THE SUCKING LICE

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In 1919, when Prof. Ferris published the first part of his well-known "Contributions toward a Monograph of the Sucking Lice", he mentioned that all discussion of the group as a whole and all keys to the families and genera must necessarily be delayed until the completion of his examination and redescription of the genera and species of the group. The final part of this section of his work was published in 1935, and there followed a long interval during which students of lice must almost have given up hope that the promised discussion of the group as a whole and the supergeneric classification would ever be published. The appearance of this volume now is therefore doubly welcome. Prof. Ferris is well known, not only as the foremost student of the Anoplura, but also as an outstandingly good artist, and the present book will enhance his reputation in both respects.

The book starts with a very brief review of the arthropod parasites of birds and mammals, followed by a detailed and profusely illustrated account of the external and internal morphology of the Anoplura. Both text and illustrations are beautifully clear; but it is unfortunate that there should be an occasional reference to the wrong figure (as, for example, on p. 48, where one is referred to Fig. 25 for a structure actually shown in Fig. 24). This is followed by a brief but adequate chapter on growth and development.

In the next chapter, on the taxonomic status of the sucking lice, Prof. Ferris maintains that they should constitute a separate order, principally because of the great difference between the mouthparts of the Anoplura and Mallophaga. This is admittedly largely a matter of opinion; but in view of the suggestion of Prof. Ferris that the contrary view is based mainly on similarities of habit as opposed to morphological considerations, it is worth mentioning that Clay (Nature, 164, 617; 1949) has demonstrated the development of piercing mouthparts in that sub-order (Amblycera) of Mallophaga from which the Anoplura certainly did not arise directly, and that there are morphological grounds—the fact, for example, that the male genitalia of Pediculus are obviously a slightly simplified version of a type
frequent in the Trichodectidae, and the possession by the females of these two groups (to the almost total exclusion of other Phthiraptera) of free lobes that Prof. Ferris considers to be the gonopods of segment eight, or of obvious relics of these lobes—from which it is possible to deduce with some confidence that the Trichodectidae are the group of Mallophaga from which the Anoplura must have been derived, quite apart from the fact that both groups are exclusively parasitic on mammals.

In the fifth chapter, concerned with classification within the Anoplura, Prof. Ferris gives a historical review and a brief outline of the classification adopted in the book. The groups typified by *Hoplopleura* and *Linognathus* are raised to family rank and the family Echinophthiriiidae is restored, but the greatest novelty in this classification is the removal of the genus *Pedicinus* from the Pediculidae to the Hoplopleuridae. Prof. Ferris expects criticism on this point, and doubtless this criticism will be forthcoming from those who hold that the lice of related hosts must necessarily be related; but I can only express my complete agreement with his view that any classification of lice must be based on morphology and not on host-relationships, though the latter may legitimately be used as confirmation or to assist in assessing the value of a morphological character if this is otherwise doubtful.

The distribution on squirrels belonging to the genus *Xerus* of lice of the genera *Enderleimellus* and *Neo-haematopinus* (see Hopkins, *Proc. Zool. Soc. Lond.*, 119, 427; 1949) forms an almost perfect parallel to the distribution of *Pediculus* and *Pedicinus* on the Primates, assuming the belief of Prof. Ferris that these two genera are not closely related to be correct. There are undoubted exceptions to the general rule that lice of a given group occur on a given group of hosts; these anomalies should be regarded as a challenge to us to explain them, and the practice of some authors (rightly condemned by Prof. Ferris) of concealing these anomalies by minimizing the importance of real differences or by erecting new systematic units based almost solely on considerations of host rather than morphology is distortion of the truth. The great difficulty is, of course, to know what characters should be regarded as fundamental; Prof. Ferris discusses on p. 66 some of the reasons for this, of which the most important is perhaps the degree to which the structure of the Anoplura has been affected by what most writers would call degeneracy, but which he prefers to call “evolution by loss”.

The “review of the families, subfamilies, genera and species of the Anoplura” makes up considerably more than half the book and is a contribution of the
first importance to the taxonomy of the group. It contains definitions of all the families, keys to the subfamilies, genera and species, lists of the species and their bibliography, comprehensive figures of the species found on domestic mammals and of the type species (or a typical species) of all the genera except *Hemoptilum*, which was not available.

In more than one passage Prof. Ferris remarks on the possibility that his disgust at the results of unrestrained "species mongering" may have led him too far in the direction of "lumping". I think that in some instances this has undoubtedly been the case, and particularly deplore the refusal of Prof. Ferris to recognize any unit below the rank of species. *Hematopinus asinii* for example, as found on East African zebras, is obviously (and apparently constantly) different from the same species as found on the ass; to refuse to use trinomials for these morphologically different populations conceals, but does not alter, the fact that they are different. Taking a somewhat different case, Ferris admits (p. 279) the occurrence on African negroes of a louse that is typically strikingly different from *Pediculus humanus* as found on Europeans, but refuses (p. 271) to recognize *P. humanus nigritarum* because of the existence of intermediates. No doubt the lice of white men and of negroes have followed the example of their owners by interbreeding, but the supposed fact, that there are no pure races of man does not prevent our recognizing the fact that races exist and that a negro and a white man are not exactly the same. I entirely agree with Prof. Ferris in his view that the problem of the lice of man and New World monkeys should be tackled genetically, but (because it is so much easier to put together pieces of information that have been wrongly segregated than to disentangle pieces that have been wrongly placed under one heading) I think it far better to recognize provisionally all named subspecies of *Pediculus humanus* for the existence of which a prima facie case can be made out on morphological grounds, quite regardless of any personal views as to whether genetical examination will result in their rejection or their retention.

There are a host-list of the Anoplura, a chapter on their distribution, and indexes of the lice themselves and of their hosts.

The book is undoubtedly by far the most important contribution to our knowledge of the Anoplura since the same author's "Contributions toward a Monograph of the Sucking Lice". It is, and will long remain, an absolute essential to any student of the group.

G. H. E. Hopkins