

SCIENTIFIC BOOKS

Die Forstinsekten Mitteleuropas. Ein Lehr- und Handbuch, by K. ESCHERICH, Vol. III. pp. xi+725; figs. 608; 13 colored plates. Paul Parey, Berlin, 1931.

WHEN I first met Dr. Escherich (it was in 1906 in the big Forest School at Tharandt, Saxony) he told me that he was working on a revision of the fine work on the forest insects of middle Europe by Judeich and Nitsche. But Dr. Escherich was a very busy man, and, in 1911, spent several months in the United States traveling all over the country with me. On his return to Germany he wrote an admirable book on "Applied Entomology in the United States" and founded the German Society for Applied Entomology. It was not until 1913 that the first volume of this broadly planned work appeared. It was a well-illustrated volume of 432 pages and included a general consideration of insects, their morphology, anatomy and physiology, their development, their place in nature, their enemies and diseases, their outbreaks in disastrous numbers, the cultural means of avoiding damage and other general matters.

Then came the war, and Escherich was drawn into the military service of his country as a surgeon, and it was not until 1923 that the second volume was finished. I believe that I reviewed it in the columns of SCIENCE. It is a larger and very well-illustrated volume of 665 pages, and is devoted almost entirely to the Coleoptera, although there is a consideration of the less specialized orders. Naturally, the bark beetles are treated in much detail.

And now comes this magnificent third volume, which is devoted, as would be quite expected, almost wholly to the Lepidoptera—an order containing very many of the most destructive enemies of forest trees. And yet it is far from being simply a running account of or a detailed consideration of the species that thrive in Central Europe. It is the broadest kind of treatment. It goes into questions of morphology and anatomy, considers the damage done in general by this group, treats of them from the epidemiological point of view, and gives some space to the diseases of lepidopterous larvae. Since he has long studied the diseases of insects, he naturally gives some consideration to the different forms of these diseases, both those caused by bacteria and by microsporidia, and also naturally treats of the curious polyhedral diseases.

He displays rather fully the different systems of classification of this group, taking up consecutively the schemes of Boerner, Handlirsch, Hering, Heymons, Imms and Wolff and Krouwse. It is very interesting to see all these systems displayed by comparison, and it is also interesting to note that he gives Boerner's system precedence. The present

writer is greatly pleased to note the prominence given in most of these systems to the ideas of our own J. H. Comstock and to his classification based largely on wing venation; in fact there are many illustrations of the wing venations of many families in general.

In his introduction Escherich speaks of the rapidly broadening work carried on in this field since the publication (in 1923) of his second volume. This is especially marked in the taking up of Ecology as applied to general forest conditions, as well as to all the inhabitants. Not only during that period, but for a number of years before that time, the forest has been becoming more and more thought of as a whole, and this of course is the broadly scientific way to do it. Escherich has been a leader in this line of thought.

The writer then introduces a synoptic arrangement of insect damage by Lepidoptera, and then goes on to treat the larger groups and the species under them in a consecutive manner. The illustrations are very numerous and many of them are original. The 13 colored plates are of course all new and are very well done.

The first volume of this very great work was naturally dedicated to Heinrich Nitsche, and there is an excellent portrait of him as a frontispiece. The second volume is dedicated to J. T. C. Ratzeburg, who is referred to "des Altmeisters und Begründers der angewandten Entomologie." Escherich is quite right in referring to Ratzeburg as practically the founder of applied entomology in Germany so far as forest insects are concerned, but I think that future history will show or should show that Escherich himself is very largely, if not wholly, responsible for the great revival and broadening of the whole field in his country. Of course others took a part, notably Ludzig Reh, but since Escherich returned to Europe in the autumn of 1911 and published his book on "Applied Entomology in the United States" his appeal to the entomologists of Germany to found a society dealing with the practical aspects of the science met with an immediate response, and since then big things have been done over there. Some of the soundest and most usable papers are now coming from that country.

Since the present writer is not a forest entomologist and since his knowledge of the German language has failed him of later years, he realizes that this review is not a competent one and that his warm friend Escherich will be disappointed. Nevertheless, it is plain that "The Forest Insects of Middle Europe" is a great work, and that it has been done by a master.

L. O. HOWARD

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