

The volume on "Qualitative Analysis," by Dr. Morgan, is less a work for the beginner than for the student who has already acquired a certain familiarity with experimental chemistry. It is, in fact, a comprehensive study of analysis from the theoretical side. The author has not merely raised his cap to the new teaching and adopted the old, like some authors referred to in this notice, but has boldly plunged into the ionic hypothesis and consistently adhered to it. The book is divided into sections, the first of which deals with general principles, such as mass action, equilibrium, reversible changes, and dissociation; the second section is devoted to reactions of the common elements, arranged according to the periodic system, and the third deals with systematic analysis. It is simply and clearly written, although the American spelling and the alternate use of names and symbols in the text are a little confusing to the English reader. Nevertheless, the book has a distinct character of its own; it is interesting and suggestive, and will fill a gap in chemical philosophical literature.

Newth's "Smaller Chemical Analysis" is an abridged edition of the qualitative section of the "manual," and includes a few quantitative exercises. The small edition possesses the characteristic features of the deservedly popular parent volume. For the student who is not intending to become a chemist, but who is taking chemistry as an adjunct to other studies, this abridgment will give him a very good notion of analysis. He will learn a little manipulation, the use of reagents, and the behaviour of the common metals and acids. There is nothing that is really novel in the treatment of the subject. A passing reference is made to ionic dissociation, but the theory is not actually applied. The figures which are taken from the "manual" are excellent, with perhaps the exception of the drawing of the wash-bottle and blow-pipe, in which the operator's moustache seems to form an essential part of the apparatus.

J. B. C.

OUR BOOK SHELF.

Animal Micrology. Practical Exercises in Microscopical Methods. By Dr. Michael F. Guyer. Pp. ix+240. (Chicago: University of Chicago Press; London: T. Fisher Unwin, 1906.) Price 9s. net.

THE term "micrology" has not received any general acceptance on this side of the Atlantic. There seems to be no reason why the term "histology" should be displaced by this more modern word. Though, however, we may take exception to the title of the book, we are not disposed to regard other than favourably the work itself.

The study of this book leads to some reflection as to the methods by which instruction in histology can most advantageously be given. Manuals of instruction are perhaps generally written so as to act as a *complement* to the teacher's personal directions. This book, however, will replace the teacher himself. The directions given are so precise and simple as probably to be sufficient to furnish an effective guide to a student with practically no previous training in microscopic work. The question is, however, whether there are not disadvantages in this method.

The defect seems to be that a student using such a book may not have enough scope for his ingenuity and resource. It certainly fails to give much stimulus to a student's power in the elaboration of new methods. But as the book is intended by the author primarily for the beginner, and as probably most students using it will adopt it simply to assist them in acquiring a competent knowledge of histological methods without any intention of making use of them in later research, it must be stated that, so far as this objective is concerned, the book is worthy of the highest praise.

The general arrangement of the work has no markedly novel features, but the expositions of the methods recommended are admirably clear. The smallest details of procedure are carefully marshalled, and the student is generally left without any opportunity of making a mistake. But the instruction afforded is not simply telling the student how the methods are to be carried out; there are added, and this is one of the distinguishing features of the work, explanations of the possible reasons why occasionally failure may occur, and remedies for such failures. The author hopes that three classes of workers may be benefited by its use. The student in class or the independent individual worker will doubtless profit, but we hesitate to think that a book can be at the same time valuable as an instruction manual for elementary classes and as a general reference book for the teachers of those classes.

The crucial test of the value of the work must necessarily consist in the actual experiment of using it in class. We venture to think, however, that the volume will react to this test in a most successful manner.

Elementare kosmische Betrachtungen über das Sonnensystem und Widerlegung der von Kant und Laplace aufgestellten Hypothesen über dessen Entwicklungsgeschichte. By Prof. Gustav Holzmüller. Pp. v+98. (Leipzig: B. G. Teubner, 1906.) Price 1.80 marks.

THIS little book, in which is summarised the essential parts of a series of lectures given at various times, is another praiseworthy attempt to make the results of mathematical analysis available to those who have not received the necessary preliminary training. How far the author has been successful in conveying precise information to this class it is difficult to judge. As a rule, it would appear that those who do read such books do not stand in need of the elementary treatment offered, while those for whom the book is intended fail to grasp the nature of the demonstration. The author discusses some of the ordinary dynamical problems connected with falling bodies, and also Kepler's laws, as resulting from the operation of a central force. He adds some remarks on perturbations and tidal phenomena, but these sections are necessarily of the most sketchy character. There is a very good chapter on the present condition of the sun, written in a popular manner, and in which the author introduces some interesting topics; but here, as in other parts of the book, we would willingly have been spared the quotation of such big numbers, inserted, apparently, with the view of arresting attention. Finally, Prof. Holzmüller examines the data on which rests the acceptance of the nebular hypotheses as developed by Kant and Laplace. We are not disposed to quarrel with his conclusions, which may be stated thus. The hypotheses set up by these philosophers to explain the development of the solar system are inadequate to explain the past history, and furnish unsatisfactory guides for the future. They cannot be regarded as a contribution to exact science, but