

which acted as poisons, instead of those which might serve as food, he failed in his endeavours. Equally unsuccessful were the trials made by Ehrenberg with the indigo and gum-lac of commerce, which are always contaminated with a certain quantity of white lead, a substance highly deleterious to all animals; but, at length by employing an indigo which was quite pure, he succeeded perfectly.\* The moment a minute particle of a highly attenuated solution of this substance is applied to a drop of water in which are some pedunculated vorticellæ, occupying the field of the microscope, the most beautiful phenomena present themselves to the eye. Currents are excited in all directions by the vibrations of the cilia, situated round the mouths of these animalcules, and are readily distinguished by the motions of the minute particles of indigo which are carried along with them; the currents generally all converging towards the orifice of the mouth. Presently the body of the vorticella, which had been hitherto quite transparent, becomes dotted with a number of distinctly circular spots, of a dark blue colour, evidently produced by particles of indigo accumulated in those situations. In some species, particularly those which have a contracted part, or neck, between the head and the body, as the *Rotifer vulgaris*, these particles may be traced in a continuous line in their progress from the mouth through the neck, into the internal cavities.

In this way, by the employment of colouring matters, Ehrenberg succeeded in ascertaining the existence of a system of digestive cavities in all the known genera of this tribe of animals. There is now, therefore, no reason for admitting that cuticular absorption of nutritive matter ever takes place

\* The colouring matters proper for these experiments are such as do not chemically combine with water, but yet are capable of being diffused in a state of very minute division. Indigo, sap, green and carmine, answer these conditions, and being also easily recognised under the microscope, are well adapted for these observations. Great care should be taken, however, that the substance employed is free from all admixture of lead, or other metallic impurity.