XIV.—*On Protospongia pedicellata, a new compound Infusorian.*

By Frederick Oxley, F.R.M.S.

(*Read 11th June*, 1884.)

This interesting organism was first discovered by me in a pond near Snaresbrook, Essex, in the spring of the year 1882. I was searching the numerous ponds in that neighbourhood for *Volvox globator*, and happened to dip a bottle amongst some rushes in a quiet corner, which appeared to be a likely place to find what I was looking for. On holding the bottle up to the light I observed in it a number of minute flocculent bodies, the nature of which I could not determine with a pocket-lens, and therefore carried them home for further examination.

With the Microscope I found them to consist of colonies of monads possessing collars and flagella, and connected together in vast numbers and in rather close proximity to one another on the periphery of some exceedingly transparent hyaline substance.

Being out of health, and, moreover, having only a very slight acquaintance with the group of Choano-flagellata, derived from Mr. Saville Kent's papers in the 'Popular Science Review' and 'Monthly Microscopical Journal,' and from some specimens shown me by my friend Mr. Charles Thomas, of Buckhurst Hill, I did not at that time recognize that any new discovery had been made, but I gave some specimens to Mr. Thomas which we examined together, and also spoke of them to another microscopical friend, Mr. C. Livingston, who resides near the pond out of which they had been obtained.

In the spring of the present year, 1884, I again visited the pond in company with Mr. Livingston and Mr. Thomas, and there found the organism again in great abundance. Mr. Livingston took great interest in the little creatures and examined them under very high powers, and made measurements and computations from which it appeared that the bodies of the individual monads are from the 1/3000 to the 1/2500 of an in. in length, the collars when extended being about twice, and the flagella five to seven times the length of the bodies, and that the number of individuals composing a colony amounted to from 10,000 to 20,000 or more. Mr. Livingston was not able from Kent's 'Manual of the Infusoria' to identify the species, the nearest approach to it appearing to be that described by Mr. Kent under the name of *Protospongia Häckeli*. He therefore sent Mr. Kent some specimens for identification. Mr. Kent considered the specimens undoubtedly new, and interesting to him as tending to support the conclusion he had arrived

at as to the relationship between the Infusoria and the sponges, but being on the eve of his departure for Tasmania he was unable to pursue the subject. Mr. Kent also pointed out the fact, which my friends' and my own observations have since confirmed, that each individual monad is furnished with a short pedicel or footstalk by which it is held in position in the zoocytium, this footstalk, according to Mr. Livingston's measurement, being about the 1/10,000 of an in. in length.

Specimens, accompanied by a short description, were sent to Herr von Stein, who gathered from the description that the species was new; but the specimens themselves were lost in the post. A specimen mounted with osmic acid has, however, since been sent, which has enabled him to confirm his opinion.

The drought we have experienced for some weeks past has so dried up the pond from which my specimens were obtained, that no more are to be had at present, and I have not therefore been able to satisfy myself that *Protospongia pedicellata* agrees in all points with Mr. Kent's description of the genus; but so far as my obser-

FIG. 85.

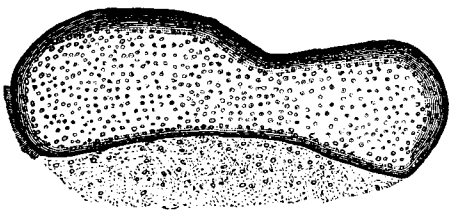
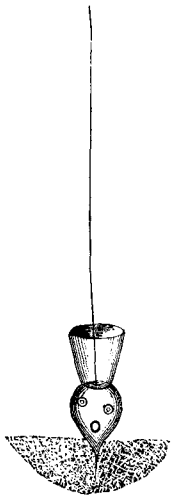


FIG. 86.



vations have extended, it differs from *P. Häckeli* in the possession of a footstalk and in the number of individuals comprised in a colony, fifty or sixty only being the number assigned by Mr. Kent to *P. Häckeli*, whilst I have not met with any colony of *P. pedicellata* that did not contain a thousand or more.

I am indebted to Mr. Thomas for the drawing accompanying this paper (fig. 85), which is an attempt to represent the appearance of a moderate sized colony as viewed by a 2/3 in. objective with A eye-piece, but no drawing can give an adequate idea of the beauty of the organism when illuminated by the paraboloid and displaying its thousands of flagella in active vibration causing the entire colony to sail slowly about the field of view. Fig. 86 represents an individual monad very highly magnified showing the footstalk.

The collars are of course not seen in these circumstances, as they require a high power to observe them properly, but after having been seen and studied under a 1/16 they are easily recognized with a 1/4 in. or even a 2/3 under favourable circumstances of illumination. The mucilaginous zoocytium can only be seen with difficulty owing to its extreme transparency and freedom from foreign particles, and is best distinguished under black-ground illumination with a low power.

The shape of the colonies is usually more rounded than that of the specimen from which Mr. Thomas's drawing was taken, sometimes approaching a spherical form, but always presenting indications of having been attached to some other body. They probably grow on the stems of rushes, &c., but attached so slightly as to be easily displaced when the water is agitated by dipping a bottle, mouth downwards, amongst the rushes, moving it about a little and then suddenly reversing it, taking care not to stir up the mud from the bottom of the pond.