## Our Bookshelf.

(1) *Die Arithmetik in strenger Begründung.* Von Prof. Otto Hölder. Zweite Auflage. Pp. v + 73. (Berlin : Julius Springer, 1929.) 3·60 gold marks.

(2) *Theory and Application of Infinite Series.* By Prof. Dr. Konrad Knopp. Translated from the second German edition by Miss R. C. Young. Pp. xii + 571. (London and Glasgow : Blackie and Son, Ltd., 1928.) 30s. net.

(1) THIS little book gives a method of basing the theory of arithmetic on the properties of finite aggregates and on Dedekind's section. Prof. Hölder holds the view that an arithmetic founded solely on postulates and axioms must be insufficient, since even in this case series of operations must be counted.

(2) Prof. Knopp's book is beautifully printed and arranged. Of the three parts into which it is divided, the first begins with the theory of real numbers, the starting-point being an assumption of a knowledge of Hölder's arithmetic of rational numbers. From this point, Dedekind's theory of irrational numbers and the notion of convergent sequences are introduced. The second part discusses the foundations of the theory of infinite series, and the third part proceeds to modern developments. Here the author gives many valuable chapters, including an illuminating discussion of Fourier series. Chapter xiii. contains a very useful digest of methods for associating the notion of ' sum ' with divergent series. Chapter xiv. on Euler's summation formula and asymptotic expansions has been specially written for the English edition. The author's aim has been especially to help the private student, and to this end many explanations of difficult points and apt illustrations have been included. The translation has been well done and there is an easy flow of the language.

In both the above books Dedekind's theory of irrational numbers has been adopted, presumably because of the uniqueness of their representation. But Cantor's theory lends itself more naturally to a simple detailed treatment, and, being fundamentally equivalent to Dedekind's theory, might with advantage have been used.     L. M. M.-T.

*Geologie von Perú.* Von G. Steinmann. Mit Beiträgen von R. Stappenbeck : *Nutzstoffe* ; F. Sieberg : *Erdbeben* ; C. Lissón : *Geologische Karte.* Pp. xii + 448 + 9 tafeln. (Heidelberg : Carl Winters Universitätsbuchhandlung, 1929.) 28 marks.

THIS work by the veteran Prof. G. Steinmann gives an excellent summary of what is at present known of the geology of Peru. Unlike Bolivia, Chile, Colombia, and Venezuela, which were visited in the first half of the nineteenth century by D'Orbigny, Darwin, and Humboldt respectively, scarcely any investigations into the geology of Peru were made before the work of Raimondi, whose first publication appeared in 1862. The bibliography now given by Steinmann extends to 22 pages, but owing to the extent of the country and its climatic and physical characters, vast tracts are still unknown or almost unknown geologically. Much of the knowledge we have is due directly or indirectly to the work of geologists who have been primarily concerned with the investigation of the mineral resources (gold, silver, zinc, copper, quicksilver, iron, nickel, cobalt, wolfram, antimony, petroleum, coal, etc.).

The account of the stratigraphy, tectonics, and geological history occupies nearly three-quarters of the book, and is followed by a section on the mineral resources by R. Stappenbeck, and an account of the earthquakes of Peru by A. Sieberg. The geological record begins with the Archæan crystalline rocks, followed by the pre-Cambrian phyllites, the Middle and Upper Ordovician, the Lower Devonian, the Upper Carboniferous and Permian, the Trias, Jurassic, Cretaceous, Eocene, Miocene, Quaternary. The chief breaks in the succession are (1) between the Archæan and the phyllites, (2) during the whole of the Cambrian and probably Lower Ordovician, (3) during the Middle and Upper Devonian and Lower Carboniferous, and (4) between the Chalk and the Middle Eocene. The work is illustrated with numerous sections, and with reproductions of published figures of characteristic fossils. The map of the Cordillera, showing the distribution of the formations so far as known, has been prepared by Steinmann and Lissón.

*A Treatise on Pharmaceutical Chemistry : embracing certain Special Topics of Analytical, Organic and Physical Chemistry as they are related to Pharmacy.* By Dr. John C. Krantz, Jr. Pp. 282. (London : Henry Kimpton, 1928.) 15s. net.

IN this volume the author has selected certain subjects for special consideration. The work is divided into three parts : in the first, the quantitative estimation of certain inorganic elements, of pharmaceutical importance, either as remedies or impurities, is discussed ; the actual methods are not always given in detail, but reference is made to the U.S. Pharmacopœia. The method and its theoretical implications are then submitted to discussion. The section is intended to serve as an illustration of the importance of quantitative methods for pharmacists. The second part is devoted to a consideration of the structure and methods of preparation of a number of complex organic compounds used in medicine, such as the hypnotics, local anæsthetics, antipyretics and bactericides, including the organic arsenicals. This section is useful for quick reference to the formulæ of a number of substances which are in everyday use. In the third part, there is a theoretical consideration, accompanied by illustrative experiments, of certain aspects of physical chemistry.

On the whole, this can be considered an advanced text-book, probably of greater value to the pharmaceutical research worker than to the student. For readers in Great Britain it suffers from the disadvantage that the possession of the U.S. Pharmacopœia is an essential prelude to its use. On the