

botanists, occupied with their science, just names on a herbarium sheet. It is right that we should know that they lived very full, often adventurous, lives in inhospitable places and frequently in very primitive circumstances. That so much was accomplished under such conditions must excite our admiration.

The book is prefaced by the present director of the Botanical Survey of India, who relates how these chapters came to be written and gives some account of Burkill's own activities in India. It is largely due to Dr. Santapau's initiative and drive that these chapters were written and finally published in book form.

This book, the last work of a great botanist, deserves a place on the shelves of every botanical library and should be in the hands of every working botanist in India.

N. L. BOR

IONIC SOLUTIONS

Chemical Physics of Ionic Solutions

Edited by B. E. Conway and R. G. Barradas. (A Selection of Invited Papers and Discussions presented at an International Symposium of the Electrochemical Society, Toronto, Canada, May 4-6, 1964; The Electrochemical Society Series.) Pp. xvii + 622. (New York and London: John Wiley and Sons, 1966.) 188s.

In their preface to this volume the editors refer to the criticisms commonly raised against the publication of collected papers from symposia and conferences, and claim that they are not applicable to the present collection. It appears to this reviewer that this claim is largely justified. The conference held in Toronto in May 1964 was attended by a large proportion of those now active in the interpretation of the properties of electrolyte solutions, from nine different countries, and the planning of the papers and the discussion shows much more coherence than is commonly the case. Most of the papers either present new material not available elsewhere, or provide a useful review of the present position. They are nearly all concerned with the theoretical treatment of ionic solutions, though a few new experimental results are reported. The interval between the conference and publication is rather long, but in compensation for this the report of the discussion (originally recorded on tape) has been carefully edited and referred back to the contributors, so that it reads like a logical but lively exchange of views, rather than the collection of disconnected statements commonly met with in this kind of publication. Moreover, it must be confessed that the rate at which progress is being made in our understanding of ionic solutions is not so high as to cause much alarm about a publication delay of two years.

The twenty-six papers contributed fall under the main headings of ion-ion and ion-solvent interaction, ion-association, polyelectrolytes and colloids, conductance, and dielectric behaviour. It would be invidious to name any of them individually in a short review, but the book should find a place in any research library and on the shelves of those interested in ionic solutions.

R. P. BELL

WATERS AND SALTS

Aqueous Solutions and Body Fluids

Their Concentrative Properties and Conversion Tables. By A. V. Wolf. Pp. xiv + 166. (New York and London: Hoeber Medical Division, Harper and Row, Publishers, 1966.) 60s.

Mammalian Cell Water

Physiologic and Clinical Aspects. By Edwin G. Olmstead. Pp. 200. (London: Henry Kimpton, 1966.) 60s.

PROFESSOR WOLF has provided a set of tables for a large number of common biological solutes, giving the concen-

tration in several different equivalent units and values for several other properties which are dependent on concentration such as density, osmolality, osmotic coefficient, electrical conductivity, and refractive index. Similar data are given for serum, urine, seminal plasma, bile, synovial fluid, and lymph. The latter should be of use to the clinical biochemist and pathologist. The difficulties of measuring and expressing quantitatively even such a simple function as the concentration of a solution are well described. It seems a pity, however, that no attempt is made to rationalize the information given; for example, although the so-called molal freezing point depression constant is mentioned and its value is given, there is no explanation of this value. A brief outline of the elementary thermodynamics of solutions would considerably aid the stated objective of the book: "a wider practical understanding of the concentrative properties". Nevertheless this is a unique collection of data of great practical use.

The first half of *Mammalian Cell Water* is devoted to the physical chemistry of water and aqueous solutions, the osmotic behaviour of cells at equilibrium, and the kinetics of water flow. Although most relevant topics are dealt with, there are some omissions, for example, irreversible thermodynamics is mentioned only in a footnote. There are a number of errors in this part: the quantum is defined as $h\nu$ (and not $h\nu$) and v is then described as the velocity of the radiation (page 18); a molar solution is incorrectly defined (page 28); the value of \bar{V}_{H_2O} is incorrect (page 82). In the second half of the book, intracellular water is treated as part of the body water. The effect of variation in cell water content on cell function is described and also mechanisms which tend to stabilize the intracellular water. Clinical data, including symptoms, signs and treatment of water deficiency and intoxication, are provided. The book suffers from a multiplicity of symbols, and several different systems of notation are used; the adoption of a uniform and conventional system would smooth the path of the beginner. The index is inadequate.

D. A. T. DICK

CLEFT LIP

The Causes and Natural History of Cleft Lip and Palate

By Cecil M. Drillion, T. T. S. Ingram and Elsie M. Wilkinson. With contributions by A. D. R. Batchelor, D. A. Dixon and W. H. Schutt. Pp. viii + 288. (Edinburgh and London: E. and S. Livingstone, Ltd., 1966.) 47s. 6d. net.

The authors of this book are two paediatricians and a health visitor, and it is therefore not surprising that much of the content covers a new field. Similar books in the past have tended to limit their subject matter to surgery.

The first nine chapters cover a most detailed investigation into the study of the families, the mothers, the pregnancies, associated anomalies, neonatal complications, growth and development. The authors have collected and placed on record a valuable analysis of this congenital anomaly as it occurs in Edinburgh. This study is the first of its kind in Britain, and will prove of immense help for successive surveys carried out elsewhere.

The remaining four chapters are devoted to speech, orthodontics, surgery and genetics. The dental and surgical treatment however, really needs an integrated chapter to itself. The timing of the various treatments demands a team approach, and any further edition would be enhanced by setting out a combined chronological system of treatment.

Some differences of opinion are to be expected—for example, certain views expressed on hypotelorism and the Pierre Robin syndrome tend to reiterate some of the older points of view. These are minor points, however, and do not in any way detract from the excellence of this