

of Physonects, which I communicated to the Medicin. Naturwiss. Gesellschaft in Jena on July 8 and November 25, 1887 (95, pp. 38-42). I then gave the definition of twenty-five different genera (ten of which were new), and disposed them in eight families, four of which were new. Four families had already been distinguished by Huxley (9, p. 70), viz.:—(1) Apolemidae; (2) Stephanomidae (=Agalmidae, Brandt); (3) Physophoridae (*sensu restricto*); and (4) Athorybidae (=Anthophysidae, Brandt). The four new families of my system are—(1) Circalidae; (2) Athoridae; (3) Forskalidae; and (4) Nectalidae.

All authors up to this time have employed for this order the name Physophoridae, given by Eschscholtz (1, p. 139). But this name has become unserviceable, since it is used with no less than four different meanings (95, pp. 38, 41). Huxley applies it to all Siphonophoræ, with the single exception of the Calyconectidae (9, p. 67). The majority of authors employ the name in the sense of Eschscholtz, comprising not only our Physonectæ, but also the Cystonectæ (fifth order). Chun first separated the latter from the former, and proposed the term Physophoridae for the first, and Pneumatophoridae for the second (86, p. 1168). But, besides, the special family which I call Discolabidae (XVI.) is generally named Physophoridae. To avoid this general confusion, I propose for this order the name Physonectæ.

*Nectosome.*—The swimming apparatus is composed in all Physonectæ of an apical float or pneumatophore placed at the top of the trunk, and of a variable number of nectophores or swimming-bells, arranged in a variable manner around the trunk; rarely these nectophores are replaced by paddling bracts (Athoridae, Anthophysidae). The Physonectæ have therefore combined in their locomotive apparatus the active swimming-bells of the Calyconectæ and the passive hydrostatic float of the Cystonectæ and Disconectæ. They agree in this combination with the Auronectæ, but differ from these in the absence of the aurophore as well as in the simple tubular trunk and the structure of the siphosome. The physiological function of the two portions of the nectosome is very different; the hydrostatic float is comparable to the swimming-bladder of the fishes, and enables the Physonectæ to rise or descend; whereas the active movements of the nectophores, or the paddling bracts which these replace, effect the voluntary locomotion in every direction.

*Pneumatophore.*—The float filled with air, rising from the top of the axial trunk, is in all Physonectæ relatively small; much smaller than that of the Auronectæ and Cystonectæ; it rarely attains the size of a nectophore (Circalidae); usually it is scarcely half as large, or less. Whilst the physiological importance of the float rests in its hydrostatic function (as "swimming-bladder"), its morphological nature is explained by its development; the pneumatophore is the modified umbrella of the original Medusa, the manubrium of which is the axial trunk (or the first siphon). (Compare above, p. 11.) Its form is usually ovate, spindle-shaped or pyriform, sometimes subspherical, at other