the figure of the Earth. The mathematical ingenuity exhibited may be interesting, but is familiar. In the form and to the extent in which the several problems are discussed, these chapters scarcely belong to a practical treatise, and do not afford the means of applying the facts that the student has himself derived from the use of instruments.

In the second part, which consists of three chapters, the author serves up the standing dish of least squares. So far as theory is concerned he has followed Chauvenet, and for the practical application to triangulation and conditioned problems the admirable treatise of Wright and Hayford on "The Adjustment of Observations" (see NATURE, vol. lxxiv., p. 148). The book is well illustrated, and there are some useful tables and information given in an appendix, though we scarcely understand the principles upon which the formulæ have been selected. The information throughout is conveyed in a clear and lucid manner, but a little unevenness is sometimes noticeable, as though the author were uncertain of the degree of thoroughness with which the several topics should be treated.

AN AMERICAN TEXT-BOOK OF ENTOMOLOGY.

Entomology, with Special Reference to its Biological and Economic Aspects. By Dr. J. W. Folsom. Pp. vi+485; illustrated. (London: Rebman, Ltd., 1906.) Price 14*s*. net.

A WORK treating of entomology purely from the bionomic and economic standpoints is a distinct and long-felt want, but it cannot be said that the book under review supplies that want adequately, in spite of its title and a statement in the preface that it "was written in an effort to meet a growing demand for a biological treatment of entomology."

With such admirable and detailed manuals of insect anatomy as Packard's "Text-book of Entomology" and Henneguy's "Les Insectes" already in the field, Dr. Folsom could have safely avoided a treatment of this subject; as it is, his second chapter, entitled "Anatomy and Physiology," occupies nearly one-third of the book, and yet fails to attain the comprehensiveness of the afore-mentioned manuals. Chapter vii., on the origin of adaptations and of species, might well have been omitted, for it contains nothing that is new and little that is not almost common knowledge; curiously enough, though de Vries's work is discussed, there is no mention of Mendel or his followers.

The inevitable result of these two unnecessary chapters is an unfortunate brevity of treatment in the more useful and interesting sections of the book, and many important phenomena and facts are crowded out altogether. The author may claim (as he does) that his work is "concise," but hardly that it is "comprehensive," since there is no mention of the life-history of Mantidæ, of the eggs of Phasmidæ, of fig-insects, of the cuckoo-spit, of the formation of stick-lac, of the remarkable symbiosis of Acari and bees of the genus Koptorthosoma, of the extraordinary beetles Mormolyce and Hypocephalus. The accounts of parthenogenesis, of phosphorescent insects, and of aquatic insects are lamentably brief, and nothing at all is said of the insects found in caves.

Chapter ix., on insects in relation to other animals, is one of the best in the book; Dr. S. A. Forbes's admirable reports on the insect food of birds and fishes have been largely drawn upon, and deserve the attention directed to them. We have not noticed many errors, but the following need correction in a later edition:—Paraponyx is not the only lepidopterous genus with truly aquatic larvæ (p. 184); *parakleta* should be *paralekta* (p. 216); it is at least doubtful if the mimicry of bees and wasps by species of the genus Volucella can be classed under the heading of aggressive mimicry; it is far more probable that the flies secure immunity from the attacks of vertebrate foes by their resemblance to stinging insects than that this resemblance enables them to enter unobserved the nests of hosts who are quick enough to resist the intrusion of strangers of their own species (p. 235); the blood-parasite conveyed by *Glossina morsitans* is not similar to the malarial parasite (p. 306). The tsetse-fly is cited as the carrier of the blood-parasite in nagana disease, but not of the organism causing sleeping sickness. In the anatomical chapter some reference should be made to the fact that the stomodæal and proctodæal sections of the alimentary canal are lined with chitin, whilst the mesenteron, being of endodermal origin, is not.

The numerous text figures are for the most part excellent, and a goodly proportion are original; special attention may be directed to Figs. 242 and 260; the latter, if a genuine record of an actual occurrence, is a triumph of nature-photography; Fig. 244, illustrating protective mimicry, is unfortunate, for it represents *Eristalis tenax* mimicking a stingless drone-bee. The coloured frontispiece is not only a poor example of what can be done in these days of improved methods of chromolithography and three-colour photography, but also abounds in errors, *e.g.* Fig. 1, labelled *Heliconius eucrate*, is *Lycorea halia*; Fig. 4 is not *Mechanitis lysimnia*, but *Melinaea ethra*; Fig. 5 is not *Papilio merope* ♂ from South Africa, but *Papilio antinorii* ♀ from Abyssinia; Fig. 8 is *Amauris echeria* from West Africa, not from South Africa; Fig. 10 is not really like any butterfly known to science, but it apparently represents *Papilio merope*, ♀ form *cenea*, though it is labelled *Amauris echeria*, the "model" of the Papilio mimic; Fig. 11, labelled *Papilio merope* ♀, is apparently *P. echerioides* ♀. This gives a total of six errors in eleven figures! It is evident that the author has reproduced the errors occurring in the plates illustrating Weismann's "Evolution Theory," and it is a pity that, in the case of the African butterflies at any rate, he did not consult Trimen's classical paper or the frontispiece to Poulton's "Colours of Animals."

A useful bibliography and a trustworthy and comprehensive index conclude the work. R. S.