

## **On two new species of Leachia / by Henry D.S. Goodsir.**

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ON TWO NEW SPECIES OF LEACHIA.

BY HENRY D. S. GOODSIR, ESQ.,

SURGEON, ANSTRUTHER, FIFE.

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(From the *Edinburgh New Philosophical Journal* for October 1841.)

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AMONG a number of undescribed Crustaceans which have from time to time occurred to me at the mouth of the Frith of Forth, are two Idoteæ, referable to the genus *Leachia* of Johnston.\*

1. *Leachia intermedia*. (Mihi.)

L. Antennis superioribus longioribus articulis duobus primis inferiorum; ultimo articulo minuto et globoso; quarto segmento thoracico serie tubercularum utroque latere amborum cardinum longitudinalium instructo. Long. lin. 4.5.

This species resembles *L. lacertosa*, but its prominent parts are more boldly thrown out. The plates on each side of the antennæ do not project, and their inferior-anterior angles are acute. The superior antennæ are longer than the two first joints of the inferior; the first joint is globose, the second, third, and fourth are slender, and the fifth is globular. The inferior antennæ are almost as long as the body; the first joint in each is as long as the head, cylindric, and having a ridge on its external side; the following joints are more slender, and the last joint finely pointed. A double row of tubercles run down each side of the body immediately above the insertion of the legs. They are large and very prominent on the three anterior and three posterior articulations of the thorax, but on the fourth articulation they are not so prominent, and are placed in a regular series on each side of the longitudinal hinges peculiar to this segment. The abdomen bulges consi-

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\* Edin. Phil. Jour., vol. xiii. p. 219.



2 Mr H. D. S. Goodsir on two New Species of *Leachia*.

derably, and then tapers suddenly to a point at its posterior extremity. The animal is of a straw colour spotted with brown.

Hab. Firth of Forth, off Anstruther.

2. *L. gracilis*. (Mihi.)

*L. gracilis*. Antennis superioribus paullo brevioribus, tribus primis articulis inferiorum; quarto thoracico segmento, lineari-cylindrico, et non tuberculato. Long. lin. 7.

In this species the body is very slender and quite smooth, without the tubercles which are found in all the other species. The plate which covers the base of the antennæ projects, and is rounded anteriorly. The superior antennæ are almost as long as the three first joints of the inferior. The first joint globular, the second and third linear, each of them as long as the first, the fourth equal in length or longer than the others conjoined, and the fifth is minute and linear. The inferior antennæ are as long as the body. The first joint obsolete, the second slightly clavate, and the last three joints strongly pectinated on their inferior edges. Both pairs of antennæ have a few bristles scattered over them. The body is quite smooth, with the exception of a few scattered punctures. The fourth thoracic segment is linear, cylindric, and not tuberculated. The proximal extremity of the abdomen bulges very much, assuming the appearance of one of the thoracic segments, and from this it tapers very gradually to a very fine point. Colour dirty white, with brown spots.

Hab. Firth of Forth, off Anstruther.

I have also met with the *L. lacertosa* of Johnston (*Arcturus longicornis*, Westwood) in the Frith of Forth, and in deep water in the German Ocean. My specimens of this species present all the characters recorded by Johnston, Westwood, and Milne Edwards. It occurs more frequently than the two new species; but all three are rare, probably in consequence of their pelagic habitats. With the dredge I have procured specimens of all the species alive, and have kept them in glass-jars of sea-water with sand and corallines, and have thus been enabled to watch their habits closely.

Under the circumstances just stated, each individual will



select a branch of coralline, will keep that branch exclusively to itself, and will defend it with the greatest vigour against all intruders. It fixes itself to its resting-place by means of its true thoracic feet, and seldom uses these for progression. When it falls to the bottom of the vessel, it fixes its long pointed antennæ firmly into the sand, and, with the assistance of the true feet, drags and pushes itself forward. This, however, may not be a natural mode of progression, but may be adopted in consequence of the artificial circumstances in which the animal is placed.

Swimming is the natural mode of progression. It is amusing to see one of these animals resting, in an erect posture, on a branch of coralline, by means of its true thoracic feet, waving its body backwards and forwards, throwing about its long inferior antennæ, and ever and anon drawing them through its anterior fringed feet, for the purpose of cleaning them. It frequently darts from its branch, with the rapidity of lightning, to seize with its long antennæ some minute crustaceous animal, and returns to its resting-place to devour its prey at pleasure.

In this manner the antennæ are the only organs employed in seizing and enclosing the prey, which they drag to the anterior thoracic feet which hold it while it is being devoured. The strong claws with which the inferior antennæ are armed, seem also to be useful to the animal in the act of prehension.

The genus *Arcturus* was constituted by Latreille for the reception of Sabine's *Idotea Baffini*.\* Westwood, in his paper on the *Arcturi*, in the first volume of the Transactions of the Entomological Society, included in this genus not only Sabine's *Idotea Baffini*, but also Johnston's *Leachia lacertosa*, a species differing from the former in the great length and development of the fourth thoracic segment. Milne Edwards, in the *Nouvelles Suites à Buffon*, following up Mr Westwood's arrangement, divides the species of the genus *Arcturus* into two sets, the one in which the fourth thoracic segment is not more developed than the others, and the other in which this segment is elongated and provided with a pouch. The first set includes

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\* Appendix to Captain Parry's Voyage.



only one species, that first described,—the *Arcturus Baffini*, Westwood; the second, the *Arcturus longicornis*, Westwood,—Johnstone's *Leachia lacertosa*. Considering the highly developed fourth thoracic segment to be of generic value, I have thought it right to restore Dr Johnstone's original genus, and have therefore placed my two new species along with his *L. lacertosa* in the same genus, retaining the genus *Arcturus* for the reception of Sabine's original species. As the fourth thoracic segment affords the characters of this genus, so the antennæ, and particularly the superior, exhibit the best marked specific characters. These, and the sculpture of the surface of the animals, have afforded sufficient characters for the three species already described, and will, I have no doubt, serve to distinguish any others which may occur.

From an anatomical examination of *L. lacertosa*, I may state the following details of structure in this very remarkable genus:—The nervous system consists of a supra-œsophageal ganglion, from which the usual nerves of sense proceed, as well as a cord on each side of the pharynx, to join the first thoracic ganglion. At the base of each of the four ciliated feet, a ganglion is situated. These ganglia are connected to one another by double cords, and to three similar ganglia at the bases of the three posterior feet by a long double cord, which is situated immediately under the delicate transparent membrane which closes the vault of the marsupium of the fourth thoracic segment. From the last of the thoracic ganglia, a delicate filament on which ganglia could not be distinctly made out, passes along between the bases of the branchial or abdominal feet. The muscular system in this genus presents nothing peculiar, except the highly-developed and distinctly-defined longitudinal muscles, two in number, which stretch along the dorsal aspect of the elongated fourth thoracic segment. These are arranged for the purpose of enabling the animals to erect the anterior part of the body on the true thoracic legs, and of affording a purchase for the proper action of the powerful-clawed antennæ. The intestinal system consists of the simple mandibles and the maxillary feet, of a digestive tube moderately dilated along the fourth thoracic segment, but bulging considerably at its posterior part, and ter-



minating in a delicate intestine, which opens at the anterior part of the vault formed by the last abdominal segment behind the last pair of branchial feet. The liver exhibits itself in the form of two elongated yellow granular masses on each side of the stomach. The dorsal vessel or heart was indistinctly seen along the posterior part of the back, and may be considered as communicating in the usual way with the branchial organs, which are, in the family to which this genus belongs, developed in the sides of the abdominal feet.

I am not acquainted with the characteristics of the male, almost all the specimens procured having eggs in the marsupium. The eggs are pear-shaped and curved, have a tough external membrane, a granular white, and a light yellow mass towards their centre, which may be of the nature of the yolk globules. The ovaries are two elongated white granular bodies on each side, and beneath the liver. They open at the third thoracic segment, at the extremity of the marsupium.

*Explanation of the Plate.*

- Fig. 1. *Leachia intermedia*.
- ... 2. Its superior and inferior antennæ.
- ... 3. Its fourth thoracic segment.
- ... 4. *Leachia gracilis*.
- ... 5. Its superior and inferior antennæ.
- ... 6. Its fourth thoracic segment.
- ... 7. Nervous system.

opening in a single process, which opens at the anterior part of the shell formed by the first abdominal segment behind the last pair of branchial feet. The liver exhibits itself in the form of two elongated yellow granular masses on each side of the stomach. The dorsal vessel or heart was hardly visible along the posterior part of the back, and may be considered as communicating in the usual way with the branchial organs, which are, in the family to which this genus belongs, developed at the sides of the abdominal feet.

I am not acquainted with the characteristics of the male. Almost all the species are provided having eggs in the season. The eggs are pear-shaped and covered with a brown external membrane, a granular white, and a thin yellow mass towards their centre, which may be of the nature of the yolk globules. The ovaries are two elongated white granular bodies on each side, and beneath the liver. They open at the third thoracic segment, at the extremity of the oesophagus.

*Figures of the Fishes of Lake Erie.*  
 1. The common white perch.  
 2. The common yellow perch.  
 3. The common rock bass.  
 4. The common smallmouth bass.  
 5. The common largemouth bass.  
 6. The common bluegill.  
 7. The common pumpkinseed.  
 8. The common rock bass.  
 9. The common white perch.  
 10. The common yellow perch.  
 11. The common rock bass.  
 12. The common smallmouth bass.  
 13. The common largemouth bass.  
 14. The common bluegill.  
 15. The common pumpkinseed.

The common white perch is a small fish, with a slender body, and a pointed snout. It is found in all the waters of Lake Erie, and is one of the most common and useful of the fishes of the lake. The common yellow perch is a larger fish, with a more robust body, and a more pointed snout. It is also found in all the waters of Lake Erie, and is one of the most common and useful of the fishes of the lake. The common rock bass is a small fish, with a deep body, and a pointed snout. It is found in the rocky parts of Lake Erie, and is one of the most common and useful of the fishes of the lake. The common smallmouth bass is a small fish, with a deep body, and a pointed snout. It is found in the rocky parts of Lake Erie, and is one of the most common and useful of the fishes of the lake. The common largemouth bass is a larger fish, with a deep body, and a pointed snout. It is found in the rocky parts of Lake Erie, and is one of the most common and useful of the fishes of the lake. The common bluegill is a small fish, with a deep body, and a pointed snout. It is found in the rocky parts of Lake Erie, and is one of the most common and useful of the fishes of the lake. The common pumpkinseed is a small fish, with a deep body, and a pointed snout. It is found in the rocky parts of Lake Erie, and is one of the most common and useful of the fishes of the lake.



Fig. 1.

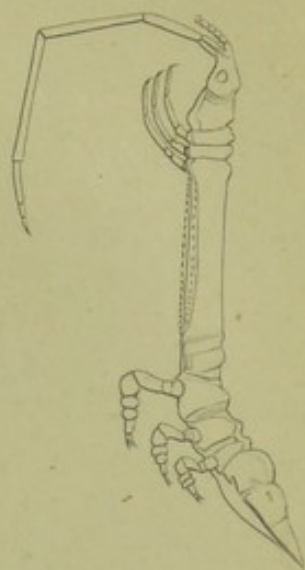


Fig. 2.

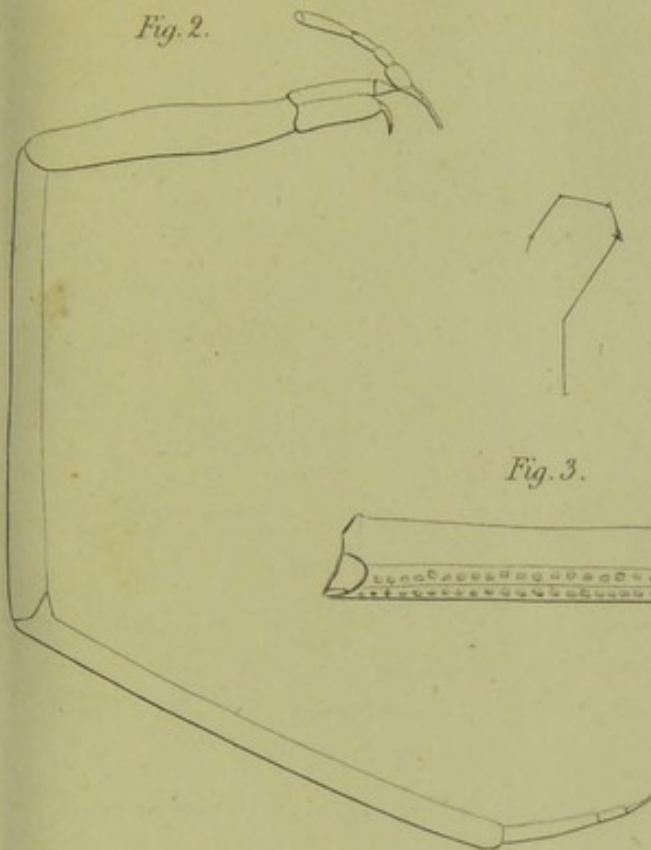


Fig. 3.

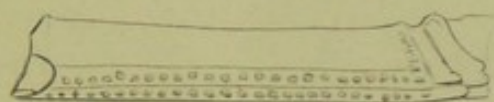


Fig. 4.



Fig. 6.

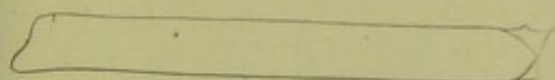


Fig. 5.

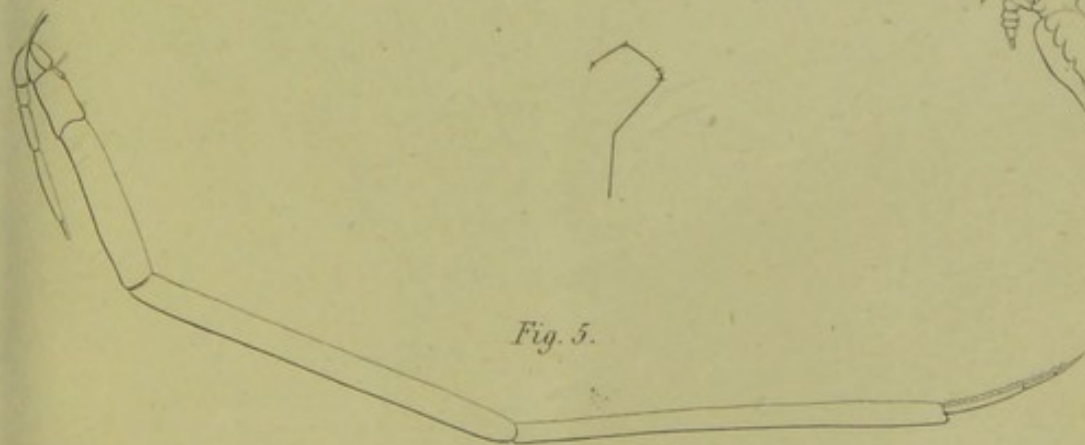


Fig. 7.

