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Blood Digestion in Haematophagous Insects

edited by THIERRY A. FREYVOGEL

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Introductory remarks

On the occasion of the Third International Congress of Parasitology in Munich, in August 1974, the present editor was asked to organize and chair the section on "Physiology and Biochemistry of Parasitic Arthropods".

Since the above topic is so broad it was decided to concentrate as much as possible on one aspect, and blood digestion in haematophagous insects was chosen. In view of this, the four papers, now presented in this journal, were invited.

In the course of evolution, haematophagous arthropods have become food specialists. This, in itself, is of sufficient interest to parasitologists, who have to ask the question what particular adaptation this newly acquired mode of feeding entailed with respect to host finding, to food intake as well as to food digestion. In addition, in close conjunction with the particular mode of feeding, several arthropod species have become important vectors of helminths, protozoans and microorganisms, which all are taken up by the arthropods concerned at the time of ingesting. The pathogens, thus, all are to spend some time in the vectors' midgut, where they are exposed, to some extent at least, to digestive enzymes, that is to say to a potentially hostile environment. It is, therefore, felt that more knowledge of blood digestion processes as well as of pathogen/vector relationship during gut passage is of great importance for a better understanding of pathogen transmission.

The questions to be asked are numerous. They refer to the structures involved in blood digestion, to the biochemistry of the various enzymes involved, to the effects of a blood meal on the general

physiology of the arthropods concerned, and, last but not least, to the implications of the mode(s) of digestion on pathogen transmission.

I am indebted to all four authors for submitting their papers for publication, since they were originally intended only for presentation at the Munich Congress. It is evident that they cannot deal with the subject extensively or in a final way. If this presentation of the subjects triggers a broader discussion among interested scientists, it, however, will fulfil its main aim.