

of an association of the Rhizopods with the Algæ.¹ This would almost seem natural, when we consider that the vesicles of many Fuci contain a viscid, filamentous substance, so similar to that protruded from the body of the Rhizopods, that the most careful microscopic examination does not disclose the slightest difference in its structure from that which mainly forms the body of Rhizopods. The discovery by Schultze² of what he considers as the germinal granules of these beings, by no means settles this question, though we have similar ovoid masses in Algæ, and though, among the latter, locomotive forms are also very numerous.

With reference to the Infusoria, I have long since expressed my conviction that they are an unnatural combination of the most heterogeneous beings. A large number of them, the Desmidiæ and Volvocinæ, are locomotive Algæ. Indeed, recent investigations seem to have established beyond all question, the fact, that all the Infusoria Anentera of Ehrenberg are Algæ. The Enterodela, however, are true animals, but belong to two very distinct types, for the Vorticellidæ differ entirely from all others. Indeed, they are, in my opinion, the only independent animals of that group, and so far from having any natural affinity with the other Enterodela, I do not doubt that their true place is by the side of Bryozoa, among Mollusks, as I shall attempt to show presently. Isolated observations which I have been able to make upon Paramecium, Opalina, and the like, seem to me sufficient to justify the assumption that they disclose the true nature of the bulk of this group. I have seen, for instance, a Planaria lay eggs out of which Paramecium were born, which underwent all the changes these animals are known to undergo up to the time of their contraction into a chrysalis state; while the Opalina is hatched from Distoma eggs. I shall publish the details of these observations on another occasion. But if it can be shown that two such types as Paramecium and Opalina are the progeny of Worms, it seems to me to follow, that all the Enterodela, with the exception of the Vorticellidæ, must be considered as the embryonic condition of that host of Worms, both parasitic and free, the metamorphosis of which is still unstudied. In this connection, I might further remark, that the time is not long past when Cercaria was also considered as belonging to the class of Infusoria, though at present no one doubts that it belongs to the cycle of Distoma; and the only link in the metamorphosis of that genus which was not known is now supplied, since, as I have stated above, the embryo which is hatched from the egg laid by the perfect Distoma is found to be Opalina.

All this leads to the conclusion, that a division of the animal kingdom to be called Protozoa, differing from all other animals in producing no eggs, does not exist in nature, and that the beings which have been referred to it have now

¹ Comp. Chap. I., Sect. 18, p. 75.

² SCHULTZE, (M. S.,) Polythalamien, q. a.; p. 24.