

*Classification of the Foraminifera.*¹

It has been already stated that the French naturalist Alcide d'Orbigny was the first to collect the genera of Foraminifera into one zoological group. Before his day their external forms had been studied by a long line of eminent observers—by Plancus and Soldani in Italy, Ledermüller and Batsch in Germany, Linnæus in Sweden, Fichtel and Moll in Austria, Walker and Montagu in England, Lamarck, Defrance and Blainville in France, and many others. By the earlier of these writers they were for the most part regarded as minute varieties of the larger animals which their shells most nearly resembled, and were commonly assigned to such genera as *Nautilus* and *Serpula*: by those of later date, who had arrived at a clearer conception of their distinctive characters, they were formed into independent genera, and distributed over a considerable area of the invertebrata. Until they came in turn to be studied in the living condition, their true zoological position remained still to be determined; but meanwhile d'Orbigny did notable service in treating them collectively as a distinct section of the animal kingdom.

In the "Tableau Méthodique," published in 1826, the Cephalopodous Mollusca (Class CÉPHALOPODES) were divided into three Orders, of which the last was devoted to the Foraminifera; and the Order *Foraminifères* was divided into five families, based upon the mode in which the segments were combined to form the polythalamous shell. After the discovery of monothalamous forms like *Orbulina* and *Lagena*, and the recognition of cyclical types such as *Orbitolites*, two new families were constituted for their reception. In the meantime, however, the researches of Dujardin had made known the true nature of the organisation of the Rhizopoda, and had necessitated the removal of the group to a lower position in the zoological scale. Hence in d'Orbigny's later works,² the *Foraminifères* constitute the 4th Class of ZOOPHYTES (2nd division, "*Zoophytes globuleux*,"—placed between *Polypiers* and *Infusoires*), and are divided into seven Orders, with characters which may be briefly summarised as follows:—

Order 1. *Monostègues*.—Shell formed of a single chamber.

Order 2. *Cyclostègues*.—Shell discoidal, composed of concentric lines of cells, simple or multiple; never spiral.

Order 3. *Stichostègues*.—Shell formed of chambers joined end to end in a straight or curved line; never spiral.

Order 4. *Helicostègues*.—Shell composed of chambers in a single series, spirally coiled.

Order 5. *Entomostègues*.—Shell composed of chambers arranged in two alternating series and spirally coiled.

¹ In this, as in other sections of the present Report, the material collected for the preliminary Notes on Challenger Foraminifera, published in the *Quarterly Journal of Microscopical Sciences*, 1879-1880, has been freely utilised.

² Cours élémentaire de Paléontologie et de Géologie stratigraphiques, vol. ii. p. 189. Paris, 1852.