

the subject is presented to us in logical fashion by a recognized authority. The terminology of the wing-veins of insects has always been a subject for debate, and the difficulties have not been diminished by the fact that at different times various authors have adopted systems of nomenclature that have taken little recognition of the work of others. Some authors, indeed, have not helped to unravel the skein by using different systems even when dealing with the same order of insects. It is a matter for congratulation, therefore, that Professor Comstock has found it possible to gather together and present in book form his numerous researches and those of other workers with a view to the adoption of a uniform terminology, the well-known Comstock-Needham system.

Commencing with what he considers as the most likely hypothetical type of wing-venation, the author traces out the homologies of the wing-veins and shows how the more specialized forms have arisen from the more generalized along three quite distinct lines; namely, 1. Increase in the number of wing-veins by the addition of accessory veins. 2. Increase in the number of wing-veins by the addition of intercalary veins. 3. Reduction in the number of wing-veins by the coalescence of veins, and also in many cases, by the atrophy of veins. In support of his theories Professor Comstock brings to bear information and facts laboriously gathered from the various provinces of palæontology, morphology, embryology and histology. In the first of these, judicious use is made of the careful work of Anton Handlirsch embodied in his "Die Fossilen Insekten und die Phylogenie der Rezenten Formen." Whilst on the whole Professor Comstock agrees with the views of the palæontologist, he differs with Handlirsch in his idea that all insects had a common ancestry in the Palæodictyoptera of Devonian times.

In a work that bears throughout the impress of the master-hand, it were invidious to make distinctions; but we must say that the chapter dealing with "The Basal Connections of the Tracheæ of the Wings of Insects," written by one of Professor Comstock's students, appeals to us particularly as a very careful piece of work. It is shown that there is a strict correlation between the tracheation of the wings of insects and the venation, although this fact is often obscured in the adult to accord with its needs and habits. In the study of the tracheation of the wings of nymphs and of pupæ the truth of the conclusion is demonstrated that the wings of all orders of insects are modifications of a single primitive type, and that consequently it is possible to homologise the wing-veins of any of the orders with those of any other order.

In a series of nineteen chapters Professor Comstock discusses in detail numerous types of venation as found in the various orders of insects, and a valuable chapter outlining laboratory work in the study of the venation of the wings of insects, enhances the value of the book as an aid to the teaching of the subject in universities and colleges. The student will also find an exhaustive bibliography of the more important works referred to in the text. The illustrations are excellent, and the explanatory letters very distinct.

Entomological Branch, Dept. of Agri., Ottawa, Ont. A. E. CAMERON.