Bütschli had done in the case of a small number of species, would require several years. I can therefore only give the basis of further researches.

In the majority of Spyroidea the three essential elements of the Nassellarian skeleton are easily recognisable, viz.:—A, the vertical sagittal ring of the Stephoidea; B, the basal tripod of the Plectoidea; and C, the latticed cephalis of the Cyrtellaria. These three elements are constantly so combined that the primary sagittal ring bisects the cavity of the lattice-shell and produces an external, longitudinal, more or less distinct constriction, separating the lateral inflated halves of the bilocular cephalis; while the three divergent feet of the basal tripod descend from the cortinar or basal plate of the cephalis. The number of the feet is often augmented; they are rarely wanting (probably reduced). The sagittal ring is constantly present, though its relation to the shell-wall exhibits many modifications. The bilocular form of the fenestrated cephalis, with its sagittal constriction, is characteristic of all true Spyroidea, and separates them from the Botryodea (with multilobate cephalis) on the one hand, and from the Cyrtoidea (with simple cephalis) on the other. There are, however, some intermediate forms between these three suborders of Cyrtellaria, which show a direct transition to one another. Almost constantly the length of the three dimensive axes in the cephalis of the Spyroidea is so different that the lateral or frontal axis is the longest, the sagittal or dorso-ventral axis the shortest, and the principal or longitudinal axis intermediate between them. As in all dipleuric or bilaterally symmetrical forms, the two poles of the frontal axis are equal, whilst the two poles of the sagittal and of the principal axis are more or less different. In only a few forms of Spyroidea these differences are difficult to make out; usually the dorsal side is distinctly different from the ventral, and the apical side from the basal. A perfect knowledge of the dipleuric shell requires therefore accurate observation from all six sides.

The suborder of Spyroidea is here divided into four different families. In the first and original family, the Zygospyrida, the shell is represented by the bilocular cephalis only. The second family, Tholospyrida, is distinguished by a fenestrated cupola or galea, a hemispherical or conical dome, arising from the upper or coryphal face of the cephalis. In the third family, Phormospyrida, a thorax is developed, or a fenestrated basal chamber, arising from the lower or basal face of the cephalis. The fourth family, Androspyrida, combines the characters of the second and the third family, a galea arising from the upper and a thorax from the lower face of the cephalis.

The bilocular cephalis, as the most important and constant part of the skeleton in all Spyroidea, requires a further general consideration. Its lattice-work, very variable in the numerous species, is usually more or less different on the six sides of the nut-shaped shell. Its most important part is the horizontal basal plate or lower face, and the sagittal ring arising from it in the vertical median plane. This part of the shell corresponds exactly to the skeleton of the Semantida, and exhibits the same modifications