

itself, not only in the taste of his renderings, but in his very pretty preface, and perhaps finds its best expression in the verses on the constellation Engonasin, the modern Hercules, with which the preface concludes. These verses are a perfect gem and an important addition to our not too large store of astronomical poetry. Another feature of the preface to which I would invite the attention even of those who do not wish to read the book is the brief, but critical, bibliography of modern works on ancient astronomy and astrology (pp. ix, x). Perhaps it is not too much to hope that the editor will permit this bibliography to be reprinted along with his verses in some astronomical journal, where they may interest readers who are not likely to see the present volume.

J. K. FOTHERINGHAM.

OUR BOOKSHELF.

Practical Mathematics and Geometry. A Text-book for Advanced Students in Technical and Trade Schools, Evening Classes, and for Engineers, Draughtsmen, Architects, Surveyors, &c. By Edw. L. Bates and Fredk. Charlesworth. Part iii., Advanced Course containing numerous Practical Exercises, with Answers, and about 300 Illustrations. Pp. viii + 447-776. (London: B. T. Batsford, 1911.) Price 3s. net.

THIS volume is in continuation of the subjects treated in parts i. and ii. by the same authors; these were reviewed in NATURE of February 9, 1911. The mathematical part of the present volume comprises sections dealing with trigonometry, mensuration, algebra, and rates of increase. The geometrical portion includes tangential arcs of circles, loci, conic sections, vectors, and descriptive geometry. The difficulty of coordinating successfully the two main branches of the subject is evident in this volume as in its predecessor. Chapters dealing with geometry stand isolated among others of a mathematical character, there being no apparent connection. Perhaps the chapter on conic sections is the only one showing a real attempt at coordination. The trigonometrical portion is very brief, containing little more than the definitions of the functions of an angle and the solutions of triangles. It would be useful to have the relations of the sum and difference of two angles included in this volume. In many cases the authors are content with the mere statement of a rule; this probably is the result of taking cases from practice, not in illustration of principles already discussed, but as problems needing a solution.

Descriptive geometry occupies the last seven chapters, and these may almost be regarded as a separate book. The matter includes projections of simple figures, planes, and plane figures in space, intersecting planes and lines, plane sections, and developments of surfaces. The treatment of this portion of the volume, apart from

what has preceded it, is good, and will give the student reasonable grounds for believing that he is acquiring some systematic knowledge of practical geometry.

Principles and Practice of Poultry Culture. By John H. Robinson. Pp. xvi+611. (London and Boston: Ginn and Co., n.d.) Price 10s. 6d.

MR. JOHN H. ROBINSON is one of the best-known poultrymen and one of the best-known writers on poultry matters in the United States. To say that his present work will be popular in the ordinary acceptance of the word with the British reader is perhaps saying too much. With the student, and more especially on the shelves of the professor of animal industry and in the college library, there it should be found, and not only found, but read.

The chapters one would particularly like to mention for special quotation (if space permitted) are: iii., economic aspects of poultry culture; iv., the poultry keeper's problems; vii., systems of poultry keeping; xii., poultry foods; xiii., rations and methods of feeding; xxi., types, breeds, and varieties of fowls; xxii., turkeys; xxiii., ducks; xxv., phenomena and principles of breeding. It must be remembered that America has given us the Rock, the Wyandotte, the Rhode Island Red, and one of the best utility types of Leghorn.

The Philo system of housing, the "dry feed" and "dry mash," and the score card for teaching purposes all emanate from the States. This country has learnt much from the "other side."

Even for the illustrations alone, the book is well worth buying. We have purposely omitted to comment on the somewhat elaborate plants, as the climate in this country does not warrant such expense. As indicated above, the thoughtful reader will find much food for reflection, while the purely practical man will devour eagerly the definite directions, particularly those referring to ducks, geese, and turkeys.

Geographical Pictures (from Photographs). Series iii.: Sculpture of the Earth's Crust. Packet No. 1. Plates 1-6. Packet No. 2. Plates 7-12. (London: A. and C. Black, n.d.) Price 6d. per packet of six pictures.

MESSRS. BLACK issue these illustrations, which measure about six by five inches, as part of their scheme of school geography. Packets 1 and 2 are concerned with processes of weathering, and the pictures are described by Miss S. M. Nicholls. Their low price allows of the use of several copies in a class, the teacher pointing out the salient features, and the pupil following his remarks with the aid of the abridged description on the plate. The views of granite in the Scilly Isles, of wind-carved rocks in Colorado, and of the interior of a cave at Cheddar, seem particularly happy. The text is clear and to the point, though the two attempts to spell the Snowdon buttress, Crib-y-Didysgl and Crib-y-Dysgl, will not please Welshmen.

G. A. J. C.