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also criticizes (*ibid*, pp. 466-9) Hagen's paper on "The color and pattern of insects."——Dr. Edward Hoffer (*ibid*, pp. 412-421) gives some interesting facts as to the nest-building of humble-bees.——We regret to see that with the change of political power in California there has been a change in the officers of the Horticultural Commission that does not seem to be an advantage. Bitter complaint is made, for instance, of the removal of Mr. Matthew Cooke, who has been indefatigable in his labors on the commission.——Some vine cuttings from Madeira were recently held in New York in the belief that they were affected by Phylloxera. Specimens were sent by Collector Robertson to the State Department and finally submitted to us for examination and suggestion. We advised their immediate forwarding, as there were no grounds for their detention.

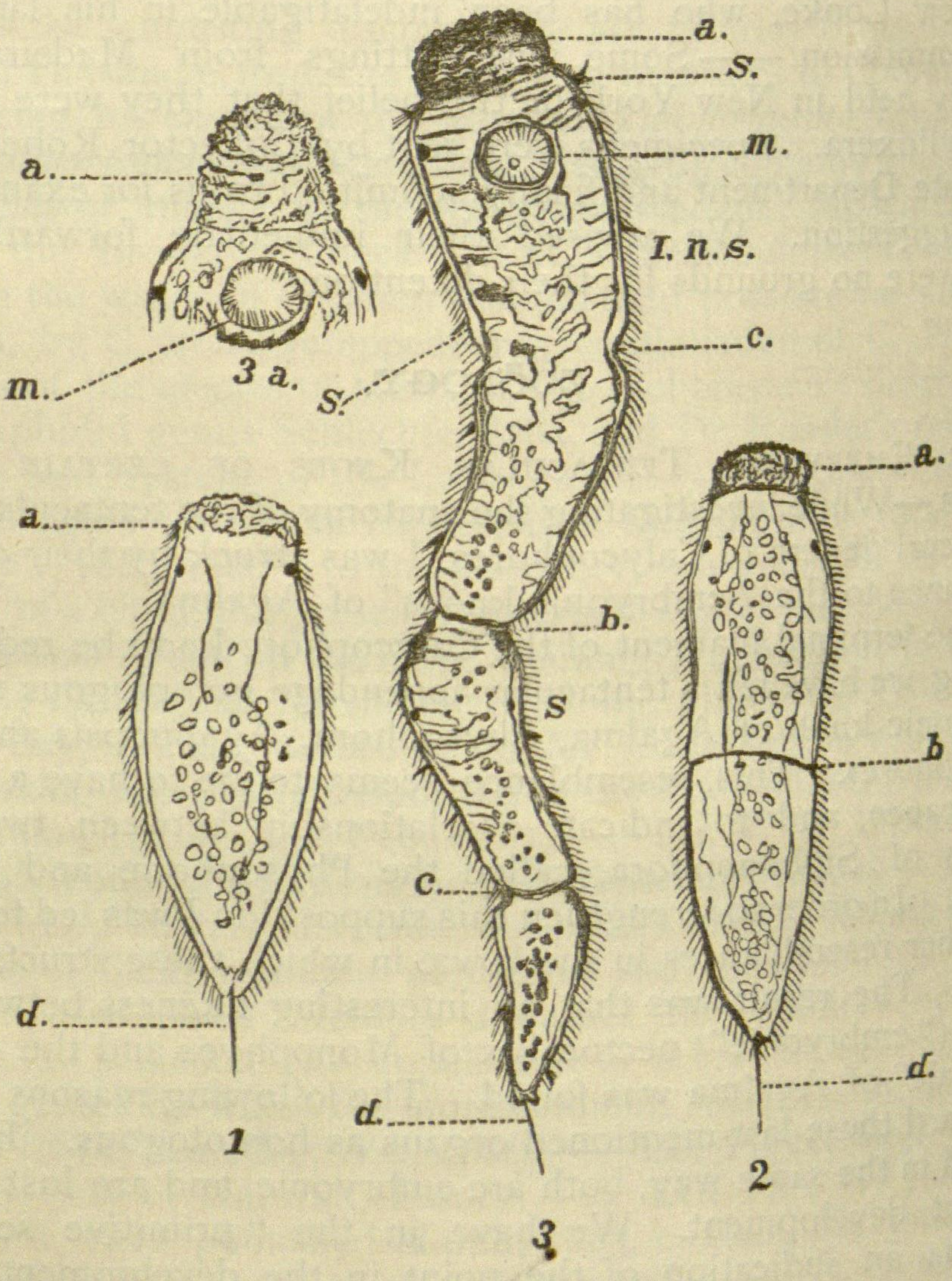
ZOÖLOGY.

THE EMBRYONIC TENTACULAR KNOBS OF CERTAIN PHYSOPHORES.—While investigating the anatomy of the tentacular knobs of several genera of Calycophores, I was struck by their close resemblance to the "embryonic knobs" of Agalma.

If the terminal filament of the Calycophore knob be reduced to nothing, we have left a tentacular appendage homologous with the embryonic knob of Agalma, Physophora, Agalmopsis and other Physophores. This resemblance seems to me to have a genetic significance, and to indicate a relationship between two great groups of Siphonophora, called the Physophoræ and Calycophoræ. In order to strengthen this supposition I was led to search out other resemblances in the larvæ in which these structures are found. The result was that an interesting likeness between the single ("embryonic") nectocalyx of Monophyes and the "primitive scale" of Agalma was found. The following reasons led me to regard these last-mentioned organs as homologous. Both are formed in the same way, both are embryonic and are lost in subsequent development. We have in the "primitive scale" of Agalma an indication of the point in the development of the Siphonophora, where the separation of the Physophoræ from the Calycophoræ, or where the separation of both groups, from a "stem form," took place. The embryonic bell of Monophyes is an organ of motion; the primitive scale of the young Agalma, although homologous to a bell, has lost the function of motion, and is an organ of flotation, while in Agalmopsis (Halistemma) the embryonic bell is not even represented. The only structure in the larva of Agalmopsis (Halistemma), which shows the relation of this genus to the Calycophoræ is an embryonic tentacular knob, like that of the larva of Agalma, which is thought to be homologous to the tentacular appendage of the Calycophores. This statement of a possible genetic relationship between these

two groups is not held to apply to the Pneumatophoræ ("Pneumatophoridæ" Chun), nor to the Discoideæ.—*F. Walter Fewkes.*

NOTE ON ALAURINA PROLIFERA BUSCH.—The rich pelagic fauna of New England waters contains many genera and species of marine Turbellaria which have not been studied by American zoölogists. The accompanying sketches of Alaurina do not add



EXPLANATION OF THE FIGURES.—FIG. 1.—Single asexual (?) Alaurina, the walls of which are destitute of constrictions. There is a non-ciliated proboscis, two eye-spots and a terminal posterior spine; the body is ciliated. FIG. 2.—Alaurina with a single constriction (*b*); this worm was found free swimming and may be an older larva of Fig. 1, or the posterior of the two worms which are united in the next figure. FIG. 3.—The oldest specimen of an asexual Alaurina which was observed; in this worm we have a deep constriction (*b*) midway between the anterior and posterior extremities of the body; this constriction has been seen to deepen and the two worms to separate from each other at that point; the posterior of the two worms represented as united in Fig. 3, has four eye-spots, two large and two small, situated close together, of these the anterior are the smaller. FIG. 3*a*.—Head of the last (Fig. 3) with extended proboscis (ventral view); *a*, non-ciliated "proboscis," which is covered with small papillæ; *b*, deep constriction which has been seen to divide the asexual Alaurina into two worms; *c*, shallow constrictions; *d*, terminal posterior spine; *m*, mouth (ciliated). There is no vent. *n.s*, natural size of worm represented in Fig. 3; *s*, lateral "spines."

anything to what is already known of the anatomy and development of the genus through the researches of Busch, Metschnikoff, Mereschkowsky and others, but are published simply to call attention to its interesting development. This species, as already stated, has been taken from only one other locality. Other species, however, as *A. composita* Metsch., have been found in the Atlantic ocean.

Color green and yellow, transparent and slightly phosphorescent. All the above-mentioned specimens were taken with a Müller's net in Narragansett bay.—*J. Walter Fewkes.*

Enormous Spider's Web.—When in Franconia valley, N. H., last summer, my wife and myself observed a spider's web of such enormous proportions that it seems worth while to put the phenomenon on record. I regret that I was so foolish as to omit, at the time, taking accurate measurements. The web was of the geometrical kind—very perfect, and stretched between two trees, one a small larch and the other a large sugar maple. The total length of the guys or supports must have been fifteen feet at least, while the web proper was, I should say, all of three feet in circumference. In my desire to be within bounds I really think I under-estimate the dimensions. The span of threads indicated a very large builder, but our utmost search failed to find this architect. I should greatly like to know what species probably constructed this enormous trap.—*W. W. Bailey.*

The Structure and Formation of the Covering of the Decapoda.—The structure of the decapod carapace has usually been examined long after the time of molting, when it is largely composed of calcareous matter, but M. Vitzon, a pupil of Paul Bert and of Lacaze-Duthiers, has studied the recently-formed teguments, and has cleared up much of the mystery attached to the method of change. M. Vitzon has demonstrated that, between the chitinous layer and the chorion or dermis, there also exists an epithelium, and that the carapace is not a secretion of the dermis, as stated by Milne Edwards, but is formed from the cylindrical cells of the epithelium, which are cylindrical, and, during the molting period lengthen considerably, and the more external cellules part away to give origin to the carapace by successive thickenings.

After the new covering is formed, the cylindrical epithelial cells are shorter by one half, and an examination of the chitinous covering some time after reveals four layers: a yellowish and very delicate cuticle, continuous over the whole surface, except where pierced by hairs; a thicker pigment layer, consisting of superposed lamellæ, enclosing calcareous salts and traversed by perpendicular pore-canals; a thick layer, constituting by far the greater bulk of the carapace, white, and formed of calcified lamellæ, traversed by the same perpendicular canals that pierce the preceding, and a thin layer consisting of lamellæ without lime salts.