

### Annuaire astronomique et météorologique Camille Flammarion pour 1947

(83<sup>e</sup> année.) Pp. 381. (Paris: Ernest Flammarion, 1947.) 160 francs.

THE *Annuaire* for 1947 follows the usual plan of earlier issues, with a few minor modifications, and maintains its excellent standard. It may be pointed out that amateur astronomers, who are playing an increasing part in astronomical developments, would find this publication a very useful handbook as complementary to the "Nautical Almanac". Much of the information is tabulated in a very concise and convenient manner, and also various branches are dealt with which are outside the scope of the "Nautical Almanac". Thus, lists of comets, meteor radiants, distances, spectral classes, temperatures, diameters of stars, of variable stars, etc., and also interesting phenomena for each day, provide very handy material for amateurs who might otherwise find it necessary to search different books of reference for such information. Members of the British Astronomical Association, who depend on the Association's Handbook for data on different sides of astronomy, would find the *Annuaire* a useful addition to their bookshelves. Star maps for each month of the year will prove acceptable to many readers.

The portion dealing with terrestrial magnetism and meteorology is very short, the latter occupying less than three pages. One wonders whether this could not be enlarged a little, with some advantage to certain readers. As pointed out, however, on p. 19, it is very unlikely that this will be done in the near future, and only in so far as meteorology makes substantial progress can it claim the right to be included in the *Annuaire*. Four pages are devoted to the physics of the earth, and these deal solely with seismic disturbances in France and other countries.

M. D.

### General Chemistry

By Prof. Eugene P. Schoch, Prof. William A. Felsing and Prof. George W. Watt. (International Chemical Series.) Pp. xiii+540. (New York and London: McGraw-Hill Book Co., Inc., 1946.) 20s.

THIS is an elementary text-book on the lines of most good American works of its kind. The material is presented in a selected order, in many cases the elements being separated from their compounds in different chapters, and there is emphasis on industrial uses. The chapters on physical chemistry are interspersed among those on inorganic chemistry, and on the whole the book lays more emphasis on this side. In some cases the sections on inorganic chemistry are very short, ozone having only one page, for example. There is a whole chapter on nuclear chemistry, and four chapters on selected topics in organic chemistry. There are references to American literature, and questions, at the ends of the chapters.

Since the book is in a second edition, it is in general accurate, but a few slips were noticed. It is surely incorrect to emphasize so strongly (p. 40) that a catalyst in a reaction "has not been altered in any way", and this is probably incorrect for the reaction dealt with. Chlorine dioxide does not, as was proved by the American chemist Bray long ago, react with water to form chlorous and chloric acids (p. 397, where the formula of chlorine dioxide is given as Cl<sub>2</sub>O in the equation). The old chain formulæ of the

sugars are given (p. 480). The portrait on p. 401 is of the wrong Perkin.

These are trifling errors, and the book as a whole is carefully written and based on modern theory. The sections on oxidation-reduction reactions, acids and bases, and electrochemistry may be mentioned as especially good. Although the book would be found interesting by teachers, it would not fit into English courses; some subjects are dealt with too summarily, and some in much too detailed a way.

### Tables of the Modified Hankel Functions of Order One-Third and of their Derivatives

By the Staff of the Computation Laboratory. (Annals of the Computation Laboratory of Harvard University, Vol. 2.) Pp. xxxvi+235. (Cambridge, Mass.: Harvard University Press; London: Oxford University Press, 1945.) 10 dollars. 55s.

THE new I.B.M. Automatic Sequence Controlled Calculator at Harvard was recently described in *Nature* (158, 567; 1946). The volume now before us contains the first of a series of tables produced by the machine in its spare time!

The differential equation the solutions of which are tabulated is that of Stokes, namely,

$$\frac{d^2u}{dz^2} + zu = 0,$$

which occurs in problems of wave propagation. Solutions of this equation for real  $z$  have recently been tabulated under the direction of J. C. P. Miller (B.A. Mathematical Tables, Part-Volume B, 1946) as the Airy integral.

Although the general solution of this equation can be written in terms of Bessel functions of order one third, the direct tabulation, as is here done, is preferable. The real and imaginary parts of two fundamental solutions are given to eight decimals at intervals of 0.1 in  $x$  and  $y$  up to  $|x + iy| \leq 6$ .

The next tables to appear in this series are of  $J_n(x)$  at a fine interval and to high values of  $n$  and  $x$ .

L. J. COMRIE

### Characterisation of Organic Compounds

By Dr. F. Wild. Pp. viii+306. (Cambridge: At the University Press, 1947.) 18s. net.

ADVANCED students of organic chemistry and also research workers in this field will find in Dr. Wild's book a useful and comprehensive guide in the characterization and identification of organic compounds belonging to most of the ordinary types. The work is essentially for use in the laboratory; it affords practical details, either directly or through references to the literature, for the preparation of suitable derivatives and of the special reagents needed; and there are reference tables for each important type of characterizing compound described. Details for the preparation and application of some of the newer and less familiar reagents are particularly useful. As an example of the treatment adopted, the preparation of solid derivatives of alcohols is described, within the compass of eleven pages, by means of esterification with acid chlorides, isocyanates, azides, acid anhydrides and pseudo-saccharin chloride; several miscellaneous methods follow. An appended table gives the boiling-point or melting-point of the original substance and of a maximum of fourteen derivatives for a list of fifty-seven alcohols. The book is well documented, indexed and printed. An introductory section contains eleven diagrams of apparatus.

J. R.