royal Society of Arts. Cantor Lectures, 1936. Nutrition and National Health: Three Lectures delivered before the Royal Society of Arts on February 10th, 17th and 24th, 1936. By Major Gen. Sir Robert McCarrison. Pp. 56. (London: Royal Society of Arts, 1936.) 2s. 6d.

## Measurements of Temperature at Great Heights

**P**ROFESSIONAL Note No. 67 of the Meteorological Office, Air Ministry, by L. H. G. Dines, entitled "The Rates of Ascent and Descent of Free Balloons and the Effects of Radiation on Records of Temperature in the Upper Air", deals with two problems in connexion with the measurement of temperature at great heights in the atmosphere that are more closely related than they appear to be at first sight.

The records of upper air temperature with which the writer is concerned are those obtained at meteorological stations in Great Britain with the aid of the simple mechanism known as the Dines balloon meteorograph, that has been in use with only slight modifications for twenty-seven years.

This apparatus will only indicate air temperature provided that it is not heated directly by solar radiation, or radiation from any other source, and is not chilled by the loss of its own heat by radiation, and, further, provided that the air with which it comes in contact has not been warmed or chilled by contact with any of the auxiliary apparatus—such as the balloon. When an ascent is made during the daytime, the balloon may become strongly heated by the intense solar radiation encountered at very high altitudes above cloud-level, but the meteorograph is suspended 40 metres below the balloon and therefore should not be affected; it is itself shielded from the sun by being mounted inside a polished metal cylinder, open at its ends, the ascent of the

apparatus providing automatically a ventilating current of air past the walls of the cylinder, similar to that produced artificially in the well-known Assman psychrometer.

The first part of the paper is concerned with the rates of ascent of balloons of various sizes and also with the rates of fall of the apparatus after the balloon has reached its greatest height and has burst; in the second part an estimate is made of the probable errors in the measurement of temperature at heights greater than 13 km. due to imperfect protection against direct solar radiation, arising from the fact that the diminished density of the air at such heights reduces the ventilating effect of a given air current. In this last problem the required result has been obtained by studying statistically the differences found between the temperatures recorded when the apparatus is ascending and descending, in relation to the time of day. It appears that the error due to solar radiation in soundings made during the day is serious, and may be more than 3° C. at a height of 20 km. The need for some more effective protection than is provided by a single metal cylinder therefore appears to be established, if reliable figures are to be obtained during the daytime in regions of very low air density; it is observed that the construction of such a screen is no simple matter, which doubtless accounts for the almost universal use of the inadequate metal cylinder.

## Educational Topics and Events

CAMBRIDGE.—The professor of chemistry has, with the consent of the Vice-Chancellor, appointed F. S. Bridson Jones, of Clare College, to be his assistant.

EDINBURGH.—The *Senatus Academicus* has resolved to offer the degree of LL.D. to the following among others: Sir Thomas Hudson Beare, regius professor of engineering and dean of the Faculty of Science in the University; Dr. Mervyn Henry Gordon, consulting bacteriologist; Sir William McKechnie, permanent secretary, Scottish Educational Department; Prof. E. L. Thorndike, director of psychological research in Columbia University, New York.

LEEDS.—Prof. J. K. Jamieson has resigned from the chair of anatomy after serving on the Council, the Senate and the Medical School during the long period of forty-one years, in the course of which he has been dean of the medical faculty and a member of the University Council continuously for eighteen years.

The following appointments have been made: D. J. Cork, to be lecturer in dental pathology and bacteriology; D. S. Hendrie, to be district lecturer in agriculture; J. C. Gillies, to be honorary demonstrator in anatomy.

Easter Holiday courses of lectures on history and archaeology, law, astronomy and physics will be given in the University on April 15–17. Lectures on history and archaeology will be given by A. H. Dainton and Miss Mary Kitson Clark; on physics by Prof. R. Whiddington, Dr. E. C. Stoner, Dr. G. W. Brindley and J. McDougall. Two lectures on "Modern Developments of Astronomy" will be delivered by Prof. S. Brodetsky. Further information can be obtained from the Registrar.

LONDON.—Sir Denison Ross, who has reached the age of retirement, has accepted the invitation of the Governing Body of the School of Oriental Studies to remain as director of the School for another year. Prof. R. L. Turner, University Professor of Sanskrit, has been appointed to succeed Sir Denison as director after the end of the session 1936–37.

OXFORD.—D. A. Jackson, of Balliol College, has been granted the degree of D.Sc. for his work on the hyperfine structure of spectral lines.

MR. J. R. BLOCKEY has been appointed principal of the Leathersellers' Technical College, Tower Bridge Road, S.E.1, to succeed Mr. M. C. Lamb, who is retiring at the end of the current session. Mr. Blockey, who has been works manager of Messrs. Harold Nickols, Ltd., of Leeds, since 1930, was educated at the University of Leeds, where he obtained his B.Sc. degree with first-class honours in 1908, and was awarded the M.Sc. degree in the following year. From 1909 until 1913 he was on the staff of the Leathersellers' College as lecturer in the applied science of leather manufacture.

THE seventh World Conference of the New Education Fellowship will be held in Cheltenham during the first fortnight in August. The subject of the Conference will be "Education and a Free Society". Delegates to the Conference have been appointed by the Board of Education and the Scottish Education Department, and Government representatives have also been appointed by Northern Ireland, Denmark and France. The Conference will be open to the public. Further information can be obtained from Mr. A. B. Paterson, 29 South Street, St. Andrews, Fife.

A LIBRARY Consultant Service established four years ago in Teachers' College, Columbia University, exemplifies, in the course of its development, certain widespread movements in the United States involving a convergence of the methods of the librarian and those of the teacher, especially the university teacher. So long ago as 1928, Dean Russell of Teachers' College and Dr. Suzzallo, formerly president of the Carnegie Foundation for the Advancement of Teaching, foretold the consummation of these tendencies in the merging of the best features of the library and the school in an entirely new type of educational institution consisting of three elements: "a lot of books, an earnest student and someone who knows them both and can bring them into thoughtful accord". The library consultant at Teachers' College provides advisory services of four types: first, helping students individually, at their request, to find in books and journals just the information they need; secondly, general lectures, open to the entire student body, explaining the organisation of the library and use of the card catalogues and periodical indexes; thirdly, meetings with classes for demonstrating the use of the reference and bibliographic tools appropriate for the subjects in question; and fourthly, group meetings with teachers of various subjects to present the reference and supplementary materials useful in teaching those subjects, thereby demonstrating the potential value of a good school library. It is the mission of such services to stimulate the student to seek a wider basis of knowledge than lecture notes and, to that end, to acquire such a modicum of library technique as will obviate much waste of time and energy.