

An easily recognised family, nereidid species are not always easy to identify. Conventionally the genera are separated using two basic characteristics - the armature of the eversible pharynx and the details of the chaetal types.

A nereid pharynx (Fig. 1a) is armed with a pair of toothed jaws, which may be accompanied by papillae, or, more commonly, horny paragnaths. The distribution of these paragnaths and their form are important characters, although there may be quite considerable variation within a species in the precise details of paragnath arrangement. Conventionally 8 groups of paragnaths are recognised and given roman numerals, there being two rings of them - oral and maxillary.

Nereidid chaetae have been divided into 4 main types, all being compound in form. The division is based upon the details of the articulation between shaft and blade, and the shape of the tip of the blade. Of the 4, the homiognath falcigers (Fig. 1b) are the most important, being present in posterior parapodia of the subgenera *Nereis*, *Eunereis* and *Hediste* of the genus *Nereis*.

Nereidid parapodial structures are also used in species identifications, although their value has been somewhat reduced by careless illustrations. It is often the case that parapodial morphology changes along the body length, and it is therefore important to specify which parapodium is being described. It is generally most informative to view parapodia from the anterior side. (Fig. 1c) Basically a nereidid parapodium is composed of 5 main lobes or ligules, plus a dorsal and ventral cirrus. The ventral cirrus is double in some genera (eg. *Ceratocephale*).

The notopodium consists of 2 ligules, No. ① which is immediately beneath the dorsal cirrus (the dorsal cirrus may occur at some distance along ligule ① in some species) and No. ② which bears an aciculum. Most of ligule ② is sub-acicular, but in some species a prominent supra-acicular element is present, making ligule ② bilobed (as in Fig. 1c).

The neuropodium consists of a post-chaetal ligule ③ (Fig. 1c), which may or may not be visible from the exterior, an acicular ligule ④ and a ventral sub-acicular, sub-chaetal ligule ⑤.

### PARAGNATHS.

The presence of different types of paragnaths (conical, solid bars, pectinate bars) or their absence is clearly of value in generic identification.

However, only major differences in the pattern of paragnath distribution seems to be of value in species descriptions, as paragnaths may be easily lost, and considerable intra-specific variation occurs. (eg. see Munn 1967 or Barnes + Head 1977 [Estuarine + Coastal Marine Science Vol 5]).

	I	II	III	IV	V	VI	VII-VIII
<i>N. pelagica</i>	1 ② 3	Numerous	Numerous	Numerous	0, 1	3, ④, 5, 6	IRREGULAR ROWS, PARAGNATHS DECREASING IN SIZE → MOUTH
<i>N. zonata</i>	0, 1	Numerous	Numerous	Numerous	0	5, 6, 7, 8, 9.	1 ROW LARGE PARAGNATHS + IRREGULAR ROWS OF SMALL
<i>N. diversicolor</i>	0, ①, ②, ③, 4, 5.	Numerous	Numerous	Numerous	0	3, ④, ⑤, 6, 7, 8, 9.	IRREGULAR ROWS. ALL LARGE
<i>N. fucata</i>	0, 1	Numerous	Numerous	Numerous	0	4, 5, 6, 7, 8, 9.	1 ROW LARGE + IRREGULAR ROWS SMALL
<i>N. virens</i>	0, ①, 2, 3, 4, 5.	Several	Several	Several	0, 1, 2.	1, 2.	IRREGULAR ROWS, ALL LARGE.
<i>N. succinea</i>	2	Several	Several	Several	1, 2, 3, 4, 5, 6.	7, 8.	1 ROW LARGE + ROWS SMALL
<i>N.irrorata</i>	0	Several, in 1 Row	Numerous	Numerous	0	7, 8.	1 ROW LARGE + 1 ROW SMALL
<i>N. longissima</i>	0	0	0	0	0	1-8	0
<i>N. elitoralis</i>	0	0	0	5, 6.	0	2, 3	4, 5, 6

[ ② - Commonest number is 2 ]

Absolute numbers of paragnaths are rarely of use. The most important features in my experience are the details of Gps VII - VIII - are all paragnaths large or are some small ones present? If so, what are the details of their arrangement. On this basis *N. pelagica* and *N. zonata* are separable, as is *N. virens* from *N. succinea* and *N. irrorata*. The characteristics of the paragnaths themselves may be of use, though only by comparison. In *N. diversicolor* the paragnaths are all relatively small and pale, whilst in *N. virens* they are larger and much darker.

Family NEREIDIDAE (=NEREIDAE)

Ceratocephala loveni (=borsalis) - double vent cirri

Micronereis variegata

Nereis (Nereis) elitoralis

N. (Nereis) pelagica

N. (Nereis) zonata

N. (Eunereis) longissima

N. (Hediste) diversicolor

N. (Neanthes) fucata

N. (Neanthes) irrorata

N. (Neanthes) succinea

N. (Neanthes) virens

Platynereis coccinea

P. dumerilii

P. massiliensis

Perinereis cultrifera

P. marioni

Laeonereis glauca

Key to genera

- 1. Achaetous segment present behind tentacular cirri (4 pairs);  
1 pair prostomial antennae + 1 pair biarticulate palps (Fig. 2a) . . . . . 2
- No achaetous segment behind tentacular cirri (4 pairs); no prostomial antennae (NB ant. tentacular cirri on prostomium) [Fig. 2b] . . . . . *Micronereis*
- 2. Pharynx bearing at least some hard chitinous paragnaths (Fig. 2c) may be missing in *longissima*  
(these may be few in number and difficult to see) . . . . . 3
- Pharynx not bearing any paragnaths, though papillae may be present . 5.
- 3. All paragnaths conical in shape (Fig. 2c) . . . . . *Nereis*
- Some paragnaths present as pectinate bars (Fig. 2d) or solid bars (Fig. 2e) . . . . . 4
- 4. Some pectinate bar type paragnaths present . . . . . *Platynereis*  
    - Some solid bars present . . . . . *Perinereis*

5. Ventral cirri double . . . . . on at least some segments . Ceratocephale  
 - All ventral cirri single . . . . . Laeonereis

Key to species of the genus Nereis

1. Homogomph falcigers, sometimes with the shaft and blade fused (Fig. 2f)  
 present in the neuropodia of posterior segments (subgenus Hediste)  
 . . . . . N. diversicolor  
 - Homogomph falcigers either entirely absent or only in the notopodia  
 of posterior segments . . . . . 2
2. Homogomph falcigers in the notopodia of posterior segments . . . . . 3  
 - No homogomph falcigers (subgenus Neanthes) . . . . . 6
3. Paragnaths present only on the oral ring of the pharynx (sub-  
 genus Eunereis) . . . . . N. longissima  
 - Paragnaths present on both the oral and maxillary rings of the  
 pharynx (subgenus Nereis) . . . . . 4
4. Paragnaths present in groups IV, VI, VII-VIII only . . . . . N. elitoralis  
 - Paragnaths present in all or most groups . . . . . 5
5. Paragnaths of group VI consisting of 4 or 5 large cones, and  
 groups VII-VIII consisting of irregular rows of paragnaths of  
 various sizes (Fig. 2g); ligules of anterior parapodia rounded  
 (Fig. 2h) . . . . . N. pelagica  
 - Paragnaths of group VI consisting of 2 rows of small cones, and  
 groups VII-VIII consisting of a single row of large paragnaths  
 and irregular rows of small ones (Fig. 2i); ligules of anterior  
 parapodia more pointed (Fig. 2j) . . . . . N. zonata
6. <sup>Anterior</sup> Notopodia with bilobed acicular ligules, giving a total of 3  
 notopodial elements (Fig. 2k) . . . . . 7  
 - Anterior notopodia with only two elements, the acicular ligule  
 having no pronounced supra-acicular element (Fig. 2l) . . . . . N. fucata
7. Dorsal-most notopodial ligule a large flattened triangle <sup>in posterior segments</sup> (Fig. 2m)

- ..... *N. virens*
- Dorsal-most notopodial ligule more or less elongate, particularly in posterior segments ..... 3
- 3. Dorsal-most notopodial ligules of posterior segment elongate, with dorsal cirri arising close to their tips (Fig. 2h) ... *N. succinea*
- Dorsal-most notopodial ligule of posterior segments not much longer than notopodial scicular lobe (Fig. 2o); 2 notopodial elements in these posterior segments ..... *N. innotata*

Key to species of *Platynereis*

- 1. Paragnaths present in group IV only ..... *P. coccinea*
- Paragnaths present in groups III, IV, VI, VII-VIII . *P. dumerilii* *inde stinguenda*  
*P. massiliensis*

*P. dumerilii* and *P. massiliensis* can not be separated as immature specimens, the 2 species, however, show very different modes of reproduction. *P. dumerilii* shows epitokous transformation at maturity, with eggs never larger than 180 um in diameter. *P. massiliensis*, a smaller species, is a protandrous hermaphrodite, which undergoes no transformation at maturity and spawns within its tube.

Key to species of *Perinereis*

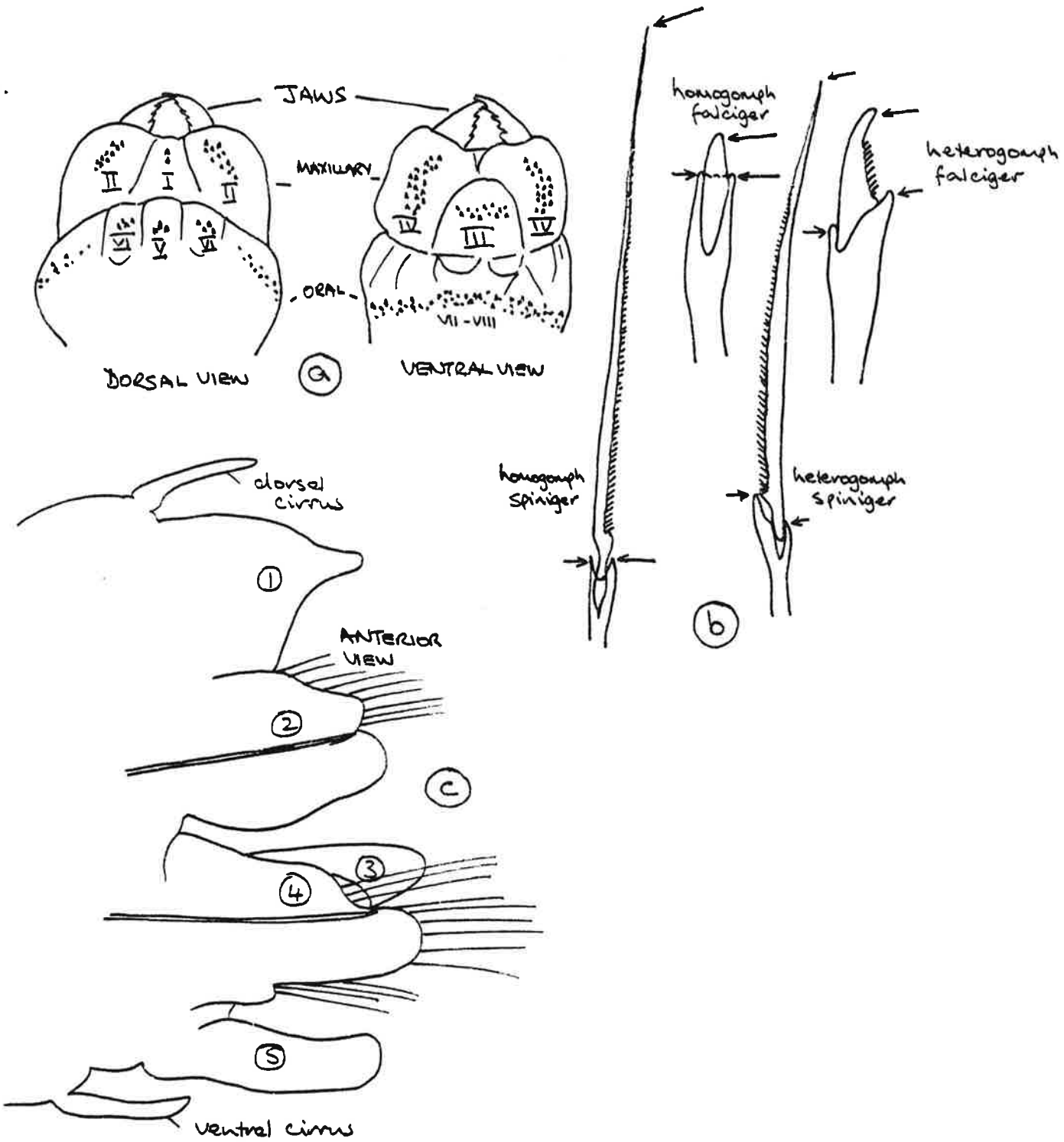
- 1. Dorsal-most notopodial ligule greatly elongated in posterior segments, with dorsal cirrus arising from its tip (Fig. 2p); numerous small paragnaths around oral ring, in addition to the larger ones ..... *P. marioni*
- Dorsal-most notopodial ligule not greatly elongate in posterior segments (Fig. 2q); only large paragnaths on oral ring ... *P. cultrifera*

FAMILY NEREIDIDAE

Important references

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FIG 1.





Nereis

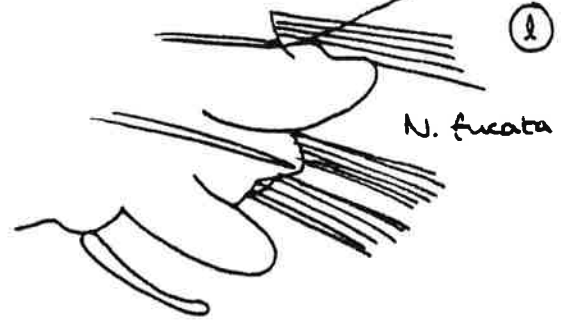
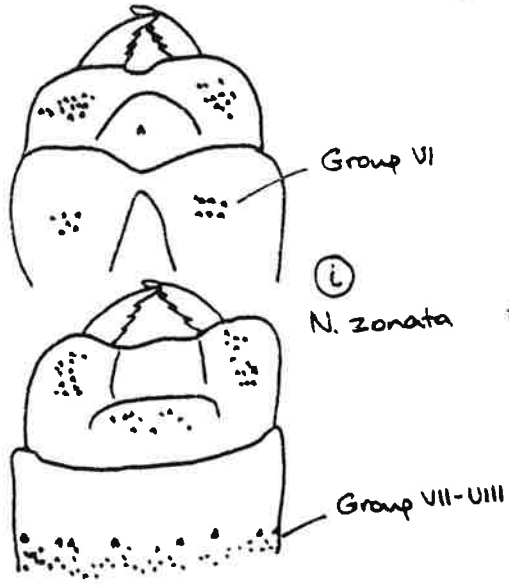
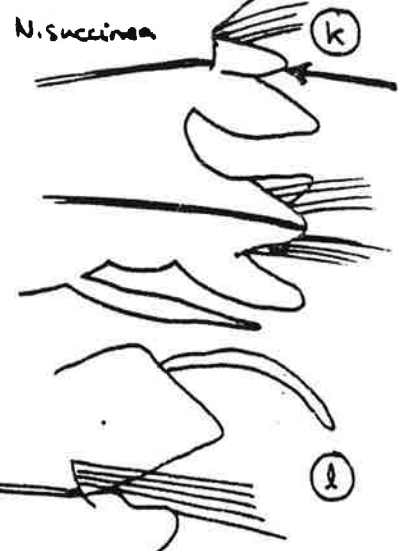
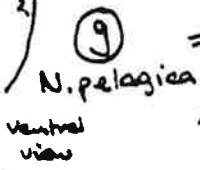
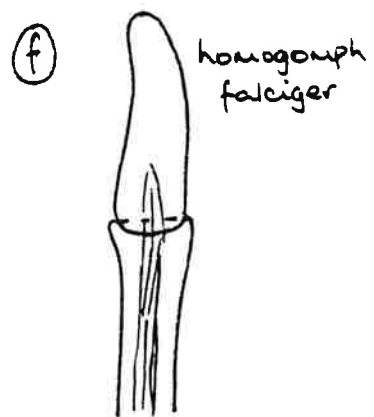
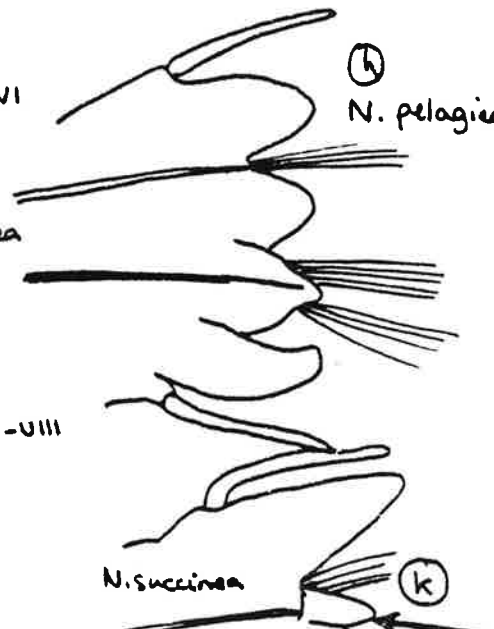
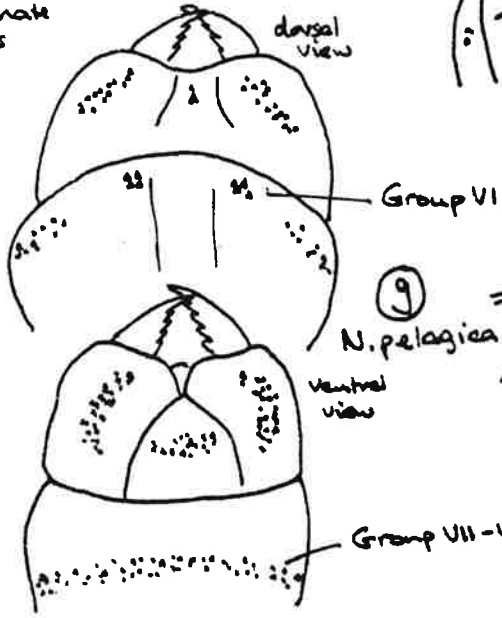
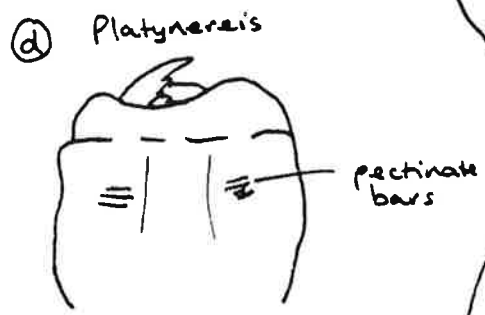
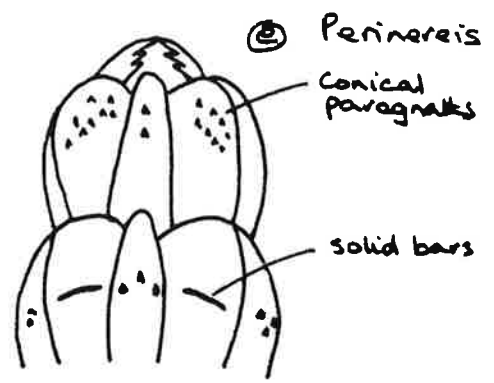
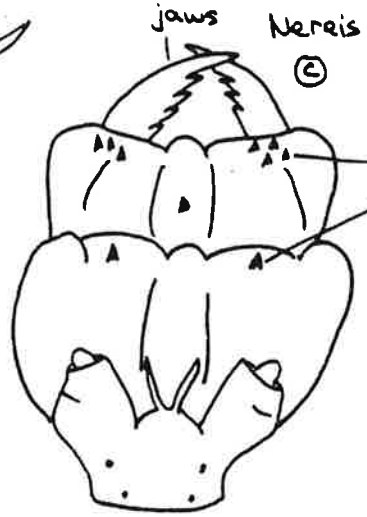
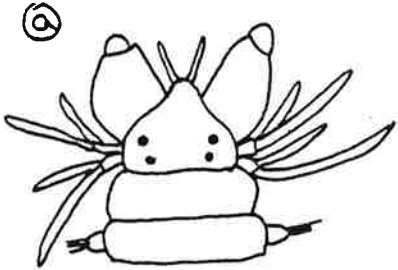
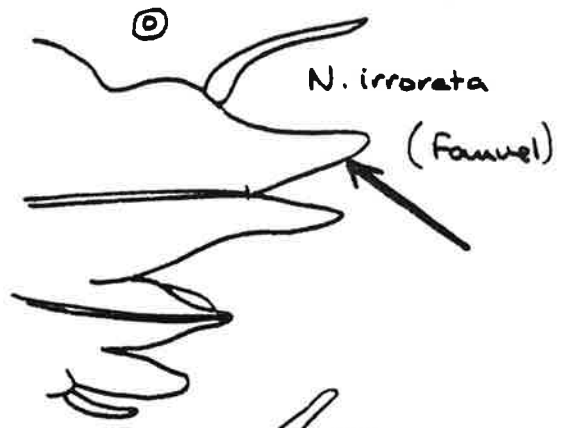
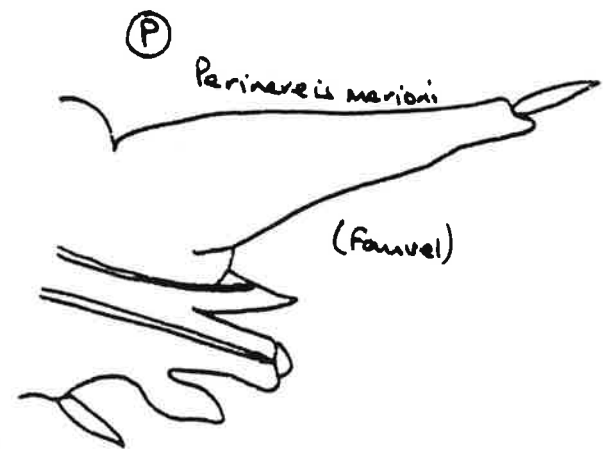
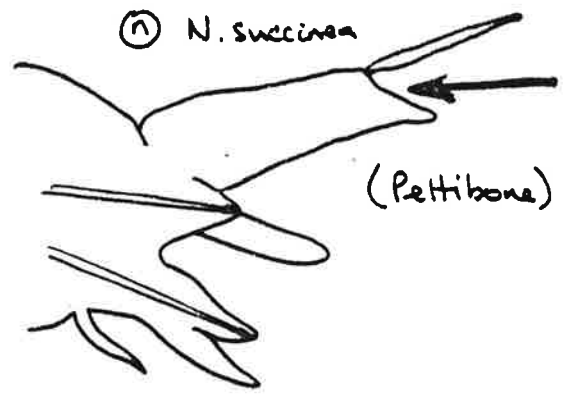
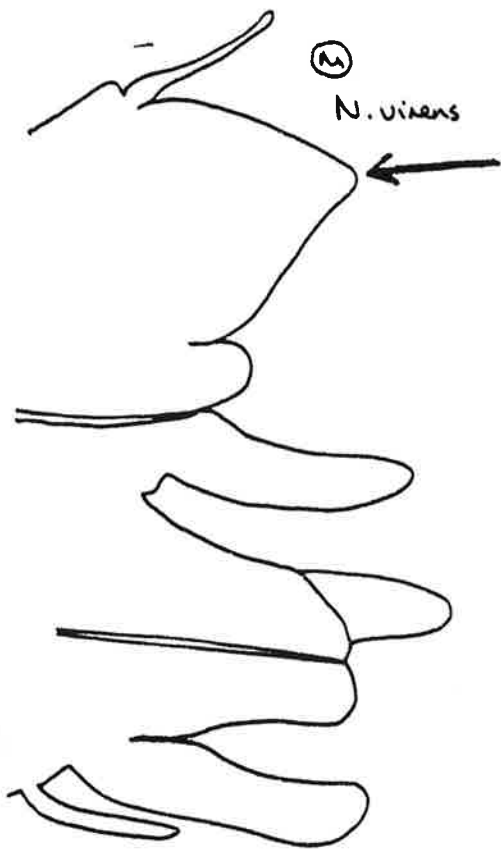
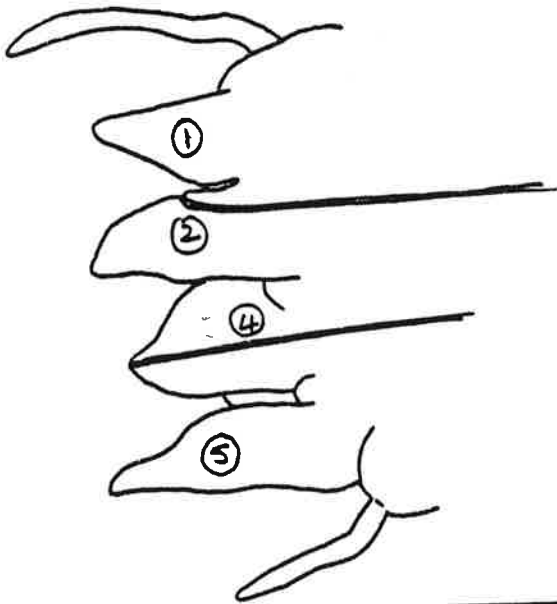


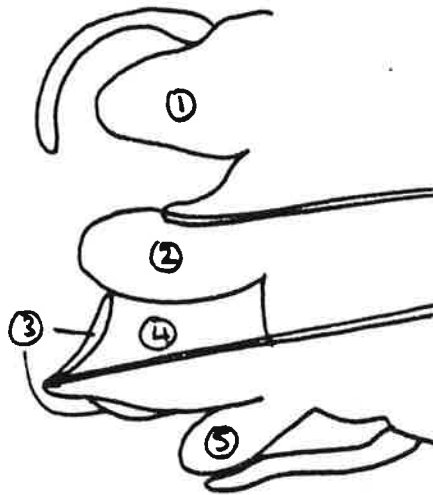
FIG 2.



*N. zonata*

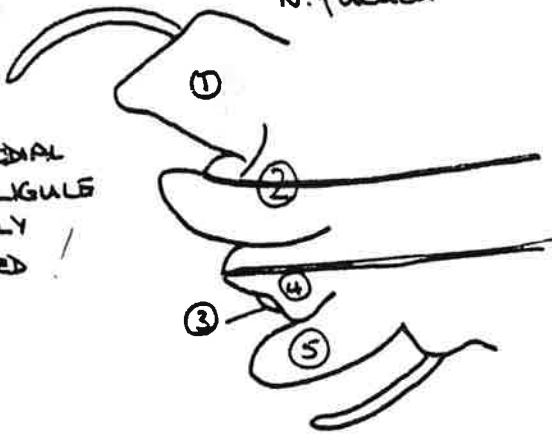


*N. pelagica*



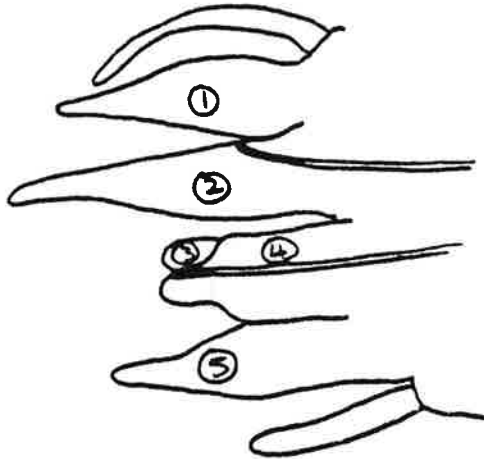
NOTOPODIAL  
ACIC. LIGULE  
② ENTIRE  
(2 NOTOPODIAL  
ELEMENTS)

*N. fucata*

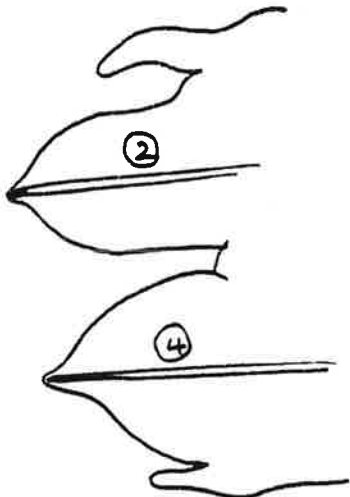


NOTOPODIAL  
ACIC. LIGULE  
SLIGHTLY  
BI LOBED !

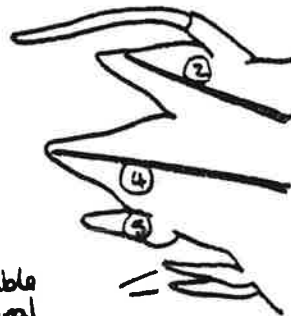
*N. longissima*



*M. variegata*



*C. loveni*



double  
ventral  
cirrus

(Pattibone 1963)

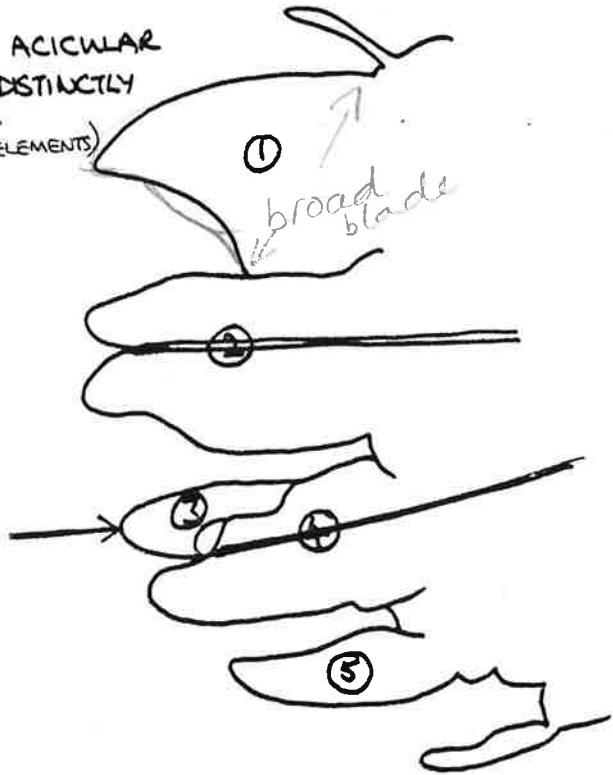
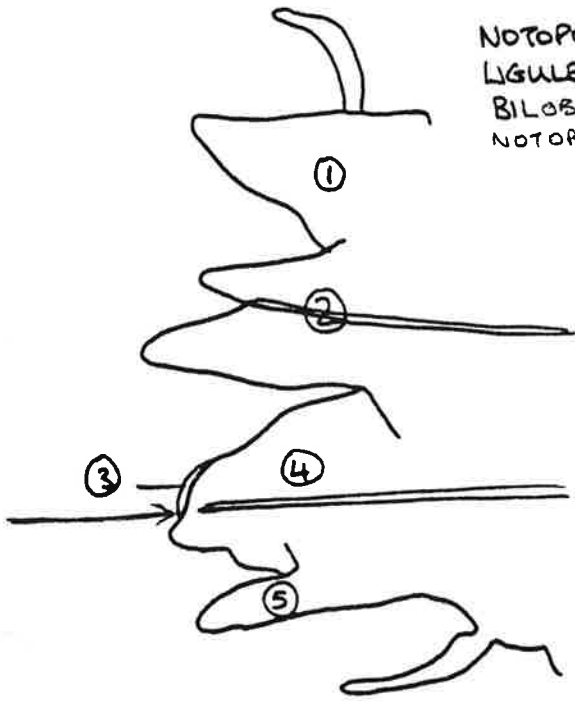
ANTERIOR MANTLE  
(ca 15th)

*N. diversicolor*

ANTERIOR VIEWS

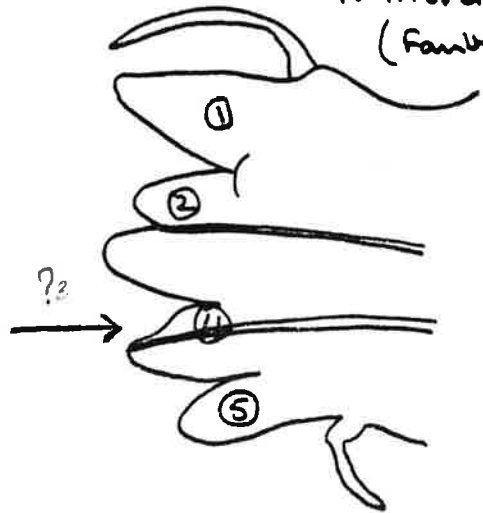
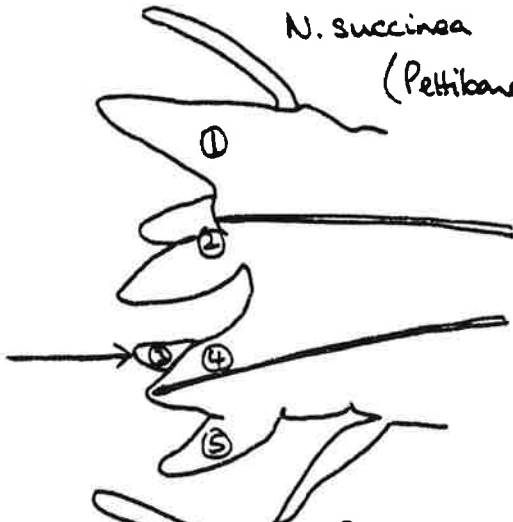
*N. uirens*

NOTOPODIAL ACICULAR  
LIGULE ② DISTINCTLY  
BILOBED (3  
NOTOPODIAL ELEMENTS)

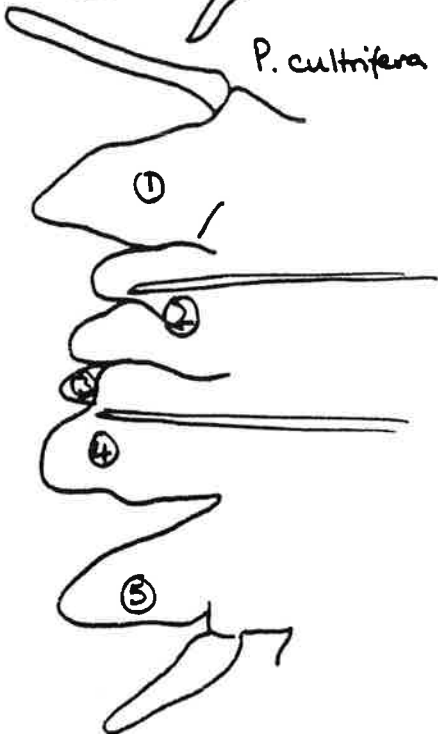


*N. succinea*  
(Petlibone 1963)

*N. irrorata*  
(Fambel)



*P. cultrifera*



INTERTIDAL SOFT SEDIMENT	INTERTIDAL ROCKY SHORE	SUBTIDAL SOFT SEDIMENT	SUBTIDAL ROCK, STONE
** N. diversicolor * N. succinea * N. vivens N. elitoralis/longissima	N. pelagica P. cultrifera	N. elitoralis/longissima (N. vivens)	N. zonata N. fucata (juv.)
ALGAL HOLDFASTS	MUCUS/MEMBRANOUS TUBES	SHELLS INHABITED BY HERMIT CRABS	
N. pelagica P. cultrifera P. dumerilii	P. dumerilii N. irrorata	N. fucata	

\* found in areas of reduced salinity

\*\* found in extremely ~~to~~ hyposaline conditions and can tolerate fresh water.