

§ 5. *Comparative Physiology of Vision.*

IN the formation of every part of the animal machinery we may generally discern the predominance of the law of gradation; but this law is more especially observed in those organs which exhibit, in their most perfect state, the greatest complication and refinement of structure; for on following all their varieties in the ascending series, we always find them advancing by slow gradations of improvement, before they attain their highest degree of excellence. Thus, the organ of vision presents, amidst an infinite variety of constructions, successive degrees of refinement, accompanied by corresponding extensions of power. So gradual is the progress of this development, that it is not easy to determine the point where the faculty of vision, properly so called, begins to be exercised, or where the first rudiment of its organ begins to appear.

Indications of a certain degree of sensibility to light are afforded by many of the lower tribes of Zoophytes, while no visible organ appropriated to receive its impressions can be traced. This is the case with many microscopic animalcules; and still more remarkably with the *Hydra*, and the *Actinia*, which show by their movements that they feel the influence of this agent; for, when confined in a vessel, they always place themselves, by preference, on the side where there is the strongest light.* The *Veretillum cynomorium*, on the other hand, seeks the darkest places, and contracts itself the moment it is exposed to light.† In a perfectly calm sea, the *Medusæ* which are rising towards the surface, are seen to change their course, and to descend again, as soon as they reach those parts of the water which receive the full influence of the sun's rays, and before any part of

* Such is the uniform report of Trembley, Baker, Bonnet, Goëze, Hahn, Roesel, and Schæffer.

† Rapp; Nov. Act. Acad. Nat. Cur. of Bonn, xiv. 645.