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[From the Proceedings of the California Academy of Sciences, March 16th, 1874.]

Remarks Suggested by Dr. J. E. Gray's Paper on the "Stick Fish," in "Nature," Nov. 6th, 1873.

BY ROBERT E. C. STEARNS.

At a meeting of this Academy on the 3d of February, 1873, certain switch-like rods, being the axes of some polyp-form, as well as the general characters of Alcyonoid Polyps, were considered and discussed, for the purpose of tracing by analogy and determining the relations and position of the specimens under consideration at that time; and it may be remembered that a paper was read, in which was given at considerable length a resumé of what had appeared in the columns of *Nature*, in the way of notes and comments by several learned gentlemen.

These rods, switches, or wands, as the specimens had been variously called, were first brought to the notice of the Academy on the 5th of June, 1871, when specimens were presented to the Museum, and, so far as an opinion was expressed at that time in a general way, the specimens were placed near the group to which it has been subsequently proved that they belong.

On the 4th of August, 1873, Dr. James Blake submitted an entire specimen of the polyps, of which the rods, etc., are the central stalks or axes: that is, one of these rods or switches was presented by him, with the investing soft or fleshy covering, which proved it to be either a *Pavonaria*, or closely related to that genus. Accordingly, I published a description placing it in the genus *Pavonaria*, and gave it the specific name of "Blakei," (*Pavonaria Blakei*) and the same was printed in the *Mining and Scientific Press* of this city, August 9th, 1873.

Before the succeeding regular meeting of the Academy, which took place August 18th, 1873, through access to more recent literature bearing on the subject, I perceived at once that not only was the species new, but that its separation generically was warranted, and the sub-genus *Verrillia* was made by me to receive it; and a description of the genus and species was read at that meeting, and printed copies of my paper (dated August 20th) were sent to various authors, societies, and scientific journals, in advance of the regular publication of the Academy's Proceedings.

Among the many scientific gentlemen who had discussed the character and relations of the so-called switches, Dr. P. L. Sclater, of the Zoölogical Society, kindly gave publicity to *Verrillia Blakei*, in *Nature*, for October 9th, 1873.

In the same journal, of date Nov. 6th, 1873, Dr. J. E. Gray, of the British Museum, publishes a communication "On the stick-fish, (*Osteocella septentrionalis*) and on the habits of sea-pens," in which he refers to a specimen presented to the Museum by Mr. Coote M. Chambers, and of which he says: "Unfortunately the specimen did not arrive in a good state for exhibition. The greater part of the animal portion had been washed off, probably by the motion of the solution during the transit; only about a foot of the flesh which was loose on the axis, and the thick, swollen, naked, club-shaped base, without polypes, remained; but it was in a sufficiently good state to afford the means of determining its zoölogical situation, and of examining its microscopical and other zoölogical characters."

In the next paragraph, of which I quote a portion, Dr. Gray says: "Mr. Chambers' specimen is the animal of the axis or stick, that I described as *Osteocella septentrionalis*, (Ann. and Mag. Nat. Hist., 1872, p. 406) * * * * * and is evidently the same animal as *Pavonuria Blakei*, described by R. E. C. Stearns."

"Two days after I received this specimen, I received by post Mr. Stearns' description of the stick fish, (*Pavonaria Blakei*) from the San Francisco *Mining and Scientific Press*, August 9th, 1873."

Towards the close of his article, Dr. Gray writes: "Mr. Stearns' paper, in the Proceedings of the California Academy of Sciences, is a reprint of the paper in the San Francisco *Mining and Scientific Press*, with a few additions, and the addition of a new sub-genus, *Verrillia*, although he quotes *Osteocella*." In this paper Mr. Gray gives what he considers "the synonymy of those animals": first, the genera, and next, the species; placing my first generic determination, *Pavonaria*, and my subsequent sub-genus, *Verrillia*, in the order as recited, as synonymes of his genus *Osteocella*.

I would ask Dr. Gray by what warrant, either of science or justice, he places *Pavonaria* or *Verrillia*, definitely described genera, as synonymes of his indefinite and vague *Osteocella*, which latter he publishes as a genus, for it cannot be said he describes it, in the "Catalogue of Sea-Pens—or Pennatulidæ—in the British Museum" 1870, page 40. Gray's genus *Osteocella* is based upon a "bone," (probably the axis of a polyp) which was sent to the British Museum "many years ago," from Australia, by a gentleman named Clifton. The investing fleshy substance, or soft portion of the animal, of which said bone formed a part, had not been seen by Dr. Gray at the time he invented the name *Osteocella*, and even to this date no additional light has been furnished by him regarding the Australian form. He was not even positive that the "bone" belonged to a zoöphyte, for he says: "or, it may be the long conical bone of a form of decapod cephalopod which has not yet occurred to naturalists, as Mr. Clifton spoke of its being a free marine animal: it has a cartilaginous apex like the cuttle fish."

In which of the great divisions of the animal kingdom does Dr. Gray place it, or did he place his Australian bone in 1870?

Courtesy and fairness suggest that as he printed it in the Catalogue of *Pennatulidæ*, it should be conceded, as I have written, in a previous paper, "that, in his mind, the balance of reasoning tends in that direction."

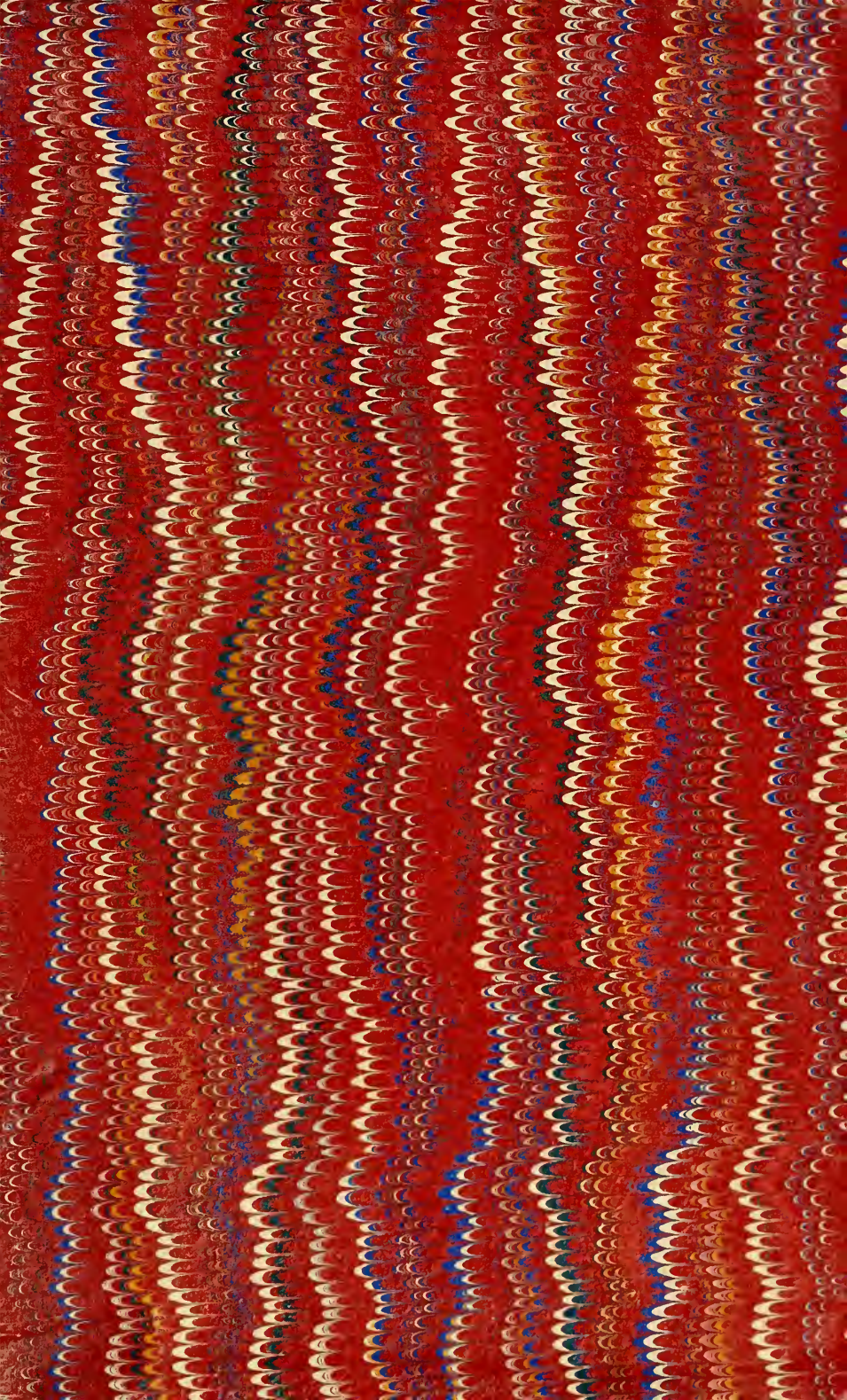
Admitting this latter, what then? The Australian bone upon which rests his genus *Osteocella* is described by Dr. Gray as being "thick, about eleven inches long, tapering at each end." Subsequently he has received one of the stalks, or axes, of what I have named *Verrillia Blakei*; of the latter, he says it is "long, slender, about sixty-four inches long, attenuated at the base, and very much attenuated and elongated at the other end." "Mr. Carter" examined both of the bones referred to, microscopically, and "finds them" to "present the same horny structure," etc. An examination with acid was made, but as it would be rather difficult to comprehend in what way generic or specific determinations within any related groups could be determined by *acid*, this test may be allowed to pass.

The reference of *Verrillia* to *Osteocella* as a synonyme, or otherwise, must rest on this microscopic test, as the soft investing portion of the animal, the perfect or complete polyp or polypidom of the Australian form, to which the bone, if the axis of an alcyonoid, belongs, and upon which Dr. Gray made his genus *Osteocella*, has not, as yet, been seen by him, or brought under scientific observation. He cannot aver, because he does not know, but that it may be a species which belongs to some genus already described, or that it may properly fall in as a sub-genus of some of the genera of Alcyonoids previously known; he does not know but what its relationship may be nearer to any of the other groups than to *Pavonaria*. No description sufficiently accurate to be worthy of consideration can be made from the axial rods or bones alone, of this class of animal forms, nor can species be satisfactorily determined without the fleshy portion; nor, in the present state of our knowledge, can the microscope determine these points.

In his genus *Osteocella*, which, it must be borne in mind, rests solely on the *naked* Australian bone or axis, which he says is "thick," "eleven inches long," as published in the British Museum Catalogue of *Pennatulidæ*, no information is furnished as to the soft investing portion, for the very good reason that it had not been seen by him; yet in the number of *Nature* last quoted, he speaks of "the complete polyp-mass," thus clothing his west Australian *Osteocella* with the fleshy covering of the west North-American *Verrillia*. So much for his generic synonymy. As to the species, the North-American form, as referred to by him, could not be definitely placed, by anything written by Dr. Gray prior to the date of my description.

This is a matter, not of personal pride, but of scientific accuracy; and scientific naturalists should not lose sight of, or be diverted from, this *sine qua non*, or palliate individual idiosyncracies which involve integrity, and which should not be allowed to pass without challenge or comment.





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