

directly into *Cucubalus eschscholtzii* (= *Eudoxia eschscholtzii*), the monogastric generation of *Muggiæa kochii*.

Scarcely different from this is the ontogeny of another Monophyid (*Cymbonectes huxleyi* (Pl. XXVII. figs. 8–11), which I observed in December 1881 during my residence at Belligemma, in Ceylon. The Calyconula here presents distinctly the character of a bilateral Medusa, through the ventral fissure of which the siphon was protruded; its distal end opens through the mouth rather early. Its similarity to the young *Eudoxia* of the same species is interesting.

*Metamorphosis*.—All Calyconectæ seem to undergo a metamorphosis, since the gastrula, developed from the fertilised egg, develops into a larva differing more or less considerably from the adult state. But the metamorphosis of the larva is very little known, and has been observed in a few species only. Chun, who has observed accurately the metamorphosis of some Monophyidæ and Diphyidæ (86–88), holds the opinion that the primary umbrella of the medusiform larva is always lost and replaced by a heteromorphous secondary umbrella. More extended researches are required to prove whether this supposition is generally true.

*Metagenesis*.—The majority of Calyconectæ are subject to a regular metagenesis, two different generations alternating regularly, as in the majority of the Anthomedusæ. The first generation is a monogastric and sexually developed cormidium—*Eudoxia* or *Ersæa*. From its fertilised egg arises a larva, which is transformed by metamorphosis into the second generation—Monophyid or Diphyid. Its body is a polygastric corm, the tubular stem of which produces numerous cormidia by budding asexually. Each cormidium, provided with a single siphon, afterwards becomes detached from the stem, and maturing as a *Eudoxid* or *Ersæid* returns to the first generation.

*Hypogenesis*.—The minority of Calyconectæ develop by hypogenesis (not by metagenesis); the cormidia arrive at full sexual maturity whilst sessile on the common stem, and are not detached from the latter. There is here, therefore, no free and independent monogastric generation; neither free *Eudoxidæ* nor *Ersæidæ* arise. The ontogeny of these polygastric corms is in a strict sense a strophogenesis.<sup>1</sup>

The Calyconectæ which are developed by hypogenesis are the following:—All the Polyphyidæ and Desmophyidæ, some Diphyidæ (*Galeolaria*, *Lilyopsis*, and *Praya*?) and several Monophyidæ (*Monophyes* partly?, *Mitrophyes*, and *Cymbonectes*). All the other Calyconectæ develop by metagenesis. There seem to be, however, some intermediate forms of ontogeny, in some species the male gonophoræ becoming detached, whilst the females remain attached to the stem, or inversely. These relations, as well as the whole ontogeny of the Calyconectæ, require further accurate examination.

<sup>1</sup> On the difference between metagenesis and strophogenesis, see my *Generelle Morphologie*, 1866, Bd. ii. pp. 104–109, and on Hypogenesis, *op. cit.*, p. 99.