3.2 Family SEPIOLIDAE Leach, 1817

by Amanda Reid and Patrizia Jereb

Sepiolidae Leach, 1817, *Synopsis of the Orders, Families and Genera of the Class Cephalopoda*, *In*: Leach and Nodder, The Zoological Miscellany, 3(30):137–141.

FAO Names: En – Bobtail squids; **Fr** – Sépioles; **Sp** – Globitos, Sepietas, Sepiolas, Sepiolinas.

Diagnostic Features: Mantle broad, oval; posterior mantle margin rounded. Dorsal mantle fused to head, or free from head. Mantle cavity divided by thin septum. Fins wide; rounded, semicircular, or kidney-shaped, with pronounced anterior lobes, or 'earlets'; attached about midway along mantle; fin attachment short, fin length exceeds attachment length. Head slightly broader than, or as wide as, mantle. Large eyes covered by corneal membranes. Mantle-locking cartilage simple, linear. Arms short; protective membranes absent in both sexes. Webs between arms III and IV envelop tentacle bases on outside only, without forming sac. Hectocotylus present: left dorsal arm, both dorsal arms, or dorsolateral arms modified. Tentacles retractable, each bears a well defined club. Only the left oviduct is developed. Eggs large, development direct. Internal gladius present, rudimentary, chitinous, or absent.

Size: Small, up to 80 mm, rarely 100 mm, mantle length.

Habitat and Biology: Benthic or neritic. Represented in tropical, temperate and subpolar waters of all oceans.

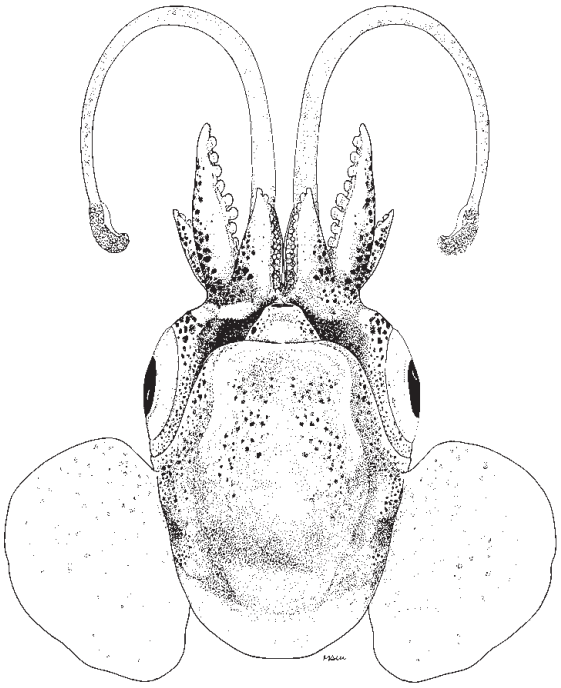
Interest to Fisheries: Separate statistics are not reported for this group, but many species are utilized locally as food even though not commercially exploited. The flesh is generally very tasty though difficult to preserve. Currently of low commercial value; in some areas of their distribution catches are very abundant and the resource is valued as a delicacy (i.e. some areas of the Mediterranean Sea).

Literature: Fioroni (1981), Boletzky (1995).

Key to subfamilies and genera in the family Sepiolidae

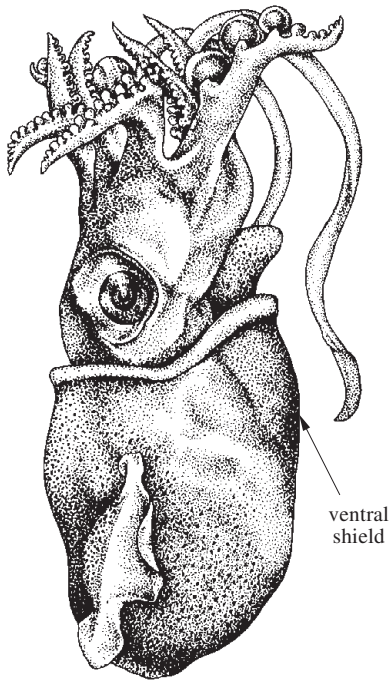
1a. All arms except the fourth pair united by a broad web (Fig. 212); anterior edge of ventral mantle extended into extensive ventral shield anteriorly, covering funnel and sometimes reaching eye level (Fig. 213) . . . . . **(subfamily Heteroteuthinae) → 3**

1b. Arms not united by a broad web, or only third and fourth arms united by a broad web; anterior edge of ventral mantle not forming a ventral shield . . . . . **→ 2**



ventral view

Fig. 212 *Iridoteuthis iris*

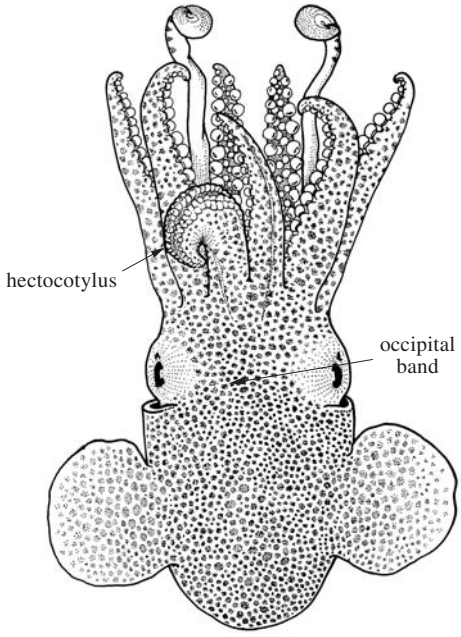


lateral view of male

Fig. 213 *Heteroteuthis serventyi*

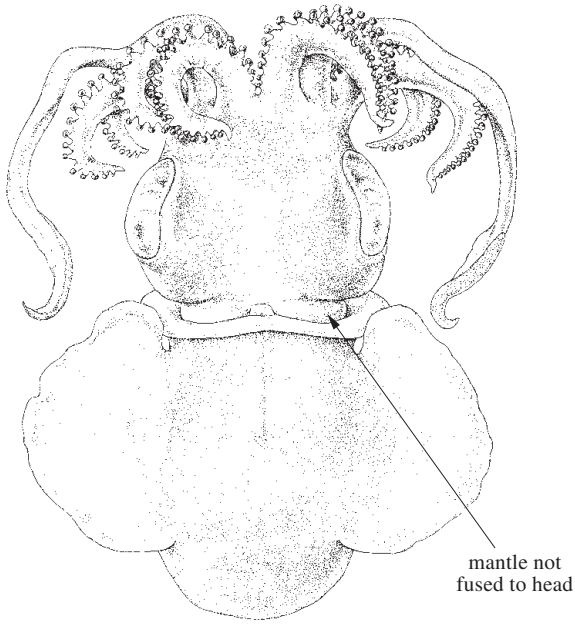
2a. Dorsal mantle fused to head by cutaneous occipital band (Fig. 214); nuchal cartilage absent; left dorsal arm hectocotylized; internal gladius rudimentary, or absent . . . . . **(subfamily Sepiolinae) → 7**

2b. Dorsal mantle not fused to head (Fig. 215); nuchal cartilage present; left or both dorsal arms hectocotylized; gladius present . . . . . **(subfamily Rossiinae) → 11**



dorsal view

Fig. 214 *Euprymna tasmanica*



dorsal view of female

(illustration: K. Hollis/ABRS)

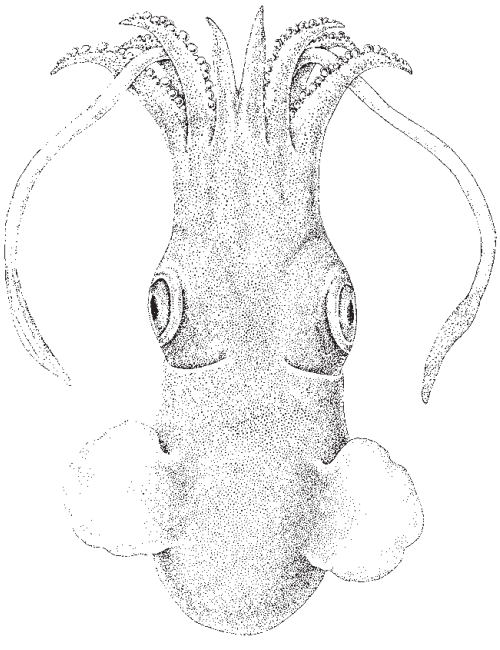
Fig. 215 *Austrorossia australis*

3a. Dorsal mantle fused to head (Fig. 216) . . . . . **→ 4**

3b. Dorsal mantle not fused to head . . . . . **→ 6**

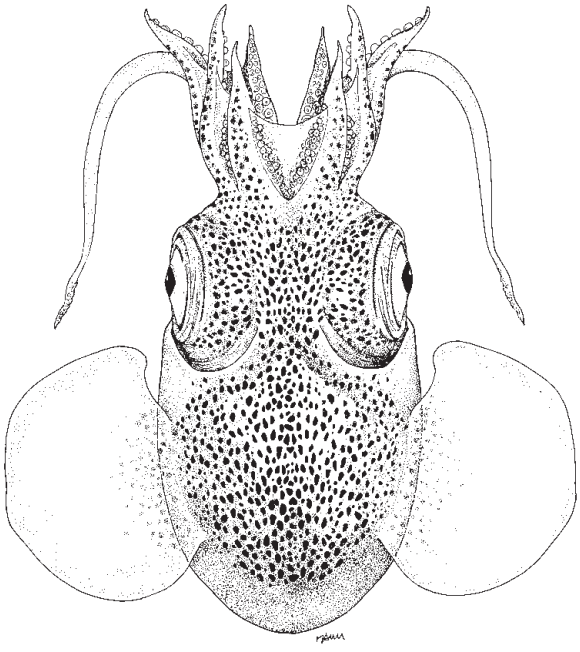
4a. Body slightly flattened dorsoventrally; fins from 60 to 80% mantle length (Fig. 216) . . . . . ***Sepiolina***

4b. Body broad, not flattened dorsoventrally; fin length usually >80% mantle length (Fig. 217) . . . . . **→ 5**



dorsal view

Fig. 216 *Sepiolina nipponensis*

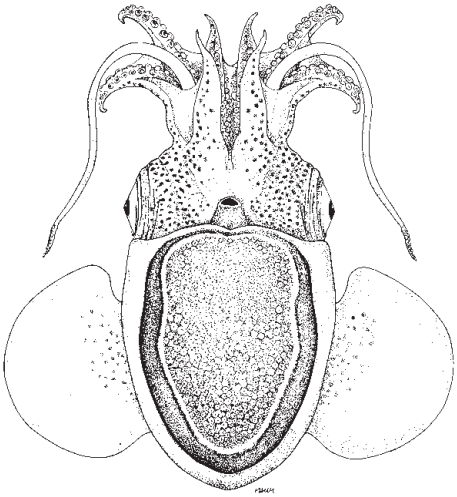


dorsal view

Fig. 217 *Stolotheutis leucoptera*

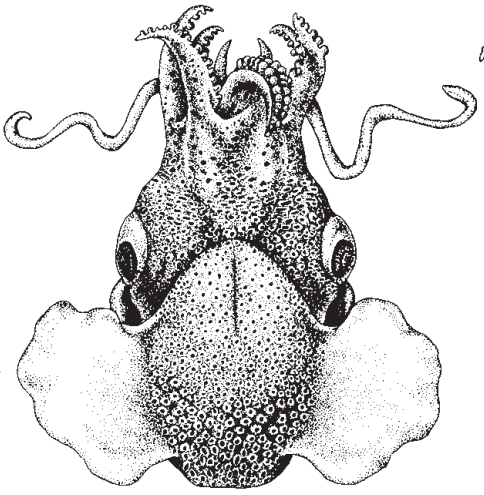
5a. Occipital band (joining mantle to head) from 40 to 50% head width (Fig. 217); ventral shield extending only to level of eyes (Fig. 218); fins attach to anterior part of mantle; posterior-fin margins do not reach end of body; eyes small (Fig. 218) . . . . . ***Stoloteuthis***

5b. Occipital band almost equal to head width (Fig. 219); ventral shield exceeds level of anterior margin of eye, reaching proximal end of arms (Fig. 220); fins attached to mantle at level of midline; posterior fin margins reach, or extend posteriorly beyond mantle margin; eyes very large (Fig. 220) . . . . . ***Iridoteuthis***



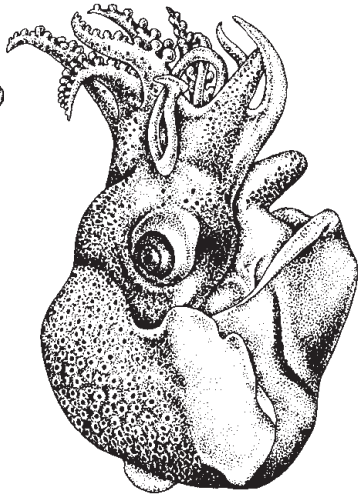
ventral view

Fig. 218 ***Stolotheutis leucoptera***



dorsal view

Fig. 219 ***Iridoteuthis*** **sp.**

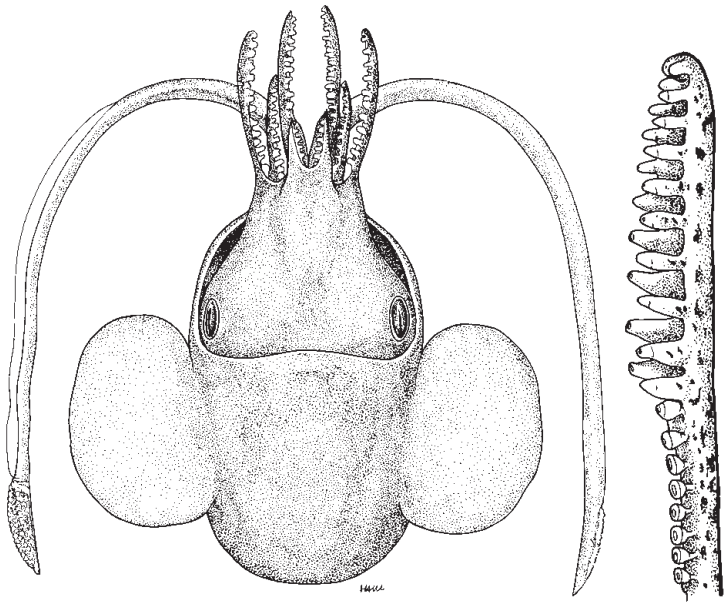


lateral view

Fig. 220 ***Iridoteuthis*** **sp.**

6a. Fins attached close to mantle midline; anterior fin margins extend beyond anterior edge of mantle (Fig. 221a); distal arm suckers with elongate, thick pedicels (Fig. 221b) . . . . . ***Nectoteuthis***

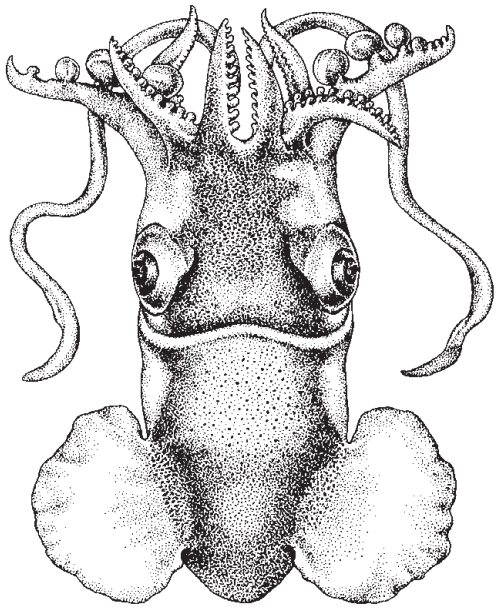
6b. Fins attached to posterior half of mantle, not reaching anterior edge (Fig. 222); sucker pedicels normal, not thick, elongate . . . . . ***Heteroteuthis***



a) dorsal view

b) distal tip of arm

Fig. 221 ***Nectoteuthis pourtalesi***

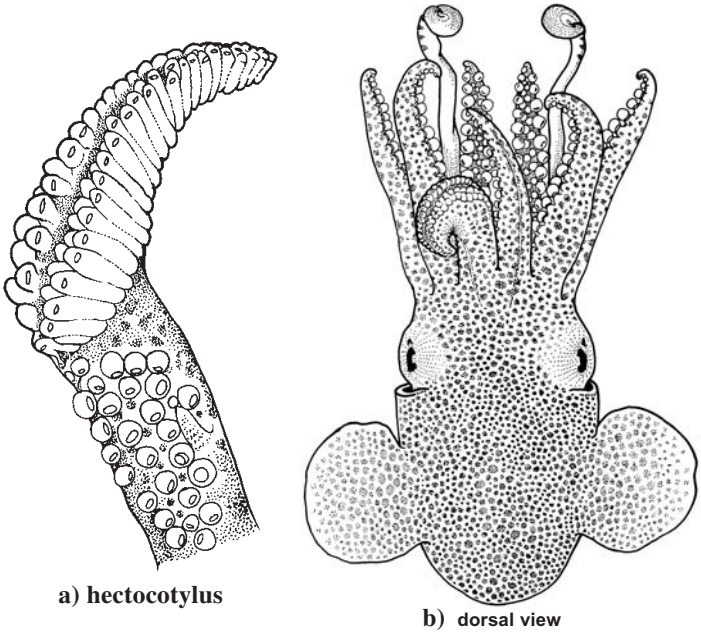


dorsal view

Fig. 222 ***Heteroteuthis serventyi***

7a. Arm suckers usually tetraserial (biserial only in *E. phenax*); distal suckers on male hectocotylized arm greatly modified, with closely packed fleshy papillae formed from enlarged and elongate swollen sucker pedicels (Fig. 223a); male third arms not bent inward (Fig. 223b) . . . . . ***Euprymna***

7b. Proximal arm suckers biserial; hectocotylus modified as copulatory apparatus with recesses and projections, not as above; male third arms bent toward mouth (Fig. 224) . . . . . → **8**

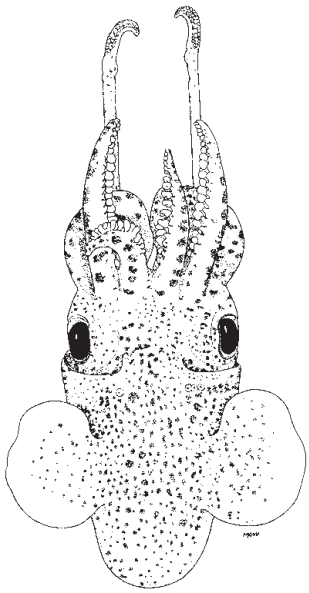


a) hectocotylus

(after Norman and Lu, 1997)

b) dorsal view

Fig. 223 ***Euprymna tasmanica***



dorsal view

(after Okutani, *et al*., 1987)

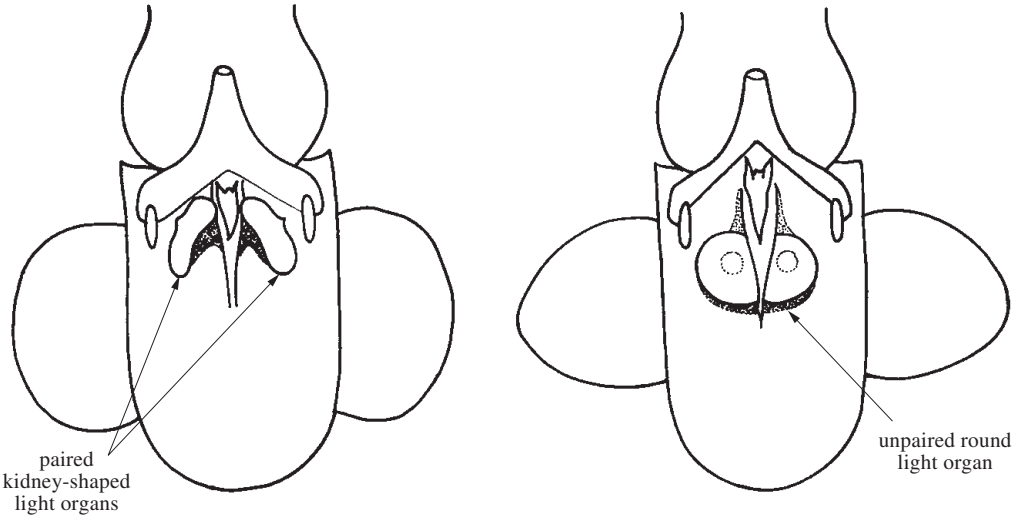
Fig. 224 ***Sepiola birostrata***

8a. Occiptal band wide, from 33 to 50% head width; light organ on ink sac . . . . . → **9**

8b. Occipital band narrow, usually <33% head width; inc sac without light organs . . . . . → **10**

9a. Paired, kidney-shaped light organs on anterior surface of ink sac (Fig. 225a); tentacular club suckers usually in 4 to 8 transverse rows. . . . . ***Sepiola***

9b. Unpaired, round light organ (Fig. 225b) deeply embedded in tissue on ventral side of ink sac; tentacular club suckers in 16 transverse rows . . . . . ***Rondeletiola***



a) *Sepiola*

b) *Rondeletiola*

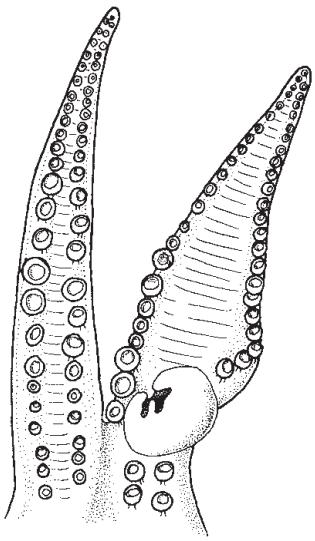
Fig. 225 Mantle cavity

10a. Both dorsal arms of males fused proximally; hectocotylized arm broad, spoon-like distal to copulatory apparatus (Fig. 226); tentacular-club suckers in >10 transverse rows . . . . . ***Sepietta***

10b. Hectocotylized arm not broad distal to copulatory apparatus (may be slightly broad in region of copulatory apparatus); tentacular club suckers in 8 to 10 rows . . . . . ***Inioteuthis***

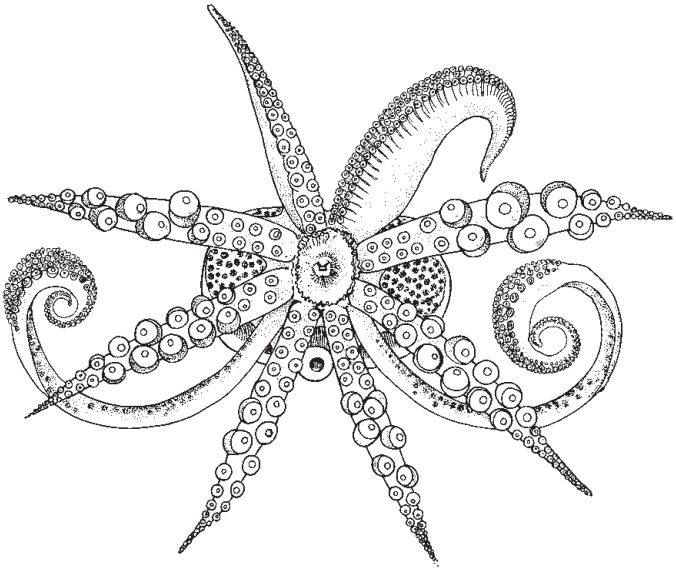
11a. Light organ present on ink sac; left dorsal arm of male hectocotylized (Fig. 227) . . . . . ***Semirossia***

11b. No light organ on ink sac; both dorsal arms of males hectocotylized . . . . . → **12**



hectocotylus

Fig. 226 ***Sepietta oweniana***



oral view of male

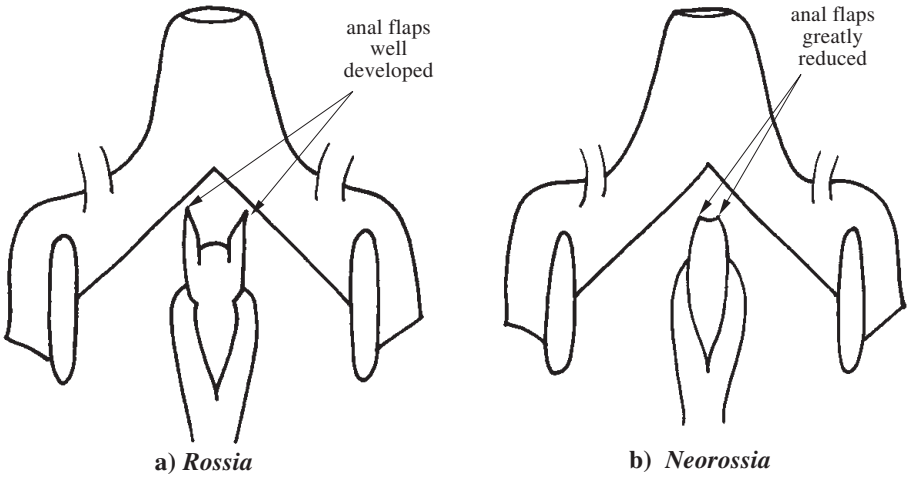
Fig. 227 ***Semirossia tenera***

12a. Anal flaps present, well developed (Fig. 228a); ink sac well developed . . . . . → **13**

12b. Anal flaps reduced, or absent (Fig. 228b); ink sac greatly reduced . . . . . ***Neorossia***

13a. Male with both dorsal arms hectocotylized by an expanded ventral membrane or thickened fold (*R. moelleri*); arm suckers of males not greatly enlarged; tentacular clubs expanded with 5 to 16 transverse rows of medium-sized suckers . . . . . ***Rossia***

13b. Males with both dorsal arms hectocotylized by an expanded swollen membrane or fold on the proximal ventral margin; some suckers of all male arms enlarged; tentacular clubs not expanded, with 24 to 40 transverse rows of minute suckers . . . . . ***Austrorossia***



a) ***Rossia*** **b)** ***Neorossia***

Fig. 228 anus (inside mantle cavity)