would be of interest to study this question in the Pycnogonida, but the limited number of the specimens of the different species of *Phoxichilidium* in the Challenger collection did not allow me to study their eyes. I investigated those of *Nymphon strömii*, but there the difference in size is slight; I did not ascertain any difference in their structure.

The knowledge of the minute structure of the eyes of the Pycnogonids is of very recent date. They were always considered as simple eyes, and were even mentioned as such by Cavanna. Dohrn, therefore, in the preliminary publication on the results of his studies on Pycnogonids, is the first who gives us some information on these organs. According to him the eyes, taken in a vertical position, are of a pointed oval shape;[1] they have a retina composed of modified epithelium cells (hypodermic cells), the extremities of which are surrounded by a brown pigment; the cuticula forms a lens.

Among the latest investigations into the structure of the eyes of the Arthropoda, those of Grenacher, published in his splendid memoir,[2] have the merit in the first place not only in proposing a homology between the parts composing a compound and those composing a simple eye, but also in showing the existence of this homology throughout almost the whole type of the Arthropods. Moreover, the value of his monograph with regard to the physiology of the organ of sight, and the immense quantity of special information which it contains, is at present almost inestimable. In investigating the eyes of the Pycnogonids, I was extremely desirous to try whether the scheme for the eye of the Arthropods, as proposed by him, would hold good also in the case of the Pycnogonids. Though my researches did not give me a complete idea of the anatomy of their eyes, I think my results are worth publishing here, because they admit of comparison with the scheme given by Grenacher.[3]

I made numerous preparations of the eyes of different species of the genus *Nymphon*; of *N. brevicaudatum*, Miers, *N. brachyrhynchus*, Hoek, *N. strömii*, Kröyer, and of the rudimentary eyes of *Nymphon robustum*, Bell. I studied more especially those I made of *Nymphon brachyrhynchus* and of *Nymphon strömii*. While the eyes of *Nymphon strömii* (Pl. XVIII. fig. 11, B) are comparatively small, and placed on the sides of a conical tubercle, so as to be separated by a greater distance from one another below than above; those of *Nymphon brachyrhynchus* are larger, and are placed on the inside of a cylindrical oculiferous tubercle, so close to one another as to meet at their inner surfaces. In fig. 2,

[1] Von oben nach unten spitz oval (*loc. cit.*, p. 37).

[2] Grenacher, H.—Untersuchungen uber das Sehorgan der Arthropoden, 4°, Göttingen, 1879.

[3] For studying the histology of the Arthropod's eye fresh material, in the first place, is necessary. That I got preparations fit to be used of the eyes of *Nymphon brachyrhynchus*, collected at Kerguelen Island, and put in spirits in January 1874, is almost more than could be expected. In one respect only did the condition of the material hinder me, viz., that I could not make use of some reagents, *e.g.*, of nitric acid. Though used of different strengths, I never obtained the solution of the pigment without the visual rods being destroyed also. Consequently I never got a preparation showing the connection between the fibres of the optic nerve and these rods.