

## Notes on the Littoral Polychæta of Torquay (Part II.).

By

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### Phyllodocidæ.

It cannot be said that all the species of the Phyllodocidæ have yet been satisfactorily defined, much difference of opinion existing as to the separation of varieties and species. In the accompanying key the nomenclature of Professor McIntosh has been followed, but those Annelids, which are classed by him as varieties, but which have been hitherto generally accepted as distinct species, are shown separately. The true specific value of the arrangement and nature of the papillæ on the proboscis can only be settled by the examination of numerous individuals from various localities; in the meantime it appears best to consider Annelids differing in these particulars as at least varieties worthy of a name.

EULALIA VIRIDIS, O. F. Müller. *McIntosh, Mon. Brit. Ann.*, vol. ii., p. 55.

The variety of *E. viridis*, most commonly found at Torquay, is coloured an uniform dark green, the cirri being rather lighter in colour. It is particularly abundant where the limestone rocks have been much eaten away from about half-tide mark downwards. It appears to like crawling about the damp rocks out of the water when the tide is low, and does not hesitate to leave the water when placed in a shallow vessel. The terminal papillæ of the proboscis numbered fourteen in all the individuals examined, like those found by de St. Joseph at Dinard; but the whole of the extended proboscis was covered with papillæ.

The variety *ornata* of de St. Joseph is fairly common, but does not appear to extend above the Laminarian zone. There appears to be very little doubt that this is the *P. griffithsii* of Johnstone. His specimens were obtained from Torbay, and there does not appear to be any species of *Eulalia* found there to which the description could apply.

The number of segments per inch of length mentioned by Johnstone applies much better to *ornata* than to *E. nebulosa*, Montagu.

The variety *aurea* of Gravier is also found at Torquay in the same localities as *ornata*. The dorsal cirri are distinctly less pointed, and the breadth of the segments greater in proportion to the length than in the case of the other varieties.

EULALIA NEBULOSA, Montagu = *E. punctifera*, Grube. *McIntosh, Mon. Brit. Ann.*, vol. ii., p. 53.

One specimen only from Corbyn's Head. Colour dull green rather than yellowish or red; some of the dorsal cirri heavily marked with dark colouring matter. The much longer upper limb of the bifid setigerous process of the foot is very characteristic of this species.

EUMIDA SANGUINEA, CErsted = *E. pallida*, Grube. *McIntosh, Mon. Brit. Ann.*, vol. ii., p. 66.

The real distinction between the genera *Eulalia* and *Eumida*, as defined by Malmgren and McIntosh, is that in *Eulalia* the first pair of tentacular cirri are attached to a segment divided from the head by a constriction visible at least on the ventral side, while in *Eumida* the first pair of tentacular cirri are apparently attached to the head, the first segment being soldered to the head. Such a distinction is, however, unsatisfactory, because the visibility of a dividing line between the segment and head depends so much on the method of preparation of the specimen. The only British species is, however, easily recognised as a rule by the peculiar white markings, which look as if they had been painted on with Chinese white. It is common amongst the *Laminaria* roots at Torquay. Most of the specimens are coloured a pale brown, but one or two were found with a decided red tinge in the posterior part of the body.

The proboscis is covered with very small papillæ, which almost or entirely disappear in preparations, for which reason the smoothness of the proboscis as a generic distinction is also objectionable. Some of the individuals had black patches in the intestines like those described by Gravier in his *Eumida communis*. *Bull. Sc. Fr. Belg.*, t. xxxix., p. 18.

PHYLLODOCE MACULATA, Johnstone. *McIntosh, Mon. Brit. Ann.*, vol. ii., p. 89.

This is the only species of *Phyllodoce* which is at all common between tide marks at Torquay. It is found amongst rocks and weeds, and also in the sand. On one occasion sixteen individuals were found

in a whelk shell containing the decaying remains of a hermit crab.

The Torquay species agree well with the beautiful coloured drawing given in the *Mon. Brit. Ann.*

One specimen was found in a limestone pool which differed considerably from the type : the general colour much greener, the dorsal cirri larger in proportion and without spots, the distance between the feet greater. The number of the rows of papillæ on the proboscis could not be observed. Possibly this is the *Phyllodoce maculata* of CErsted.

PHYLLODOCE LAMELLIGERA, Gmelin. *McIntosh, Mon. Brit. Ann.*, vol. ii., p. 76.

One light-coloured individual under a stone at Hope's Nose, and another of the normal colouring at Meadfoot.

Papillæ of the proboscis could not be observed.

PHYLLODOCE PARETTI, De Blainville. *McIntosh, Mon. Brit. Ann.*, vol. ii., p. 76.

The head and about twenty segments of one from Corbyn's Head. The specimen, mounted in weak Formalin solution, retained its beautiful colouring for some weeks, then changed gradually to a reddish brown.

Gosse, in *The Aquarium*, second edition, p. 243, describes an example of this species from Torbay.

ETEONE PICTA, De Quatrefages. *McIntosh, Mon. Brit. Ann.*, p. 100.

Small ones, about 25 mm. in length, are not uncommon amongst *Laminaria* roots. The pattern of the colouring agrees with that described by McIntosh, but the anal cirri are quite differently shaped to those in Pl. XLV, Fig. 3, of the Monograph, being ovate, exactly like those figured by Gravier, *Bull. Sc. Fr. Belg.*, Pl. XVI, Fig. 14.

NOTOPHYLLUM FOLIOSUM, Sars = *alatum*, Langerhans. *McIntosh, Mon. Brit. Ann.*

One from Livermead. The dorsal cirri appear to be much more deciduous than the ventral. Colouring like that described by McIntosh for specimens kept some time in confinement, namely, brownish green without the red iridescence.

### Nepthydidæ.

NEPHTHYS HOMBERGII, Lamark. *McIntosh, Mon. Brit. Ann.*, p. 17.

Moderate-sized examples of this species, about 90 mm. in length, are common in the sand at Tor Abbey Sands and Livermead. They were

also found in rather dirty, muddy sand in the inner harbour of Torquay. The posterior lamina of the ventral branch of the foot is more pronouncedly directed upwards and more truncate than is shown in any of the figures given in the monograph.

NEPHTHYS CIRROSA, Ehlers. *McIntosh, Mon. Brit. Ann.*, vol. ii., p. 36.

In clean sand in company with *N. Hombergii*, but not quite so numerous. It may be distinguished at once from *N. Hombergii* by its comparatively narrow width and the light colour of the bristles.

McIntosh says (p. 38) that de St. Joseph distinguishes this species by the larger size of the branchiæ. But it is not the branchiæ themselves, but the "cirre branchial" (called by McIntosh "the dorsal cirrus at the base of the branchia") which de St. Joseph says becomes larger and larger, until, for about the thirty last segments, it is almost longer than the branchiæ. See *Ann. Sc. Nat., 8th series*, xvii., p. 21.

#### Hesionidæ.

CASTALIA FUSCA, Johnston = *Kefersteinia cirrata*, Kef. *McIntosh, Mon. Brit. Ann.*, vol. ii., p. 127.

Common under stones, especially at Meadfoot; also in *Laminaria* roots. It is an extremely brittle species which, like other very brittle annelids, is best lifted up with a soft camel-hair brush.

MAGALIA PERAMATA, Mar. and Bobr. *McIntosh, Mon. Brit. Ann.*, vol. ii., p. 136.

Common amongst *Laminaria* roots.

#### Nereidæ.

MICRONEREIS VARIEGATA, Clpd. *Claparède, Beob. über anat. wirbel thiere, etc.*, 1863, p. 57 and Pl. XI, Figs. 56-7; and *Glanures parmi les Ann. de Port Vendres*, p. 122, Pl. XIII, Fig. 4a.

This little aberrant member of the Nereidæ is not recorded in the "Fauna of Plymouth." Four or five individuals were found amongst red algæ and *Lithothamnion* from the rocks between Oddicombe and Babbicombe beaches.

The length is 4 mm., number of segments 21. The head, which is rounded in front, has no tentacles or palps. There are four eyes, the lateral pair close together, the posterior pair close to the margin of the head; the first pair have conspicuous crystalline lenses. There are four pairs of tentacular cirri, the front pairs situated on the front edge of the buccal segment low down; the posterior pairs, which are inserted higher up, are slightly longer than the other. The tentacular cirri are

fusiform and are tinged with yellow. The body is coloured purple. The jaws are about twice as long as broad, the number of teeth in each jaw five. There are no denticles. The first pair of feet, which are uniramous, are attached to the buccal segment. The second pair are also uniramous, but all the other feet are deeply bifid.

There are about twenty bristles in each foot, the terminal pieces of which are straight and narrow; they are much longer in proportion to their length than those shown in Claparède's drawing. Bristles and spines are colourless. The drawing given by Claparède is quite accurate for an individual drawn under compression, but the feet and cirri as shown there are much flattened out.

LEPTONEREIS VAILLANTI. *de St. Joseph, Ann. des Sc. Nat. Zool.*, vol. v., 1888, p. 246.

One imperfect male Heteronereid form of this species was found in the month of February at Oddicombe. The posterior of the three regions into which the body is divided was absent, but the remaining segments agreed with the description and figures given by de St. Joseph. It is not recorded in the "Fauna of Plymouth."

NEREILEPAS FUCATA, Savigny. *McIntosh, Mon. Brit. Ann.*, vol. ii., Pl. LXI, Figs. 6 and 6a.

This is not strictly a littoral species, but may be sometimes found in whelk shells thrown up on the shore. One lived for about six months in a small aquarium in a broken whelk shell, but without any hermit crab. It usually had the head and about ten or twelve segments of the body protruding from the shell; this part of the body being curved and continually waved backwards and forwards, giving the worm a most curious resemblance to a cobra.

NEREIS PELAGICA, L. *McIntosh, Mon. Brit. Ann.*, vol. ii., Pl. LX, Figs. 6 and 6a.

This Nereis is extremely common in the roots of the Laminaria, nearly every root containing one or two. Several of the Heteronereid form were found in the same situation in January and February, 1907, on Oddicombe beach. They measured about 30 mm. in length.

NEREIS DUMERILII, Aud. and Ed. *McIntosh, Mon. Brit. Ann.*, vol. ii., Pl. LX, Figs. 10 to 10c.

Small individuals, 20 to 30 mm. in length, are very common amongst lagæ from rock pools and the Torquay harbour.

NEREIS IRRORATA, Mgrn. *McIntosh*, vol. ii., Pl. I, Fig. 17; and Pl. LX, Fig. 8.

Occasionally under stones at Petit Tor Bay and Babbicombe beach; also amongst roots of *Zostera* at Corbyn's Head.

The glands in the feet are very conspicuous in this species, both when living and preserved.

NEREIS CULTRIFERA, Grube. *McIntosh. Mon. Brit. Ann.*, vol. ii., Pl. LX.

Under stones, not very common, on the edge of the submerged forest at Tor Abbey Sands.

KEY TO THE GENERA OF PHYLLODOCIDÆ FOUND ON THE FRENCH AND ENGLISH COASTS  
OF THE CHANNEL.

|                |   |   |   |
|----------------|---|---|---|
| Four tentacles | { | Two pairs of tentacular cirri . . . . .                     | ETEONE, Savigny.                                    |
|                |   | Three pairs of tentacular cirri . . . . .                   | MYSTIDES, Théel.                                    |
|                |   | Four pairs of tentacular cirri . . . . .                    | PHYLLODOCE, Savigny.                                |
| Five tentacles | { | Four pairs of tentacular cirri { foot uniramous (one spine) | EULALIA, Ersted (including EUMIDA and PTEROCIRRUS). |
|                |   | { foot biramous (two spines)                                | NOTOPHYLLUM, Ersted.                                |

KEY TO THE SPECIES OF PHYLLODOCIDÆ FOUND ON THE FRENCH AND ENGLISH COASTS  
OF THE CHANNEL.

Genus ETEONE.

|                                       |   |                         |   |   |   |                                  |                        |
|---------------------------------------|---|-------------------------|---|---|---|----------------------------------|------------------------|
| Head as broad or broader<br>than long | { | Dorsum spotted with red | { | A deep notch between the head and first segment on      | { | * <i>incisa</i> , de St. Joseph. |                        |
|                                       |   | or brown . . . . .      |   | each side. Dorsal cirri semiorbicular. Length, 40 mm.   |   | {                                | * <i>picta</i> , Qftg. |
|                                       |   |                         |   | Without a deep notch as above described. Dorsal cirri   |   |                                  |                        |
| Head longer than broad                | { |                         | { | broadly lanceolate. Length, 75 mm.                      | { | * <i>foliosa</i> , Qftg.         |                        |
|                                       |   |                         |   | No spots; colour white. Dorsal cirri obliquely cordate. |   |                                  |                        |
|                                       |   |                         |   | Length, 80 mm.  |   |                                  |                        |
|                                       |   |                         |   | Dorsal cirri obliquely ovate. Length, 40 mm.            |   | <i>pusilla</i> , Ersted.         |                        |

Genus MYSTIDES.

|  |   |
|--|---|
| One pair of tentacular cirri on each of the first three segments. Length, 20 mm.   | ( <i>Protomystides</i> ) * <i>bidentata</i> , Lang.       |
| A pair of tentacular cirri on the first segment, two pair on the second segment, the posterior pair with a leaf-like appendage. Length, 10 mm. | ( <i>Mesomistides</i> ) * <i>limbata</i> , de St. Joseph. |

\* Not recorded from the British area.

Genus PHYLLODOCE.

|  |  |  |
|--|--|--|
| Median dorsal cirri suborbicular               | { Colour brown. On each side of the proboscis two rows of large lanceolate papillæ in anterior part, and three rows of small papillæ at the base. Terminal papillæ, 20 . . . . . }   | * <i>macropapillosa</i> , de St. Joseph.   |
| Median dorsal cirri subrectangular             | { Colour greenish yellow with a brown spot formed of transverse lines on each segment, and usually a spot on each dorsal cirrus. Width of body without feet, 1 mm. Length, 80 mm. Terminal papillæ, 17 . . . . . }<br>{ Dorsal cirri greyish green, each segment marked with blue and brown transverse lines. Ventral cirri with a nipple-like tip. Proboscis with six rows of tubercles on front part of proboscis and six rows of papillæ on each side of base. Terminal papillæ, 17. Width of body without feet, 3 mm. Length, 180 mm. }<br>{ Colour reddish, with three dark spots on each segment. Six rows of papillæ on each side of proboscis at base. Terminal papillæ, 16. Width, 1.5 mm. Length, 30 mm. } | { Six rows of papillæ on each side of base of proboscis . } <i>maculata</i> , Johnst.<br>{ Four rows of papillæ . } <i>maculata</i> , Ersted = <i>citrina</i> , Malmgren.<br><i>groenlandica</i> , Ersted = <i>mucosa</i> , Malmgren.<br>* <i>pulchella</i> , Malmgren.  |
| Median dorsal cirri cordate or elongate ovate. | { Longest tentacular cirri not twice as long as anterior dorsal cirri }<br>{ Longest tentacular cirri several times longer than the anterior dorsal cirri . }  | { Tentacles and tentacular cirri fusiform. Dorsal cirri bright yellow and green. Width, 4 to 5 mm. Length, 300 mm. } <i>Paretti</i> , De Blainvill = <i>splendens</i> , de St. Joseph.<br>{ Dorsal cirri green spotted with brown; bases of anal cirri, swollen; eyes very large. Thirty-six rows of papillæ on proboscis. Width, 1 mm. Length, 30 mm. }<br>{ Dorsal cirri red. Base of proboscis covered with papillæ. Terminal papillæ, 8. Width, 1 mm. Length, 15 to 100 mm. . } * <i>macrophthalma</i> , Schmarda.<br><i>rubiginosa</i> , de St. Joseph.<br>{ Dorsal cirri, dull green; body, iridescent blue or green. Width without feet, 3 to 4 mm. Length, 160 to 750 mm. }<br>{ Base of proboscis with six rows of papillæ on each side } <i>lumelligera</i> , Gmelin.<br>{ Base covered with papillæ . } var. <i>laminosa</i> , Savigny.<br>{ Colour pale, with transverse brown or blue lines on each segment. Front part of proboscis with six longitudinal rows of red tubercles, then six rows of large papillæ, each row of three large papillæ followed by numerous rows of small papillæ. Terminal papillæ, 16. Width, 4 mm. Length, 300 mm. } * <i>papulosa</i> , de St. Joseph. |

\* Not recorded from the British area.



Genus EULALIA.

|  |   |   |  |
|--|---|---|--|
| Dorsal cirri lanceolate tapering to a point. | Ventral cirri of the second pair of tentacular cirri forming a long lanceolate foliaceous process = subgenus PTEROCIRRUS. | Brown or dull green. Terminal papillæ, 48. Length, 50 mm. . . . .   | <i>macroceros</i> , Grube.                           |
|  |   | Pinkish grey. Terminal papillæ, 24. Length, 7 mm. . . . .   | * <i>limbata</i> , Clpd.                             |
| Dorsal cirri lanceolate tapering to a point. | Ventral cirri of second pair of tentacular cirri not foliaceous . . . . .   | Green with a brown spot on each segment except the first. Proboscis without lateral papillæ. Terminal papillæ, 8. Length, 8 mm. . . . .   | * <i>parva</i> , de St. Joseph.                      |
|  |   | Green. Terminal papillæ, 14 to 21. Length, 80 mm. . . . .   | <i>viridis</i> , L.                                  |
|  |   | Yellow, with a dark spot on the middle of each segment and two parallel bars on each side of the segment. Terminal papillæ, 18. Length, 60 mm. . . . .                          | <i>viridis</i> , var. <i>ornata</i> , de St. Joseph. |
|  |   | Yellow, with two longitudinal violet lines on each side of the central line, and a dark line on each side of the segment. Terminal papillæ, 20. Length, 80 mm. . . . .          | <i>viridis</i> , var. <i>aurea</i> , Gravier.        |
|  |   | Green, with a dark line broken into three parts on the centre of each segment. Terminal papillæ, 8. Length, 15 mm. . . . .  | * <i>trilineata</i> , de St. Joseph.                 |
|  |   | First and second segments uniform brown, remaining segments spotted. Unpaired tentacle half-way between the eyes and part of head. Terminal papillæ, 14. Length, 30 mm. . . . . | * <i>venusta</i> , de St. Joseph.                    |

\* Not recorded from the British area.

## GENUS EULALIA—continued.

|  |  |  |  |   |   |
|--|--|--|--|---|---|
| Dorsal cirri<br>cordate.   | Unpaired tentacle in line<br>with or very little in<br>front of the eyes . . .   | } Pale brown. First segment and some of the others marked with a<br>white bar like Chinese white. Length, 30 to 60 mm. . . . . } | ( <i>Eumida</i> ) <i>sanguinea</i> , (Ersted =<br><i>pallida</i> , Clpd.   |   |   |
|  |  |  | } Green, with two brown spots on the head in front of the eyes.<br>Upper limb of setigerous process much longer than the lower.<br>Length, 150 mm. . . . . } | <i>rubiginosa</i> , de St. Joseph.  |   |
|  |  |  |  | } Brilliant yellow and green, brown spots on dorsal and ventral cirri.<br>Length, 150 mm. . . . . } | <i>nebulosa</i> , Montagu =<br><i>punctifera</i> , Grube. |
|  |  |  |  |   | * <i>splendens</i> , de St. Joseph.                       |
|  |  |  | Unpaired tentacle half-<br>way between eyes and<br>front of head . . . . . }   | } Clear brown. Length, 20 to 30 mm. . . . . }   | * <i>fuscescens</i> , de St. Joseph.                      |
| Unpaired tentacle on the<br>posterior edge of the<br>head . . . . . }  | } Greyish brown, covered with fine spots. Length, 30 mm. . . . . }   | ( <i>Eumida</i> ) * <i>sanguinea</i> , (Ersted,<br>var. <i>communis</i> , Gravier.   |  |   |   |
|  |  | Dorsal cirri oval elongate,<br>pointed . . . . . }   | } Straw-coloured with a dark line along each side at the base of the feet. Length,<br>40 to 80 mm. . . . . }   | <i>bilineata</i> , Johnston.  |   |
| } Brownish, with a green longitudinal line in the middle of the back. Terminal<br>papillæ of proboscis, 28. Length of dorsal cirri, 0.1 mm. Length, 12 mm. . . . . } | * <i>pusilla</i> , (Ersted.  |  |  |   |   |
|  | } Three conspicuous green or black spots on the back of each segment. Terminal<br>papillæ, 14. Length, 100 mm. . . . . } |  |  | <i>tripunctata</i> , McIntosh =<br><i>Claparedii</i> , de St. Joseph.                               |   |

## GENUS NOTOPHYLLUM.

Head furnished posteriorly with a flap on each side. Dorsal cirri uniform . . . . . *foliosum*, Sars = *alatum*, Langh.

\* Not recorded from the British area.

KEY TO THE NEREIDÆ OF THE FRENCH AND ENGLISH COASTS OF THE CHANNEL.

|  |   |  |   |  |   |   |
|--|---|--|---|--|---|---|
| No denticles<br>(paragnaths)<br>on<br>proboscis.               | } | Buccal segment with feet and bristles. No palps or tentacles. Bristles all of one kind. } <i>Micronereis variegata</i> , Clpd.   |   |  |   |   |
|  |   | Length, 4 to 6 mm. } <i>Leptonereis Vaillanti</i> , de   |   |  |   |   |
|  |   | Buccal segment without feet. Head rounded; conspicuous glands in feet. More than }<br>one kind of bristle. Length, 30 mm. . . . . } St. Joseph.  |   |  |   |   |
| Denticles<br>horny, not<br>joined<br>together,<br>all conical. | } | Denticles only present on lower half of proboscis in exclusion, and inconspicuous. Very long }<br>mud-dwelling worm. Length, 400 mm. . . . . } <i>Eunereis longissima</i> ,<br>Johnston. |   |  |   |   |
|  |   | Denticles<br>present<br>in<br>upper<br>part of<br>proboscis<br>in<br>exclusion.  | } | Lower median dorsal group of denticles present. Upper lobe of notopodium }<br>with a leaf-like process. Large green worm. Length, 400 mm. . . . . } <i>Nereis (Alitta) virens</i> ,<br>Sars. |   |   |
|  |   |  |   | Lower<br>median<br>dorsal<br>group<br>of<br>denticles<br>absent.   | } | No hump }<br>at base }<br>of dorsal }<br>cirri in }<br>anterior }<br>part }<br>of body. }<br>No }<br>conspicuous }<br>glands }<br>in }<br>feet. }<br>Head longer than broad. Dorsal }<br>cirri longer than feet. Length, }<br>80 mm. . . . . }<br>Head broader than long. Dorsal }<br>cirri not longer than feet. Den- }<br>ticles very small. Front part of }<br>dorsal surface fawn-coloured in }<br>spirit. Length, 88 mm. . . . . } <i>Nereis pelagica</i> , L. |
|  |   |  |   |  |   | Hump at }<br>base of }<br>dorsal }<br>cirrus. }<br>Glands }<br>in feet }<br>conspicuous. }<br>Upper lobe of notopodium very long }<br>and cirrus-like in posterior portion }<br>of body. Length, 150 mm. . . . . } <i>Nereis (Praxithea) irrorata</i> ,<br>Malmgren.  |
|  |   |  |   | Two white bands on dorsum. Commensal of hermit }<br>crab. Length, 150 mm. . . . . } <i>Nereis (Nereilepas) fucata</i> ,<br>Savigny.  |   |   |

KEY TO THE NEREIDÆ OF THE FRENCH AND ENGLISH COASTS OF THE CHANNEL—*continued*.

|  |   |  |  |
|--|---|--|--|
| Denticles horny, not joined together, some conical, others oblong .  | {<br>Upper part of notopodium much enlarged in posterior portion of body.<br>Upper branch of notopodium not enlarged .         }  | {<br>Notopodium with three lobes. Length, 40 to 70 mm. .         }   | <i>Nereis Marionii</i> , Aud. and Ed.                                  |
|  |   | {<br>Broad worm. Denticles on ventral surface of lower proboscis arranged in two rows at regular intervals. Length, 170 to 200 mm. . . . .<br>Denticles as above irregularly arranged in two rows. Dorsal cirri posteriorly longer than the foot. Length, 40 to 70 mm. . . . .         } | <i>Nereis cultrifera</i> , Grube.<br><i>Nereis Floridana</i> , Ehlers. |
| Denticles horny, in some groups at least very small, very close together, and arranged in comb-like rows . . . . . | {<br>Tentacular cirri very long, reaching fifteenth segment . . . . .<br>Conspicuous glands in notopodium; body often spotted with purple. Length, 20 to 70 mm. . . . .         } |  | <i>Nereis Dumerilli</i> , Aud. and Ed.                                 |

NOTE.—The main divisions of this key are taken from the table given by Baron de St. Joseph, *Ann. des Sc. Nat. Zool.*, series 8 t. v., 1898.