

published up to his time; but he could not distinguish the natural groups critically. Marked progress in our anatomical knowledge of the Calyconectæ was made by the excellent descriptions of different Diphyidæ which were published in the third period of our knowledge of Siphonophoræ (from 1853 to 1859, 4-10) by Kölliker, Leuckart, Vogt, Gegenbaur, and Huxley. Two of these celebrated zoologists simultaneously and independently discovered, in the spring of the year 1853, that the monogastric Diphyidæ, or the so-called *Eudoxiæ*, were the isolated individual groups (or cormidia) of the polygastric Diphyidæ, detached from the common stem, and that the former were connected with the latter by a regular metagenesis. Gegenbaur observed in Messina the detached *Eudoxiæ* of *Abyla pentagona*.<sup>1</sup> The same observation was made at the same time in Nice by Leuckart, who further demonstrated that the monogastric *Eudoxia campanula* was the detached sexual zooid of his *Diphyes acumindta* (5, pp. 41, 69).

Leuckart in the next year (8, p. 256) replaced the name Diphyidæ by the more convenient term Calycophoridæ, and united in this family the true Diphyidæ (with two nectophores, *loc. cit.*, p. 257) and the Hippopodidæ (with a biserial nectosome, composed of four or more nectophores, *loc. cit.*, p. 298). The latter were formerly regarded as a separate family of Physophoridæ, though they possess no float filled by air.

Huxley in his great work (9, 1859) adopted the main group Calycophoridæ, and opposed it to all other Siphonophoræ or Physophoridæ. He gave the first exact description of many hitherto incompletely known forms, mainly Abylidæ. He was also the first to describe a very remarkable Calycophorid, which possesses only a single permanent nectophore, under the name *Sphæronectes köllikeri*, and rightly regarded it as the type of a new family, Sphæronectidæ.<sup>2</sup> Fifteen years later a very similar species of the same genus was described by Claus under the name *Monophyes gracilis* (70, pl. iv.). He observed its metagenesis and connection with that *Eudoxia* which Gegenbaur had described in 1854 as *Diplophysa inermis*.<sup>3</sup> The peculiar family represented by these Calycophoridæ, the Sphæronectidæ of Huxley, was called by Claus Monophyidæ, in opposition to Diphyidæ. Following the systematic manuals of recent years, I adopt the term Monophyidæ for all those polygastric Calyconectæ which possess only a single permanent nectophore, while I restrict the term Diphyidæ to those forms which have two permanent nectophores. A third family is formed by the Hippopodidæ,<sup>4</sup> which possess numerous (at least three or four) nectophores arranged in a biserial nectosome; they were afterwards named Polyphyidæ by Chun (86, p. 12).

The Polyphyidæ differ from the other Calycophoridæ in the lack of bracts. A new group, described in the sequel as Desmophyidæ, is intermediate between the Diphyidæ and Polyphyidæ, having in common with the former the possession of a bract on each eudoxome, with the latter a biserial nectosome, composed of numerous nectophores.

<sup>1</sup> 7, p. 295; 4, p. 78; 31, p. 106.

<sup>2</sup> 7, Taf. xvi. fig. 3.

<sup>3</sup> 9, pp. 29, 50, pl. iii. fig. 4.

<sup>4</sup> Kölliker, 4, p. 28.