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CONDUCTED BY

ALBERT C. L. G. GÜNTHER, M.A., M.D., Ph.D., F.R.S.,
WILLIAM S. DALLAS, F.L.S.,
WILLIAM CARRUTHERS, F.R.S., P.L.S., F.G.S.,
AND
WILLIAM FRANCIS, Ph.D., F.L.S.

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XXI.—*On a new* Athorybia. By J. Walter Fewkes.

[Plate VII.]

The genus *Athorybia* is remarkable among Physophores in that the stem is very short, the nectocalyces are absent, and the appendages appear to arise about the base of the float. Its whole anatomy shows embryonic features, since the young of several other genera of Siphonophores pass through a stage in which they have what may be called an *Athorybia*-stage. *Athorybia* is, in point of fact, a genus which, while it has embryonic likenesses, has become sexually mature, although it is ordinarily regarded as an adult. Whether or not it ever passes out of this stage into some other form no one has yet been able to discover.

From the coast of Florida we have a genus allied to *Anthophysa*, to which I have given the name of *Diplorybia*, on account of the existence of two kinds of tentacular knobs *.

The waters of California, so rich in genera of Medusæ, have not hitherto yielded a single species of *Athorybia*. The writer is able to add to the list of Medusæ found in the waters of California a new *Athorybia* for which he suggests the name *A. californica*.

Athorybia californica, sp. nov.

Float.—The float is large, conspicuous, and carried upright as the animal swims in the water. Colour pink, with apical zone dark crimson to brown.

Nectocalyces.—No nectocalyces or nectostem present.

Hydrophyllia.—The hydrophyllia arise from an enlargement at the base of the float. They are leaf-like, transparent, gelatinous, placed in a ring about the lower region of the float, above the polypites, tasters, and tentacles. They are ordinarily carried extended at right angles to the axis of the float and are capable of a free flapping movement, by which the animal may be propelled through the water.

Each hydrophyllium is thin, indented on either side at a point situated about half its length by a well-marked indentation or notch. The distal extremity is rounded and pointed, the proximal being united to the body by a short and incon-

* I formerly called this Floridan Physophore, discovered at Key West, Florida, a new species of *Athorybia* (*A. formosa*). Hæckel refers it to *Anthophysa*; but it seems to me that it should receive a new generic name, and I have elsewhere suggested the name *Diplorybia*.

spicuous peduncle. The outer surface of each hydrophyllium is crossed by longitudinal rows of nematocysts, which are easily seen.

Each hydrophyllium is penetrated by a tube, which communicates with the cavity of the body below the float. This tube ends cæcally at the distal extremity of the hydrophyllium, and is simple and unbranched.

Tasters.—Below the circle of hydrophyllia there arise from the body of the *Athorybia* numerous long, highly flexible, flask-shaped bodies, which closely resemble the so-called "tasters" of Physophores. They also recall the flexible bodies which are found appended to the nectostem of *Apolemia* *.

They can be gracefully moved back and forth and can be extended outward between the hydrophyllia, so that their extremities often reach far beyond these organs. Filamentous appendages of the tasters were not noticed. The tasters have a pinkish colour.

Polypites.—A single, large, well-developed, and several immature polypites were noticed. The large, fully developed polypite, *p*, opens directly into the cavity of the body below the float, of which it appeared to be a continuation. This polypite is flask-shaped, with an opening or mouth at the distal end which extends far beyond the hydrophyllia. The lips of the mouth are often expanded, imparting a trumpet-shape to this region of the polypite. This polypite is more opaque than the others, although partially digested food was observed through its outer body-walls. The other polypites are immature, closely resembling in form the tasters, and in many of them an open mouth was observed.

Three well-developed tentacles are figured in my sketch (Pl. VII. fig. 1). The tentacle, *t*, which arises from the basal region of the largest polypite is somewhat more conspicuous than the others. The tentacles were observed to have a single kind of tentacular knob (fig. 2), which, while it differs considerably from either kind of tentacular knob found in *Diplorybia formosa*, resembles somewhat those of *Athorybia rosacea*, Köll. Each tentacular knob has a single unbranched peduncle, *pd*, which hangs at intervals from the tentacle itself.

The structure of the tentacular knob of *A. californica* is peculiar †. The base of the knob by which it is joined to

* For these bodies in *Apolemia* the name nectotasters is suggested.

† The tentacular knobs of *A. californica* differ very greatly from those of any known species of *Athorybia*. The character of the tentacular knobs is a very good feature by which to distinguish different species of Physophoran genera.

the peduncle forms a saeculus. The sacculus, *s*, ordinarily forming a bell-shaped covering enveloping a structure known as the involucrum, is in our new Californian *Athorybia* very much modified and reduced in size. It is a globular or hemispherical enlargement which shows the "spongy" cellular walls which have been described in the knobs of the genus *Rhizophysa*. On one side this hemispherical sacculus is enlarged or extended into a conical projection, recalling the beak-like processes of certain of the knobs of the genus *Rhizophysa*. This portion of the knob likewise shows the characteristic "spongy" cellular contents. The apex is tipped by a conspicuous pigment-spot.

The involucrum, *i*, takes a single turn, and is seldom covered by the sacculus. It is densely pigmented and apparently formed of well-developed nematocysts.

There is a single terminal median vesicle, *tv*, and two terminal filaments, *tf*. These structures have a close likeness to the same bodies in other Physophores, and seem more like immature than fully developed knobs.

The size of the whole body, including its length without tentacles from the apex of the float to the open end of the polypite, is one eighth of an inch. The diameter from one tip of the expanded hydrophyllia to that of the opposite has the same or approximately the same measurement. The animal was taken in the Santa Barbara Channel, off the coast of Southern California.

The question naturally arises, Is not this the young of some long-stemmed Physophore, like *Agalma*, as yet unrecorded from the Californian waters of the Pacific? There is nothing to prevent our answering this question in the affirmative, since we know that several genera pass through a similar form in the course of their development *. Still the animal which we have represented in our Plate, even if a larval form of some long-stemmed Physophore, is in certain respects different from any larva which has yet been described.

The sexual bodies lie around the bases of the polypites, but they are very little developed, a fact which certainly looks as if the animal is a larval form. Still, even if they were well developed, that fact alone does not indicate that the animal is mature, for among the Physophores examples might be instanced in which a genus matures its sexual products before its adult form is reached.

* In my studies on the Pacific coast I have never taken a long-stemmed Physophore of any kind, and I am not aware that others have recorded them from the locality where my studies were made.

EXPLANATION OF PLATE VII.

Fig. 1. *Athorybia californica.* A view from the side, showing the hydrophyllia more or less expanded; tentacles and polypite extended. Drawn from a living specimen.

Fig. 2. Single tentacular knob very much magnified.

Lettering.

a. Apex of sacculus.
f. Float.
hc. Hydrophyllium.
i. Involucrum.
p. Polypite.
pd. Peduncle of the tentacular knob.
s. Sacculus.
t. Tentacle.
tf. Terminal filament.
tk. Tentacular knob.
ts. Taster.
tv. Terminal vesicle.

Cambridge, U. S. A.,
November, 1888.

XXII.—*Further Observations on the Foraminiferal Genus* Orbitoides *of d'Orbigny.* By H. J. Carter, F.R.S. &c.

Since my observations on the genus *Orbitoides* of d'Orbigny were published ('Annals,' 1888, vol. ii. p. 439) I have received several type specimens of *Orbitoides media* from the Upper Chalk in the south-west of France, which, being the same in specific characters as those from the Chalk of Maestricht that I had already described (*op. et loc. cit.* p. 445), have enabled me personally to compare the two, which previously I had only been able to effect by quoting M. le Vicomte d'Archiac's description of this fossil under the name of "*Orbitolites media*" (*ib.* p. 446).

For this welcome present I am indebted to my kind friend Mons. G. Berthelin, formerly of Nantes, now residing in Paris, whose valuable contributions to the knowledge of Foraminifera are well known, and who, on learning from the paper to which I have alluded that I had no specimens of "*Orbitoides media*" from France to compare with d'Orbigny's illustrations, immediately sent me twenty, labelled "*Orbitoides media,* d'Archiac, sp. Dordonien (Craie supér.), Meschers (Charente-Inf.), près Royan." These appear from their smallness, varying from 5-48ths to 6-24ths inch in horizontal diameter, to belong to the lesser size mentioned by d'Archiac as probably being young forms of his larger one rather than a different species, which measured "50 millim." in diameter (*op. et loc. cit.*).

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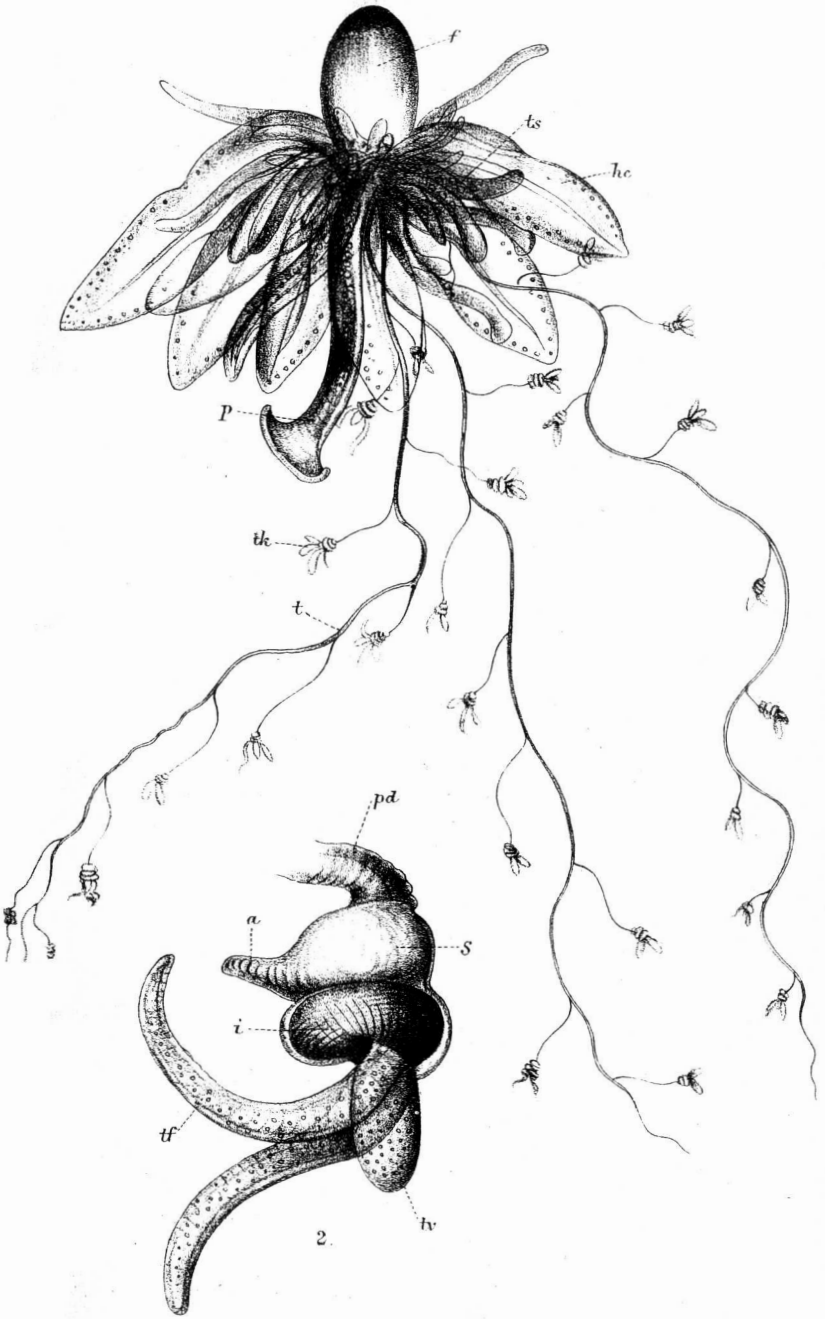

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