

### Bibliography of Basic Texts and Monographs on Statistical Methods

(International Statistical Institute.) Compiled by W. R. Buckland. Pp. 84. (2 Oostduinlaan, The Hague, 1951.) 5s.

THE reader, who now sees before him a review of abstracts of reviews of books, may well ponder upon the proliferation of scientific literature. The introduction to this bibliography states that it consists of about a hundred basic texts on statistical methods published in English during the past decade. The work is designed for students, teachers, and practising statisticians, the aim being to cover in an all-round manner the theory and the main applications of statistical method, with particular attention paid to the practical usefulness of the books chosen. The general form of each entry is the routine publication details, followed by a list of chapter headings and extracts from reviews taken from four journals. The titles have been classified as follows: under general theory—elementary texts, intermediate texts, advanced texts and monographs; and under applications—economics, industry and agriculture, medicine and biology, and psychology and demography.

Cross-references would have been a help in this classification, in default of which the reader should consult other groups than those of his own immediate interest. The bibliography has netted most of the classics, but not all: for example, one such omission is F. Yates's "Design and Analysis of Factorial Experiments". For applications the net might have been cast wider: thus, genetical statistics is poorly represented, and there is no mention of forestry.

Those already having some acquaintance with statistical literature may be glad to have a list of works collected together; but the novice will probably be overawed at the size of the list and will regret that the compiler, in merely quoting extracts from reviews, has evaded the unenviable responsibility of suggesting where a beginner, according to his needs and ability, should start. J. M. HAMMERSLEY

### Ion Exchange Resins

By Robert Kunin and Robert J. Myers. Pp. xi+212. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1950.) 38s. net.

THE important advances of recent years and the wide and ever-growing variety of new applications have made it essential for every chemist, no matter what his particular field may be, to have at least a basic knowledge of ion exchange. There is, so far, only one book in the English language on the subject, and the present work is a welcome addition.

After a historical review, a description is given of the principles underlying ion-exchange behaviour. Much of the account is good, but too much space is given to the older empirical equations and not enough to the more recent work. Again, in describing the synthesis of ion-exchange resins, too much detail is given to the preparation of the older polycondensation resins and not enough to the newer vinyl-type polymers. The chapters on ion-exchange applications (and particularly the ones on water treatment) are the best. A very clear account is given of the problems one has to consider in the design of ion-exchange units and their practical solution.

A feature of this book is the very large number of diagrams. While these are generally helpful, they

are often not labelled clearly enough for their exact meaning to be readily grasped. Taken in all, this book, in spite of some drawbacks, can be readily recommended. The printing and binding are good, and the price reasonable. D. REICHENBERG

### The Diagnosis of Mineral Deficiencies in Plants by Visual Symptoms

A Colour Atlas and Guide. By Dr. T. Wallace. Second edition. Pp. vii+107+iv+312 plates. (London: H.M. Stationery Office, 1951.) 35s. net.

MORE than half of this book consists of colour photographs of plants suffering from deficiency or excess of different nutrient elements. These, together with descriptions of the characteristic appearance of affected plants, provide a means of diagnosing the causes of nutritional disorders occurring in field crops. The colour reproduction is much more accurate than in the first edition, and this should make diagnosis, especially by inexperienced persons, easier and more certain. More than a hundred new plates have been added, and for convenience of reference they have been re-grouped by crop species, instead of by nutrient elements.

The text is substantially the same as in the first edition. There are some amplifications to cover recent work (for example, on molybdenum deficiency), the bibliographies are enlarged, an appendix on rapid chemical methods of diagnosis is added to Chapter 3—a useful addition though strictly outside the scope indicated by the title—and the tabular description of deficiency symptoms in Chapter 4 has been rearranged and now refers to a larger number of crop species. All these changes enhance the value of a book that has already proved its worth to advisory officers, farmers and others concerned in growing food plants. D. J. WATSON

### Organic Syntheses

An Annual Publication of Satisfactory Methods for the Preparation of Organic Chemicals. Vol. 31, 1951. R. S. Schreiber (editor-in-chief). Pp. vi+122. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1951.) 22s. net.

THE forty-one preparations given in this volume cover the usual wide range of organic types: from them may be quoted, as representative examples, *p*-bromo- and *p*-ethoxy-phenylurea, 1:6-diiodohexane, 3:5-dimethylpyrazole, laurone, methyl cyclopropyl ketone, thiolacetic acid and triethyl phosphite. By a procedure based upon the original method of von Pechmann, coumalic acid is obtained in 70 per cent yield by the action of fuming sulphuric acid on malic acid; and cyclohexene, reacting with potassium iodide and phosphoric acid, is converted to the extent of 90 per cent into iodocyclohexane. Pentaerythrityl tetrabromide (78 per cent) is obtained ingeniously from pentaerythritol by heating the benzenesulphonate in diethylene glycol with sodium bromide. Another preparation of special interest is that of *dl*-4:4':6:6'-tetrachlorodiphenic acid, which can be resolved into stable enantiomeric forms, owing their optical activity to restricted rotation about the single bond joining the two benzene rings. The preparation departs from anthranilic acid, and depends upon the successive application of chlorination, diazotization and reduction. The index to this volume covers also Vol. 30 of this series.

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