

BIBLIOGRAPHICAL NOTICE.

Die Pilzthiere oder Schleimpilze. Von Dr. W. ZOPF. Breslau:
E. Trewendt, 1885.

It is now more than twenty years since the publication of De Bary's 'Mycetozoen,' which first called general attention to the remarkable life-history of these organisms. The first result of that publication was to raise a storm of criticism, which, so far as it was respectful and the outcome of reflection, was natural enough. The occasion was one of a new and somewhat startling departure, and it naturally surprised some more than others. The violence of the criticism was in proportion to the unpreparedness of the critic, and a considerable body of it produced in this country was characterized by abject ignorance of the bearings of the investigation and consequent misrepresentation of its results. First of all it was pretty commonly thought that the whole thing was absurd, chiefly because it was imperfectly understood. Next came a period of indifference and relapse, to be followed by the energetic and well-directed work of recent years.

Rostafinski's beautiful monograph (1875) was the next great contribution to our knowledge; but from the fact that it is written in Polish it is accessible only in a fragmentary way. For example, Dr. M. C. Cooke has extracted and translated the parts referring to such species as have been recorded in Britain; but this gives one merely so much as to lead to a demand for more. To come to more recent publications, De Bary's treatment of the group in the 'Vergleichende Morphologie' (noticed in *Ann. & Mag. Nat. Hist.* Nov. 1884) has been followed by two valuable publications, viz. that at the head of this notice and Schröter's treatise, just published, which begins the third volume of the 'Kryptogamen-Flora von Schlesien.' The latter is merely a systematic arrangement, differing, it is true, from Zopf's as to the disposition of a number of genera, but not otherwise in any striking way. In all of these publications, from Rostafinski's onwards, there is manifest the fruit directly borne by the investigations recorded in the 'Mycetozoen,' which were so long regarded by many with indifference.

Dr. Zopf has succeeded in producing an extremely useful book; the matter is well arranged, the descriptions clear, and the illustrations good and plentiful. After a short introduction the book is divided into three parts, dealing with the morphology, physiology, and systematic disposition respectively. The first and second sections are remarkably well done, and the amount of detail is just what is desirable in such a handbook. In the systematic section the student will be agreeably surprised to find not an outline merely, but detailed descriptions of species, such as are certain to render great service in their identification. The 174 pages of the book are about as well filled with useful matter as could be desired.

As regards the position of this group of obscure organisms, there is naturally a great temptation to place it between true fungi and *Bacteria*, though there is much to be urged against yielding to this.
G. M.

MISCELLANEOUS.

On the Circulation of the Larvæ of Ephemera.

By N. CREUTZBURG.

IN the microscopic investigations which I have made in the laboratory of the Zoological Institution at Leipzig upon the circulation of the blood in the larvæ of *Ephemera diptera*, I have succeeded in arriving at some interesting results, which I wish now to bring into general knowledge as briefly as possible, reserving a more detailed treatment of the subject to some future time.

My observations, in which I availed myself of M. Verlooren's memoir on the circulation of the blood in insects * as my foundation, had for their principal object the part taken by the dorsal vessel in the movement of the blood in the caudal setæ of the *Ephemera*-larvæ. This is effected, as indeed is shown by Verlooren in the above-mentioned memoir, by the contractions of a pyriform vessel, which, situated in the last abdominal segment, appears to be a direct continuation of the dorsal vessel, and on a superficial examination may easily be taken for its last chamber. This view is contradicted, however, by the circumstance that this vessel is quite independent of the contractions of the dorsal vessel.

With regard to this vessel Verlooren speaks as follows in the above essay (pp. 84, 85):—

“We find in it no lateral apertures with their valvular arrangement belonging to them, but in the middle a single apparatus, the valvular membranes of which are opposite in direction to the valves of the dorsal vessel. This apparatus therefore permits a flow of the blood from before backwards, a flow opposite to that occurring in the dorsal vessel.

“If this organ is connected with the posterior extremity of the heart, it may be furnished by the action of the latter with blood, which therefore will acquire a movement from before backward. This blood will then be communicated to it by the heart-chamber situated in the fourteenth segment. If no such union be present, blood may be conveyed into it from without, from the body-cavity, by the action of the valvular apparatus.”

The latter view appears to be regarded by Verlooren as in accordance with the truth, for he says (p. 84) it seemed to him that no communication existed between the heart and the vessel in question.

* Mém. couronnés de l'Acad. Roy. de Belgique, 4to, tome xix.



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