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NEW SPECIES OF *ORIOPSIS* CAULLERY AND MESNIL FROM FLORIDA, BELIZE, AND ALDABRA ATOLL (SEYCHELLES), AND A NEW SPECIES OF *AMPHIGLENA* CLAPARÈDE FROM SEYCHELLES (POLYCHAETA: SABELLIDAE: SABELLINAE)

G. W. Rouse

ABSTRACT

Three new species of *Oriopsis* Caullery and Mesnil, 1896 and a new species of *Amphiglena* Claparède, 1864 (Polychaeta: Sabellidae: Sabellinae) are described: *Oriopsis anneae* is described from the Florida Keys (U.S.A.), *O. androgyne* from a barrier reef island of Belize, and *O. paramobilis* from Aldabra Atoll (Seychelles). *Oriopsis anneae* is gonochoric, has three pairs of radioles, 8 thoracic chaetigers and up to 12 abdominal chaetigers. Females have a pair of spermathecae, ventrally, at the base of posterior peristomial ring collar. Males have sperm with long nuclei, split into four rods. *Oriopsis androgyne* is a simultaneous hermaphrodite with three pairs of radioles, 8 thoracic chaetigers and 5 abdominal chaetigers. Mature individuals have oocytes in thoracic chaetigers 5–6 and sperm and spermatids in the following 4 chaetigers. No sperm storage organs were found. *Oriopsis paramobilis* is gonochoric, has three pairs of radioles, 8 thoracic chaetigers and up to 5 abdominal chaetigers. Females have a pair of spermathecae in the radiolar crown. Males have sperm with long nuclei, and an elongate midpiece. All species of *Oriopsis* described here have lateral ducts, from sperm-bearing segments, for sperm to exit to the water. *Amphiglena nathae,* described from two islands of Seychelles, Indian Ocean, has up to 6 pairs of radioles, 8 thoracic chaetigers and up to 25 abdominal chaetigers. This species, like several other species of *Amphiglena,* is a simultaneous hermaphrodite with oocytes and developing sperm present in the first few abdominal chaetigers. Developing sperm are also present in several chaetigers posterior to oocyte-bearing segments. A pair of spermathecae were found at the base of the dorsal lips. This species broods larvae, each in an egg capsule, until they have 8 thoracic chaetigers when they hatch and swim away.

In a study on reproductive mechanisms in the sabellid genus *Oriopsis* Caullery and Mesnil, 1896, Rouse (1992a, 1992b) commented that this genus did not appear to be monophyletic. It was found that, where data are available, all species of *Oriopsis* are intratubular brooders of directly developing larvae (Knight-Jones and Bowden, 1984; Rouse, 1990, 1992a, 1992b). I also found that the mechanisms for storing sperm by females, if present, are variable among species, and sperm ultrastructure reflects this variability (Rouse 1992a, 1992b). Fitzhugh (1989) found only one homoplastic apomorphy for *Oriopsis,* that was shared with many of the Fabriciinae. Characters based on reproductive structures could be useful in providing more resolution in cladistic analyses of the Sabellidae. Three new species of *Oriopsis* are described here, with information on their reproductive structures. Two of the species have reproductive mechanisms that are similar to those found previously by Rouse (1992a, 1992b); the third new species is the first species of *Oriopsis* to be found to be a simultaneous hermaphrodite.

Amphiglena Claparède, 1864, is one of the more apomorphic genera of the Sabellinae (Fitzhugh, 1989, 1991). At present only four species have been described in this genus (Rouse, 1993). A new species of *Amphiglena* is described here with a pair of spermathecae in radiolar crown.

MATERIAL AND METHODS

Collections of algal mats, sediment, and encrustations, from the sites indicated in the text were sorted using a binocular microscope. Specimens were examined alive before fixation.

Specimens were fixed for histological examination in 3% glutaraldehyde in 0.2 M sodium phosphate buffer (pH 7.4), with 0.3 M sucrose added, and post-fixed for 80 min with 1% osmium tetroxide in a similar buffer before dehydration. After dehydration, samples were infiltrated and embedded in Spurr's resin. One μm sections were cut with a R.M.C. MT6000 ultramicrotome through the desired regions and stained with 0.3% toluidine blue in 0.1 M phosphate buffer. Photomicrographs were taken with an Olympus photomicroscope using either Pan-X or T-Max 100 film. Specimens for Scanning Electron Microscopy (SEM) were dehydrated in ethanol and critical-point-dried with CO_2 and coated with carbon and gold (200 Å) before viewing with a Cambridge 250 Scanning Electron Microscope.

Descriptions of new species are based on observations of the alcohol-preserved holotype and paratypes, and histology or SEM of paratypes.

The following abbreviations for Museums have been used: *LACM-AHF* Allan Hancock Foundation Polychaete Collection of the Los Angeles County Museum of Natural History, Los Angeles, U.S.A.; *AM* Australian Museum, Sydney, Australia; *USNM* National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A.

The following abbreviations are used throughout illustrations 1–59 of this paper: **a** anus, **ant** anterior, **apr** anterior peristomial ring, **apre** anterior peristomial ring extensions, **bf** basal flange, **c** posterior peristomial ring collar, **ci** ciliated patch of posterior peristomial ring, **dl** dorsal lip, **dra** dorsal radiolar appendage, **e** eye, **fg** faecal groove, **g** glandular ridge, **it** inferior thoracic notochaetae, **m** mouth, **mu** mucro, **ppr** posterior peristomial ring, **rs** radiolar skeleton, **rsb** skeleton at the base of the radiolar crown, **s** statocyst, **sd** sperm duct, **sp** spermatids, **st** superior thoracic notochaetae, **tu** thoracic uncini, **vl** ventral lip, **vra** ventral radiolar appendage and **w** palmate membrane.

Oriopsis Caullery and Mesnil

Oriopsis Caullery and Mesnil, 1896:483–484, figs. 1–2.
Oria Quatrefages, 1866:462.
Oridia Rioja, 1917:73.
Oriades Chamberlin, 1919:470.

Small Sabellinae with 3 to 5 pairs of radioles, without eyes or ridges; radiolar skeleton with two rows of cells. Radioles with external flanges and palmate membrane. Dorsal and ventral lips present; without dorsal radiolar or pinnular appendages. One or 2 pairs of ventral radiolar appendages present. Anterior peristomial ring extending forward, ventrally, as narrow lobe, distal end may be furcate. Posterior peristomial ring collar usually present, with a gap dorsally. Eyes usually in the peristomium and the pygidium. Pair of statocysts in the first chaetiger. Glandular ridge usually present on chaetiger 2. Body comprised of 8 thoracic and more than 4 abdominal chaetigers. Superior thoracic notochaetae elongate, narrowly hooded or paleate. Inferior thoracic notochaetae short bayonet chaetae, or short capillaries. Thoracic uncini acicular, teeth of the first arc above main fang, fewer and stouter than upper arcs; hood usually present. Abdominal uncini usually quadrangular, handles absent; toothed margin even, with slightly enlarged basal fang. Abdominal neurochaetae needle-like, or elongate, broadly hooded.

Females with or without spermathecae; prostomial or peristomial when present; oocytes in several thoracic chaetigers. Males with a pair of lateral gonoducts ducts in sperm-bearing chaetigers, usually thoracic and abdominal.

Comments.—This definition is slightly modified from that of Fitzhugh (1989). The synapomorphy for species in this genus is the presence of teeth of unequal size above the main fang of thoracic uncini. However this state is homoplastic, being found in many Fabriciinae (Fitzhugh, 1989). The occurrence of several of the types of chaetae is allowed for superior thoracic notochaetae, inferior thoracic notochaetae, and abdominal neurochaetae (see SEM descriptions by Rouse, 1990). Reproductive character states such as the possible presence of spermathecae in females, and the presence of lateral sperm ducts in males have been added. Rouse (1992a, 1992b) has suggested that *Oriopsis* is not monophyletic, based on sperm and spermathecal ultrastructure. Rouse (1990) also noted considerable variation in chaetal complements among species currently classified as *Oriopsis.* Until material of the type species is examined in detail, the genus is best defined by the synapomorphy (though homoplastic) of unequal-sized teeth above the main fang of thoracic uncini. Further study is also needed on the morphology of reproductive structures in genera such as *Desdemona* Banse, and *Chone* Kröyer.

Type Species.—Oriopsis metchnikowi Caullery and Mesnil, 1896 (=*Fabricia armandi* Claparède, 1864) by monotypy. See Addendum.

Fabricia (*Amphicorina*) *armandi* Claparède, 1864 was described on material collected from Port Vendres on the Mediterranean coast of France. Quatrefages (1850) had used the name *Amphicorina* (using the French name-form "Amphicorine," later latinized by Leuckart, 1854), with no reference to a species, in a description of sensory organs in a small sabellid from Bréhat and Bretagne, France. Claparède (1864) also latinized Amphicorine to *Amphicorina,* apparently unaware of Leuckart (1854), and used the name as a subgenus of *Fabricia.* Quatrefages (1866) erected a new genus, *Oria,* for *Fabricia* (*Amphicorina*) *armandi,* objecting to the use of the name *Amphicorina* by Claparède (1864) and described several species using the latter name.

Caullery and Mesnil (1896) erected *Oriopsis,* with the type species *O. metchnikowi* Caullery and Mesnil 1896, based on a single female specimen found in 20 m of water off St. Vaast la Hougue (France), near the English Channel. They commented that *Oriopsis metchnikowi* was very similar to *F. armandi* (as *Oria armandi*) except that *Oriopsis metchnikowi* had only 5 thoracic chaetigers, compared to 8 in *F. armandi.* Subsequently *Oridia* Rioja, 1917, and *Oriades* Chamberlin, 1919, were erected to replace *Oria,* which is preoccupied; *Oridia* was used by several authors (Annenkova, 1929, 1934; Day, 1954; Fauvel, 1927; Hartman, 1951) though it too is preoccupied. *Oriopsis* remained monotypic. Banse (1957) commented that the only apparent difference between *F. armandi* and *Oriopsis metchnikowi,* as described, was the number of thoracic chaetigers. St. Joseph (1894) found small specimens, 0.6 mm long, of *F. armandi* (as *Oria armandi*) to have 5 thoracic and 3 abdominal chaetigers. Larger specimens, 6 mm long, with obvious gametes, had 8 thoracic chaetigers and 8–9 abdominal chaetigers. Banse (1957), incorporating St. Joseph's (1894) information, referred *O. metchnikowi* to *F. armandi* and therefore made *Oria, Oridia* and *Oriades* subjective synonyms of *Oriopsis.* Quatrefages (1866) described several species using the name *Amphicorina.* One of these, *A. cursoria* Quatrefages 1866, from Bréhat and Bretagne, closely resembles the description by Claparède (1864) of *F. armandi.* Banse (1957) stated that *Oriopsis* could not be a synonym of *Amphicorina* as long as *A. cursoria* had not been shown to be the same as *F. armandi.* Banse (1957) considered *A. cursoria* to be the type species of *Amphicorina,* presumably because it came from the same locality as the unnamed species of *Amphicorina* discussed by Quatrefages (1850). See Addendum.

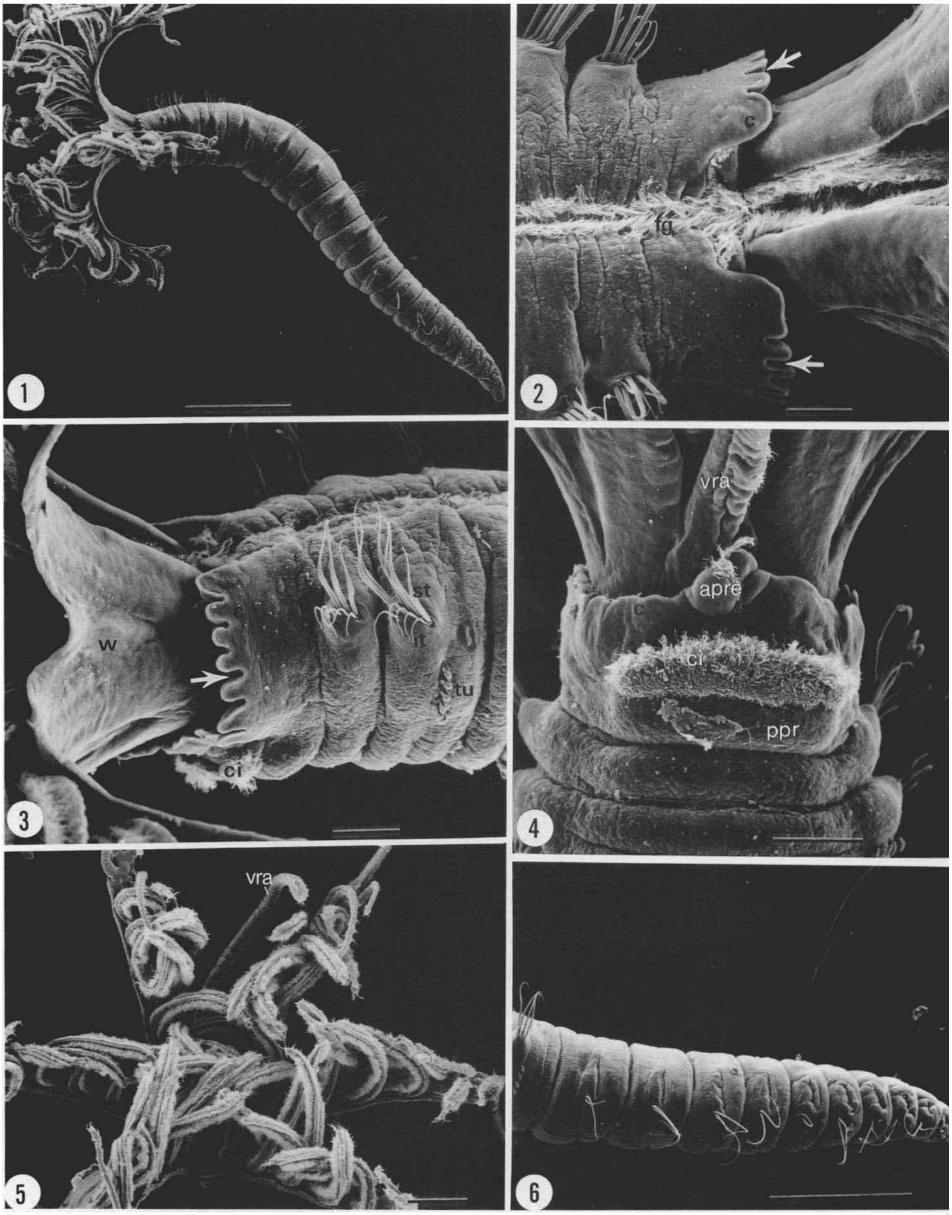
No records of *O. metchnikowi* have been made since the first description. The specimen of *O. metchnikowi* described did have an oocyte, 200 μm in diameter, in the thoracic region (Caullery and Mesnil, 1896). While the specimen appears to have been mature, though only 0.9 mm long, the presence of 5 thoracic chaetigers on *O. metchnikowi* may have been atypical, the specimen may have been damaged or regenerating. Berrill (1977) described the development and morphology of an unnamed "dwarf sabellid." This species from Hawaii, for which no material was retained and remains undescribed, had 6 thoracic chaetigers at maturity and otherwise closely resembled other species of *Oriopsis.* It is possible that the name *Oriopsis* should be used for species with fewer than 8 thoracic chaetigers. In this case all other species now classified as *Oriopsis* would be referable to *Oriades*. However, until collections are made at the type locality of St. Vaast la Hougue to determine if *O. metchnikowi* is in fact a different species from *F. armandi*, it seems appropriate to leave *F. armandi* as the type species, through the subjective synonymy with *O. metchnikowi*. See Addendum.

Oriopsis anneae new species
Figures 1–18; 57–59

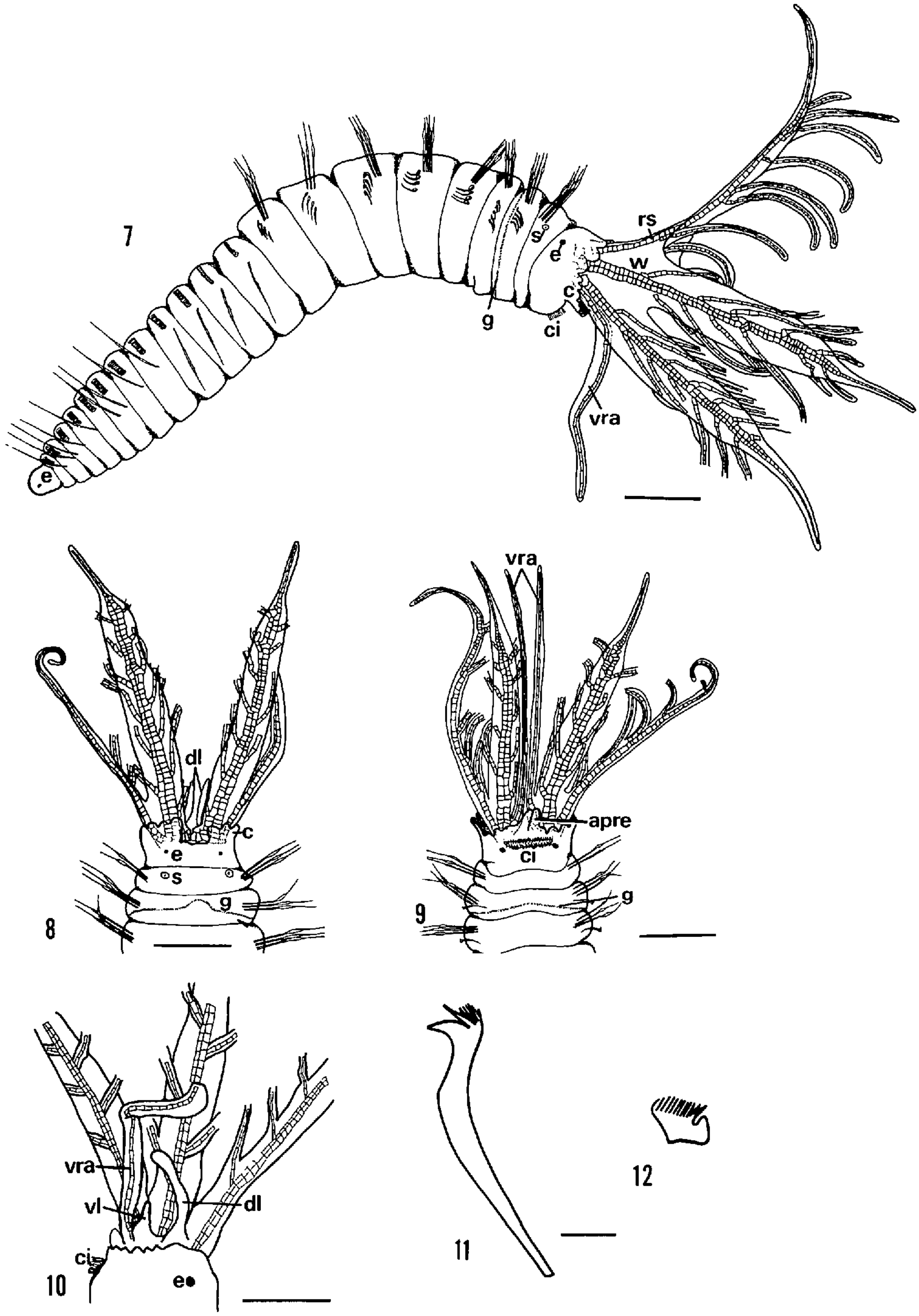
Material Examined.—Florida, U.S.A., Harry Harrison County Park, Tavernier, Key Largo. Station F423: coll. G. Rouse, 12 Sept. 1991; subtidal (1 m depth) algal turf on boulders, north side of Wilkinson Point. Holotype, male specimen (USNM 157620). Paratypes (in 70% ethanol): 7 female specimens, 2 anterior ends, 5 complete (USNM 157621); 3 male specimens (USNM 157622); 3 male specimens (LACM-AHF Poly 1633); 3 male specimens (AM-W 21458). Paratypes (on SEM stub): 3 specimens (USNM 157623). Paratypes (sectioned): Female, block number D2, one μm transverse sections of crown on 23 slides, stained with toluidine blue (USNM 157624); female, block number D1, one μm longitudinal sections on 12 slides, stained with toluidine blue (USNM 157625); male, block number 22, one μm longitudinal sections mounted on 43 slides, stained with toluidine blue (USNM 157626). Paratypes (blocks): 4 pieces of males, block number 21, (USNM 157627); 1 complete male, 1 male anterior end (sectioned), block number 22 (USNM 157626); 2 complete females, block number 10, 1 complete female, block number 11 (USNM 157628); 1 female anterior end (sectioned), block number D1 (USNM 157625); 1 female (sectioned), block number D2 (USNM 157624).

Description.—Complete mature male with 8 thoracic and 11 abdominal chaetigers. Total length of 2.4 mm, crown 0.8 mm. Crown with three pairs of radioles with lateral flanges (Figs. 1, 3, 5, 7–10); Flanges fused basally, forming low palmate membrane (Figs. 3, 7). Radioles with 11–13 pinnules alternating along length, terminating with pinnule-like filament (Figs. 7–9). Pinnules ending at same height. One pair of ventral radiolar appendages present, connected to palmate membrane (Fig. 4), originating beneath ventral lips (Fig. 10); nearly as long as radioles, with radiolar skeletal elements one cell wide (Figs. 7, 9). Dorsal and ventral lips present. Dorsal lips elongate; ventral lips low, triangular (Fig. 10). Anterior peristomial ring largely obscured by posterior peristomial ring collar; ventrally projecting as two ciliated lobes, apparently fused to posterior peristomial ring collar (Figs. 4, 9). Posterior peristomial ring collar crenulate laterally, with 6 to 8 notches each side (Figs. 2, 3, 7, 8). Collar separated dorsally by 80 μm gap (Figs. 2, 8). Collar smooth ventrally, except for fusion with anterior peristomial ring (Figs. 4, 9). Rectangular ciliated patch ventrally, behind collar, on posterior peristomial ring (Figs. 4, 9). Peristomial eyes red, rounded; pygidial eyes red, rounded (Fig. 7). One pair of statocysts in the first chaetiger (Figs. 7, 8). Glandular ridge behind chaetae of second chaetiger (Figs. 7–9).

Superior thoracic notochaetae elongate, narrowly hooded, 3–6 per fascicle; chaetae with fine teeth all around distal half (Figs. 3, 7, 13, 14). Inferior thoracic notochaetae of chaetigers 1 and 2 short, capillaries, 4–5 per fascicle (Figs. 3, 13). Chaetigers 3–8 with 3–4 short bayonet chaetae per fascicle (Fig. 14). Thoracic uncini with three rows of teeth above main fang; first row above main fang with one or two large teeth; other rows with smaller teeth of varying size (Figs. 11, 15, 16); four or 5 uncini per fascicle (Figs. 1, 7). Abdominal uncini quadrangular (Fig. 12); 6–8 rows of teeth above basal tooth (Fig. 17); up to 12 uncini per fascicle. Abdominal neurochaetae capillaries, 1–2 per fascicle (Figs. 6, 18). Pygidium semicircular. Faecal groove visible middorsally along the thorax (Fig. 2), midventrally along abdomen. Holotype in alcohol opaque, uniformly white; in life, radiolar



Figures 1–6. *Oriopsis anneae* new species Paratypes. SEM preparation (USNM 157623). 1. Lateral view of complete specimen with 10 abdominal chaetigers. 2. Dorsal view of peristomium and anterior chaetigers. Note collar arising from the posterior peristomial ring and lateral crenulations of the collar indicated by arrows. 3. Lateral view of radioles, peristomium, and anterior chaetigers. 4. Ventral view of peristomium and anterior chaetigers. Note ventral radiolar appendage fused at the base of the palmate membrane and projections of the anterior peristomial ring fused to the posterior peristomial ring collar. 5. Frontal view of the radiolar crown (dorsal surface at the lower edge) showing 3 pairs of radioles, the palmate membrane, and a ventral radiolar appendage. 6. Lateral view of abdominal region showing 10 chaetigers. Scale bars: *1*, 400 μm; *2–3*, 40 μm; *4*, 50 μm; *5*, 100 μm; *6*, 200 μm.



Figures 7–12. *Oriopsis anneae* new species Paratypes. 7. Lateral view of paratype (specimen lost). 8. Dorsal view of anterior region of paratype (USNM 157622). 9. Ventral view of anterior region of paratype (USNM 157622). 10. Lateral view of inner surface of one half of branchial crown of paratype (USNM 157622). 11. Uncinus from 5th thoracic chaetiger of paratype (USNM 157621). 12. Abdominal uncinus from paratype (USNM 157621). Scale bars: *7–9*, 100 μm; *11–12*, 10 μm.

flanges white basally and body translucent. Tube fragile and closely fitting around the occupant, composed of fine brown silt and mucous.

Females with spermathecae ventrally, at the junction of collar and main part of posterior peristomial ring (Figs. 57, 58); oocytes in chaetigers 4–5. Males with sperm in chaetigers 4–11, paired lateral sperm ducts ducts open on chaetigers 5–12 (Fig. 59). Sperm developing in tetrads. Sperm nucleus divided into four rods. Larvae brooded by female within tube.

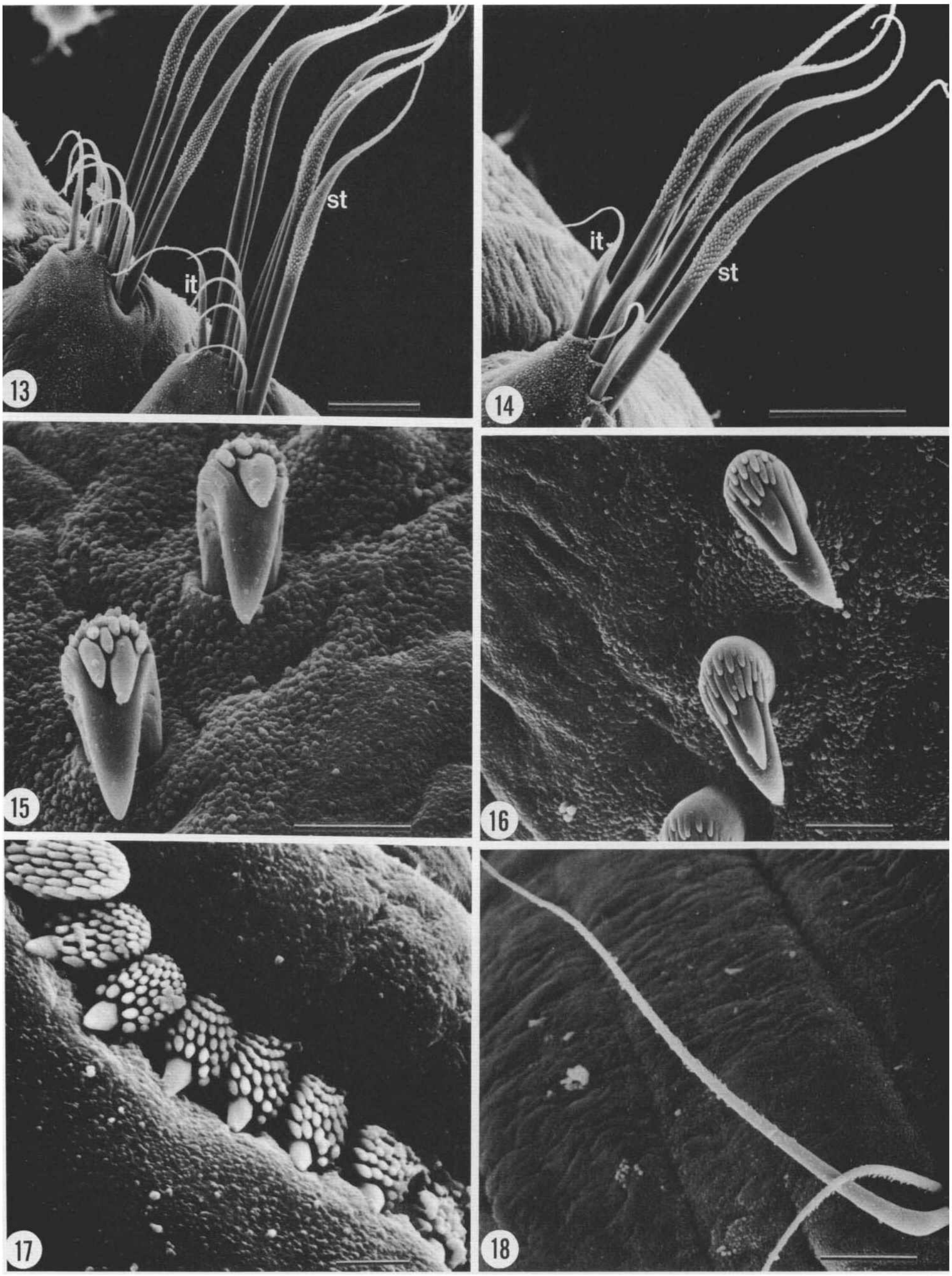
Variation.—The maximum number of abdominal chaetigers is 12, seen in the specimen for Figure 7 (specimen lost). Remaining paratypes have 5 to 11 abdominal chaetigers with the majority having 10. Paratype size ranges from 1.5 mm to 2.4 mm in length.

Etymology.—This species is named for Ms. Anne Thêtaz, Switzerland.

Comments.—Several species of *Oriopsis* have been described with crenulate collars: *O. busseltonensis* Hartmann-Schröder, 1982, *O. crenicollis* (Annekova, 1934), *O. denticollis* Hartmann-Schröder, 1986, *O. eimeri* (Langerhans, 1880), *O. eimeri australis* Hartmann-Schröder, 1981, *O. eimeri persinosa* Ben-Eliahu, 1975, and *O. tristanensis* (Day, 1954). Only *O. eimeri*, originally described from Madeira (Atlantic Ocean), has three pairs of radioles. Langerhans's (1880) reported the maximum number of abdominal chaetigers in *O. eimeri* at 8, with other specimens having as few as 4. Gambi et al. (1983) recorded *O. eimeri* from the Bay of Naples, in the Mediterranean. They showed that the number of abdominal chaetigers is strongly correlated to body length. The longest individual they found (3.3 mm) had 9 abdominal chaetigers. Most specimens of *O. anneae* had 10 abdominal chaetigers with the maximum being 12. *Oriopsis anneae* is a new species on the basis of the difference in maximum number of abdominal chaetigers between it and *O. eimeri.* In other respects the description of *O. eimeri* is very similar to that of *O. anneae.* Langerhans (1880) is one of the few authors to have noted the ventral ciliated patch on the peristomium, and the pair of otocysts in the first chaetiger, though he failed to note any glandular ridge.

The presence of spermathecae in the peristomium of *Oriopsis* females has only previously been noted in *Oriopsis bicoloris* Rouse, 1990. Sperm storage organs are absent in other species, or spermathecae may be associated with the radiolar crown (Rouse, 1992a). The spermathecae of *O. bicoloris* lie in the peristomial collar (Rouse, 1990, 1992a), in contrast to those of *O. anneae* that lie in the ventral base of the collar and extend into the posterior peristomial ring. While the spermathecae of *O. bicoloris* are clearly visible in living material, they are only discernible in sectioned material of *O. anneae.* Of the various sperm types described in *Oriopsis* spp., (Rouse, 1992b) the sperm of *O. bicoloris* is most similar to that of *O. anneae.* Both species have the nucleus divided into four rods, connected only at the apical end, beneath the acrosome. The use of sperm and spermathecal structures may be useful in revising *Oriopsis.*

Zenkevitsch (1925) discussed the different types of reproductive systems within the Sabellidae. He divided the sabellids into two groups; the Abdominogoneata, and the Thoracogoneata. The Abdominogoneata examined, i.e., *Sabella spallanzani* (Gmelin), *Myxicola infundibulum* (Renier), and *Amphiglena mediterranea* (Leydig), had lateral gonoducts in abdominal chaetigers. The thoracogoneates he examined, i.e., *Manayunkia baicalensis* (Nusbaum), *Fabricia stellaris* (Müller), *Oriopsis armandi*, and *O. eimeri* had gametes in the thoracic chaetigers. The divisions have never come into general use (see review by Fitzhugh, 1989). In the present division of the Sabellidae into two sub-families, the Sabellinae and



Figures 13–18. *Oriopsis anneae* new species Paratypes. (USNM 157623) SEM preparation. 13. Superior elongate, narrowly hooded, chaetae and inferior capillary notochaetae of chaetigers 1 and 2. 14. Superior elongate, narrowly hooded, chaetae and inferior thoracic bayonet chaetae of chaetiger 3. 15. Frontal view of thoracic uncini from chaetiger 8. 16. View of thoracic uncini of chaetiger 8 showing uneven sizes of teeth over main fang. 17. Uncini from 1st abdominal chaetiger. 18. Neurochaetae from 1st abdominal chaetiger. Scale bars: *13*, 20 μm; *14*, 20 μm; *15*, 5 μm; *16*, 10 μm; *17*, 4 μm; *18*, 10 μm.

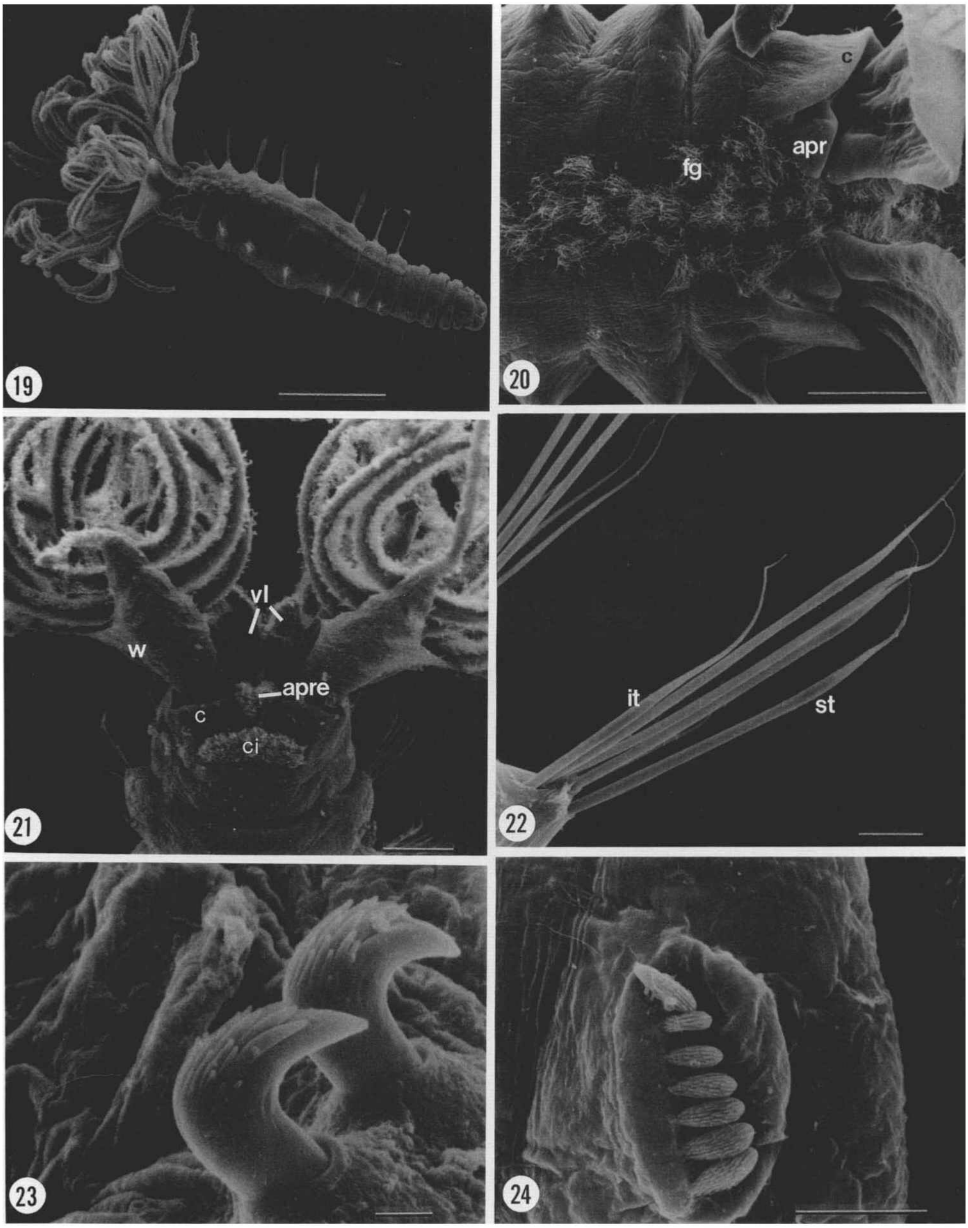
the Fabriciinae sensu Fitzhugh (1989, 1991) all of the fabriciins are thoracogoneate, but this condition also exists in plesiomorphic sabellins such as *Oriopsis* and some species of *Chone,* and *Euchone* Malmgren (personal observations). Also species of *Oriopsis, Chone* and *Euchone,* as shown here for *O. anneae,* can have sperm in both abdominal and thoracic chaetigers. The homology of the thoracogoneate condition amongst sabellid taxa needs further investigation.

Zenkevitsch (1925) clearly described the structure of the male reproductive system in *Manayunkia baicalensis.* He found that males had a sperm duct running dorsally, beneath the faecal groove, along the thoracic region. The duct opened just behind the nephridial opening in the peristomium. This sperm duct has been found by Rouse (1991, in press) to be a synapomorphy for the fabriciin taxa sensu Fitzhugh (1989, 1991). Zenkevitsch (1925) also showed a figure of a male *O. armandi* with sperm present in chaetigers 3–8, and a dorsal sperm duct as in *M. baicalensis* and *F. stellaris.* However, it is not clear from his description that he actually observed this duct. It appears that, because gametes had been noted in the thoracic chaetigers of *O. armandi* and *O. eimeri* by Langerhans (1880), Zenkevitsch believed that the males should have the dorsal sperm duct. Serial sectioning of the *Oriopsis* species described here and additional species; i.e., *O. bicoloris, O. brevicollaris* Rouse, 1990, *O. dentata* Rouse, 1990, and *O. mobilis* Rouse, 1990 (personal observations); indicates the absence of the dorsal sperm duct, but the presence of lateral sperm ducts, in all cases. Material of *O. armandi* should be examined, but the dorsal sperm duct, at present, does appear to be a synapomorphy for the Fabriciinae.

Oriopsis androgyne new species
Figures 19–30

Material Examined.—Caribbean Sea, Belize, Carrie Bow Cay. Station F400: coll. G. Rouse, 22 May 1991; algal turf on boulders and conch shells to the south side of the leeward jetty. Station F508: coll. G. Rouse and P. Scott, 28 May 1992, algal turf on boulders and conch shells to the south side of the leeward jetty. Holotype (USNM 157629) station F400. Paratypes (in 70% ethanol): station F400, 5 specimens. 2 missing half crown, 2 anterior end, 1 complete (USNM 157630); station F508, 4 specimens (USNM 157631); station F400, 3 specimens (LACM-AHF Poly 1632); station F400, 2 specimens (AM-W 21459). Paratypes (on SEM stubs): station F400, 2 specimens (USNM 157632), station F508, 2 specimens (USNM 157633). Paratypes (sectioned): station F400, block number 12, one μm transverse sections of crown on 13 slides stained with toluidine blue (USNM 157634); station F400, block number 17, one μm longitudinal sections on 18 slides stained with toluidine blue (USNM 157635); Paratypes (blocks): station F400, 1 anterior end (sectioned), 1 posterior end, block number 12 (USNM 157634); 1 complete, block number 13 (USNM 157636); 1 complete (sectioned), block number 17 (USNM 157635).

Description.—Holotype complete, with 8 thoracic and 5 abdominal chaetigers. Total length 1.1 mm, crown 0.3 mm. Crown with three pairs of radioles, with distinct lateral flanges (Figs. 19, 25–27); Flanges fused basally, forming low palmate membrane (Figs. 25, 26). Radioles with 8–9 pinnules alternating along length, ending with terminal pinnule-like filament (Figs. 25–27). Pinnules ending at same height. One pair of ventral radiolar appendages present, not connected to palmate membrane (Fig. 27), originating beneath ventral lips (Fig. 28), half as long as radioles, with radiolar skeletal elements one cell wide (Figs. 25, 27). Dorsal and ventral lips present. Dorsal lips elongate; ventral lips elongate, longer, wider than dorsal lips (Fig. 28). Anterior peristomial ring largely obscured by posterior peristomial ring collar (Fig. 25); ventrally projecting as two ciliated lobes (Figs. 21, 27). Posterior peristomial ring collar with smooth margin (Figs. 19, 20, 25); collar dorsally separated by 100 μm gap (Figs. 20, 26). Collar notched midventrally, with furcate anterior peristomial ring projection visible in gap (Figs. 21, 27).



Figures 19–24. *Oriopsis androgyne* new species Paratypes. SEM preparations. 19. Dorsolateral view of complete specimen (USNM 157633). 20. Dorsal view of peristomium and anterior chaetigers (USNM 157633). 21. Ventral view of peristomium and radiolar crown. Note ventral radiolar appendages are obscured by radioles (USNM 157632). 22. Superior, elongate, hooded notochaetae and narrowly hooded, inferior notochaetae of second chaetiger (USNM 157633). 23. Thoracic uncinus from 3rd chaetiger (USNM 157632). 24. Uncini from 1st abdominal chaetiger. Note that the basal tooth of most uncini is covered by tissue (USNM 157633). Scale bars: *19*, 200 µm; *20–21*, 50 µm; *22*, 20 µm; *23*, 2 µm; *24*, 20 µm.

Rectangular ciliated patch behind midventral notch of collar (Figs. 21, 27). Peristomial eyes red, rounded; pygidial eyes absent (Fig. 25). One pair of statocysts in the first chaetiger (Figs. 25, 26). Glandular ridge on chaetiger 2 absent.

Superior thoracic notochaetae elongate, narrowly hooded, 3–5 per fascicle (Figs. 19, 22). Inferior thoracic notochaetae short, capillaries, 2–4 per fascicle (Fig. 22). Thoracic uncini with several rows of teeth above main fang; first row above main fang with one or two large teeth; other rows with smaller teeth of varying size (Figs. 23, 29); between 2 and 4 uncini per fascicle (Fig. 25). Abdominal uncini quadrangular with 6–7 irregular rows of teeth above basal tooth (Figs. 24, 30); up to 8 uncini per fascicle. Abdominal neurochaetae, 1–2 per fascicle, capillaries.

Pygidium semi-circular. Faecal groove visible middorsally along the thorax (Fig. 19), midventrally along abdomen. Holotype in alcohol opaque, uniformly white. Tubes fragile and closely fitting around the occupants composed of fine brown silt and mucous.

Simultaneous hermaphrodite. Sperm storage organs absent. Oocytes present in chaetiger 5. Stages of spermiogenesis in chaetigers 6–10. Lateral sperm ducts ducts opening on chaetigers 7–10. Sperm developing in groups of 32 (possibly 64). Larvae brooded within tube.

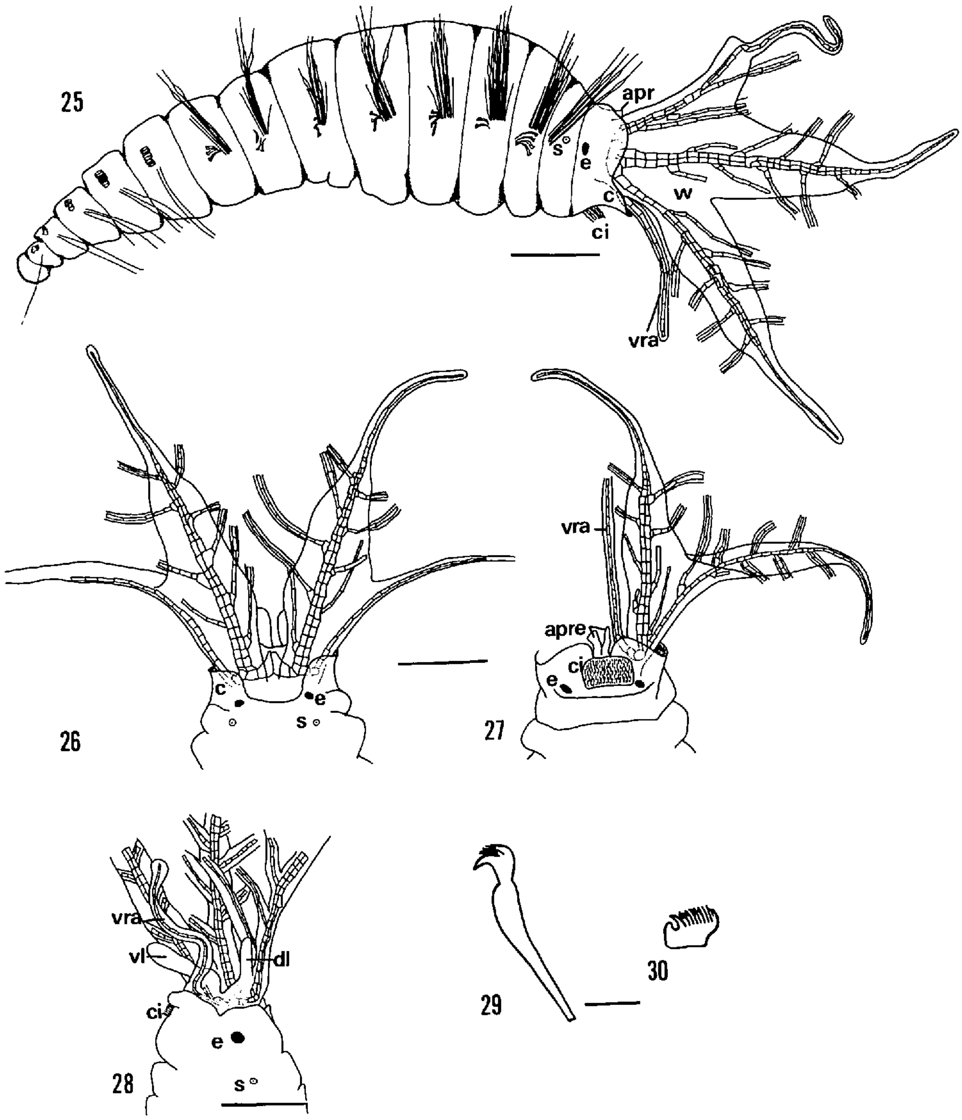
Variation.—The holotype and all paratypes are simultaneous hermaphrodites with 8 thoracic and 5 abdominal chaetigers.

Etymology.—The specific name refers to the hermaphroditism of this species.

Comments.—Several species of *Oriopsis* have been described with 3 pairs of radioles and 5 abdominal chaetigers: *O. hynensis* Knight-Jones, 1983, *O. mobilis* Rouse 1990 and *O. taltalensis* Hartmann-Schröder, 1962. *Oriopsis androgyne* differs from *O. hynensis* in that the collar is higher, largely obscuring the anterior peristomial ring. Also, the collar of *O. androgyne* has a ventral notch, a feature not seen in *O. hynensis* or *O. taltalensis. Oriopsis taltalensis* also differs from *O. androgyne* in having dorsal clefts in the collar, and a narrow dorsal gap in the collar. *Oriopsis mobilis* has a similar collar to *O. androgyne* but the ventral notch of *O. androgyne* is more marked. Rouse (1992a, 1992b) has also shown that *O. mobilis* is gonochoric and that females have spermathecae associated with the radiolar crown. Of the other *Oriopsis* species with a ventral notch in the collar, i.e., *O. bicoloris* Rouse, 1990, *O. dentata* Rouse, 1990, *O. ehlersi* Day, 1961, *O. limbata* (Ehlers, 1897), *O. magellanica* Hartmann-Schröder, 1962, and *O. magna* Banse, 1957, all have more radioles, more abdominal chaetigers, or both than *O. androgyne.*

Oriopsis androgyne is the first species of *Oriopsis* found not to be gonochoric, though examination of paratypes of *Oriopsis pulchra* Hartmann-Schröder and Rosenfeldt, 1991 (USNM 133603) show that this species is also a simultaneous hermaphrodite. *Oriopsis pulchra* has eggs in several thoracic chaetigers and sperm in the posterior thoracic chaetigers and several abdominal chaetigers. Examination of other *Oriopsis* species may result in more instances of simultaneous hermaphroditism.

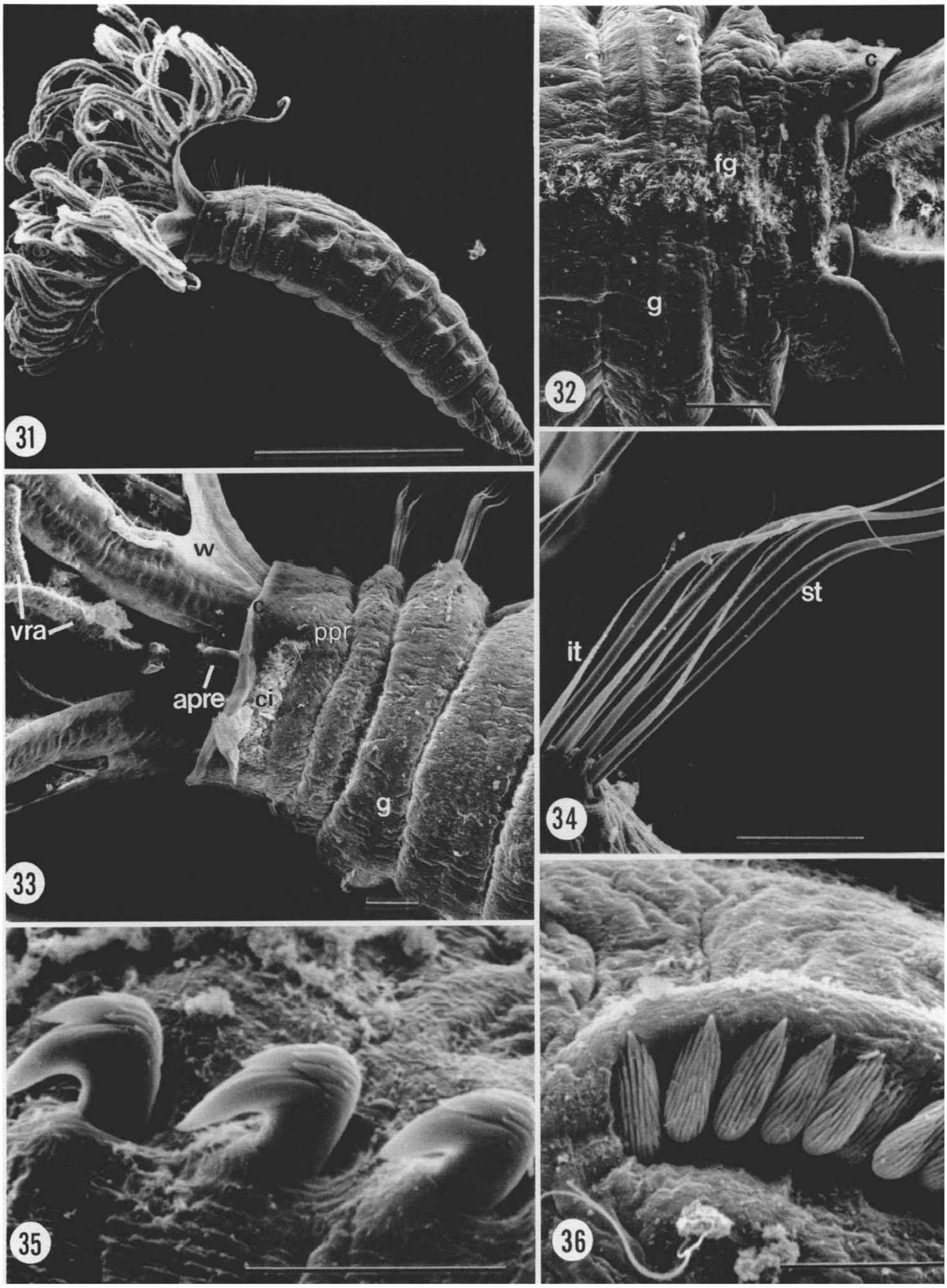
Spermiogenesis and sperm structure of *O. androgyne* is different from that of any other *Oriopsis* species (Rouse, 1992b), and will be described elsewhere. The lack of spermathecae in *O. androgyne* is a result comparable to that found in *O. dentata* (Rouse, 1992b). Both species are intratubular brooders and sperm storage is indicated, in order to have sperm available to fertilize eggs as they are deposited. The possibility exists for these species that sperm are stored epidermally, as in several fabriciin taxa (Rouse, 1991, in press), though *O. androgyne* could be self-fertilizing.



Figures 25–30. *Oriopsis androgyne* new species. 25. Lateral view of paratype (USNM 157630). Note lack of glandular ridge and pygidial eyes. 26. Dorsal view of anterior region of holotype (USNM 157629). 27. Ventral view of anterior region of holotype (USNM 157629) (with half crown omitted for clarity). 28. Lateral view of inner surface of one half of branchial crown of paratype (USNM 157629). 29. Uncinus from 7th thoracic chaetiger of paratype (USNM 157629). 30. Abdominal uncinus from paratype (USNM 157629). Scale bars: *25–28*, 100 μm; *29–30*, 10 μm.

Oriopsis paramobilis new species
Figures 31–39

Material Examined.—Indian Ocean, Republic of Seychelles, Aldabra Atoll. Station F452: Aldabra, Ile Picard, reef flat near shore, *Halimeda* clumps, coll. G. Rouse, 30 April 1992. Station 484: Aldabra, Ile Picard, reef crest, algal turf on boulders above low tide level, coll. G. Rouse 6 May 1992. Station F494; (Type locality) Aldabra, Ile Malabar, Middle Camp, reef flat 5 m from shore, branching coralline algae, coll. G. Rouse, 8 May 1992. Station F502: Aldabra, Ile Picard, La Gigi, second champignon beyond monument, algal mat beneath champignon, just below low tide level, coll. G. Rouse, 10 May



Figures 31–36. *Oriopsis paramobilis* new species Paratypes. SEM preparation (USNM 157642). 31. Lateral view of complete specimen. 32. Dorsal view of peristomium and anterior chaetigers. Note middorsal gap in collar showing anterior peristomial ring beneath. 33. Ventral view of peristomium and radiolar crown. 34. Superior elongate, hooded notochaetae and inferior capillary notochaetae of second thoracic chaetiger. 35. Thoracic uncinus from 3rd chaetiger. 36. Uncini from 1st abdominal chaetiger. Scale bars: *31,* 400 μm; *32–33,* 40 μm; *34,* 20 μm; *35–36,* 10 μm.

1992. Holotype male, osmicated (USNM 157637), station F494. Paratypes (in 70% ethanol): station F452, 1 specimen (USNM 157638); station F484, 1 specimen (USNM 157639); F494, 1 female specimen, osmicated (USNM 157640); station F502, 12 specimens. 2 anterior ends, 10 complete (USNM 157641); station F502, 8 specimens (LACM-AHF Poly 1634); station F502, 8 specimens (AM-W 21460). Paratypes (on SEM stubs): station F494, 2 specimens (USNM 157642). Paratypes (sectioned): station F494, female, block number 4, one μm transverse sections of crown on 18 slides stained with toluidine blue (USNM 157643); station F494, male, block number 2, one μm longitudinal sections mounted on 20 slides stained with toluidine blue (USNM 157644). Paratypes (blocks): station F494, 1 complete female, block number 1 (USNM 157645); 2 females, 1 complete, 1 anterior end (sectioned), block number 4 (USNM 157643).

Description.—Holotype complete mature male with 8 thoracic and 5 abdominal chaetigers. Total length 1.3 mm, crown 0.4 mm. Crown with three pairs of radioles with lateral flanges (Figs. 31, 33); flanges fused basally, forming low palmate membrane (Fig. 33). Radioles with 11–13 pinnules alternating along length, terminating with pinnule-like filament. Pinnules ending at same height. One pair of ventral radiolar appendages present, not connected to palmate membrane, originating beneath ventral lips (Fig. 37), nearly as long as radioles, with radiolar skeletal elements one cell wide. Dorsal and ventral lips present. Dorsal lips curved, thin; ventral lips low, triangular (Fig. 37). Anterior peristomial ring largely obscured by posterior peristomial ring collar; ventrally projects as two ciliated lobes (Fig. 33). Posterior peristomial ring collar of even height, smooth all around; without ventral notch (Fig. 33); collar dorsally separated by 80 μm gap, with anterior peristomial ring extension visible in gap, not attached to collar (Fig. 32). Rectangular ciliated patch ventrally, behind collar, on posterior peristomial ring (Fig. 32). Peristomial eyes red, rounded (Fig. 37); pygidial eyes red, rounded. One pair of statocysts in the first chaetiger. Glandular ridge behind chaetae of second chaetiger.

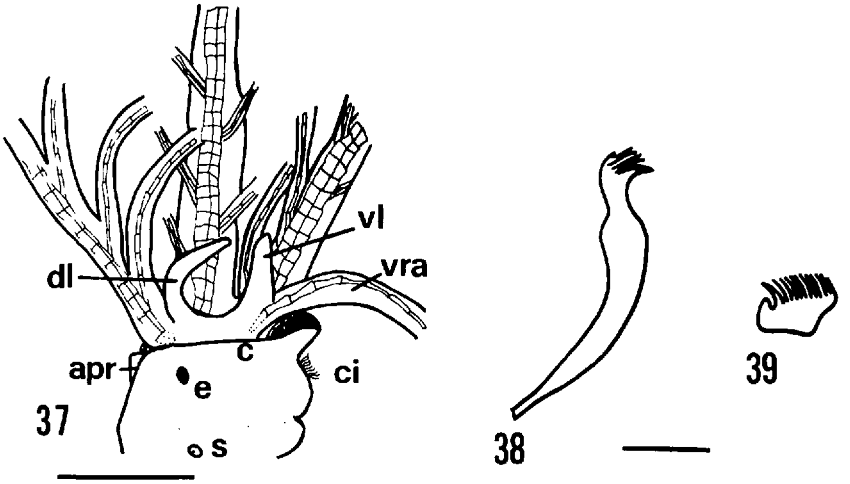
Superior thoracic notochaetae elongate, narrowly hooded, 3–4 per fascicle (Fig. 34). Inferior thoracic notochaetae short, capillaries, 3–4 per fascicle (Fig. 34). Thoracic uncini with three rows of teeth above main fang; first row above main fang with one or two large teeth; other rows with smaller teeth of varying size (Figs. 35, 38); between 4 and 6 uncini per fascicle. Abdominal uncini quadrangular; with 6–7 rows of teeth above basal tooth (Figs. 36, 39); up to 10 uncini per fascicle. Abdominal neurochaetae, 1–2 per fascicle, capillaries (Fig. 31).

Pygidium semi-circular. Faecal groove visible middorsally along the thorax, midventrally along abdomen. Holotype opaque, uniformly white. In life, radiolar flanges white basally and body translucent. Tube fragile and closely fitting around the occupant, composed of fine brown silt and mucous.

Females with sperm in spermathecae in radiolar crown; oocytes in chaetigers 5–6. Males with sperm in chaetigers 4–8, paired lateral sperm ducts ducts exit on chaetigers 5–9. Sperm develop in tetrads. Sperm nucleus cylindrical, elongate midpiece with mitochondria around axoneme. Larvae brooded within tube of female.

Variation.—Much of the paratype material is in poor condition due to inadequate initial fixation. Material that was fixed in glutaraldehyde and post-fixed with osmium tetroxide was well preserved and therefore one of these specimens was made the holotype. The paratype material matches that of the holotype very closely, except for size differences, and some variation in the white patterns on the radioles. Paratypes have 8 thoracic and four or five abdominal chaetigers. Paratype size ranges from 1.0 mm to 1.3 mm in length.

Etymology.—Specific name refers to the similarity between this species and *Oriopsis mobilis.*



Figures 37–39. *Oriopsis paramobilis* new species. 37. Lateral view of inner surface of one half of branchial crown of paratype (USNM 157640). 38. Uncinus from thoracic chaetiger of paratype (USNM 157641). 39. Abdominal uncinus from paratype (USNM 157641). Scale bars: *37*, 100 μm; *38–39*, 10 μm.

Comments.—*Oriopsis paramobilis* bears a very close resemblance to *O. mobilis* Rouse, 1990. The significant difference justifying their separation as species is that *O. mobilis* has a distinct ventral notch in the posterior peristomial ring collar whereas *O. paramobilis* has a smooth collar. The position of spermathecae in females of both species is the same and the sperm ultrastructure is also very similar (see Rouse, 1992a, 1992b, for descriptions of sperm and spermathecae of *O. mobilis*). The only species of *Oriopsis* with 3 pairs of radioles, 5 abdominal chaetigers, and an even collar all around is *O. hynensis* Knight-Jones, 1983. However, the collar of *O. paramobilis* is much higher than that of *O. hynensis* and does not expose the anterior peristomial ring.

Amphiglena Claparède, 1864

Small Sabellinae with 4–8 pairs of radioles: radiolar skeleton with two rows of cells. Palmate membrane and radiolar flanges absent. Dorsal lips with dorsal radiolar appendages; dorsal pinnular appendages absent. Ventral lips absent; parallel lamellae absent. Anterior margin of anterior peristomial ring low, of even height all around. Paired, ventral basal flanges of the branchial crown present, extending from posterior peristomial ring to proximal region of ventralmost radioles of branchial lobes. Posterior peristomial ring collar absent. Superior thoracic notochaetae broadly hooded. Inferior thoracic notochaetae paleate; arranged in single transverse row. Abdominal neurochaetal fascicles with only a single transverse row of chaetae; composed of elongate, broadly hooded chaetae. Thoracic uncini with teeth above main fang of equal size; hood absent; breast well developed, expanded; handles medium to long. Companion chaetae with distal ends slightly inflated, dentate or minutely dentate; with mucro. Abdominal uncini with main fang surmounted by teeth of equal size; breast well developed; handles short.

Comments.—The above diagnosis is that of Rouse (1993), following Fitzhugh (1989).

Type Species.—*Amphicora mediterranea* Leydig, 1851, designated by Claparède

(1864). Claparède (1864) described *Amphiglena armandi* in the text of his monograph. However in the legends to the later text (page 588) and the plates for the monograph (page 594) he synonymised *Amphiglena armandi* with *Amphicora mediterranea* Leydig, 1851. Bush (1905) has consistently, and incorrectly, been cited for designating *A. mediterranea* as the type of *Amphiglena.*

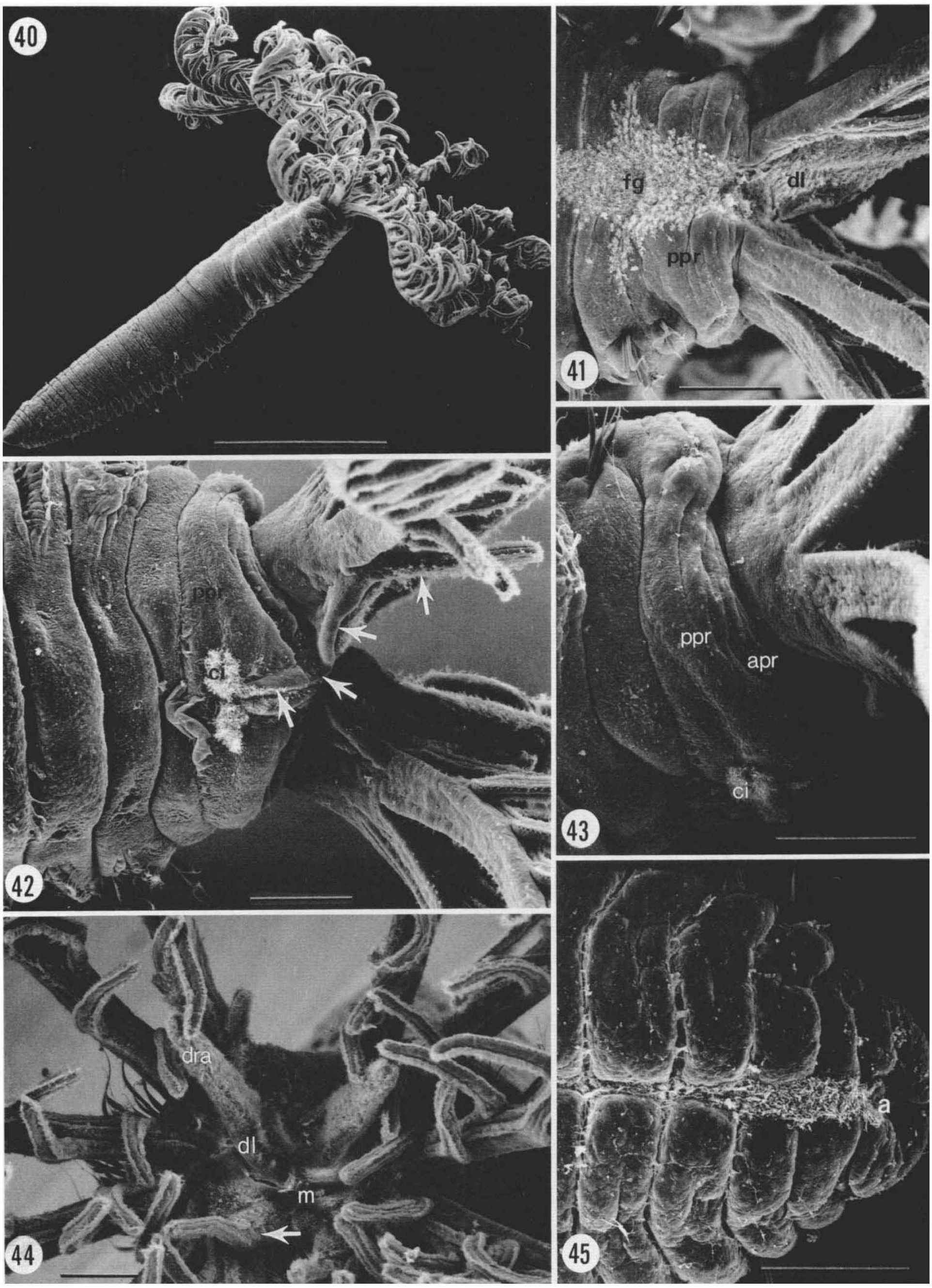
Amphiglena nathae new species
Figures 40–56, 60

Material Examined.—Indian Ocean, Seychelles, Station F343: Mahé, Anse aux Pins, Reef Hotel, south end towards rocks, algal turf on subtidal boulders, coll. G. Rouse, 21 April 1992. Station F466 (Type locality): Aldabra atoll, Ile Picard, near La Gigi toward lagoon, rotten log riddled with *Teredo,* at low tide level, coll. L. Ward, 3 May 1992. Station F473: as for station F466, coll. L. Ward and G. Rouse, 4 May 1992. Station F490: As for station F466 coll. G Rouse, 7 May 1992. Holotype complete, osmicated, with tube and larvae (USNM 157646), station F466. Paratypes (in 70% ethanol): station F434, 4 specimens (USNM 157647); station F466, 1 specimen, osmicated, crown removed (USNM 157648); station F473, 1 specimen (USNM 157649); station F490, 2 specimens, osmicated (USNM 157650); station F490, 2 specimens (LACM-AHF Poly 1629); station F490, 2 specimens (AM-W 21461). Paratypes (on SEM stubs): station F466, 2 specimens (USNM 157651). Paratypes (sectioned): station F474, block number 1, one μm longitudinal sections of crown on 29 slides stained with toluidine blue (USNM 157652); station F474, block number 2, one μm longitudinal sections of abdomen mounted on 10 slides stained with toluidine blue (USNM 157653). Paratypes (blocks): station F466, 2 sections of abdomen, block number 23, (USNM 157654); station F474, 1 anterior end (sectioned), 1 piece of abdomen, block number 1 (USNM 157652); 2 pieces of abdomen (1 sectioned), block number 50 (USNM 157655).

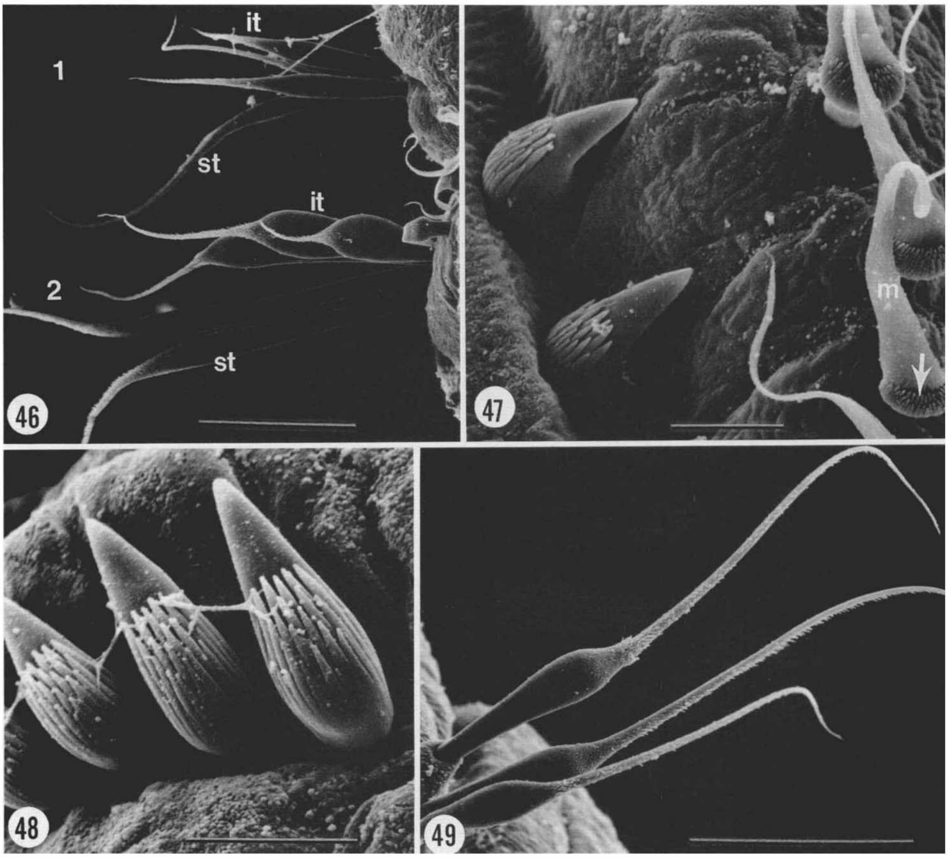
Description.—Holotype complete, osmicated, with 8 thoracic and 14 abdominal chaetigers. Total length 2.72 mm (branchial crown 1.0 mm); maximal body width 0.52 mm. Five pairs of radioles. Radiolar skeleton with two rows of cells (Fig. 56). Palmate membrane and radiolar flanges absent (Fig. 44). Radioles with 28–30 pinnules alternating along length. Dorsal lips with elongate, ciliated, dorsal radiolar appendages (Figs. 44, 56). Dorsal pinnular appendages absent. Ventral lips absent. Anterior peristomial ring low and even all around (Figs. 41, 43). Posterior peristomial ring collar absent (Figs. 41–43). Two anterior extensions from posterior peristomial ring forming small ventral basal flanges fusing first with anterior peristomial ring, then to basal pinnules of ventralmost radioles (Figs. 42, 56).

Peristomial eyes in posterior peristomial ring, ellipsoid, red. Pygidial eyes, several of various sizes, in two groups, rounded, red. Statocysts present in the first chaetiger, visible in live material only. Notochaetae of first thoracic chaetiger broadly hooded, 4 per fascicle (Fig. 46). Superior thoracic notochaetae of remaining thoracic chaetigers broadly hooded, 2–3 per fascicle (Figs. 46, 50). Inferior thoracic notochaetae of chaetigers 2–8 paleate, in a single row, 2–3 per fascicle (Figs. 46, 51). Thoracic uncini, 5–9 per torus, with several rows of small teeth of similar size above main fang (Figs. 47, 53), breast well developed, handles medium (Fig. 53). Companion chaetae with straight shaft and elongate mucro (Figs. 47, 52). Upper proximal surface of mucro covered with fine teeth (Fig. 47). Abdominal uncini, 4–10 per torus, with several rows of small teeth of similar size above main fang, (Figs. 48, 54), breast well developed, handles short (Fig. 54). Abdominal neurochaetae in single row, broadly hooded (Figs. 49, 55). Pygidium semi-circular (Fig. 45). Faecal groove visible middorsally along the thorax (Fig. 41), midventrally along abdomen (Fig. 45). Tube transparent membranous material with embedded sand grains.

Simultaneous hermaphrodite. Pair of spermathecae present in radiolar crown, associated with dorsal lips (Fig. 60). Oocytes and developing sperm present in first few abdominal chaetigers. Developing sperm also present in several chaetigers posterior to oocyte-bearing segments. Larvae, contained in individual egg capsules



Figures 40–45. *Amphiglena nathae* new species Paratypes. SEM preparation (USNM 157651). 40. Lateral view of complete specimen with 6 pairs of radioles, 8 thoracic and 22 abdominal chaetigers. 41. Dorsal view of crown, peristomium and anterior chaetigers. Note extensive ciliation of dorsal lips and absence of collar arising from the posterior peristomial ring. 42. Ventral view of crown, peristomium and anterior chaetigers. Note pair of ventral extensions from the posterior peristomial ring fusing with the anterior peristomial ring and basal pinnules of the ventralmost radioles, and ventral ciliated patch of peristomium. 43. Lateral view of radioles, peristomium, and anterior chaetigers. 44. Frontal view of the radiolar crown showing 6 pairs of radioles and prominent dorsal lips. Arrow



Figures 46–49. *Amphiglena nathae* new species Paratypes. SEM preparation (USNM 157651). 46. Superior thoracic notochaeta and inferior notochaetae of chaetigers 1 and 2. 47. Companion chaetae and thoracic uncini from 4th thoracic chaetiger. Arrow indicates teeth on companion chaeta. 48. Uncini of 13th abdominal chaetiger. 49. Abdominal neurochaetae. Scale bars: all 10 μm.

until 8 thoracic chaetigers developed, brooded within tube; 9 larvae within the tube of the holotype.

Variation.—The holotype and all paratypes all have 8 thoracic chaetigers. The number of abdominal chaetigers varies from 10–25. The number of radioles varies from 5–6 pairs.

Etymology.—This species is named for Ms. Nathalie Perren-Mariaux, Switzerland.

Comments.—In addition to *A. nathae,* four described species of *Amphiglena* have been described as follows: *A. mediterranea* (Leydig 1851); *A. pacifica* Annenkova, 1934; *A. marita* Chlebovitsch, 1959; and *A. terebro* Rouse, 1993. Except for *A. terebro* these species appear to have 8 thoracic chaetigers. Some variability has

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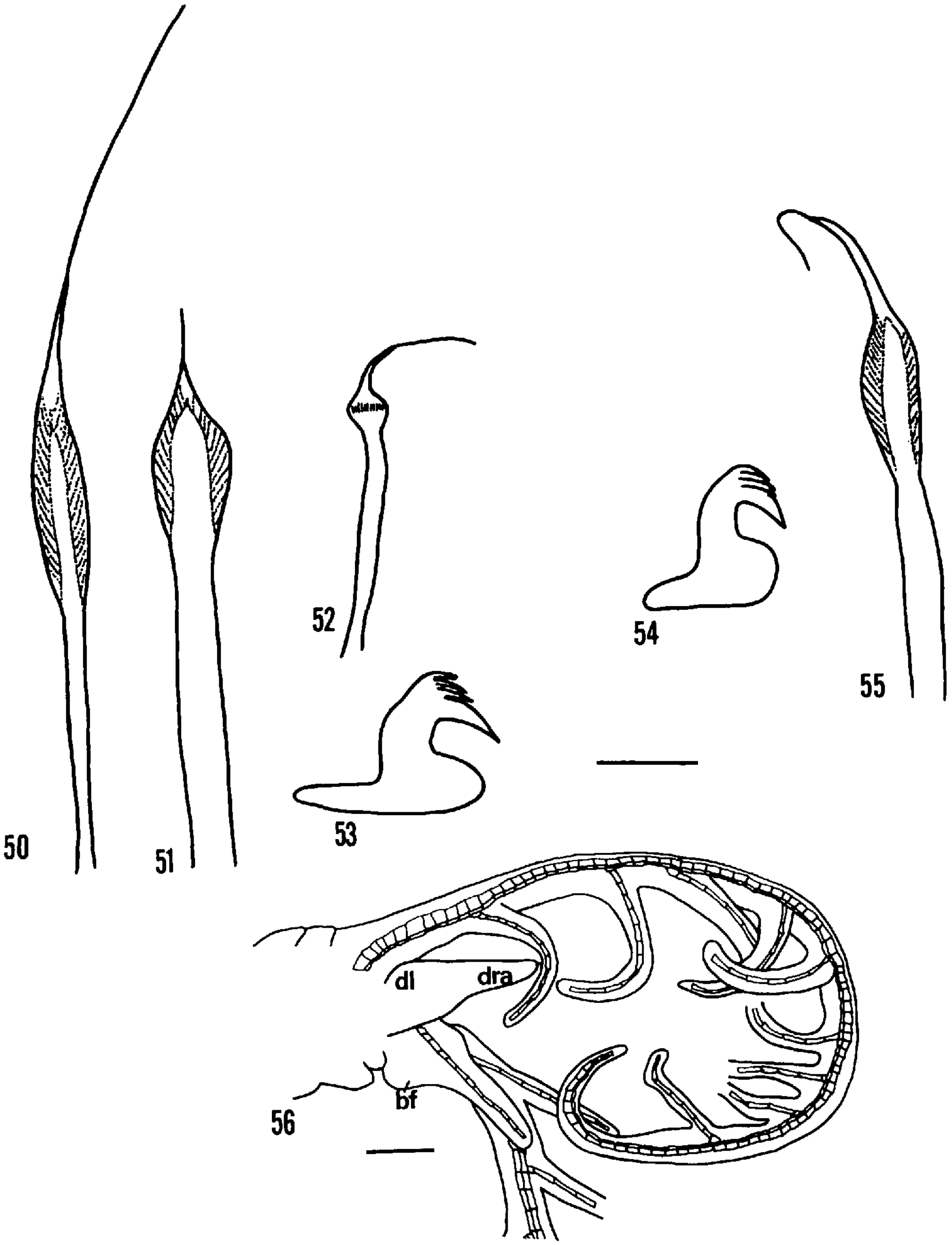
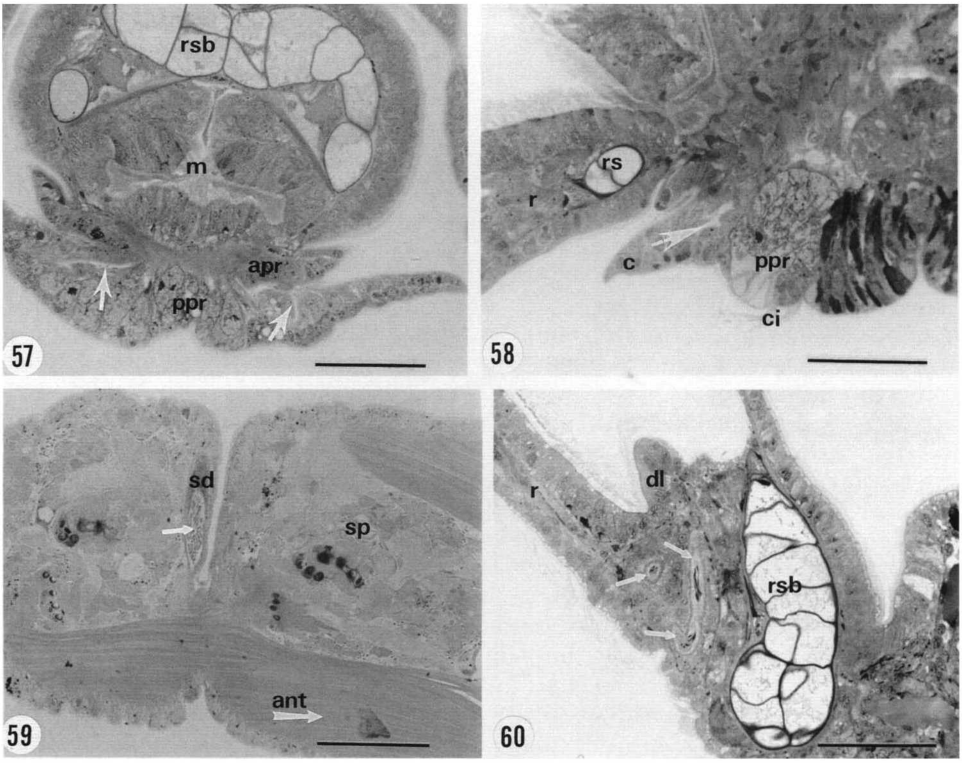
indicates basal pinnule of one of the ventralmost radioles. This pinnule is also visible in Figure 42, indicated by an arrow. 45. Ventral view of posterior abdominal region showing anus. Scale bars: *40,* 1 mm; *41–45,* 100 μm.



Figures 50–56. *Amphiglena nathae* new species Paratypes. 50. Superior thoracic notochaeta. 51. Inferior thoracic notochaeta (USNM 157647). 52. Companion chaeta (USNM 157647). 53. Thoracic uncinus (USNM 157647); 54. Abdominal uncinus (USNM 157647). 55. Abdominal neurochaeta (USNM 157647). 56. One half of branchial crown of paratype (USNM 157648) showing dorsal lip and dorsal radiolar appendage. Scale bars: *50–55,* 20 μm; *56,* 50 μm.

been described for the number of thoracic chaetigers of *A. mediterranea* by later authors (Fauvel, 1927; Rioja, 1923), perhaps due to confusion over the total number of segments (often including the peristomium), and the number of chaetigers. The number of radioles and abdominal chaetigers varies, within a species, generally according to size; *A. marita* has 5–8 pairs of radioles and a maximum



Figures 57–60. *Oriopsis anneae* Paratypes. 57. Female (USNM 157624), Transverse section through base of radiolar crown and the peristomium. Spermathecae in posterior peristomial ring indicated by arrows. 58. Female (USNM 157625), Longitudinal section through radioles and peristomium. Spermatheca indicated by arrow. 59. Male (USNM 157626), Longitudinal section through thoracic region. Note the stages of spermiogenesis in the coelom. Mature sperm from the adjacent anterior segment exit through the sperm duct indicated by the arrow. 60. *Amphiglena nathae* new species Paratype (USNM 157652). Longitudinal section through a radiole and the base of a dorsal lip. Note the convoluted spermatheca containing sperm in the base of dorsal lip, indicated by arrows. Scale bars: All scale bars 50 μm.

of 45 abdominal chaetigers (Chlebovitsch, 1959); *A. mediterranea* has 5–6 pairs of radioles and a maximum of 30 abdominal chaetigers (Fauvel, 1927; Leydig, 1851; Rioja, 1923; Saint-Joseph, 1894); *A. pacifica* 5–6 pairs of radioles and a maximum of 26 abdominal chaetigers (Annenkova, 1934); *A. terebro* has 4–5 pairs of radioles and 38 or more abdominal chaetigers (Rouse, 1993), and *A. nathae* was found to have 5–6 pairs of radioles and up to 25 abdominal chaetigers. *Amphiglena nathae* most closely resembles *A. mediterranea* in size, radiole number, and number of chaetigers. Both of these species also have thoracic uncini of very similar shape. *Amphiglena marita, A. pacifica,* and *A. terebro* have thoracic uncini with long handles (Annenkova, 1934; Chlebovitsch, 1959; Rouse, 1993), whereas those of *A. mediterranea* and *A. nathae* have medium handles.

No type material exists for *A. mediterranea.* The type locality is Nice, France. Material of *A. mediterranea* collected from near the type locality in the Bay of Naples, Italy (USNM 5095), and also near Lecce, Italy (USNM 157657, 157658), was examined. The paired, basal flanges of the branchial crown, extending from the posterior peristomial ring to the proximal region of ventralmost radioles of the branchial lobes, are much more prominent in *A. mediterranea* than in *A. nathae.* There is not enough detail in the descriptions of *A. marita* and *A. pacifica* to determine the structure of the extensions from the posterior peristomial ring, if they are even present. Attempts to obtain type material of these species have failed. The extensions present in *A. terebro* differ from those of *A. mediterranea* and *A. nathae* in that they do not fuse with the anterior peristomial ring or with the basalmost pinnules of the ventralmost radioles (Rouse, 1993).

The ciliated dorsal pinnular appendages of the dorsal lips are extremely long in *A. mediterranea,* extending for more than half the length of the radioles in the material from Italy. In the original description Leydig (1851) made note of these structures (Fortsätze) and their ciliation. He also noted that the lips each had a brown pigmented area. The lips and pigmented areas were subsequently noted by Claparède (1864, 1869), Meyer (1887, 1888), Saint-Joseph (1894), Rioja (1923) and Fauvel (1927). Claparède (1869) describes and figures one of the pigmented structures as having a figure-8 shape. Meyer (1887) gives detailed, accurate views of the anterior end of *A. mediterranea* (Plate 24, Figs. 14–16) from Naples, and discusses them in Meyer (1888). The dorsal lips figured by Meyer (1887) are much more elongate than those of *A. nathae.* Meyer (1888: 531) in noting the light-brown, coiled chambers described by Leydig (1851), commented that they were eye-like. This had previously been postulated by Claparède (1864, 1869). The coiled chambers in the dorsal lips are clearly visible in the figures of both Claparède (1864) and Meyer (1887) but are not labelled, though the peristomial eyes are clearly labelled in each case. They lie at the base of the dorsal lips. These structures correspond in location, and shape, to the spermathecae of *A. nathae,* though the spermathecae in this species are unpigmented.

Amphiglena mediterranea, A. marita and *A. terebro* are all simultaneous hermaphrodites. Nothing is known about the reproductive process of *A. pacifica. Amphiglena marita* and *A. nathae* have larvae developing in individual egg capsules, whereas those of *A. terebro* develop freely in the tube of the adult (Rouse, 1993). The development inside the individual egg capsules appears to differ between *A. marita* and *A. nathae.* For *A. marita,* Chlebovitsch (1959) figures a larva in an egg capsule with a well developed crown, 8 thoracic and 5 abdominal chaetigers. The larvae of *A. nathae* hatched out of the egg capsules after developing 8 thoracic chaetigers and swam away before any radioles developed. Knight-Jones and Bowden (1984) describe brooding of larvae by *A. mediterranea* from the British coast. The larvae they figure as present in the tube have well developed crowns and a number of abdominal chaetigers in addition to the thoracic chaetigers. They make no mention of the larvae being in individual egg capsules.

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ADDENDUM

Since this paper went to press discussions on the status of *Oriopsis* with Dr. K. Fauchald and Dr. F. M. Bayer (USNM) have led me to add this correction. In the main text, where I discuss the status of *Oriopsis* Caullery and Mesnil and associated synonyms, I made an error in the interpretation of the status of *Amphicorina* Quatrefages 1850; Quatrefages, while not mentioning a species name, did refer to a sabellid from Bréhat and Bretagne with green blood and statocysts as "l'Amphicorine". The latinized version, *Amphicorina,* used by Leukart (1854), Claparède (1864), Quatrefages (1866), and subsequent authors, is preferred here to the French form first used by Quatrefages (1850). Although the first use of *Amphicorina* was as a uninomial, it is acceptable under the principles of binomial nomenclature in the International Code of Zoological Nomenclature 3rd Edition, Article 11(c)(i). The brief description by Quatrefages (1850) was used by Claparède (1864) as justification for using *Amphicorina* as a sub-genus of *Fabricia* Blainville, containing the species *Fabricia* (*Amphicorina*) *armandi* Claparède 1864; which is to be regarded as the type species by subsequent monotypy. Quatrefages (1866) incorrectly (objective synonym) erected *Oria* Quatrefages to accommodate *A. armandi* and used *Amphicorina* for three species: *A. cursoria* Quatrefages, *A. argus* Quatrefages, and *A. desiderata* Quatrefages. The latter two names are considered synonyms of *Myxicola aesthetica* (Claparède) and *Amphiglena mediterranea* (Leydig) respectively (see Banse, 1957). *Amphicorina cursoria* is here considered a synonym of *A. armandi.* Names erected subsequently to replace *Oria,* namely *Oridia* Rioja 1917 and *Oriades* Chamberlin 1919, are also synonyms of *Amphicorina. Oriopsis* Caullery and Mesnil 1896 is potentially valid if the type species, *O. metchnikowi* Caullery and Mesnil 1896, is shown to be distinct from *A. armandi* (see discussion in main text). However, at present *Oriopsis metchnikowi* is regarded as a subjective synonym of *Amphicorina armandi.* All species presently referred to *Oriopsis* thus should be referred to *Amphicorina.*