

FAUNISTIC NOTES.

By ANDREW SCOTT.

Young Fishes, *Leptocephalus morrisii*—Plate V.

A perfect specimen of the tape worm form of the *Leptocephalus* stage of the conger eel was found by a local fisherman on April 30th, 1906. The fish was discovered in a small pool of water, left by the receding tide, on the shore, on the east side of Foulney Island. The *Leptocephalus* was living when captured, but as the fisherman had no means of keeping it alive it soon died. The man handed the specimen over to me soon after he got it. It was then fresh and perfectly transparent, quite soft and flexible. It was so transparent that ordinary print could be easily read through it when placed on a piece of newspaper. In extreme length it measured 118 mm. The weight of the fish after removing the superfluous water was 1.2 grammes, and its volume 1.5 cubic centimetres. The greatest dorso-ventral height of the body was 9 mm., and it was broadest about 65 mm. from the tip of the snout. The myotomes were fairly distinct, and 151 were counted. The fish was colourless, with the exception of a row of black specks along each side of the ventral margin of the anterior half. There was also a similar row of specks along the lateral line, beginning near the greatest height and extending to the tail. The black specks appeared to be placed at the junction of the myotomes, and were very crowded towards the tail. The presence of this rare form so far inshore is apparently unusual. The specimen captured was probably only a wandering individual, as no more have been seen. The figure is from a photograph, and represents the natural size of the fish.

Amongst the other young fishes found in the tow-nettings we have to record the occurrence of **post-larval herrings**. On January 23rd, 1906, a large number were found in a surface tow-netting taken off the Patches Buoy, Cardigan Bay, and also on the same day, off Llanon. A surface tow-netting taken in the vicinity of the Bahama Light Ship, on February 20th, contained one specimen, another tow-netting from Conway Bay, on March 5th, contained three. The majority of these young fish measured 15 mm. in length, one or two 25 mm., and one 35 mm. The other young fishes have already been dealt with.

Fish Eggs.—A table showing the distribution from month to month is given above. The first occurrence of plaice eggs during 1906 was in tow-nettings from the Patches Buoy, off Llanon, in Cardigan Bay, on January 23rd. They were again obtained from near the Liverpool North-west Light Ship, on January 31st. From the latter date onwards to the end of March, plaice eggs were tolerably common in many of the tow-nettings taken in the open sea, and in territorial waters. The eggs of the Anchovy were found in tow-nettings taken off Aberdovey, on June 14th, and July 23rd. This is only the second time we have met with Anchovy eggs during a period of ten years. Their occurrence in British seas was first noticed by the late R. L. Ascroft in 1896. The eggs were taken in a surface tow-netting from off Lytham Pier, and identified by Professor McIntosh. The following fish eggs taken in 1906 have not previously been observed in the plankton of the Irish sea. Long Rough Dab: One specimen of the characteristic eggs of this fish was taken at Port Erin, on April 9th. The egg of the Long Rough Dab is about the same size as the plaice egg, but is easily recognised by the large size of the

space between the egg capsule and the yolk. Variegated Sole: A few specimens were found in a tow-netting from the vicinity of Nelson Buoy, at the entrance to the Ribble, on May 31st, and in another from Lune Deep, about five miles south of Piel Gas Buoy, on May 14th. Ling: The eggs of this fish were taken off Port Erin on April 9th, and off New Quay Head on May 1st. Mackerel: Large numbers of eggs belonging to this fish were found in the plankton samples from various parts of Cardigan Bay in June and July, off the entrance to the Ribble in the latter half of June, along the North Wales coast about the same time, and in the vicinity of Port Erin on August 27th. A very extensive incursion of adult mackerel took place during 1906. The fish were caught in various parts of the Irish Sea, between New Quay and the Duddon, from the beginning of June right on to the end of September. Two species of ecto-parasites of fishes were taken for the first time in the Irish Sea in 1906.

Caligus zeii, Norman and T. Scott. Plate I.

Several specimens of this species were found attached to the skin of a "John Dory" captured in the trawl of the "John Fell," while fishing off New Quay Head, on June 16th. The only other known specimens of this species are in Dr. Norman's collection, and were taken on a "John Dory" captured off the coast of Cornwall forty years ago. The female represented by the drawing on the plate measured 6 mm. in length.

Lernænicus encrasicoli (Turton). Plate II, figs. 6-9.

A large catch of sprats were taken off Blackpool on February 19th, by the fisheries steamer, and a few hundred of these fish were landed at Piel. A careful examination of the fish was made, and one sprat with

two of the above-mentioned parasites attached to it, and another with one, were found. The parasites were embedded in the tissues at the anterior end of the dorsal fin. On dissecting one out it was found that the head had penetrated to the visceral cavity. Fig. 6 represents the natural size of the sprat and its parasite, and also shows the position of attachment. Fig. 7 represents a dissection showing the head of the parasite passing into the visceral cavity. Figs. 8 and 9 represent two views of the head and illustrate the difference between *L. encrasicoli* and *L. sprattæ*.

The following ecto-parasites of fishes have been taken within the past few years, but illustrations are now given to show the differences in the appendages.

Lernæenicus sprattæ (Sowerby). Plate II, figs. 1-5.

This parasite is not uncommon on the sprats captured along the Lancashire coast. It differs in the manner of attachment to its host from *L. encrasicoli*. All the specimens of *L. sprattæ* that we have seen were attached to the eye, as shown in the illustration. The barbed head is inside the eye, and the parasite apparently feeds on the semifluid matter. The neck of the parasite is corrugated for some distance from the point of its attachment to the body. In *L. encrasicoli* the neck is quite smooth. The lateral projections of the head differs somewhat in the two species. In *L. sprattæ* they are directed backwards, and in *L. encrasicoli* they are nearly at right angles to the head. The appendages in the two species appear to be identical, and consist of one pair of antennules, one pair of antennæ, and four pairs of rudimentary feet. The four pairs of feet have probably remained in the same condition from the free-swimming larval period.

Lernanthropus kroyeri, van Beneden. Plate III.

We find this parasite occasionally attached to the gills of Bass (*Labrax lupus*), caught at the entrance to Barrow Channel. When living the animal is a dark red colour, and rather difficult to see. It differs from any of the other ecto-fish parasites with which I am acquainted by the possession of a peculiar appendage situated close to the base of the antennules of both sexes. The appendage is of irregular shape, somewhat pointed towards the apex, and apparently composed of two joints. Its situation and structure are shown by fig. 3 on the plate. The female is about 21·7 mm. in length, inclusive of the thoracic appendages. The male is rather different from the female and is about 10·5 mm. long. It apparently lives as a parasite on the female. I have never come across any that were isolated, and living directly on the gills of the fish. The appendages are nearly identical in the two sexes. They consist of one pair of seven-jointed antennules, with secondary processes, one pair of antennæ, one pair of mandibles enclosed in a suctorial tube, one pair of maxillæ, two pairs of maxillipedes, and two pairs of rudimentary feet. The outer branch of the second pair of feet of the male has a slightly different armature from that found on the second pair of the female. The outer branch of the female second foot is armed with four spines, while the male has two small spines and a number of minute teeth at the apex of the branch. The furca are large and conspicuous. The spermatophores frequently found attached to the female are globular in shape, and of a dark brown colour.

Clavella labracis?, van Beneden. Plate IV.

While trawling in Luce Bay for large plaice for the tanks, a few *Crenilabrus melops* were captured amongst

the other fishes. One of these was dissected and a few *Clavella* were found attached to the gill filaments. In general appearance the parasite resembles van Beneden's species which we have already recorded for the Irish Sea from another kind of wrasse. Our first specimens were found on the gills of the Ballan wrasse (*Labrus bergylta*). The present species is a very small one, and is only 1 mm. in length, exclusive of the egg sacs. The species has only one pair of maxillipedes. The antennules are five jointed and armed with short spatulate hairs, the first joint has a short, thick hair placed on the lower margin near the junction with the second joint. The antenna are in the form of very strong slender hooks. The mandibles and maxilla are rudimentary; the former appears to have no serrate apex. There are two pairs of rudimentary feet, both two-branched. The first pair has both branches composed of two joints, while the second pair has a two-jointed outer branch, and a three-jointed inner branch. The furca are very small and inconspicuous. No males were found.

EXPLANATION OF THE PLATES.

PLATE I.

Caligus zeii, Norman and T. Scott.—

- Fig. 1.—Adult female seen from above. $\times 11$.
 „ 2.—Antennule.
 „ 3.—Antenna.
 „ 4.—Sternal fork.
 „ 5.—First maxilliped.
 „ 6.—Second maxilliped.
 „ 7.—Fourth foot.
 „ 8.—Abdomen of male.

PLATE II.

- Fig. 1.—*Lernæenicus sprattæ* (Sowerby), in situ.
 Natural size.
 „ 2.—*Lernæenicus sprattæ*, removed from its host.
 $\times 2.5$.
 „ 3.—Head and anterior portion of thorax of
L. sprattæ. $\times 5$.
 „ 4.—Antennule. $\times 126$.
 „ 5.—Antenna. $\times 80$.
 „ 6.—*Lernæenicus encrasicoli* (Turton), in situ.
 Natural size.
 „ 7.—Dissection showing position of head in the
 host. $\times 3$.
 „ 8.—Head and anterior portion of thorax, from
 above. $\times 6$.
 „ 9.—Head and anterior portion of thorax, from
 left side. $\times 6$.

PLATE III.

Lernanthropus kroyeri, van Beneden.

- Fig. 1.—Adult female, seen from above. $\times 13\cdot4$.
 „ 2.—Antennule and secondary process. $\times 120$.
 „ 3.—Antenna. $\times 60$.
 „ 4.—Mandible. $\times 181$.
 „ 5.—Maxilla. $\times 181$.
 „ 6.—First maxilliped. $\times 90$.
 „ 7.—Second maxilliped. $\times 90$.
 „ 8.—First foot. $\times 90$.
 „ 9.—Second foot. $\times 90$.
 „ 10.—Outer branch of second foot, male. $\times 90$.
 „ 11.—Abdomen and furca of female, with spermatophores. $\times 90$.
 „ 12.—Adult male seen from above. $\times 13\cdot4$.
 „ 13.—Abdomen and furca of male. $\times 90$.

PLATE IV.

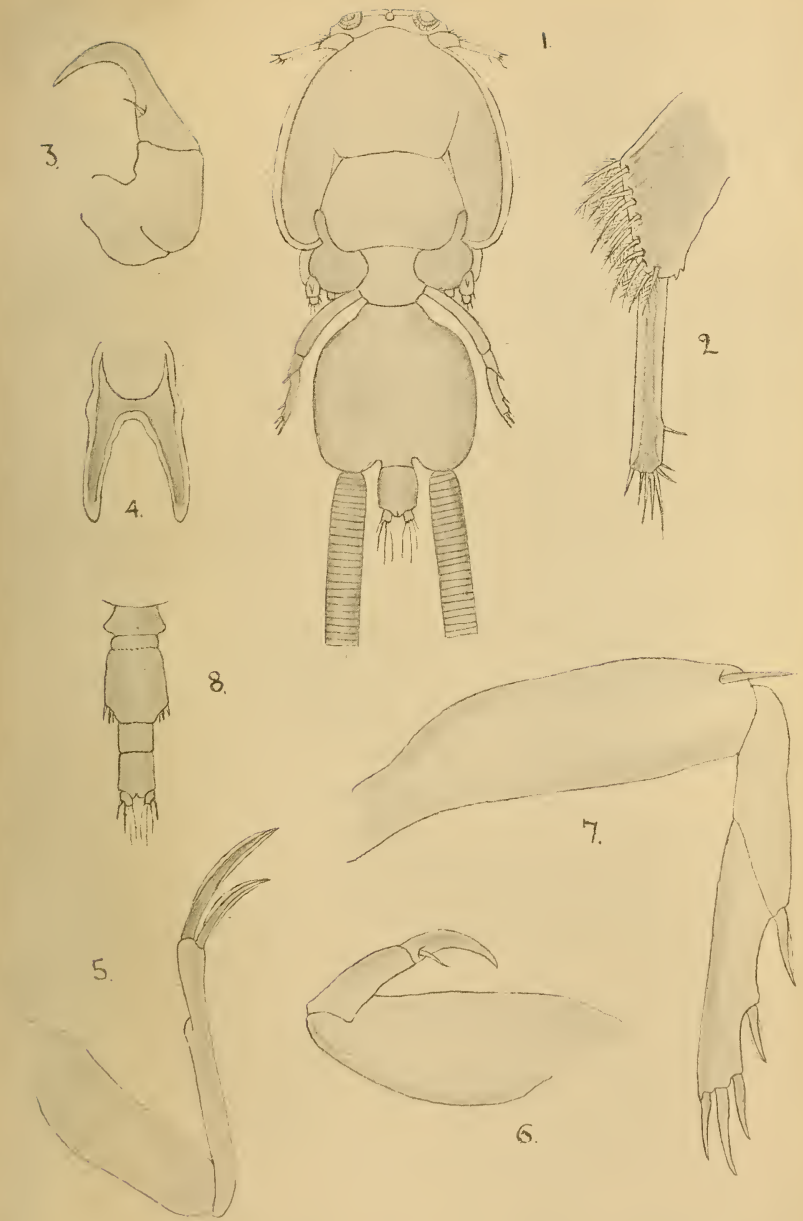
Clavella labracis, van Beneden.

- Fig. 1.—Adult female seen from above. $\times 45$.
 „ 2.—Antennule. $\times 390$.
 „ 3.—Antenna. $\times 390$.
 „ 4.—Mandible. $\times 781$.
 „ 5.—Maxilla. $\times 781$.
 „ 6.—Maxilliped. $\times 390$.
 „ 7.—First foot. $\times 390$.
 „ 8.—Second foot. $\times 390$.
 „ 9.—Abdomen and furca. $\times 390$.

PLATE V.

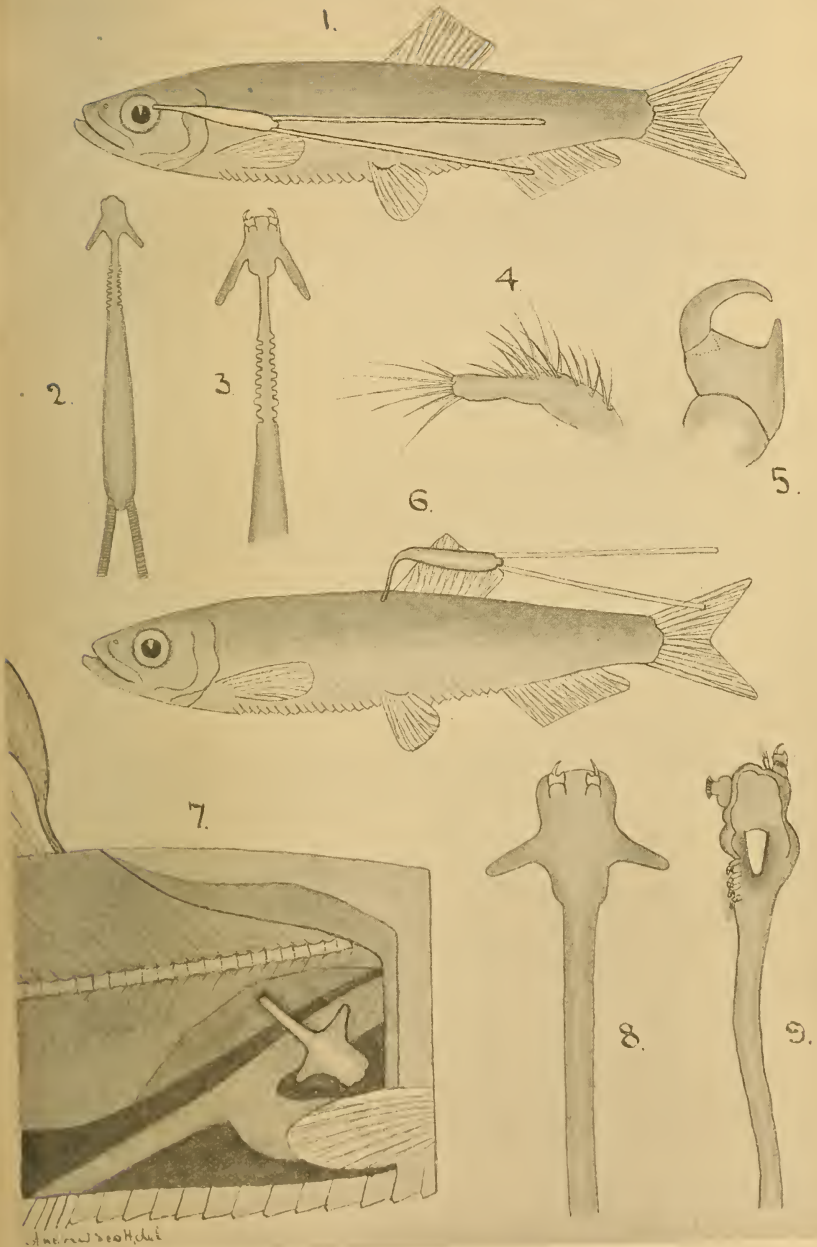
Leptocephalus morrisii

Natural size, and seen from the right side.



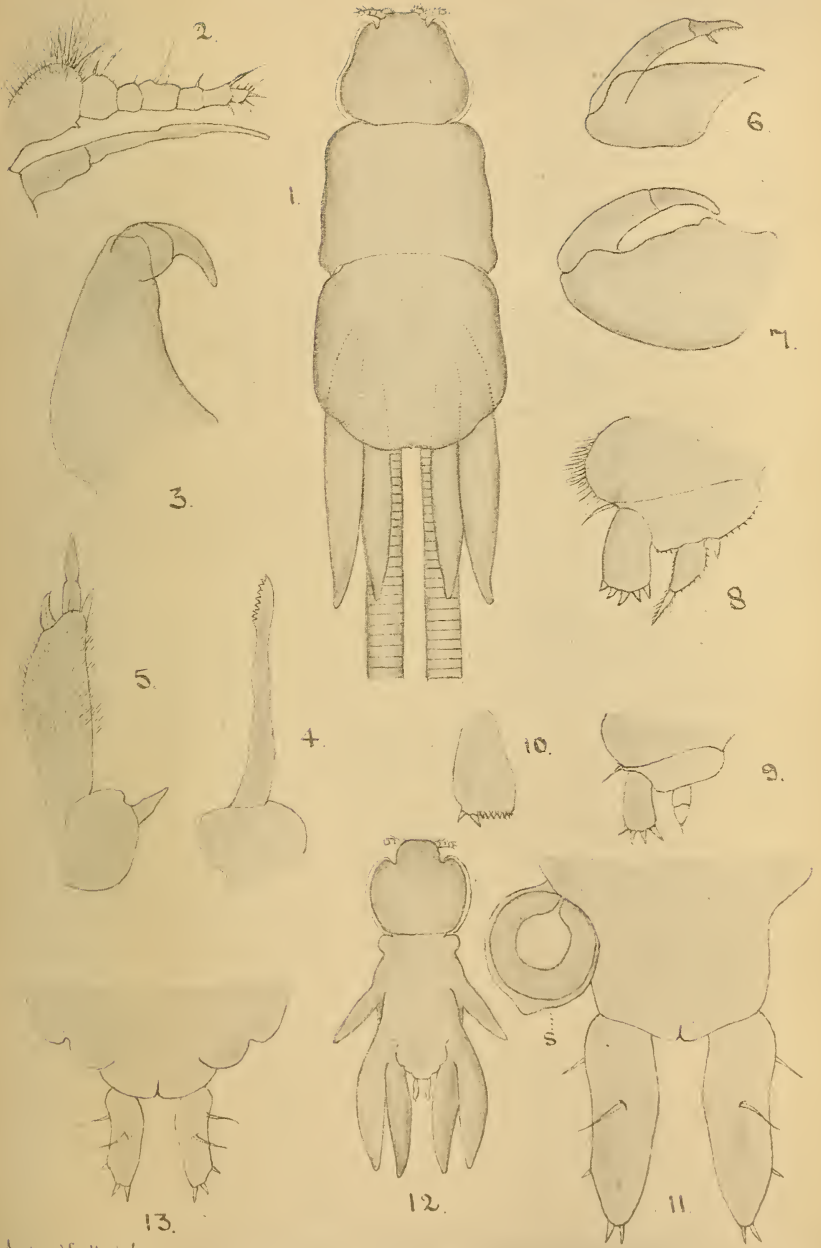
Norman and Scott

CALIGUS ZEI, Norman and T. Scott.



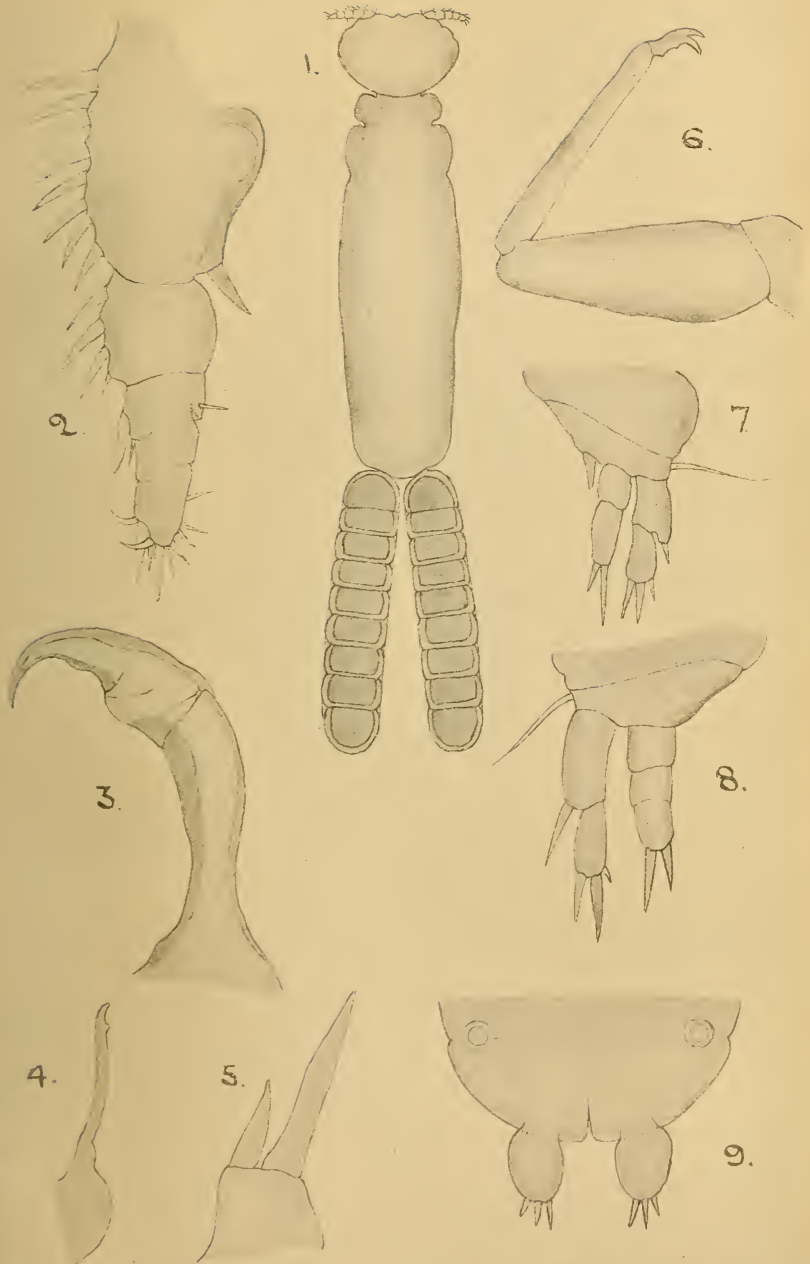
FIGS. 1-5. LERNÆENICUS SPRATTE (Sowerby).

FIGS. 6-9. LERNÆENICUS ENCRASICOLI (Turton).



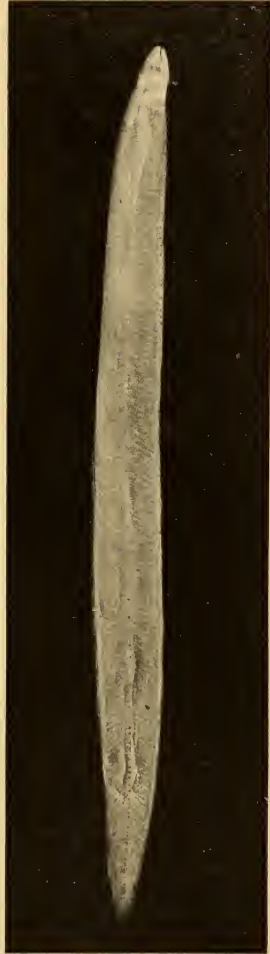
Andrew S. H., del.

LERNANTHROPUS KROYERI, van Beneden.



Andrew Scott, del.

CLAVELLA LABRACIS, van Beneden.



Leptocephalus stage of Conger Eel. Nat. size.