

x. and xi. give an account of the recent experiments on saturated and superheated vapours made in the Munich laboratory, and by Marks and Davis, and new equations for the specific heat, entropy, energy, and heat content of superheated steam are deduced and published for the first time. Throttling and "wire-drawing" are treated very fully, and a concise discussion of the various types of steam turbines and refrigerating apparatus using vapour media brings this useful and eminently practical volume to a close.

THREE BOOKS ON ENTOMOLOGY.

- (1) *The Entomologist's Log-Book, and Dictionary of the Life Histories and Food Plants of the British Macro-Lepidoptera.* By A. G. Scorer. Pp. vii + 374. (London: George Routledge and Sons, Ltd., 1913.) Price 7s. 6d. net.
- (2) *The Fauna of British India, including Ceylon and Burma.* Edited by Dr. A. E. Shipley, assisted by Guy A. K. Marshall. *Diptera nematocera* (excluding Chironomidæ and Culicidæ). By E. Brunetti. Pp. xxix + 581 + xii plates. (London: Taylor and Francis; Calcutta: Thacker, Spink and Co., 1912.) Price 20s.
- (3) *Handbuch der Entomologie.* Herausgegeben von Prof. Chr. Schröder. Lieferung 1-3. Pp. iv + 480. (Jena: Gustav Fischer, 1912-13.) Price 15 marks.
- (1) "THE Entomologist's Log-Book," compiled by Mr. Scorer, should be extremely useful to all those who for any reason are interested in the natural history of our British butterflies and larger moths. Not only the ordinary collector, but also the worker in bionomic problems and the economic entomologist will find here information of value in easily accessible form. The arrangement of the book is alphabetical, the names of both insects and plants occurring in their proper order, so that reference to any item that may be wanted can be found at once. Under the name of each plant is given a full list of the Macrolepidoptera that feed upon it; while as to the insects themselves, it would be difficult to adduce any well-authenticated fact of their life-history which is not duly recorded in the appropriate place. We have tested the data in several particulars, and have found them accurate and trustworthy as representing existing knowledge. There are still gaps in our information as to life-histories; many of these, it is to be hoped, will be filled up by the help of Mr. Scorer's book, the usefulness of which is enhanced by interleaving with blank pages.
- (2) The names of the editors and author of the

recently published volume of the "Fauna of British India," dealing with the *Diptera nematocera*, are a sufficient guarantee that the work is worthy of the admirable series to which it belongs. The study of the two-winged flies, besides its intrinsic scientific interest, derives great importance from the influence exercised by members of the order upon agriculture and forestry, and their intimate connection with various forms of disease. Mr. Brunetti's work bears the impress of much minute and careful investigation; and the sections devoted to the external anatomy, the life-history of the early stages, and the classification of the Diptera are as valuable in their way as the more distinctively systematic portion. The plates of wing-venation and other details are well executed and clear.

(3) The first three parts of the elaborate "Handbuch der Entomologie," issued under the editorship of Prof. Schröder, contain chapters by Prof. Deegener, of Berlin, on the integuments and cutaneous organs, on the nervous system and organs of sense, the alimentary tract with its appendages, the organs of respiration and circulation, the body-cavity, the musculature and endoskeleton of insects. Dr. Prochnow adds a section on stridulating and other sound-producing organs. The portion at present published, which runs to nearly 500 pages, is less than a quarter of the work as it will ultimately appear. It will be seen, therefore, that the treatise has been planned on an extensive scale. The parts now before us constitute the fullest connected account as yet available of the departments of insect morphology with which they deal. The execution of the work is for the most part good, and the figures reach a high standard of merit. The bibliography, though in places not quite complete, has evidently been compiled with great care.

In a general work of this kind, however excellent, it usually happens that the student of special points finds something to criticise. There is no exception here; the section devoted to scent-glands contains several statements that are open to question, and a figure is borrowed from Illig which purports to represent a plume-scale from *Pieris napi*, but gives a very erroneous idea of that structure. Freiling, from whom several figures are taken, though cited in the text, appears to have no place in the bibliography. But slips of this kind are rare. It is worth noting that the remarkable conclusions on pupal assimilation announced by the Gräfin von Linden (see NATURE, vol. xc., 1913, p. 379) are considered by Prof. Deegener to be unwarranted by the existing evidence.

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