

R.

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CULLERCOATS

Family SYLLIDAE

The syllids are a highly diverse family which are only occasionally found in high densities. Many are small, and most are cryptic in habit. They live amongst bryozoans, ascidians, sponges, hydroids etc. (*Autolytus*, *Proceraea*, *Procerastea*, *Syllis*, *Typosyllis*, *Haplosyllis*), in membranous tubes on algae and hard substrates (*Eusyllis*, *Autolytus*, *Pionosyllis*) in *Laminaria* holdfasts (*Autolytus*, *Typosyllis*, *Pionosyllis*, *Exogone*, *Sphaerosyllis*) or in soft sediments (*Exogone*, *Sphaerosyllis*, *Streptosyllis*). They occur from the intertidal zone down to the depths of the oceans.

Identification of syllids usually involves examination of the following characters:

1. Details of the armature of the pharynx.
2. Details of the chaetae,
3. Details of the antennae and dorsal cirri - are they smooth, irregularly wrinkled or distinctly articulated?
4. Details of the degree of fusion of the prostomial palps.
5. 1 or 2 pairs of tentacular cirri.

Generally speaking, it is best to make temporary or permanent mounts of whole animals of small species.

A typical syllid has a prostomium which bears 3 antennae and a pair of simple palps. The tentacular segment bears 1 or 2 pairs of tentacular cirri. Each segment bears uniramous parapodia (except in sexually mature individuals, in which a dorsal bundle of capillary chaetae develops, at least in some segments), with dorsal cirri and ventral cirri (the latter are absent in *Autolytus*, *Myrianida*, *Proceraea*, *Procerastea*).

The pharynx may be unarmed or bear many teeth, and leads into an organ characteristic of the family, the proventriculus. This is muscular and is used to suck food in to the gut, and it may be followed by a smaller muscular body, the ventriculus. Syllid chaetae are largely compound, though some species have only simple forms. In each parapodium there is usually a simple dorsal chaeta accompanying the compound forms, and in many species a simple ventral chaeta is present in posterior segments.

Syllids are well known for their wide variety of methods of reproduction, which can basically be divided into 2 types. In epigamous species, the whole animal becomes modified at sexual maturity, with enlarged eyes and the development of a bundle of swimming chaetae over each parapodium in a number of segments being the most obvious changes. This occurs in the genera *Amblyosyllis*, *Brania*, *Eusyllis*, *Exogone*, *Odontosyllis*, *Pionosyllis*, *Sphaerosyllis*, *Parapionosyllis*, *Streptosyllis*, *Syllides*, and may be accompanied by brooding of embryos and juveniles in small forms (*Brania*, *Exogone*, *Sphaerosyllis*, *Parapionosyllis* brood eggs attached to the body wall of the mother). Epigamy in syllids is apparently reversible in most cases. In schizogamous species, sexual individuals are budded off the posterior end of the parent animal, producing stolons. This occurs in *Autolytus*, *Eurysyllis*, *Haplosyllis*, *Myrianida*, *Procerasoa*, *Procerastea*, *Syllis*, *Trypanosyllis*, *Lyposyllis*, *Langerhansia*. Some brood embryos in a brood pouch attached to the female, while she remains in the water column (eg, *Autolytus*).

Family SYLLIDAE

Important references

- BEN-ELIAHU, H.H., 1977 a & b. Polychaete cryptofauna from rims of similar intertidal vermetid reefs on the mediterranean coast of Israel and in the Gulf of Eilat: Syllinae and Eusyllinae Isr. J. Zool., 26: 1-58. Exogoninae and Autolytinae. Isr. J. Zool., 26: 59-99.
- COGNETTI, G., 1957. I Syllidi del golfo di Napoli. Pubbl. Staz. Zool. Mar. 30:1-100.
- COGNETTI, G., 1960. Differentiation spécifique et intra-spécifique par rapport à l'habitat de syllidiens de la Manche et de la Méditerranée. Cah. Biol. Mar., 1:113-120.
- COGNETTI, G., 1961. Les Syllidiens des côtes de Bretagne. Cah. Biol. Mar., 2:291-312.
- GIDHOLM, L., 1967. A revision of Autolytinae (Syllidae, Polychaeta) with special reference to Scandinavian species, and with notes on external and internal morphology, reproduction and ecology. Ark. Zool., 19:157-213.
- IMAJIMA, M., 1966. The Syllidae (Polychaetous annelids) from Japan. I Exogoninae. II Autolytinae. III Eusyllinae. IV Syllinae 1. V Syllinae 2. Publ. Seto Mar. Biol. Lab., 13:385-404, 14:27-33, 35-111, 219-252, 253-294.
- PERKINS T.H., 1930. Syllidae (Polychaeta), principally from Florida, with descriptions of a new genus and twenty one new species. Proc. Biol. Soc. Wash., 93:1080-1172.
- WESTHEIDE, W., 1974. Interstitielle fauna von Galapagos XI Pisionidae, Hesionidae, Pilargidae, Syllidae (Polychaeta). Mikrofauna des Meeresbodens, 44:1-146.

Results

A total of 18 species were collected, of which 15 were positively identified, and the remaining 3, consisting of one specimen each, could only be taken to the generic level. The key to genera places less emphasis on the four subfamilies of which the Syllidae are conventionally considered to be composed. Of these, only the Autolytinae are relatively easily and consistently distinguished, by their lack of ventral cirri. The other subfamilies are distinguished by less clear cut characters such as the degree of fusion of the palps and the presence or absence of articulations on the dorsal cirri. These characters have been used at the generic level, but it is considered that they are not sufficiently definite to be used to distinguish subfamilies.

Missing are: *Trypanosyllis*
Myriamida
Palapisonocyllis

Key to genera:

1. Ventral cirri absent 2
- Ventral cirri present 4
2. Dorsal cirri present on setiger 1 only; simple chaetae formed by the fusion of a falciger blade to a shaft (Fig. a) present ^{at least} in the first 4 setigers ... Procerastea
- Dorsal cirri present on all setigers; chaetae present as compound falcigers and simple bayonet chaetae (Fig. b + c) throughout 3
3. Bayonet chaetae with shafts of comparable thickness to those of the falcigers (Fig. b e); no segmental ciliary bands Proceræa
- Bayonet chaetae with shafts markedly slimmer than those

- of the falcigers (Fig. c); segmental ciliary bands present Autolytus
4. 1 pair of tentacular cirri 5
 - 2 pairs of tentacular cirri 6
5. Tentacular cirri and dorsal cirri reduced and globular to oval in shape (Fig. d) Exogone
 - Tentacular cirri and dorsal cirri well developed and often flask or bottle shaped (Fig. e) Sphaerosyllis ~~also Hyph~~
 or Parapionosyllis
6. Pharynx unarmed* 7
 - Pharynx armed with one or more teeth 8
7. Large knobbed acicula present in a small number of anterior setigers (Fig. f) Streptosyllis
 - Acicula not large and knobbed Syllides
8. Pharynx bearing a single large tooth 9
 - Pharynx bearing a number of teeth 14
9. Tooth situated anteriorly, almost at the opening of the pharynx 10
 - Tooth situated posteriorly in the pharynx .. Cpisthodonta
10. All tentacular and dorsal cirri strongly articulated 11
 - Dorsal cirri of middle and posterior segments smooth or irregularly wrinkled; those of anterior segments, together with the tentacular cirri, may show articulations 12
11. All chaetae compound, except for 1-2 per parapod in posterior segments Typosyllis
 - Mid-body segments with thick shafted simple chaetae (Fig. g) as well as falcigers Syllis

* 1 species of this genus, Streptosyllis armata ~~unarmata~~

Hartmann-Schroder 19 —, does have a single pharyngeal tooth

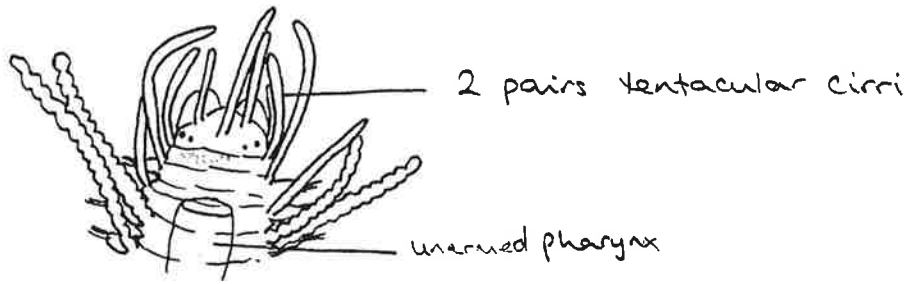
12. Palps fused along almost the whole of their length and often triangular in shape (Fig. g^h) ... Brania
- Palps fused only at their bases (Fig. i) 13
13. Pharynx bearing a single mid-dorsal tooth, and a denticulate chitinous ring around the pharyngeal aperture
..... Eusyllis
- Pharynx bearing a single mid-dorsal tooth and a smooth chitinous ring around the pharyngeal aperture
..... Pionosyllis
14. Antennae and cirri short and globular, with globular papillae on the dorsum; a large mid-dorsal tooth and a trepan of 10 teeth in the pharynx Eurysyllis
- Antennae and cirri elongate; all pharyngeal teeth of approximately the same size 15
15. Body short, with rhomboidal segments and very long dorsal cirri; pharynx long and sinuous; nuchal epaulettes well developed (Fig. j) ... Amblyosyllis
- Body elongate with relatively short dorsal cirri; pharynx short and broad; nuchal epaulettes poorly developed, and an occipital flap often present (Fig. k) Odontosyllis
Eusyllis

Keys to species and species descriptions:

Genus Procerastea Langerhans 1884

1. Trepan with 15-30 equal teeth; anterior appendages club-shaped; pharynx with a pronounced sinuation
..... P. haleziana*
- Trepan with 6-10 equal teeth; anterior appendages cylindrical; pharynx with only a slight curve
..... P. nematodes

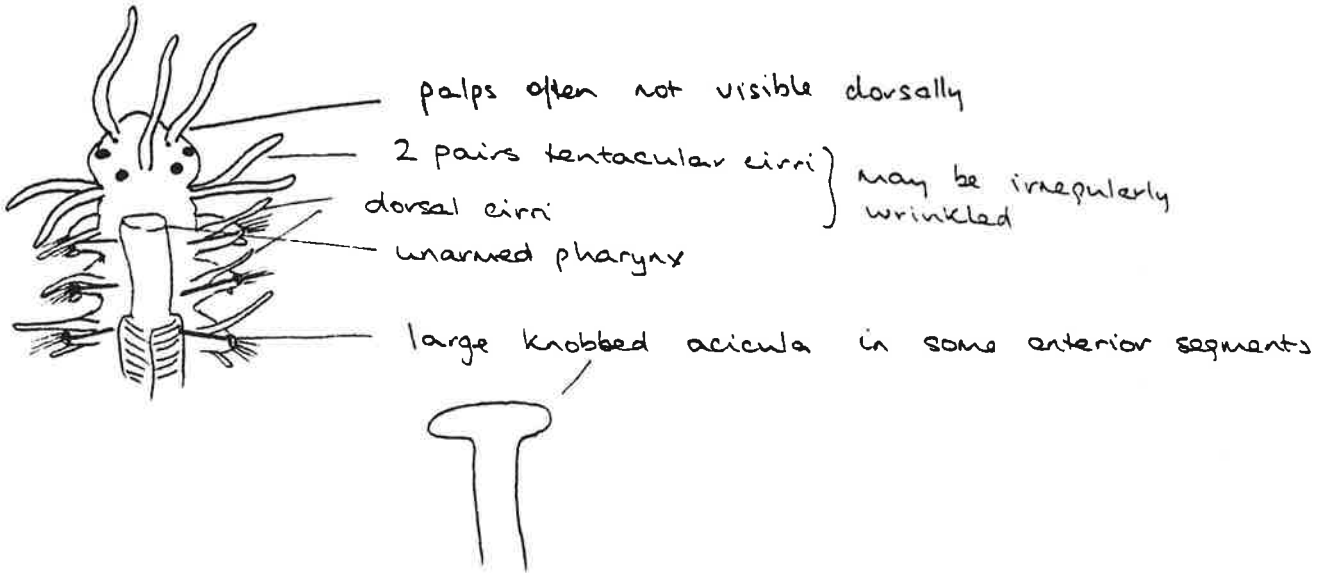
Genus Syllides



1st 2 pairs dorsal cirri smooth, remained distinctly articulated

SPECIES likely, to be found in
S. longocirrata.

Genus Streptosyllis



Small species, up to 8mm in length

SPECIES

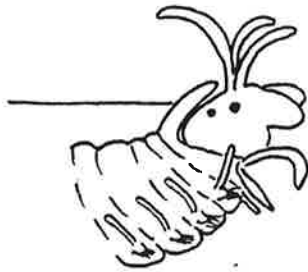
- S. bidentata
- S. websteri

IMPORTANT CHARACTERS

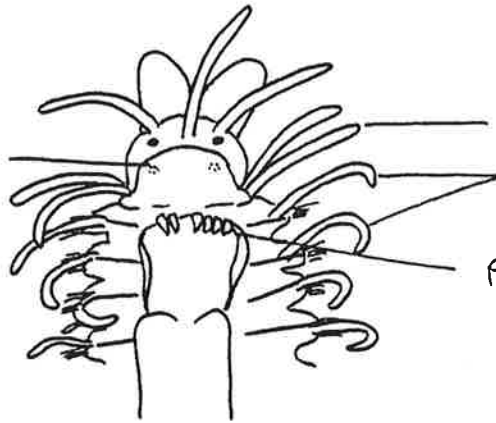
1. Distribution of large knobbed acicula in anterior segments

Genus Odontosyllis

occipital
flap



occipital
flap



2 pairs tentacular cirri } smooth
dorsal cirri

pharynx armed with several recurved teeth

Quite large! stout species — up to 5cm

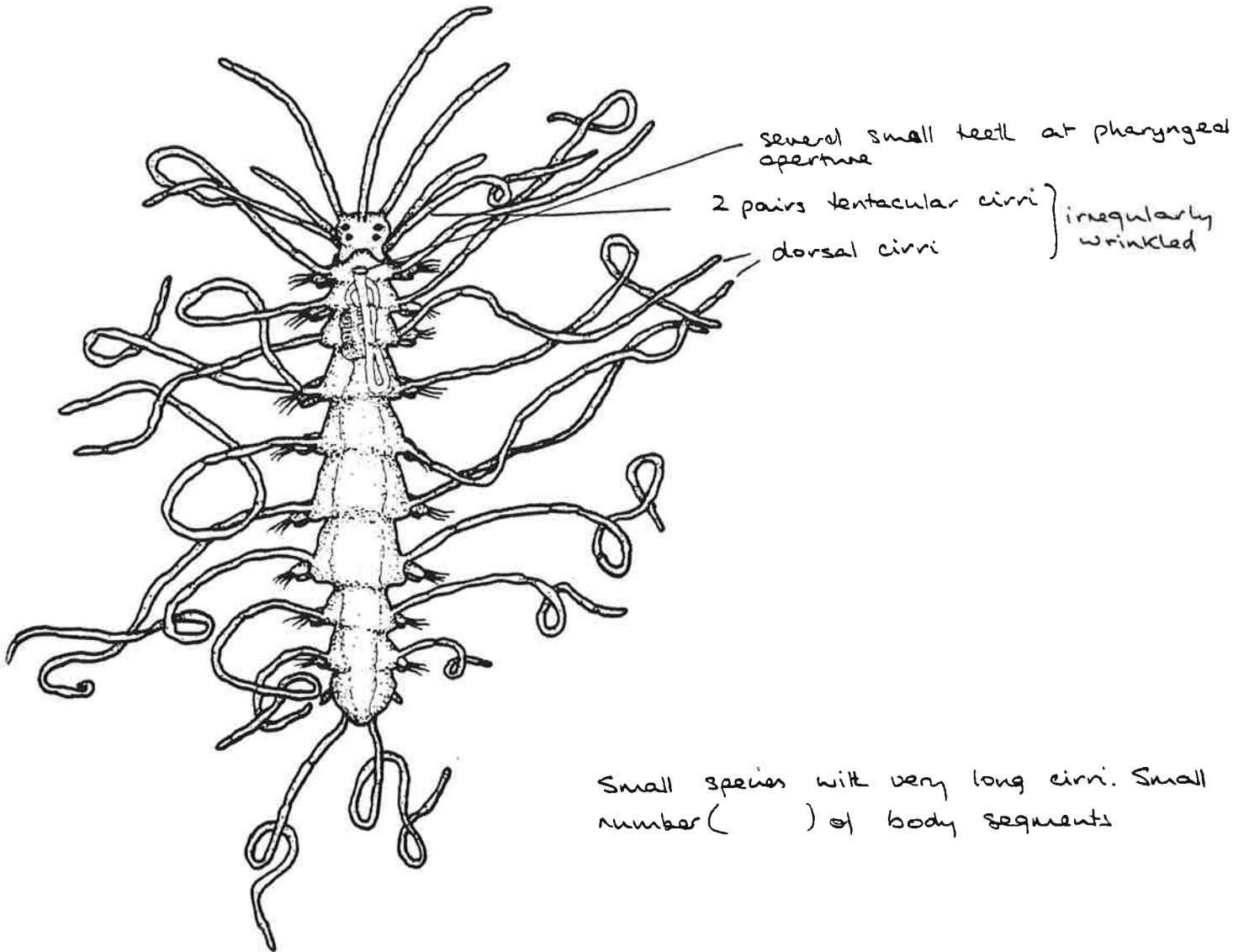
SPECIES

- O. clenostoma
- O. fulgurans
- O. gibba

IMPORTANT CHARACTERS

1. Details of compound chaetae — length of blades, uni- or bidentate.

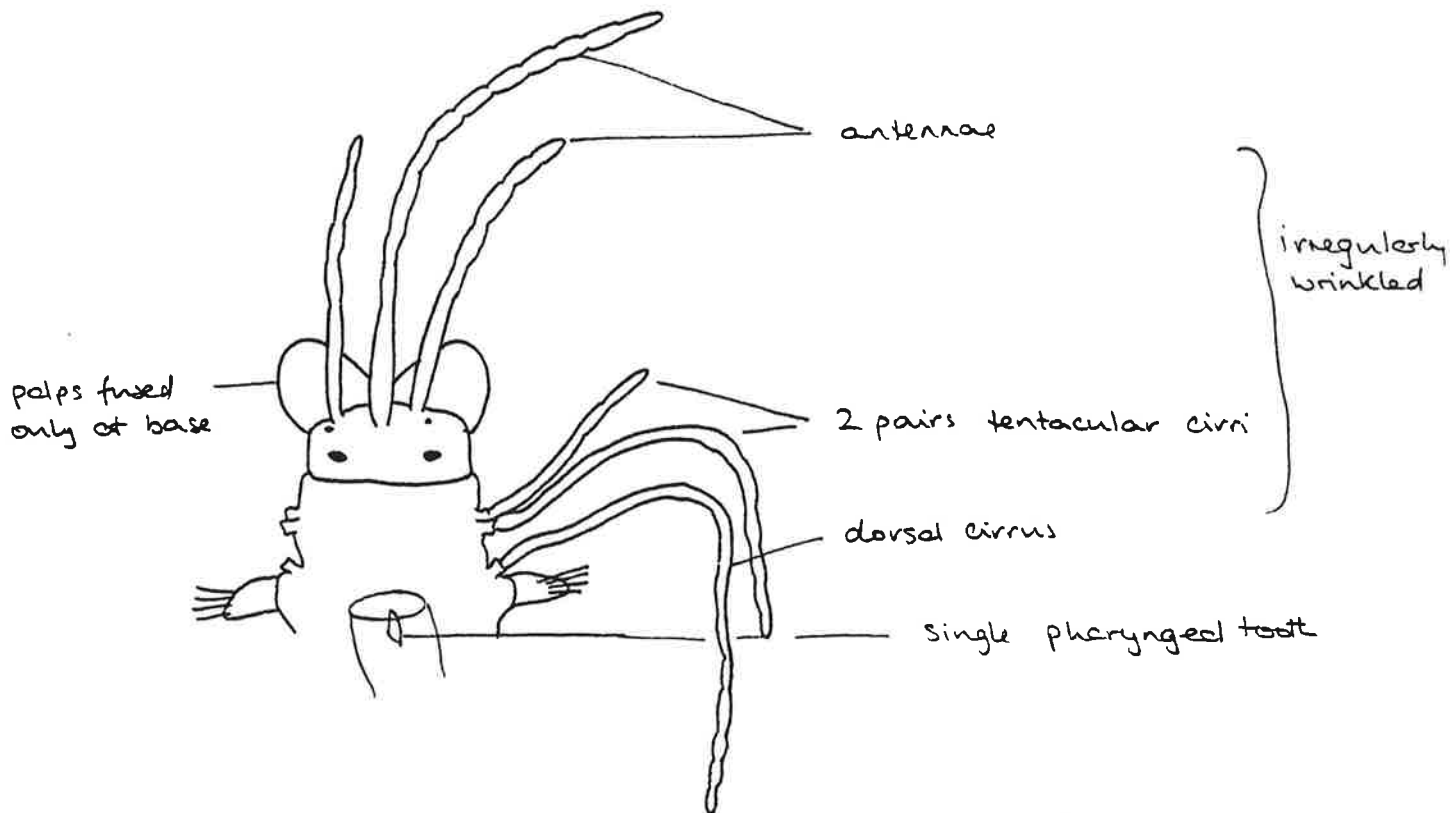
Genus *Amblyosyllis* (= *Pterosyllis*)



SPECIES

A. formosa

Genus Pionosyllis



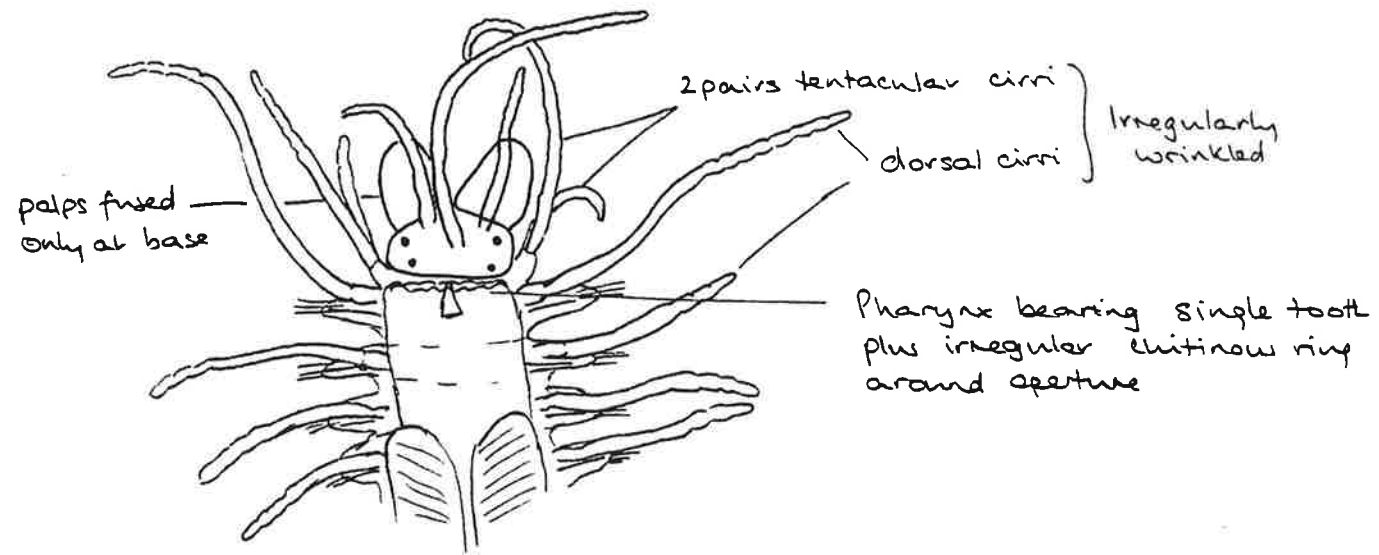
SPECIES

- P. compacta ?
- P. divaricata
- P. lamelligera
- P. pulligera
- P. serrata

IMPORTANT CHARACTERS

1. Ventral cirri of first setiger flattened end fused in mid-line, or cirriform.
2. Details of chaetae
3. Length of dorsal cirri
4. Position of pharyngeal tooth

Genus Eusyllis



SPECIES

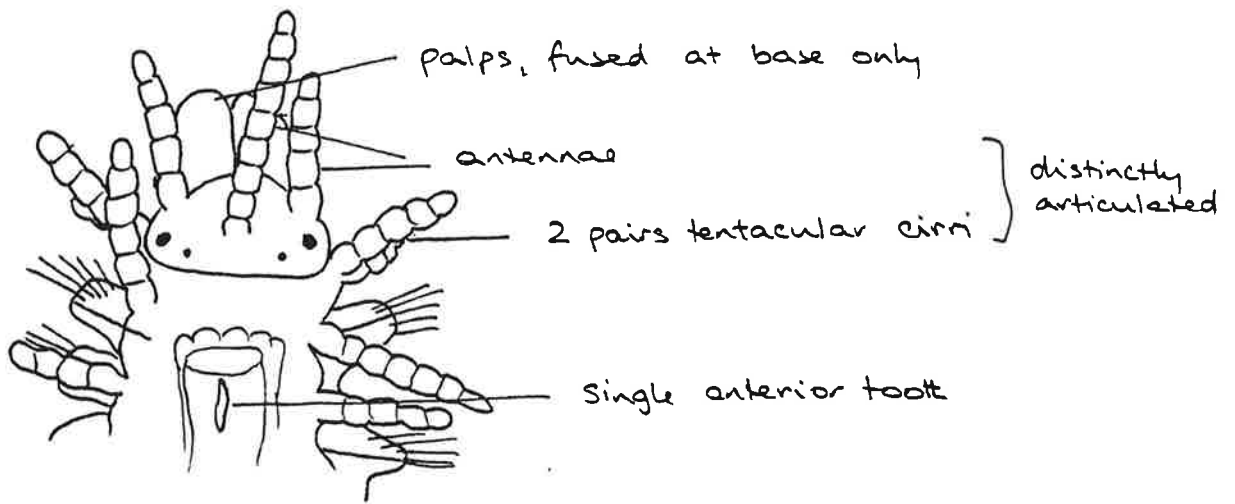
- E. assimilis
- E. blomstrandii (incl. E. tubifex?)
- E. lamelligera

IMPORTANT CHARACTERS

1. Structure of ventral cirri on stiger 1 (see Pionosyllis).
2. Types of compound chaetae.

Genera

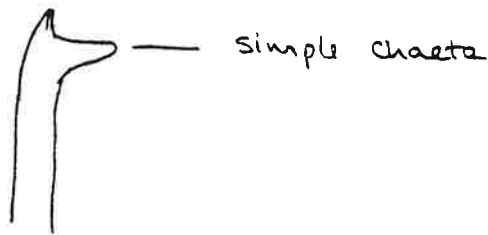
- Syllis
- Haplosyllis
- Langerhansia
- Typosyllis



Key to separate genera:

1. Only simple chaetae present (a) Haplosyllis
 - Compound falcigers (b) and sometimes spinigers (c) present, or least in anterior and posterior segments 2.
2. Only simple chaetae (d) (1-2 in number) in mid-body segments . . Syllis
 - Some compound chaetae in all parapodia 3
3. Compound chaetae all falcigers Typosyllis
 - 1-2 compound spinigers in most parapodia Langerhansia

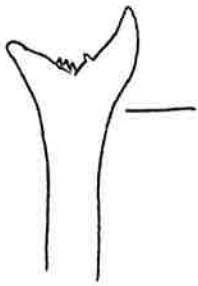
Crus Haplosyllis



Species

H. spongicola

Genus Syllis



Simple chaeta from mid-body segment

Species

- S. gracilis
- S. amica

IMPORTANT CHARACTERS

1. Details of simple chaetae from mid-body segments.

Genus Typosyllis



Compound falciger

SPECIES

- T. armillaris
- T. hyalina
- T. Krohnii
- T. prolifera
- T. variegata
- T. vittata

IMPORTANT CHARACTERS

1. Distribution of uni- & bidentate falcigers along body length.
2. Number of articles in dorsal cirri (NB. these alternate between short and long cirri).

Genus Langerhansia (= Ehlersia)



Compound spiniger

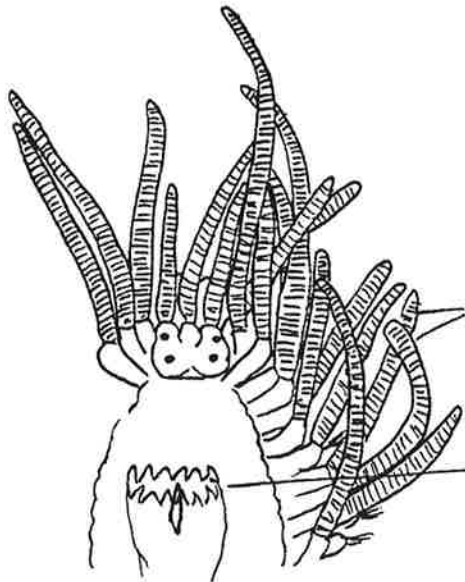
SPECIES

- L. abyssicola?
- L. cornuta
- L. ferruginea

IMPORTANT CHARACTERS

1. Segment first bearing spinigers
2. Number of articles in dorsal cirri

Genus Trypanosyllis



palps fused only at base

2 pairs tentacular cirri

dorsal cirri

} distinctly articulated

pharyngeal aperture with single large tooth plus ring of smaller ones (trochan)

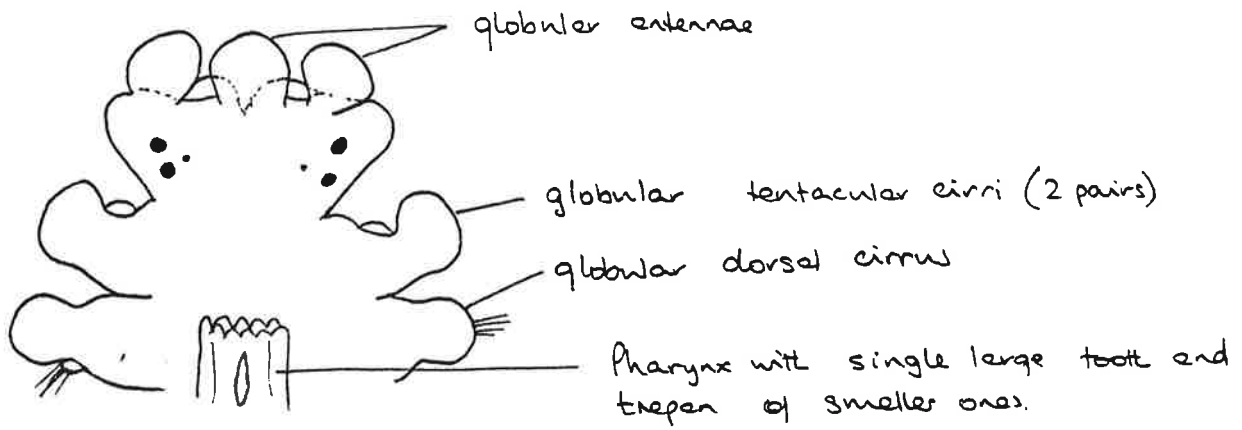
SPECIES

Trypanosyllis coeliaca
T. zebra

IMPORTANT CHARACTERS

1. Number of articles in dorsal cirri and antennae
2. Colour pattern

Genus Ewysyllis

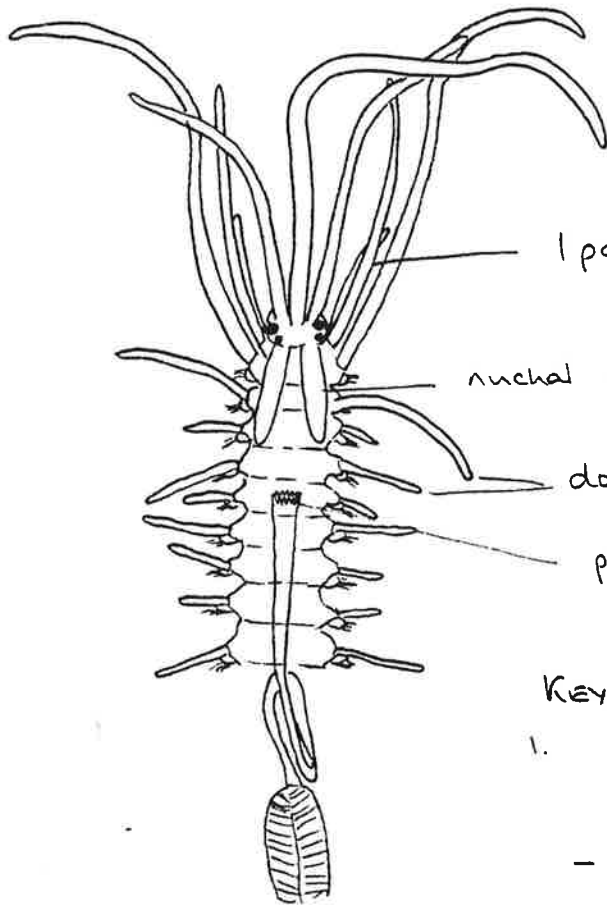


Small fast species - maximum size 6mm

SPECIES

E. tuberculata

Genera *Autolytus*
Procereia



NO VENTRAL CIRRI

Smooth

KEY TO GENERA

1. Simple chaetae (bayonet) chaetae in each segment thinner than shaft of compound (a) *Autolytus*
- Simple chaetae thick shafted, or thick or thicker than shaft of compound chaeta (b).. *Procereia*

SPECIES OF *Autolytus*

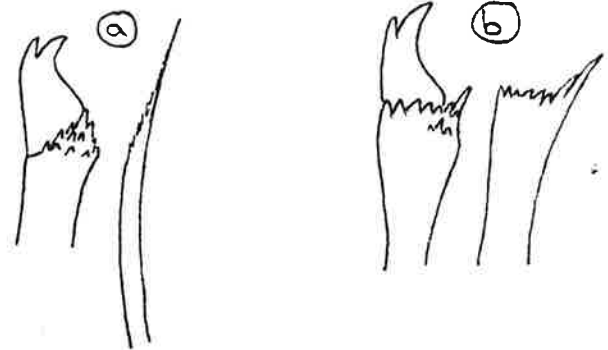
- A. *auriantiacus* (= *brachycephala*, in part)
- A. *brachycephalus*
- A. *edwardsi*
- A. *inermis*
- A. *langerhansii*
- A. *longepeniens*
- A. *prolifer*
- A. *quindecimdentatus*
- A. *rubrolineatus*
- A. *rubropunctatus*
- A. *smithiae*

IMPORTANT CHARACTERS

1. Pattern of teeth in terepan
2. Length and degree of coiling of pharynx
3. Details of compound chaetae
4. Colour pattern
5. Parapodial glands - their position and how much they extend into body wall.

+ possibly

- A. *macrophthalmus*
- A. *megodon*
- A. *paradoxus*
- A. *roseus*



Genus *Proceraea*

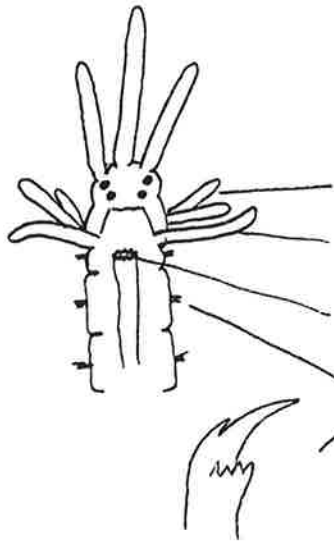
SPECIES

- P. *cornuta*
- P. *picata*
- P. *prismatica*

IMPORTANT CHARACTERS

1. Relative sizes of 2 teeth on blade of compound chaeta.
2. Colour pattern.
3. Details of trepan.

Genus Procerastea



NO VENTRAL CIRRI

2 pairs tentacular cirri

dorsal cirri only on setiger 1.

circlet of teeth (trepan) or pharyngeal opening.

simple cheetae formed by fusion of blade &

shaft of compound in some anterior segments

SPECIES

P. halleziana

P. nematodes (incl. *P. perrieri*)

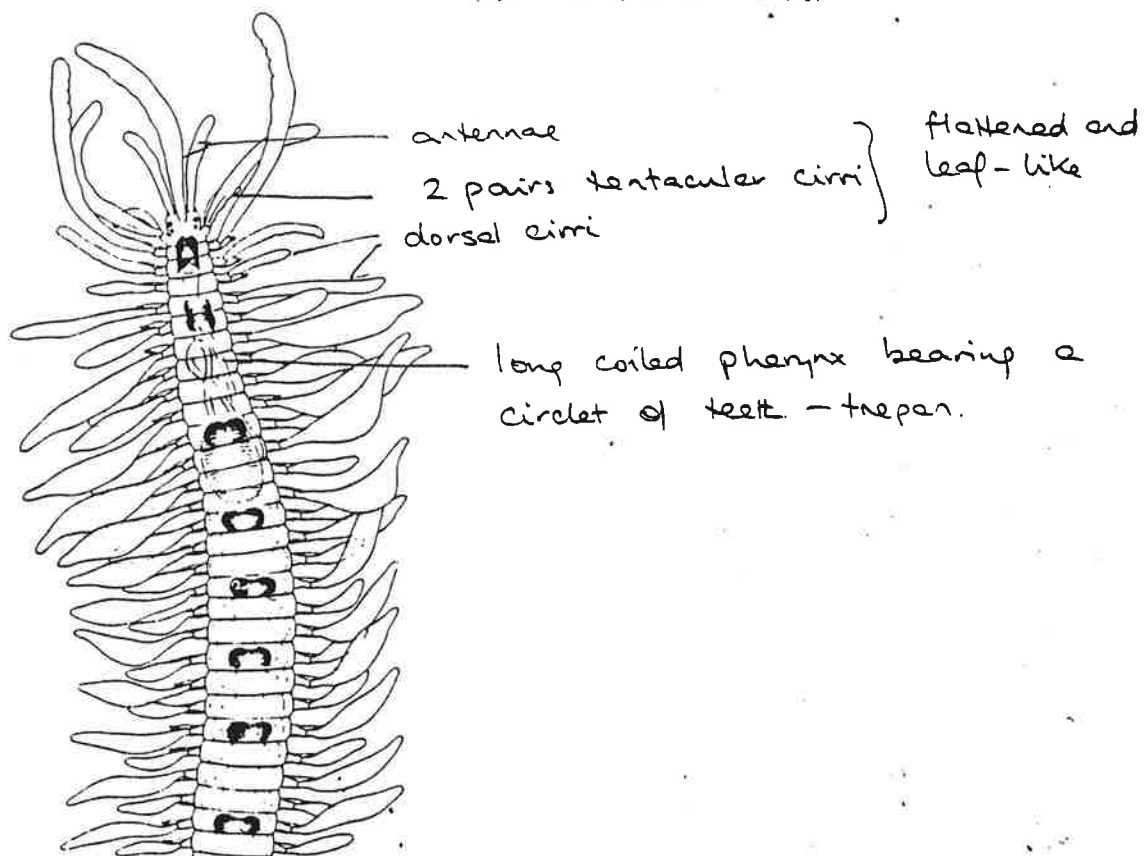
IMPORTANT CHARACTERS

1. Number of teeth on trepan

2. Length of pharynx

Genus Myriianida

NO VENTRAL CIRRI



SPECIES

M. pinnigera

- / -

Genus Brania (=Grubea)



2 pairs tentacular cirri

dorsal cirri well developed, but not flask shaped
(cf. Sphaerosyllis)

single anterior tooth (position slightly variable,
but always in anterior
half of pharynx)

Small species, less than 4mm in length.

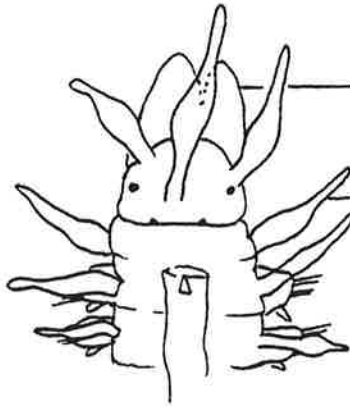
SPECIES

- B. clavata
- B. limbata
- B. pusilla
- B. swedmarki

IMPORTANT CHARACTERS

1. Shape of dorsal cirri
2. Chaetae (Compound) uni- or bidentate
3. Position of tooth in pharynx

Genus Parapionosyllis



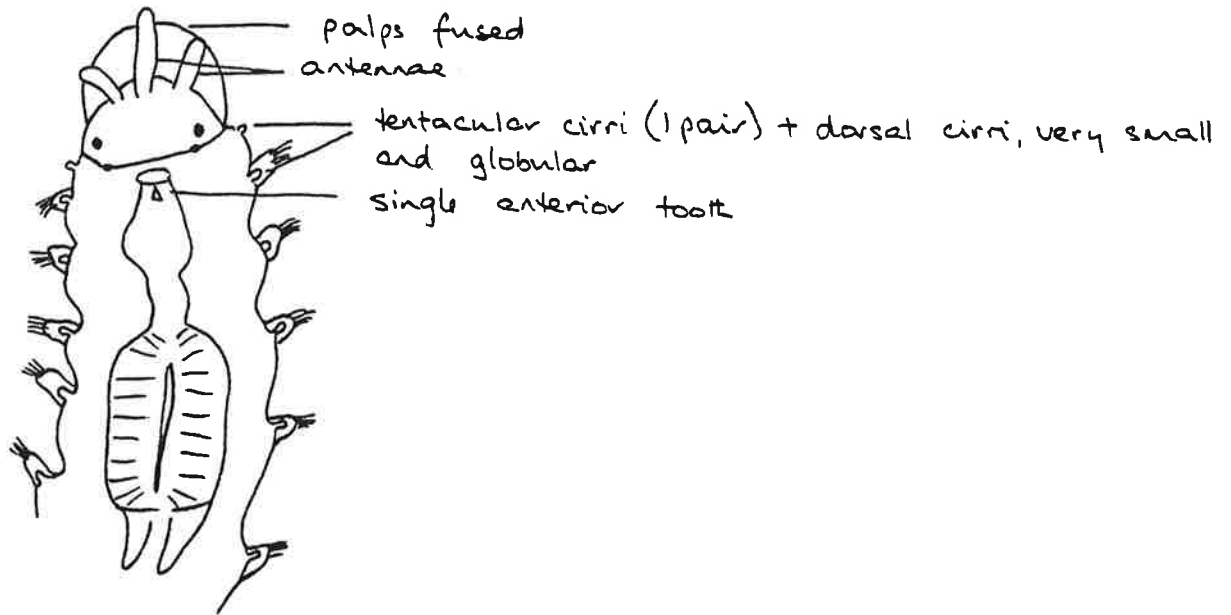
palps not completely fused

1 pair tentacular cirri

SPECIES

P. longicirrata

Genus Exogone



Small species, maximum length 8mm.

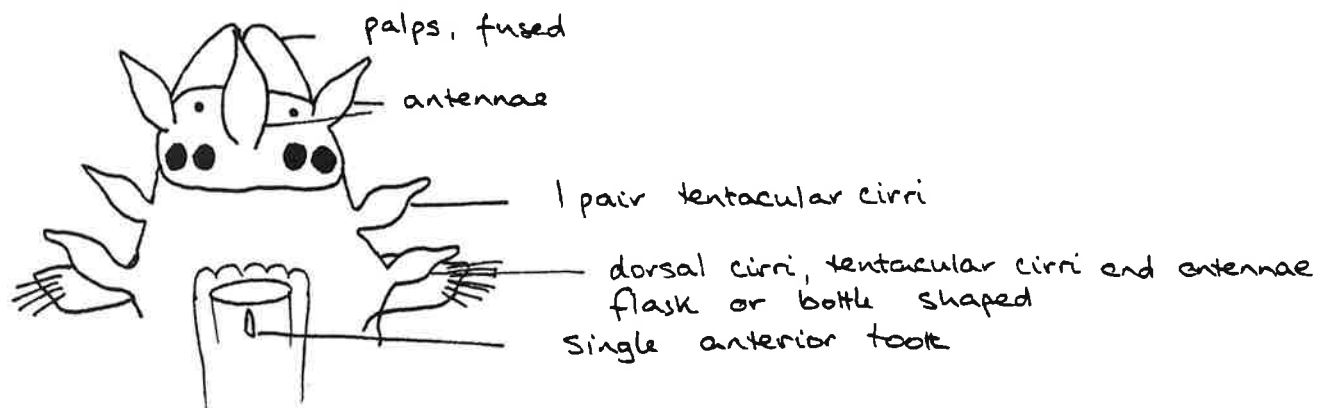
SPECIES

- E. dispar
- E. hebes
- E. naidina (= gemmifera)
- E. cf. verugera

IMPORTANT CHARACTERS

1. Relative and absolute lengths of antennae
2. Presence or absence of dorsal cirri on setiger 2.
3. Details of compound chaetae - both falcigers and spinigers may be present.

GENUS Sphaerosyllis



Small species, maximum length 6mm. Part or all of body may bear adhesive papillae, to which debris adheres.

SPECIES

- S. bulbosa
- S. erinaceus
- S. hystrix
- S. ovigera
- S. pirifera
- S. tetralix

IMPORTANT CHARACTERS

1. Presence or absence of dorsal cirri on setiger 2.
2. Distribution of eyes on prostomium
3. Glands at bases of anterior parapodia
4. Details of compound chaetae

SYLLIDAE.

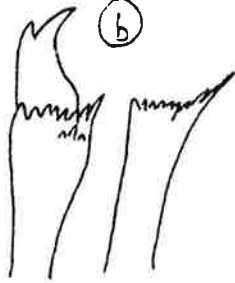
Procerastea

(a)



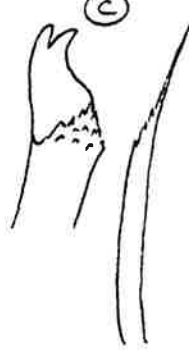
Proceraea

(b)

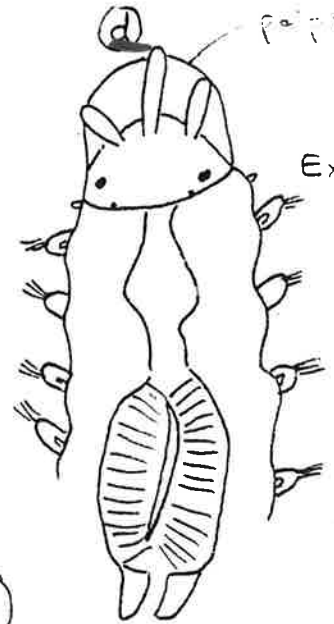


Autolytus

(c)



(d)

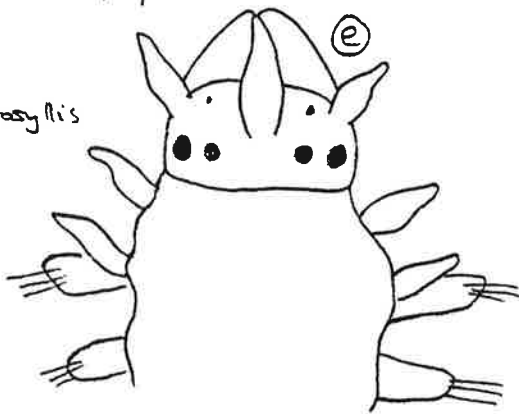


palps

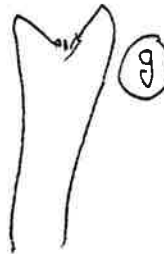
Exogona

Sphaerosyllis

(e)



(f)



(g)

palps

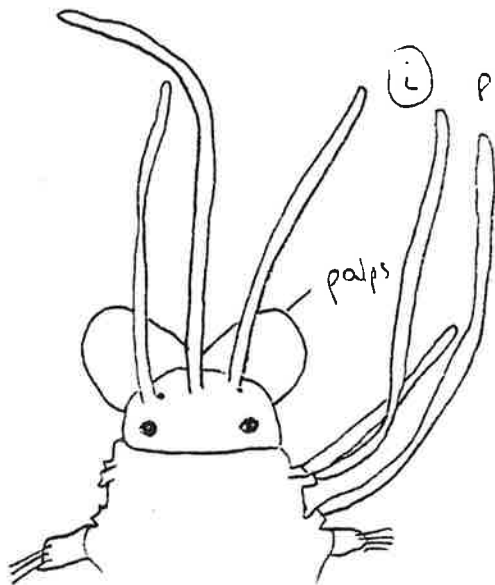
(h)



Brania

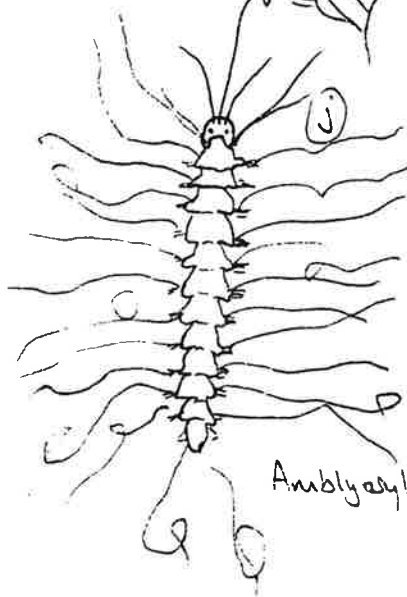
Pionosyllis

(i)



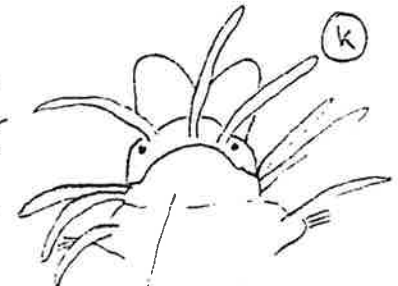
palps

(j)



Amblyosyllis

(k)



Odontosyllis

occipital flap.