

OUR BOOK SHELF.

*Grundriss der qualitativen Analyse, vom Standpunkte der Lehre von den Ionen.* Von Dr. Wilh. Böttger. Pp. xii + 249. (Leipzig: W. Engelmann; London: Williams and Norgate, 1902.) Price 7s. net.

THIS work is intended to fill in the outlines sketched with such ability a few years ago by Prof. Ostwald in his little book on analytical chemistry. In that book it was shown how the facts and operations of analysis may be viewed in the light of physicochemical doctrines in general, and of the ionic theory in particular. Dr. Böttger now supplies the detail, so that a student may make his way over the whole territory of analysis hearing and speaking only the language of the new dualism.

It is probable that a casual examination of this book will arouse feelings of exasperation in the minds of those who think that the ionic theory should be kept in a state of suspended animation, and not used until somebody (at present unknown) has either made it perfect or else has shown that it is unfit to live. To those who see in the new dualism a theory which accords in a singularly complete way with the phenomena of analysis, Dr. Böttger's book will be extremely welcome.

It is too early yet to judge of the stamp of chemist that will be produced out of students whose whole chemical discipline has been in the school of thought represented by this book, but one thing seems certain in regard to analysis, and it is that such students will be habituated more than has ever previously been the case to look behind the mere reaction and learn something of the play of forces to which it is due. This will undoubtedly be a great gain, for the bane of analysis for educational purposes has been the tendency of people to regard it more as an art than as a science.

Dr. Böttger divides the subject under the usual headings—examination of a solution for the metallic constituents in the six analytical groups, examination of a solution for the anion in five groups, complete analysis of a given substance, solution and fusion of solids, rarer elements. A set of analytical tables is contained in a pocket inside the cover.

Very full explanations are given throughout of the individual reactions and of the separation processes, and short sections are devoted to such subjects as reversible reactions, mass action, solubility-product, &c.

It is probable that Dr. Böttger's book will for some time to come rank as the standard work on analysis as considered from the point of view of the ionic theory.

A. S.

*A Treatise on Roads and Pavements.* By Ira Osborn Baker, C.E. Pp. viii+635; with 171 illustrations. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1903.) Price 5 dollars.

THE object of this book, as set out in the preface, is to give a discussion from the point of view of an engineer of the principles involved in the construction of country roads and city pavements. The contents of the book relate almost entirely to American practice, where, according to the author, 95 per cent. of the mileage of the public highways consists of earth roads, a form which has almost entirely vanished from this longer established country. To the making and manufacture of earth roads the author therefore devotes a considerable part of his book; the remainder deals with roads having permanently hard surfaces used in urban and suburban districts; this part also is based on American experience, because, to use the author's words, "the principles of road making worked out in America are probably best suited to American conditions, and also because in most par-

ticular American roads and pavements are superior to any other in the world." Yet, notwithstanding this superiority over the rest of the world, which may be open to question, the author admits that even in America there is still room for improvement.

The book is divided into twenty chapters, dealing respectively with the location, making and management of earth roads; roads covered with gravel and broken stone; horse tracks; street pavements, their design, drainage, foundations, and materials for paving, including bricks, asphalt, cobble stones, granite and other cubes, wood and tar macadam; foot-ways and bicycle tracks.

Although the estimates of cost and methods of procedure do not apply to work done in this country, there is a great deal in the book that may be read with profit by English road engineers and surveyors. The information and statistics given in the chapter on traction might be useful to the committee of the British Association that is now engaged in considering this subject.

*International Catalogue of Scientific Literature.* Vol. v. First Annual Issue. Astronomy, E. Pp. xiii+303. Published for the International Council by the Royal Society of London. (London: Harrison and Sons, 1902.) Price 21s.

READERS of NATURE are now familiar with the method adopted in classifying the subject-matter brought together in these annual volumes, seventeen volumes of which form a complete yearly issue of the catalogue. The work before us is the first of these annual issues dealing with astronomy, and one, therefore, of special interest to astronomers, as the latter are already well supplied with the valuable volumes of the *Astronomischer Jahresbericht* (published by Walter F. Wislicenus with the support of the Astronomischen Gesellschaft), which have now reached their third year, and contain in addition a brief abstract of nearly every paper.

Comparing the two volumes from the point of view of subject classification, there are some slight variations, which, however, make no material difference. On p. 1 of the volume before us "spectroscopy" seems to be added to the list of "primary divisions" as a kind of appendix, but on further investigation this arrangement, which is a very good one, seems to have been adopted since this subject is common to more than one of the primary divisions. Before using the book, the British reader is advised to read the instructions on pages xii. and xiii., and it seems curious that these instructions are not translated into French, German, and Italian, like the other portions of general information.

It is difficult to overestimate the importance of the present publication and its value to astronomers in aiding them to follow the work carried on in other countries.

*Der echte Hausschwamm und andere das Bauholz zerstörende Pilze.* By Dr. R. Hertwig. Second and enlarged edition, by Dr. C. F. von Tubeuf. Pp. vii+105; illustrated. (Berlin: Springer, 1902.)

BOTH mycologists and practical men will welcome the appearance of this second and revised edition of a well-known work dealing chiefly with the life-history of the fungus of dry rot (*Merulius lacrymans*) and the best modes of preventing its devastations, but likewise discussing other kinds of wood-boring funguses. In the first chapter the distribution of this fungus and the woods it chiefly attacks are discussed in detail, while in the second attention is concentrated on its mode of development, and the means by which its presence can be detected. Illustrations, one in colours, in the latter chapter show the appearance presented by