

the chapters dealing with general questions and those treating of special matters are separated from one another. There are five sections, of which the first deals with the fundamental conceptions and relationships which are of importance in connection with the scientific study of analytical chemistry. Simple experiments to illustrate the difference between strong, weak, and non-electrolytes, the influence of mass in chemical change, the changes in the properties of acids and bases on the addition of their salts, the formation of complex ions, the difference between double salts and complex salts, are described among others. In the opinion of the reviewer, these preliminary exercises form the very best foundation of any attempt to build up a system of instruction in analytical chemistry which is to have an educational value and provide a mental stimulus for the student.

In the second section the usual instructions for the carrying out of the many operations incidental to analytical work are given. The third is devoted to characteristic reactions of cations and anions, which are arranged in the usual groups, and in the fourth section the processes of qualitative analytical separation are dealt with. In the fifth, the reactions serving for the recognition of the rarer elements are grouped together, and a detachable booklet contains tables for laboratory use.

The text throughout affords evidence of the author's familiarity with the recent literature bearing upon the constitution of aqueous solutions, a knowledge of which is of essential importance for the proper interpretation of the reactions which serve as the basis of analytical work.

The systematic presentation of the subject in terms of the ionic theory and the use of ionic equations may possibly present certain difficulties to the student, but the fact that greater demands are made upon the mental capacity is not without its compensations. At the same time, experience has shown that many reputed difficulties are more imaginary than real, and if, as is undoubtedly desirable, the study of analytical chemistry in the universities and polytechnics is not commenced until the second year of the student's course, Böttger's work will no doubt be adopted by many teachers who desire to eliminate from their courses the unsatisfactory features characteristic of many types of so-called guides to qualitative analysis.

In the interests of English students, it is hoped that the appearance of an English translation of the second edition of the book will not be long delayed.

H. M. D.

OUR BOOK SHELF.

The A.D. Infinitum Calendar. (Liverpool: Collin and Irene.)

WE presume that the title of the above is intended for a sort of pun, and that the A.D. may be written as in the heading with dots, or as below when we are told that it is available for any year from A.D. 1 *ad infinitum*, where the *ad* is taken as a Latin preposition.

We have had many perpetual calendars brought before us, but this is perhaps the most ingeniously contrived for giving by inspection and the adding

together of four small numbers (none exceeding six, so that it is easily done in the head) the day of the week corresponding to any day of the year. As a specimen we may take the day on which we are writing, *i.e.* November 18, 1908. For the tens of centuries (19) we take out the number 5; for the number in the century (08,* marked with an asterisk because it is a leap-year) we have 3; for the month November 6; and for the 18th day of it 4. Then by adding 5+3+6+4 we obtain 18, which gives Wednesday in the last column for the day of the week. In the second column (for months called A) January and February are inserted twice, for common years or leap-years, the latter being marked with an asterisk.

As the calendar stands, it will serve until the year 3099, which will do for a few generations; but the authors naïvely add that it can easily be extended to go on to the end of time. A caution is perhaps necessary owing to its being so often forgotten that the alteration of the style (on the Continent in 1582 and in England in 1752) effected a two-fold change. The mere altering the rule for observance of leap-year only necessitated a slight shift, easily allowed for in a table. But the dropping of ten days from the Julian to the Gregorian reckoning, which became eleven in the eighteenth century and is now thirteen, was a different matter. Neither the calendar before us nor any similar one can give the days of the week correctly by the Julian reckoning of the days of the month after the change of style, the days of the week agreeing, but those of the month disagreeing by a number which is not a multiple of 7. W. T. L.

The Extra Pharmacopœia of Martindale and Westcott. Revised by Dr. W. Harrison Martindale and W. Wynn Westcott. Thirteenth edition. Pp. xl+1164. (London: H. K. Lewis, 1908.) Price 10s. 6d. net.

THIS new edition of Martindale and Westcott's "Extra Pharmacopœia" contains an enormous amount of matter in a small compass, and although 1164 pages in length, 124 pages more than the last edition, by the use of thin paper it remains a volume that can easily be carried in the pocket. In addition to the preparation of our own and of many foreign pharmacopœias, a large number of other drugs and proprietary substances are included, together with tables of atomic weights, weights and measures, tests and solubilities. Of the supplementary matter, arsenical contamination receives special attention, the section on radiography has been brought up to date, "nutrimenta" are considered in a special chapter, in which the work of Fischer on the structure of the protein molecule and the new nomenclature of protein substances receive notice; and serum and vaccine therapy is fully discussed. The elements of bacteriology, opsonins, and the determination of the opsonic index, references to cerebro-spinal meningitis, trypanosomiasis, the *Treponema pallidum* of syphilis, the transmission of Mediterranean fever by goats' milk, the use of tuberculins, Calmette's ophthalmic reaction in tuberculosis, and organotherapy all are considered.

Chapters on mineral waters, analytical memoranda, including electrical conductivity, and a therapeutic index are included. Glossaries of words and phrases likely to occur as directions in foreign prescriptions are given in several languages, and should prove very useful. The index is very full and complete, and the composition of a number of patent medicines is given. The book is emphatically one which no medical practitioner or pharmacist can do without, and it should find a place in the library of every laboratory, for it contains data that may be of service in almost every branch of science. R. T. H.