

with an equal weight of caustic potash, and the fused mass dissolved in diluted muriatic acid. The muriatic solution was then evaporated to dryness, and the product digested for some time in warm alcohol. The alcohol on evaporation afforded a white deliquescent salt of an acid taste. That it contained neither lime nor potash, was proved by its solution affording no precipitate either with oxalate of ammonia, or with muriate of platina; and that it was really the muriate of lithia, was evident from its tinging the flame of alcohol of a deep crimson colour; and from its affording when added to a concentrated solution of carbonate of soda, an abundant precipitate of carbonate of lithia. The precise locality of the Spodumen from Deerfield, I am not able to point out, the specimens which I examined having been given me nearly a year since, under the idea that they were Feldspar."

On three new Species of Parasitic VERMES, belonging to the Linnæan Genus LERNÆA. By C. A. LESUEUR. Read February 17, 1824.

LERNEOCERA, *Blainv.*

1. *L. cruciata.* Body rectilinear, clavate, terminated by five tubercles, which are rounded behind; head armed with four subcorneous appen-

dices disposed in the form of a cross, and a little curved before.

Inhabits the *CICHLA aenea*, nobis, of the lakes, called Rock Bass by the inhabitants of the town of Erie. (See vol. ii. p. 214, and fig.)

Body slender towards the head, gradually dilated behind, and so transparent as to exhibit the interior parts distinctly: the four appendices of the head are very robust, subconic, and curved forward; at the extremity of each is a small, black, impressed, somewhat oblong point, which may be an opening communicating with the interior: the intestinal canal originates at an aperture in the centre of the four appendices, and extends the whole length of the body, without folds or dilations, but gradually enlarges towards the posterior extremity, and terminates at an opening in the tip of the largest of the five posterior tubercles: its colour is dark near the origin, and paler behind: at the distance of about two-thirds of the length of the body from the head, an annulated vessel originates, and passes downward on each side of the intestinal canal, to its termination and aperture at the base of the largest of the five tubercles: this double vessel unites at its superior part. The conformation of this vessel, seems to indicate it as an ovary, of which the annulated appearance is owing to the pressure of oviform globules within. There being no appearance of such appendices to the posterior part of the body as exist in that of the

following species, and which probably perform the functions of branchia, I have been led to suppose the existence of other openings in the tubercles than those I have detected, through which respiration may be effected. Possibly the vessels which resemble oviducts may really be the branchia, which, however, I think by no means probable; or, on the other hand, the branchia which, in other species, extend from the posterior part of the body, may have been fortuitously destroyed in this.

2. *L. radiata*. Body filiform anteriorly, inflated and cylindrical behind; five slender appendices at the head; a small caudal appendice, accompanied with two long filiform ovaries.

Inhabits the Menhaden or Bay Alewife. *CLUPEA tyrannus*, Latrobe, (Trans. Philos. Soc. Philada. vol. 5. p. 77. pl. 1.)

The anterior two-thirds of the body is very slender, filiform: the posterior part is somewhat dilated, cylindrical: *head* pyriform, crowned with five subcorneous, flexuous appendices, disposed as radii; at the posterior extremity is an opening at the tip of a small lobe, and a short, simple, sub-compressed tail destitute of ciliae; this organ, as well as an analogous one in the following species, may probably be the seat of the branchia; on each side of this caudiform process, is an elongated, annulated, filiform appendage, which are, perhaps, the ovaries ready to be detached from the body,

or possibly these animals may have the power to protrude their ovaries, and afterwards to retract them into an oviduct, until the ovæ have obtained the necessary growth.

The two species above described do not perfectly correspond with the characters which Blainville has given of his genus *LERNEOCERA*, inasmuch as the arms are simple and not branched. This dissimilarity will, perhaps, justify me in forming a distinct genus for their reception, under the following name and characters.

LERNEÆNICUS.

Body elongated, attenuated before, and dilated behind; head furnished with many simple subcorneous arms radiating around the mouth.

But it would probably be better to modify the characters given by Blainville,* so as to include our species with simple arms.

LERNEOPENNA, *Blain.*

L. Blainvillii. Body filiform before, inflated and cylindrical behind; head distinct, furnished with fleshy papillæ on the sides; neck armed with three subcorneous appendices; thorax with four

* See his memoir, accompanied with figures. *Journal de Physique* for November and December, 1822. Page 372 and 437.

pairs of hooks; a penniform caudal appendice of which the processes are opposite, double, unequal; the first one single.

Inhabits *EXOCÆTUS volitans*.

Body long, slender, and filiform, but the posterior part, consisting of about one-fourth of the total length, is dilated to more than double the thickness, and terminates in a long appendice, furnished on each side with 23 or 24 pairs of ciliæ, of which the exterior one of each pair is twice the length and thickness of the interior; the shorter of these ciliæ originate on the interior base of the larger ones, and like them have a tuberculated appearance. There are no long filiform processes as in the species of Boccone, and of Lamartinière, but they may have been accidentally detached; the head, which had been inserted in the body of the fish, was white, the remainder of the body dull yellowish; the rectilinear intestinal canal was of a darker colour: *head* inflated, even behind and covered with papillæ before, which appear to be so many suckers; the sides were furnished with cylindrical, soft, simple, unequal appendices, many united together; on the superior part of the head are two small organs which resemble tentaculæ, around the base of which are indistinct asperities, so small, however, that it is very difficult to obtain an accurate idea of their figure: *neck*, with three long appendices, which serve to secure the attachment of the animal; they are subcorneous and

flexible; of these, one is placed on each side, and one behind: *thorax* dilated, and armed with four pairs of black hooks or very short black feet.

On the same individual fish, and in the immediate vicinity of the above described parasite, another *LERNEOPENNA* was affixed, the characters of which are quite different. It is altogether destitute of cervical appendices, which are replaced by diaphanous membranes, offering a kind of imperfect tubercles. The thorax has also four pairs of hooks, which are more obvious and more distant than in the preceding; the body is shorter, filiform, but little dilated behind, terminated in a point, and destitute of a penatulated appendice. The head is more elongated, with two small, black, undulated lines behind. It appears to have the papillæ before; the lateral appendices, and the tentacula on the termination of the head. But these parts are not sufficiently obvious to enable me to give a detailed description of them. The most remarkable character, however, of this specimen, is a small radiated body placed below the thorax. If this individual is entire, and naturally destitute of the plumose branchia, and the appendices of the neck are vesicular and pellucid, we may be led to believe, that, as it exhibits some striking characters in common with the preceding species, and was found in company with it on the same fish, the two may prove to be sexes of one species. In this case, it seems further probable that the latter is

the male; whose conformation will not admit of so firm an attachment as those of the opposite sex, in order that he may occasionally approach nearer to her.

These observations require confirmation, inasmuch as it is by no means ascertained that the latter parasite is entire. Many specimens having similar characters, found under the same circumstances, would tend much to confirm these remarks.

Neither of the above described individuals can be mistaken for the *LERNEOPENNA* of Boccone and of Lamartinière, nor for the species of which the branchial apparatus is described and figured by Dr. De Kay, in Silliman's Journal, vol. 4, p. 87.

The two individuals above described differ from these, either in the form of the body, or the conformation of the branchia.

EXPLANATION OF PLATE XI.

Fig. 1. *Lerneocera radiata*.

- a. Profile.
- b. Dorsal view.
- c. Superior part, magnified.
- d. Inferior part, do.

Fig. 2. *Lerneopenna* Blainvillii.

- e. Dorsal view.
- f. Profile.
- g. Head, front view magnified.
- h. Head, profile do.
- i. Portion of the inferior part do.
- k. Appendice do.



LERNÆ Lin.

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