

typographical and other, but contains an excellent index, which increases its value to medical students.

The problem of the best method of teaching chemistry in a medical school is as yet unsolved. A large proportion of men enter the school with little or no knowledge of chemistry, and are expected at the end of one year's study to find their way successfully through the intricate mazes of physiological chemistry. Alas for the teacher who is expected to perform this miracle!

J. L. H.

**KALENDER FÜR ELECTROCHEMIKER SOWIE TECHNISCHE CHEMIKER UND PHYSIKER.** VII Jahrgang, 1903. Mit einer Beilage. Edited by Dr. A. Newburger. xxxi + 583 + 448. Berlin: M. Krayn. Price, 4 marks.

In this valuable little book the editor has certainly succeeded admirably in his attempt to bring together material which is of value not only to the technical but also to the scientific worker. The separation of the technical from the theoretical branch has been more marked probably in electrochemistry than in any other subject and certainly the technical side has not gained by it. Through such works as this, we may look in the near future for a more intimate connection between the two branches of the subject which can not fail to be of great advantage to electrochemistry. There are but two criticisms to be made upon the make-up of the book, the lack of an index, and the binding of the Beilage as a separate volume, although its table of contents is given in the Kalender.

J. LIVINGSTON R. MORGAN.

**BOTANY AND PHARMACOGNOSY.** BY HENRY KRAEMER, Professor of Botany and Pharmacognosy and Director of the Microscopical Laboratories in the Philadelphia College of Pharmacy. Published by the author. 384 pp.

The growing use of the compound microscope in the critical examination of powdered vegetable drugs has developed into a distinct branch of pharmaceutical study. It is perhaps needless to say that, in making a critical examination of vegetable powders, one must be familiar with the vegetable histological elements which make up the vegetable fabric, for no kind of pulverization will completely destroy the cell and obliterate its diagnostic features. The present volume, after dealing with plant morphology in Part I (100 pages), takes up the study of crude drugs, first giving their gross characteristics as found in their whole and dried condition. Following this is a scheme for the study of the

drug in the powdered state accomplished by the aid of the compound microscope and a few chemical reagents. It is in the latter part of the volume that we find the essentially new things, new to the English student. Important German and French works on powdered drugs have appeared, but in English, Prof. Kraemer's work is the second one in this country that has come from the press assuming the dignity of a text-book: hence it is to this *new feature* that especial attention should be directed. In this portion of the book we find an ingenious key for the study of powders dividing them as follows: Powders of greenish color, powders of yellowish color, of brownish color, of reddish color, and of a whitish appearance. Each of these groups is subdivided in the following manner: I. *Crystals of Calcium Oxalate Present*.—(a) Calcium oxalate crystals, rosette shaped: (b) calcium oxalate crystals, monoclinic prisms: (c) calcium oxalate in crystal fibers; (d) calcium oxalate in cryptocrystalline crystals. II. *Calcium Oxalate Crystals Wanting*.—(a) Crystoliths of calcium carbonate present: (b) calcium carbonate crystals wanting, etc.

Then various sub-groups are made and subdivided very much as in botanical keys, making use of such characteristics as "Bast fibers present" or "Bast fibers wanting," "Stone cells present" or wanting and so on for other histological elements. This part of the work is perceptibly condensed, so much so that we fear it is of little use to the student unless he has constantly at his side the instructor who *knows* the book. What we have said of this portion of the volume is also applicable to other portions—it is extremely condensed and bears out fully what the author says in the preface: "It is written to meet the individual needs of the author in his work, as a treatise of botany and pharmacognosy and to supplement his lectures and laboratory demonstrations."

The illustrations in the work occupy the last portion of the volume very much as an appendix or afterthought. We are inclined to think that the placing of all the illustrations in the back of the book was poor economy. It would have been much better to have had these 13 pages interspersed in their proper places throughout the text. However, they are very good, and on excellent paper. The work is a valuable addition to the literature of pharmacy.

L. E. SAYRE.