

violent emotion, the respirations of the two brothers were never isochronous, but in opposite phases. Owing to congenital association, these differences of character were found to be harmonised, as might be anticipated, in action. Quarrels were rare; Liao Sienne Chen meekly followed his better half. They had from their birth eaten and performed other functions simultaneously. In waking, however, one recovered consciousness before the other, and roused him. It was found possible for one of the brothers to sleep while the other kept awake. But does this in reality, as the authors affirm (p. 175), "speak singularly against a chemical theory of sleep which makes it appear under the influence of toxic products"?

C. S. MYERS.

OUR BOOK SHELF.

Electrolytic Preparations. By Dr. Karl Elbs, translated by R. S. Hutton, M.Sc. Pp. xi + 100. (London: Edward Arnold, 1903.) Price 4s. 6d. net.

ELECTROCHEMICAL methods are now becoming of such importance, and are being so largely employed both in the laboratory and in technical processes, that the translation of Dr. Elbs's little work on electrolytic preparations—"Exercises for use in the laboratory by chemists and electrochemists"—will be sure to be welcomed by English-speaking students.

The book is divided into two parts. Part i., which is general, deals with sources of current and connections, resistances, apparatus for electrolysis, &c. Dr. Elbs considers that accumulators can alone be looked upon as a source of current for laboratory purposes, and he gives some useful hints as to coupling up and how to use the cells.

Several pages are devoted to apparatus for electrolysis. As kathode material almost any metal may be employed, unless the electrolyte is very strongly acid. But for anodes, nearly all metals, with the exception of platinum, are attacked. Lead may often be used owing to its becoming coated with a superficial layer of peroxide which prevents further action taking place.

Part ii. is devoted to the experimental portion of the work. The examples from inorganic chemistry which come first are divided into two parts. The first deals with experiments with unattackable anodes, the second portion with soluble anodes. Under the first heading are given the methods of preparation of such substances as chlorates, bromates and iodates, and persulphates, under the second heading the preparation of white lead, cuprous and cupric oxide.

On p. 47 the student is introduced to the electrolysis of organic acids. This part is well arranged, and the theoretical principles are carefully and clearly gone into. A detailed explanation is given of the various reactions which may occur in the electrolysis of organic acids. Here there seems to be a field for further research, because although many of the explanations given probably approximately explain what actually does occur, others seem hardly conclusive, so that at any rate further light upon the subject would be welcome.

No less than eighteen examples of electrolytic reduction are given, while there are only two on electrolytic oxidation. This is mainly due to the fact that reduction work, generally speaking, is much easier to carry out than work on oxidation. This applies both to pure chemistry and to electrochemistry. Further, electrochemical methods of oxidation have

not been tried by chemists to anything like the same extent as have reduction methods.

The book is very well printed and got up, and Mr. Hutton has done his part—the translation of the work—very satisfactorily. F. M. P.

A Concise Handbook of Garden Flowers. By H. M. Batson. Pp. vii + 256. (London: Methuen and Co., 1903.) Price 3s. 6d.

THIS is an alphabetical list of a large number of ordinary garden plants, together with brief indications of height, colour of flowers, native country, natural order, season of flowering, mode of propagation, and purpose for which they may be used in the garden. Within its rather restricted limitations the book seems carefully compiled, and the proofs have evidently been read with attention, for abundant as are the opportunities for falling into error, misprints are hardly to be found. The word "family" is, however, used in many cases where "genus" should be employed; thus the Galegas are styled a hardy family. Of course, Galega is a genus of the family Leguminosæ. An even more misleading statement is that in which *Narcissus Barrii* is spoken of as "a family of star-narcissus," whatever that may be.

The cultural details, though very concise, are apparently trustworthy, but there is ample room for difference of opinion about these matters. Thus the author says of *Gentiana acaulis* that "it is easy of culture." It may be so in places, but after a long experience with it under varying conditions, but in one particular garden, we have never been successful in getting it to flower, whilst in another we have experienced no difficulty. The author has succeeded in finding English names for most, if not all, of the plants he mentions. If such names are to be given, they should be employed with as much precision as the technical appellations. To call *Narcissus poeticus* the "poet's daffodil," or *Narcissus Tazetta* "the polyanthus flowered daffodil," is surely to introduce confusion where none need be experienced. A full index is added, which adds greatly to the convenience of the reader. We should like to suggest to the author that, in a future edition, he should enumerate the names of the genera in alphabetical order under the heading of the natural order to which they belong. Search for the name of a plant would by such means be much facilitated, as most lovers of plants are familiar at least with the principal natural orders.

Lavori marittimi ed Impianti portuali. By Flavio Bastiani. Pp. xxiv + 424. (Milan: Ulrico Hoepli, 1903.) Price 6.50 lire.

THIS is one of the "Manueli Hoepli," a series of pocket books in which the Italian "man in the street" can, at a small cost, obtain information on such diverse subjects as elliptic functions, Volapük, botany, oils and olives, Greek mythology, and English weights and measures. The present volume deals with the construction and working of docks, harbours, wharves, canals, lighthouses, in short all fixed structures connected with navigation. It is illustrated by 200 woodcuts, and the last part contains a summary of Italian laws relating to harbours, harbour dues, and such matters.

Il Moto degli Ioni nelle Scariche elettriche. By Augusto Righi. Pp. 66; with 3 plates and several woodcuts. (Bologna: Nicola Zanichelli, 1903.)

THIS book contains, with some amplifications, an almost verbatim report of a lecture delivered by Prof. Righi to a branch of the Italian Electrotechnical Society at Bologna. It deals with the theory of electrons, considered with special reference to cathodic rays, ionisation of gases, Lorentz's theory, and the production of electric shadows.