those which produce free Medusæ, and others which do not; some which consist entirely of Hydræ, and others of combined Hydræ and Medusæ; some start from Hydræ, others from Medusæ,—the communities themselves consisting either of a larger number of Hydroids, or of a larger number of Medusæ, when the two types are combined. These various combinations lead naturally to the formation of subordinate groups among Hydroids. Considering the mode of reproduction of the Acalephs in general, the highest Hydroids would, of course, be those in which the medusoid elements prevail, and the lowest, those in which the hydroid elements are most prominent. We have, therefore, to inquire first whether there are any genuine naked-eyed Medusæ which do not originate from Hydræ, in order to answer a question already raised respecting the true limits of the order of Hydroids, and the true position of the Æquoridæ and Æginidæ.

There are Æginidæ, unquestionably, which undergo a direct metamorphosis, and it is probable that this is the case with all of them. But are the Æginidæ genuine naked-eyed Medusæ, or a low type of the Discophoræ allied to the Charybdeidæ? My knowledge of this family is too limited to enable me to speak confidently upon that point; but I am inclined to consider them as belonging rather to the Discophoræ proper than to the Hydroids. In the first place the Æginidæ have no radiating chymiferous tubes, as all true naked-eyed Medusæ have; but instead of them there arise broad, flat pouches from the main cavity, extending toward the margin of the disk, as in Ephyra, the young of Aurelia and Cyanea, and as in the adult of the latter and of many other genera of Discophoræ proper. The Æginidæ have no circular chymiferous tube, as all true naked-eyed Medusæ have. Again, the tentacles of the Æginidæ are not strictly marginal, and, in the absence of a circular tube, cannot be closely connected with it as is the case in all true naked-eyed Medusæ, but are in direct communication with the radiating pouches of the main cavity, as in Pelagia and Cyanea. If, then, for these reasons, the Æginidæ should be associated with the higher Discophoræ, instead of occupying a place among the naked-eyed Medusæ, the importance attached by Gegenbaur to the marginal seam of the umbrella, as a distinctive character of the lower Discophoræ, would be greatly lessened; and I rather think rightly so, for many of the higher Discophoræ, and among them our common Aurelia, have the margin of their umbrella not only very thin, but turned inward and downward as in all Craspedota, and their tentacles arise between indentations of the disc (Pl. VII. *Figs.* 2, 3, and 4; Pl. VIII. *Fig.* 5, and Pl. IX. *Fig.* 4), at some distance from its margin, as is the case in the Æginidæ.

As to the Æquoridæ, I have no doubt that they are genuine Hydroids, though I have not been able to trace with certainty the origin of the Æquorea of our coast to any true Hydroid. But the structure of Æquorea, in its adult