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A TEXT-BOOK OF HUMAN PARASITOLOGY.

The Animal Parasites of Man. By Dr. H. B. Fantham, Prof. J. W. W. Stephens, and Prof. F. V. Theobald. Pp. xxxii+900. (London: John Bale, Sons and Danielsson, Ltd., 1916.) Price 45*s.* net.

THIS volume is, according to the title-page, partly adapted from the fourth edition (1908) of Braun's "Die Tierischen Parasiten des Menschen," but the section on the Protozoa has been almost entirely rewritten in order to bring it up to date, and the section on the worms has received so many additions to its text and figures, and has consequently been remodelled to such an extent, that it also may be regarded as in large degree new.

An introductory chapter deals in an interesting manner with the general characters of parasites and the influence of parasites on their hosts.

The section on Protozoa (186 pages, by Dr. Fantham) contains a systematic account of the Protozoa known to occur in man, and also of the more important forms, especially the trypanosomes, which have been found in animals—laboratory, domestic, and draught—likely to come under the notice of medical officers. In addition to the undoubted Protozoa, the Spirochætes and the Chlamydozoa receive adequate treatment. The morphology and life-history (so far as this is ascertained) of the various organisms are stated in clear and concise terms, and the results of recent work—up to about July, 1915—are incorporated, the later papers being noticed in an appendix, which also contains directions for preparing culture media and some helpful notes on general protozoological technique.

There does not appear to be any mention of Amœbæ of the *limax* type, found from time to time in the large intestine of man; a statement of the characters of this type of Amœba would have been helpful.

The whole account is well done, but the part dealing with the flagellates may be especially commended.

The section on the flat and round worms (271 pages, by Prof. Stephens) is an excellent piece of work, in which the numerous recent researches on these groups have received full attention. By the insertion, in the section on Schistosoma (Bilharzia), of a slip giving the characters of the two species, *S. haematobium* and *S. mansoni*, based on the observations of the War Office Bilharzia Mission in Egypt, the literature on these parasites is brought down to March, 1916. The anatomy of the adult, the characters of the egg and the known larval stages, the accompanying symptoms, and the pathological effects of the various parasitic worms recorded from man are clearly set forth. Special praise is due to the author for the excellence of the illustrations, many of which are either new or reproduced from recent memoirs.

The section on the Arthropoda (133 pages, by Prof. Theobald) gives a systematic account of the mites, ticks, and insects which have been recorded as attacking man. Much unaltered text from the previous edition has been retained, and with this numerous paragraphs dealing with new matter have been incorporated. This has no doubt been the cause of the use in places of obsolete nomenclature, *e.g.* the dog flea is named *Pulex serraticeps* on p. 546; its correct modern name is given on the next page, but without any suggestion that the two names are in any way synonymous.

The first part of this section deals with the Arachnida—mites, ticks, etc. Much work has been done on ticks since the last edition was issued, and many excellent figures have been published, but the present account is illustrated only with the four figures from the edition of 1906. The legend of one of these (Fig. 359B) is incorrect, the structure shown being the terminal part of the chelicera and not "the terminal joint of the maxillary palpi." The statement of the characters of some of the species of ticks is entirely inadequate, *e.g. Amblyomma cajennense* is "characterised by the possession of eyes," and no other characters are given except the measurements of the adult male and female.

The short account of the lice is reprinted with the old figures from the edition of 1906, and there is no reference to the body-louse as carrier of relapsing fever and typhus. The five figures of fleas in the former edition are reprinted; new figures should have been added to enable the reader to follow the essential differences between the principal genera described. The characters of the plague-flea are insufficiently set forth, and in the short paragraph on the relation of this flea to plague is the statement: "How the flea infects man does not apparently seem to have been proved, as it does not do so through its bite." The work of Bacot and Martin on the part played by fleas in which the proventriculus is blocked by a culture of plague bacilli has evidently been overlooked.

In the account of the structure of a mosquito two defects may be noted: on pp. 548 (last line) to 550 the terms labium and labrum are transposed (as in the last edition); and the mosquito's œsophagus bears one large ventral diverticulum in addition to the two small lateral (really dorso-lateral) ones mentioned on p. 550. The account of Phlebotomus is wanting in several respects, *e.g.* the statement of the characters of the larva is so defective as to be valueless.

The difficulties to be overcome in preparing an adequate account of insects in relation to man are undoubtedly great, but the present account does not attain the same high standard of accuracy and completeness as the first two sections of the volume.

A supplement (115 pages) contains a translation of Dr. Seifert's appendix to the last German edition giving clinical and therapeutical notes. The first part of this, on the Protozoa, has been largely rewritten, but the parts on parasitic worms and arthropods are little changed.

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