Gibbes, Lewis R.

Description of Ranilia muricata Milne Edwards.

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JULY 15th, 1857.

President L. R. Gibbes in the chair.

The President read the following paper:

Description of Ranilia muricata Milne Edwards. By LEWIS R. GIBBES.

Plate 13.

In the *Histoire Naturelle des Crustacés*, M. Edwards gave (tom. ii. p. 195,) the characters of this genus and a description of the only known species. His description was drawn from a single specimen, and that an imperfect one, having lost the terminal segments of the abdomen, and of the four last pairs of feet. Its country was also unknown to him.

In the third volume of the Proceedings of the American Association for the Advancement of Science, (meeting at Charleston, March, 1850,) I announced that this animal inhabited the waters of Key West, and the Atlantic shores of the United States. Having had the opportunity of examining four or five specimens, two of them perfect, with the exception of the terminal (multiarticulate?) and, probably, short segment of the antennæ, I am induced to give the following description, including points omitted by M. Edwards. A few other points, requiring examination, must be considered at another time, as I am unwilling to mutilate the few existing specimens for the sake of close inspection.

RANILIA.

General form much resembling that of *Ranina*, but the carapax is more convex in transverse section, and its anterior border is not straight as in *Ranina*, but is much curved. The anterior border is armed with distant spines, of which the middle one forms the *rostrum*, and is separated from each of the two adjacent ones by a deep incurvation of the edge of the carapax. The *orbits* are directed downwards and slightly backwards, so as to form an inverted V with rather wide spreading branches. *Eyes* with peduncles nearly half the length of the anterior border of the carapax, folding downwards in the orbits, the articulation of the last segment appearing in the space between the rostrum and the

first supra-orbital spine. *External antennæ* with three peduncular segments and a terminal filament, basal segment without the auriculiform appendage of *Ranina*. *External maxillipeds* of nearly the same form as in *Ranina*, the third segment of nearly the same breath as the second, and about equal to it in length, (M. Edwards, by mistake, says that is longer,) and gives insertion near its extremity to the fourth segment, which is folded in a groove at the inner edge of the third segment. The *sternal plate* resembles that of *Ranina*, is broad, widening anteriorly and stretching out into two branches, which unite with the pterygostomian regions of the carapax, separating completely the bases of the external maxillipeds from those of the first pair of feet; between the bases of the second pair of feet the sternal plate becomes linear, as in *Ranina*, but it differs from that of *Ranina*, by widening again between the bases of the third pair of feet, to become again linear between those of the fourth, so that an area somewhat hexagonal is presented between the bases of the second, third and fourth pairs of feet. In general structure, and in the forms of the tarsi, *the feet* closely resemble those of *Ranina*, and the fifth pair are inserted in that genus above the four preceding pair, and a little in advance of those of the fourth pair. *Abdomen* small, linear, when curved under the body, barely reaching to the bases of the third pair of feet, cemposed in both sexes of seven distinct segments, successively diminishing in dimensions.

RANILIA MURICATA.

Pl. 13, Fig. 1 and 2, natural size.

Syn. *Ranilia muricata.* M. Edwards. *Hist. Nat. des Crust.*, tom. ii. p. 196, 1837.
Ranilia muricata. L. R. Gibbes. *Proc. Amer. Assoc.*, vol. iii. p. 187, 1850.

Description.—*Carapax* posteriorly smooth, polished and punctate, anteriorly marked with numerous dispersed piliferous ridges, which are short and denticulate, with two to four obtuse teeth, and pairs, as it were, oppressed, pointing forwards; the lateral edges of carapax terminating anteriorly in a prominent sharp spine. *Rostrum* short. *Eyes* with straight terminal peduncle folding downward and outwards in repose; supra-orbital ridge, with three distant sharp spines, the outermost of these spines being situated a little short of the outer angle of the orbit, and midway between the first of these spine and the one forming anterior termination of lateral edge of carapax; between the spines are more

minute spinulose denticulations, which are continued along the outer angle and lower edge of the orbit; this lower edge is incomplete, and terminates at the base of the outer antennæ in a spine, adjacent to which is another somewhat smaller, forming the anterior termination of the outer border of the buccal frame. Basal segment of the *exterior antennæ* somewhat flattened, outer edge terminating anteriorly in an acute prolongation at the articulation with the second segment.

First pair of feet, of moderate length, third segment stout, with numerous piliferous denticulate ridges; carpus compressed, surface with granulations and denticulate ridges, upper border terminating with an acute spine above the articulation with the hand; the line of this articulation appears to lie in the prolongation of the lower border of the carpus even more decidedly than in *Ranina dentata; hand* much compressed, almost flat, lower edge subtrenchant, nearly straight, ornamented with a raised border without denticulation, even the slightest, and terminating in a stout, moderately curved tooth, which is opposed to the tip of the terminal segment, or moveable finger; upper edge of the hand much arched, granulate, and furnished with a spine a little in advance of its middle; both surfaces of the hand are, like the carapax, polished, and covered with piliferous denticulate ridges. The last segment or *moveable finger* polished, moderately curved, outer edge with a double line of granules near the articulation, trenchant edge without vestige of teeth, the opposing edge of the hand is furnished about the middle with a single large lamellar tooth.

Feet of four last pair resemble very much those of *Ranina dentata*, but, in general, the segments are less cylindrical, in some pairs quite flat. The forms of the tarsi are nearly the same as in *Ranina*, those of the third pair are not flat, but rather triangularly prismatic, with the under or anterior surface nearly plane, and the outer edge of the prism forming a prolongation beyond the articulation with the fifth segment, for nearly one-third the length of that segment; the tarsi of the fifth pair are not more than half the breadth of the tarsi of the fourth pair; the fourth segment of the fourth pair has a tooth-like prolongation of the posterior edge, which reaches beyond the middle of the fifth segment; the anterior and posterior edges of most of the segments of the four last pair of feet are fringed with long hairs, the hairs of the piliferous ridges of the sternal plate, pterygostomian regions

and external maxillipeds, are long also, giving a hirsute appearance to the under surface of the animal.

The *buccal frame* is longer than broad, open anteriorly, as in *Calappa*, *Ilia*, &c. the opening being between the bases of the antennæ; the *external maxillipeds* close it exactly, the second and third segments about equal in length, and rather narrow, the third diminishing in breadth to its anterior extremity, and giving insertion to the terminal portion of the organ at the extremity of its inner border; this terminal portion, (the three last segments,) is very slender, almost filiform, and generally concealed in a groove on the inner border of the third segment; the second segment of the external maxillipeds is traversed obliquely by a piliferous ridge, which causes this segment to appear as two; this circumstance has misled M. Edwards into the belief that the third segment is longer than the second.

Abdomen narrow, about two-thirds the length of carapax, of seven distinct segments in both sexes, the last three segments curved under the others, but not extensive enough to conceal the abdominal appendages.

Color prevailing in the dry specimen, is purplish, mixed with yellow and orange in places, particularly about the articulations and spines; the latter are generally purple at the base, orange in the middle, and white at the tip; and the moveable finger of the first pair of feet is colored much in the same manner; the upper surface of the first pair of feet is purple, purple tracings ornament the outer surface of the remaining pairs of feet, particularly the fourth and fifth, and the outer surface of the abdominal segments is marked with two longitudinal lines of purple. The plate is printed in a color approximating to the general coloration of the specimen from which the drawing was made.

Dimensions of largest specimen, a male figured in plate xiii. length of carapax 1.55 inch, breadth 1.20 inch.

Geographical Distribution. Inhabits coast of southern Atlantic States; the first specimens I saw were brought from Key West; a specimen in the Museum of the Medical College of Charleston, is from Charleston harbor, or the ocean immediately adjacent; and in 1846, on a voyage from Charleston to New York, I obtained from the stomach of a fish taken at sea, off the coast of North Carolina or Virginia, a single specimen of what I take to be the young of this species. It was, of course, not fully devel-

oped; the rostrum large in proportion to carapax, orbits almost wanting, no supra-orbital ridges or spines, eyes large on short peduncles, but the forms of the hands and of the tarsi quite characteristic; length less than a quarter of an inch. Accompanying it were the specimens, four in number, of *Monolepis inermis* of Say, mentioned in Proc. Amer. Assoc., vol. iii. p. 192.

EXPLANATION OF PLATE 13.

Fig. 1—View of upper surface. Fig. 2—View of under surface.

The President read a letter from Prof. F. S. Holmes, tendering his resignation as a member of the Society.

On motion of Prof. S. H. Dickson, this resignation was accepted, and the President requested to fill, by appointment *pro tempore*, until the next meeting of the Standing Committee, the office of Corresponding Secretary, thus left vacant.

Prof. McCrady made the following remarks, suggesting a new view as to the Zoological affinities of Graptoliteis:

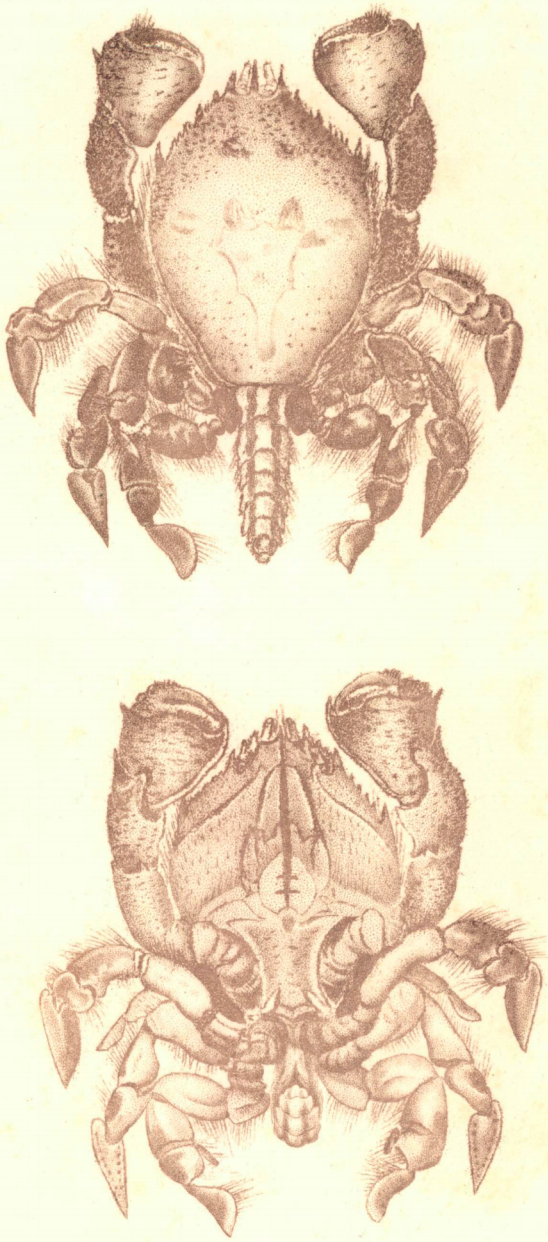
Prof. McCrady said, that he would avail himself of the means afforded by this Society for making public a suggestion which he had some time before made in a private letter to Prof. James Hall, of Albany, the distinguished Geologist, now connected with the Geological Survey of Canada. This suggestion concerned the nature of those singular fossils denominated Graptolites, which were found only in the Palæozoic Rocks, though in certain of these they appeared in great numbers. These fossils had been first referred by Naturalists to Halcynoid Polypi in the neighborhood of Virgularia, whence recently they had been, by some authors, transferred to the group of Bryozoa or Molluscan Polyps, and this latter view had been countenanced by some of the most distinguished Naturalists in this country.

Mr. McCrady suggested that it was quite possible here, as in numerous other instances, that to a certain extent heterogeneous elements had been combined in the group to which the name Graptolitidæ had been given. It was *possible* that a few of the specimens so called might be Hydroid Polypi, which we now class with the Medusæ, or even Bryozoa. But he thought that there were a few considerations which made it very *improbable* that these singular fossils belonged, in the first place, to any group of ani-

mals now actually existing, and in the second, especially improbable that they should belong to communities of animals such as the dendritic Bryozoa and Hydroids. In the first place both the Halcynoidea, the Hydroidea and the Bryozoa, were all abundantly represented at the present day. If, therefore, the Graptolites are their fossil representatives, why are they confined to the Palæozoic period. Were the slates of the Palæozoic period more peculiarly adapted to their preservation than the Lithographic Rock of Solenhofen, belonging to the Secondary period, or than the Chalk, or than the Marls of the tertiary period. In fact it appears from our present knowledge of the Geological ages, that the Graptolites did not outlive the period in which their fragmentary skeletons are found; that to that period they belonged, and that they have never had representatives among mature animals since.

In the second place the Graptolites, though consisting of serrate stems, like many Hydroidea and Bryozoa, yet have their stems of a different form, i. e. oftenest entirely unbranched, and without root-like processes, and when the former are present, as in Didymograpsus, they are simple divarications of the extremity of a main stem, and when the roots appeared they were very short and opposite, and belonging to a form of Graptolite which was more easily explicable on the hypothesis about to be presented. In short, all the cases of branches and roots which had been figured, with, perhaps, one or two exceptions, such as Hall's fig. 6*a*, 6*c*, pl. 74, (*Palæontology of New York*, Vol. 1,) were he thought more explicable on the supposition, he would present than by a comparison with Hydroids or Bryozoa, or polypidomata of any sort.

There was one structure also which imparted a peculiar appearance to the outline of some Graptolites which had so far as was known to Prof. McCrady, no parallel among polypidomata; it was the large, smooth, sharp, thorn-like process which sometimes singly issued from one side of a Graptolite, and which had no analogy with a root. Such a process was common in Didymograpsus on the outer side of the point of union of the two branches. It was also present in cases where the branches formed an angle with each other almost equalling 180° and therefore lying nearly in the same straight line. Such an instance was represented by Hall, pl. 74, fig. 5*a*, 5*b*, vol. 1. Also in *Pictet's Paléontologei*, Atlas, pl. cviii. fig. 22, 23.



Ranilia muricata. M. Edw.