

SOME OPISTHOBRANCHIA FROM MICRONESIA¹

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ABSTRACT

A Micronesian collection of 130 opisthobranchs belonging to the U. S. National Museum contained 53 species. Only 10 of them are new, and half of these are less than 5 mm in length. These small numbers show the uniformity of the opisthobranch fauna on the reefs in the Indo-West Pacific Ocean, most of whose bigger species are already known. The following new species are described: *Stiliger (Ercolania) illus*, *Elysia bayeri*, *Elysia ratna*, *Hypselodoris cuis*, *Discodoris lora*, *Discodoris ylva*, *Catriona lonca*, *Catriona urquiza*, *Noumeaella rehderi*, and *Muessia evelinae*, the type-species of a new genus of the Favorini-dae, allied to *Herviella*.

Some time ago, Dr. Harald A. Rehder of the Smithsonian Institution, Washington, D.C., U.S.A., sent me for identification a collection of 130 lots of opisthobranch mollusks from Micronesia. All of this material was collected in recent years by biologists and geologists sent out on surveys of islands in several of the groups making up this region of the central western Pacific.

Of the 53 species identified in this sending, 10 are new, 5 of them being less than 5 mm in length. The recognized uniformity of the Indo-West Pacific reef fauna, and the relatively advanced state of exploration account for the small percentage (18.9) of new species. In our first collection from the little known coast of Brazil, 71.8% were new species.

My thanks are due to Dr. Harald A. Rehder for having gone over the manuscript, and to Dr. F. M. Bayer, of the Marine Institute in Miami, Florida, for having furnished many of the color notes used in the description of the new species.

SYSTEMATICS AND DISTRIBUTION

A systematic list of species of Euthy-

neura collected in Micronesia during the field study are listed below. The species are treated individually in consecutive order in the section following the list.

Soleolifera, Onchidiacea, Onchidiidae

1. *Peronia (Peronia) peronii* (Cuvier)

Cephalaspidea, Bullacea, Retusidae

2. *Retusa* sp.

Cephalaspidea, Philinacea, Phanero-phthalmidae

3. *Phanerophthalmus luteus* (Quoy and Gaimard)

Cephalaspidea, Philinacea, Aglajidae

4. *Aglaja splendida* Risbec
5. *Chelidonura inornata* Baba
6. *Chelidonura hirundinina elegans* Bergh

Anaspidea, Aplysiidae, Aplysiinae

7. *Aplysia (Varria) dactylomela* Rang
8. *Aplysia (Varria) pulmonica* Gould
9. *Aplysia (Pruvotaplysia) parvula* Mörch

Anaspidea, Aplysiidae, Dolabellinae

10. *Dolabella auricularia* (Solander)

Anaspidea, Aplysiidae, Dolabriferinae

11. *Dolabrifera dolabrifera* (Rang)

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12. *Petalifera petalifera pacifica* (Bergh)
 Anaspidea, Aplysiidae, Notarchinae
 13. *Stylocheilus longicauda* (Quoy and Gaimard)
 Sacoglossa, Elysiacea, Stiligeridae
 14. *Stiliger (Ercolania) illus*, spec. nov.
 Sacoglossa, Elysiacea, Phyllobranchillidae
 15. *Phyllobranchillus prasinus* (Bergh)
 16. *Cyerce nigra* Bergh
 Sacoglossa, Elysiacea, Plakobranchiidae
 17. *Plakobranchus ocellatus* van Hasselt
 Sacoglossa, Elysiacea, Elysiidae
 18. *Elysia thysanopoda* Bergh
 19. *Elysia marginata* (Pease)
 20. *Elysia bayeri* spec. nov.
 21. *Elysia ratna* spec. nov.
 Notaspidea, Pleurobranchacea, Pleurobranchidae
 22. *Pleurobranchus peronii* Cuvier
 23. *Pleurobranchus* cf. *lugubris* (Bergh)
 24. *Berthella grisea* (Bergh)
 25. *Berthellina citrina* (Rüppell and Leuckart)
 Nudibranchia, Doridoidea, Cryptobranchia, Hexabranchidae
 26. *Hexabranchus marginatus* (Quoy and Gaimard)
 Nudibranchia, Doridoidea, Cryptobranchia, Dorididae, Chromodoridinae
 27. *Chromodoris lineolata* (van Hasselt)
 28. *Chromodoris venusta* (Bergh)
 29. *Hypselodoris cuis* spec. nov.
 30. *Hallaxa decorata* (Bergh)
 Nudibranchia, Doridoidea, Cryptobranchia, Dorididae, Miamirinae
 31. *Casella atromarginata* (Cuvier)
 32. *Casella rufomarginata* Bergh
 Nudibranchia, Doridoidea, Cryptobranchia, Dorididae, Discodorinae
 33. *Discodoris lora* spec. nov.
 34. *Discodoris ylva* spec. nov.
 35. *Kentrodoris funebris* (Kelaart)
 Nudibranchia, Doridoidea, Cryptobranchia, Dorididae, Asteronotinae

36. *Halgerda elegans* Bergh
 Nudibranchia, Doridoidea, Cryptobranchia, Dorididae, Platydoridinae
 37. *Platydoris scabra* (Cuvier)
 38. *Platydoris cruenta* (Quoy and Gaimard)
 39. *Platydoris* cf. *flammulata* Bergh
 Nudibranchia, Doridoidea, Phanerobranchia, Nonsuctoria, Gymnodorididae
 40. *Nembrotha nigerrima* Bergh
 Nudibranchia, Doridoidea, Porostomata, Dendrodorididae
 41. *Dendrodoris nigra* Stimpson
 Nudibranchia, Doridoidea, Porostomata, Phyllidiidae
 42. *Phyllidia (Phyllidia) varicosa* Lamarck
 43. *Phyllidia (Phyllidiella) pustulosa* Cuvier
 44. *Phyllidia (Phyllidiella) nobilis* (Bergh)
 45. *Fryeria rüppelli* Bergh
 Nudibranchia, Doridoidea, Dendronotoidea, Bornellidae
 46. *Bornella digitata* (Adams and Reeve)
 Nudibranchia, Doridoidea, Dendronotoidea, Dotoidae
 47. *Doto* cf. *albida* Baba
 Nudibranchia, Doridoidea, Eolidoidea, Acleioprocta, Cuthonidae
 48. *Catriona lonca* spec. nov.
 49. *Catriona urquiza* spec. nov.
 Nudibranchia, Doridoidea, Cleioprocta, Favorinidae, Favorininae
 50. *Pteraeolidia semperi* (Bergh)
 51. *Phyllodesmium hyalinum* Ehrenberg
 52. *Noumeaella rehderi* spec. nov. *Muessa*, (gen. nov.)
 53. *Muessa evelinae* spec. nov.

Order Soleolifera
 Superfamily Onchidiacea
 Family Onchidiidae

1. *Peronia (Peronia) peronii* (Cuvier, 1804)

Mariana Islands: Saipan: from 1/2 ton block of dead coral taken off anchor,

lagoon on west coast. Sta. loc. No. 2. P. E. Cloud, Jr., and J. H. O'Mara coll., May 2, 1949. One specimen (USNM 574622).²

Palau Islands: high tide line along fringing reef on west shore of Abappaomogon Island (Ngermeiaus), about 1 1/2 miles west of Eil Malk, Sta. No. 260. F. M. Bayer and R. R. Rofen coll., November 3, 1955. One specimen (USNM 575678).

Marshall Islands: Bikini Atoll: intertidal. M. W. Johnson coll., April-May, 1946. Two specimens (USNM 574232).

Marshall Islands: Eniwetok Atoll: Rujoru Id., on north outer side. Sta. No. 4598. J. I. Tracey, Jr., coll., June 3, 1946. Two specimens (USNM 574235).

Marshall Islands: Eniwetok Atoll: east side of south end of Eniwetok Id. Sta. No. 4454. M. W. Johnson coll., May 20, 1946. One specimen (USNM 574234).

Marshall Islands: Eniwetok Atoll: on exposed cobble rock flats, intertidal zone, south ocean side at west end of Igurin Id. Sta. No. 4472. J. P. E. Morrison coll., May 22, 1946. One specimen (USNM 574231).

Marshall Islands: Arno Atoll: reef flat at Ine anchorage. Sta. No. S5. J. W. Wells coll., June-August, 1950. One specimen (USNM 574686).

Gilbert Islands: Onotoa Atoll: A. H. Banner coll., August 15, 1951. One specimen (USNM 574925).

Order Cephalaspidea
Superfamily Bullacea
Family Retusidae

2. *Retusa* sp.

Marshall Islands: Bikini Atoll: under coral head, outer reef, Bikini Island. Sta. No. 65-1. F. M. Bayer coll., July 25, 1947. Color sketch made. Fragments of one specimen (USNM 574440), in which the absence of the radula was stated.

Superfamily Philinacea
Family Phanerophthalmidae

3. *Phanerophthalmus luteus* (Quoy and Gaimard, 1832)

Caroline Islands: Ifaluk Atoll: from eel grass beds, south shore of lagoon, Rauau district, north of Katelu benjo, Falarik Id. Sta. No. 548. F. M. Bayer coll., October 8, 1953. Two specimens (USNM 574970).

Family Aglajidae

4. *Aglaja splendida* Risbec, 1951

Palau Islands: Koror Island; in eel grass in Geruherugairu Pass, between Kaibakku Island and Kogai-hantō, Auluptagel Island. Sta. No. 30. F. M. Bayer, coll., July 22, 1955. Black with brilliant blue border. Two specimens (USNM 575680).

5. *Chelidonura inornata* Baba, 1949

Caroline Islands: Ifaluk Atoll: lagoon reef at Katelu benjo, near "Izzie" and "Barbara" reefs, Rolong canoe house. Sta. No. 724. F. M. Bayer, coll., October 22, 1953. One specimen (USNM 574979). Color: velvety black with fine white flecks.

6. *Chelidonura hirundinina elegans*
Bergh, 1900

Marshall Islands: Bikini Atoll: creeping on surface of rocks, outer reef flats, Bikini Island. Sta. No. 6. F. M. Bayer, coll., August 5, 1947. Six specimens (USNM 574439).

Order Anaspidea
Family Aplysiidae
Subfamily Aplysiinae

7. *Aplysia (Varria) dactylomela* Rang, 1828

Palau Islands: Urukthapel Island:

²U. S. National Museum Catalog Number.

lagoon margin of reef on live coral and coral rubble, with abundant *Caulerpa* and *Halimeda*, north of east point (Nagaremediu). Sta. No. 69. F. M. Bayer, coll., August 5, 1955. One specimen (USNM 575669).

Gilbert Islands: Onotoa Atoll: from green algal veneers on dead coral rock, NW corner of atoll. Sta. No. GOC-41. P. E. Cloud, coll., August 21, 1951. Two specimens (USNM 575058), identified by Dr. N. B. Eales.

8. *Aplysia (Varria) pulmonica* Gould,
1852

Marshall Islands: Eniwetok Atoll: lagoon reef south of causeway between Lidilbut and Elangelap Islands. Sta. No. 1514. H. S. Ladd, M. Russell, and R. C. Townsend coll., May 11, 1952. One specimen (USNM 574922), identified by Dr. N. B. Eales as probably representing this species.

9. *Aplysia (Pruvotaplysia) parvula*
Mörch, 1863

Gilbert Islands: Onotoa: on algae, ocean side of reef flat. E. Moul, coll., August 6, 1951. The single specimen (USNM 575371) collected represents the variety *nigrocincta* von Martens, 1880.

Subfamily Dolabellinae

10. *Dolabella auricularia* (Solander, 1786)

Mariana Islands: Guam: J. L. Gressitt, coll., October, 1945. One specimen (USNM 574206).

Palau Islands: Iwayama Bay: shallow area in Geruherugairu Pass between Kaibakku Island and Kogai-hentô, Auluptagel Island; in 5-6 feet on coral and sand bottom with eel grass, *Halimeda* and *Padina*. Sta. No. 85. F. M. Bayer et al. coll., August 12, 1955. Two specimens (USNM 575683).

Palau Islands: same as above, in 4-5 feet. Sta. No. 140. F. M. Bayer et al.

coll., August 30, 1955. Two specimens (USNM 575713).

Caroline Islands: Kapingamarangi Atoll: lagoon reef, Hare Island Sta. No. 291. C. Hand coll., July 20, 1954. One specimen (USNM 575712).

Dr. Harald A. Rehder called my attention to the fact that the name *Dolabella scapula* Martyn, 1784, by which this species has generally been known, is invalid, since Martyn's work "The Universal Conchologist" has been rejected for nomenclatorial purposes by the International Commission on Zoological Nomenclature (Opinion 456-1956).

Subfamily Dolabriferinae

11. *Dolabrifera dolabrifera* (Rang, 1828)

Palau Islands: reef flat on outer barrier reef, about 2 miles SSW of Ngaremediu District, east of Urukthapel Island. Sta. No. 111. F. M. Bayer et al. coll., August 19, 1955. Two specimens in about 1 foot on alga-encrusted coral rock (USNM 575684).

Caroline Islands: Ifaluk Atoll: seaward reef at Fan-ni-wa canoe-house trail, middle of Falarik Island. Sta. No. 443. F. M. Bayer coll., October 1, 1953. Two specimens (USNM 574966 and 574967).

Caroline Islands: Ifaluk Atoll: on rocks in sand flats, lagoon side, at south end of Falarik Island. Sta. No. 738. F. M. Bayer coll., October 26, 1953. Two specimens (USNM 574981).

Caroline Islands: Kapingamarangi Atoll: on rock pile, lagoon, Hare Island, Sta. No. 604. C. Hand coll., August 6, 1954. Three specimens (USNM 575689).

Caroline Islands: Kapingamarangi Atoll: inner reef flat, Touhou Island. Sta. No. 67. C. Hand coll., June 25, 1954. One specimen (USNM 575690).

Marshall Islands: Bikini Atoll: Inner reef under rocks, Bikini Island. Sta. No. 278. F. M. Bayer coll., August 24,

1947. Two specimens (USNM 574441).

Gilbert Islands: Onotoa Atoll: in two feet, tide pool, *Heliopora* reef flat. A. H. Banner coll., August 1, 1951. Two specimens (USNM 575374).

12. *Petalifera petalifera pacifica*
(Bergh, 1900)

Caroline Islands: Ifaluk Atoll: from eel grass, south lagoon shore, Rauau district, N of Katelu benjo. Sta. No. 549. F. M. Bayer coll., October 8, 1953. Ten specimens (USNM 574972 and 574969).

Subfamily Notarchinae

13. *Stylocheilus longicauda* (Quoy and Gaimard, 1825)

Caroline Islands: Ifaluk Atoll: north end, Transect C, Falarik Island. Sta. No. 446. F. M. Bayer coll. One specimen and one radula slide (USNM 574968).

Caroline Islands: Ifaluk Atoll: from eel grass beds, south lagoon shore, Rauau district, north of Katelu benjo. Sta. No. 548 and 549. F. M. Bayer coll., October 8, 1953. Two specimens (USNM 574971 and 574974).

Caroline Islands: Ulithi Atoll: Asor Island. Sta. No. 11. F. N. Young coll., May, 1945. One specimen (USNM 574471).

Marshall Islands: Bikini Atoll: boat cradle anchored off Bikini Island. Sta. No. 4. F. M. Bayer and F. C. Zimmerman coll. August 28, 1947. Four specimens (USNM 574437).

Order Sacoglossa
Superfamily Elysiacea
Family Stiligeridae

14. *Stiliger (Ercolania) illus*, spec. nov.
(figs. 1-4)

Material: Caroline Islands: Ifaluk Atoll: on large flabellate alga, lagoon reef south of Elangelap, western rim of atoll. Sta. No. 41. R. R. Rofen coll.,

October 10, 1953. One specimen.

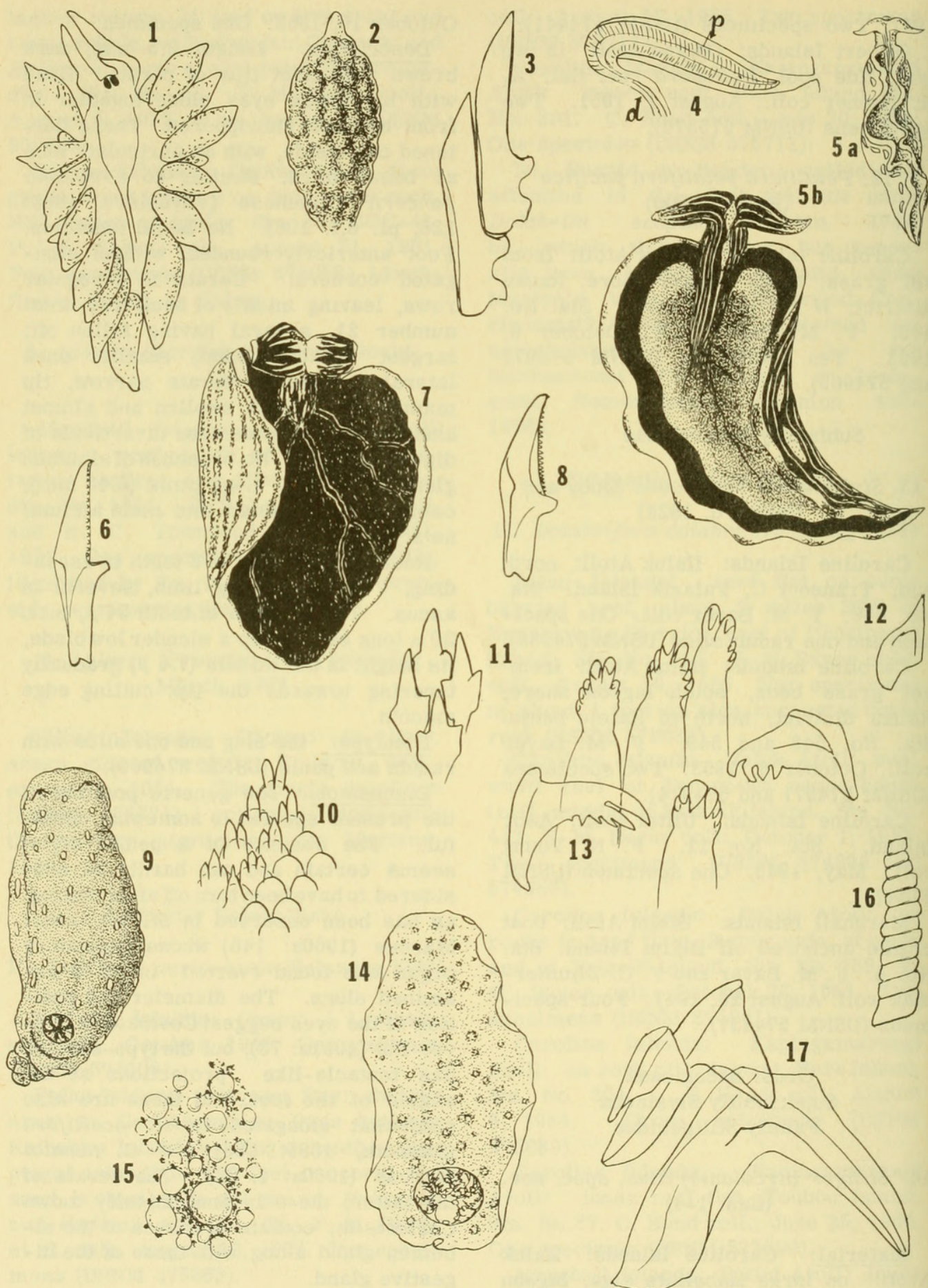
Description: Length 2.5 mm, dark brown with light tips of cerata. Head with big black eyes close together in front between rhinophores. These flattened on outside, with an auriculate lobe at basal third, similar to *Ercolania pancerii* Trinchese (Vayssière, 1888: 126, pl. 6, f. 108). No labial tentacles. Foot anteriorly rounded, without elongated corners. Cerata in irregular rows, leaving middle of back free, total number 21, several having fallen off; largest cerata medial, smaller ones lateral. Base of cerata narrow, tip mamillary, middle swollen and almost knobbed due to racemose diverticula of digestive gland. No branches of albumen gland in cerata. Long penis (0.45 mm), completely retracted into male atrium; no stylet.

Radula consisting of 8 teeth in ascending, 7 in descending limb, several in ascus. Total length of tooth 54 μ , incl. 20 μ long base; cusp a slender low blade, its height in the middle (7.5 μ) gradually tapering towards the tip; cutting edge smooth.

Holotype: the slug and one slide with radula and penis (USNM 574960).

Discussion: The generic position of the present species is somewhat doubtful. The absence of a penial stylet seems certain and can hardly be considered to have been torn off after mating, as has been observed in *St. (St.) vossi* Marcus (1960a: 146) whose copulatory organ was found everted in the 3 examined slugs. The diameter and position of the eyes suggest *Costasiella* Pruvot-Fol (1951a: 73), but the type-species has tentacle-like projections at the angles of the foot, and these are also somewhat elongated in *C. ocellifera* (Simroth, 1895: 168) and *C. nonatoi* Marcus (1960a: f. 26). The cerata of the latter, the only anatomically known *Costasiella*, contain branches of the albumen gland along with those of the digestive gland.

The surveys of *Ercolania* (Pruvot-Fol, 1954a: 191; Marcus, 1956: 7; Baba,



1959: 327) include 3 more or less dark species: *E. trinchesei* Pruvot-Fol (1951a: 71) with bright yellow basal half of the cerata, *E. akkeshiensis* Baba (1935: 116) whose radular teeth are high, not tapering toward the tip, and *E. noto* Baba (1959: 330) with broad labial tentacles.

I maintain *Ercolania* Trinchese, 1872, as a subgenus of *Stiliger* Ehrenberg, 1831 (Marcus, 1956: 6).

Family Phyllobranchillidae

Genus *Phyllobranchillus* Pruvot-Fol, 1933

In a recent paper (Marcus and Marcus, 1963, p. 17) we used *Polybranchia* Pease, 1860. Because, however, the type species *P. pellucida* Pease is a "species inquirenda" we now consider Pease's genus as a doubtful one.

15. *Phyllobranchillus prasinus* (Bergh, 1871)

Caroline Islands: Ifaluk Atoll: on coral rocks on sand flats, lagoon side of south end, Falarik Island. Sta. No. 735. F. M. Bayer coll., October 26, 1953. One specimen and radula slide (USNM 574980).

P. orientalis Kelaart, 1858, may be the same species.

16. *Cyerce nigra* Bergh, 1871

Caroline Islands: Ifaluk Atoll: from algae in 6 feet, sandy bottom, lagoon shelf near margin of the west reef, between Elangelap and Falarik Islands. Sta. No. 138-E-3. D. P. Abbott coll., October 20, 1953. One specimen (USNM 575700).

Caroline Islands: Ifaluk Atoll: from

FIGS. 1-4. *Stiliger (Ercolania) illus*, sp. n. FIG. 1. Dorsal view. FIG. 2. Ceras. FIG. 3. Two radular teeth. FIG. 4. Penis.

FIGS. 5-6. *Elysia bayeri*, sp. n. FIG. 5. A. Creeping slug from a drawing by Dr. F. M. Bayer. B. Slug with opened parapodia from a painting by Dr. F. M. Bayer. FIG. 6. Radular tooth.

FIGS. 7-8. *Elysia ratna*, sp. n. FIG. 7. Dorsal view. FIG. 8. Radular tooth.

FIGS. 9-13. *Hypselodoris cuis*, sp. n. FIG. 9. Dorsal view. FIG. 10. Elements of labial armature near margin; left side, surface focussed; right side, bottom focussed. FIG. 11. Labial armature near centre. FIG. 12. One labial platelet, side view. FIG. 13. Radular teeth. Three innermost and one 2nd tooth; one from middle of row; one outermost.

FIGS. 14-17. *Discodoris lora*, sp. n. FIG. 14. Dorsal view. FIG. 15. Sculpture of notum. FIG. 16. Rodlet of labial cuticle. FIG. 17. One radular tooth from middle of row and the 2 outermost teeth.

Abbreviations used in Figs. 1-41

a - ampulla
am - common atrium
ar - anus
c - spermatocyst
ce - base of plucked ceras
d - ejaculatory duct
e - sheathed part of efferent duct
eu - female duct
f - female gland mass
g - genital aperture
h - hermaphrodite duct
ma - male atrium

ne - cnidosac
ni - nidamental duct
oi - inner oviduct
p - penis
q - prostate
s - spermatheca
se - efferent duct
so - spermoviduct
sr - sphincter
u - fertilizing (uterine) duct
v - vagina

algae in 12 feet, sandy bottom lagoon shelf, north of center of Ella (=Elangelap) Island. Sta. No. 158-159. R. R. Rofen and Yaniseiman coll., October 24, 1953. Two specimens (USNM 575699).

Family Plakobrachidae

17. *Plakobrachus ocellatus* van Hasselt, 1824

Palau Islands: on alga-encrusted coral rocks, reef flat on outer barrier reef about 2 miles SSW of Ngaremediu District, east of Urukthapel Island. Sta. No. 111. F. M. Bayer et al. coll., August 19, 1955. One specimen and radula slide (USNM 575662).

Family Elysiidae

18. *Elysia thysanopoda* Bergh, 1905

Palau Islands: in 2-3 1/2 feet, coral and sand bottom, with eel grass, *Hali-medea* and *Padina*, shallow area in Geruherugairu Pass, between Kaibakku Island and Kogai-hantô, Auluptagel Island. Sta. No. 85A. F. M. Bayer et al. coll., August 12, 1955. Two specimens (USNM 575674).

19. *Elysia marginata* (Pease, 1871)

Palau Islands: in 3-10 feet, fringing reef on west shore of Abappaomogon Island (Ngermeiaus) about 1 1/2 miles west of Eil Malk. Sta. No. 260. F. M. Bayer and R. R. Rofen coll., November 3, 1955. Three specimens (USNM 575677).

Marshall Islands: Bikini Atoll: on alga-covered rocks, lagoon reef of Bikini Island. Sta. No. 278. F. M. Bayer coll., August 24, 1947. Five specimens and radula slide (USNM 574442).

20. *Elysia bayeri* spec. nov. (Figs. 5-6)

Material: Marshall Islands: Bikini Atoll: outer reef, Bikini Island. Sta. No. 65B. F. M. Bayer coll., July 29,

1947. One specimen.

Description: Living slug 12 mm long. According to Dr. Bayer's painting, back of head, rhinophores and pericardial eminence with black and white stripes, tips of rhinophores orange with white stripes. Two longish blue spots in mid-line of head and neck. Dorsal surface dark green, outwards a band of lighter green, followed by a broad black and a broad bright orange margin. Under surface of parapodial border with blackish brown blotches alternating with light orange. Ventral side black with longitudinal narrow white stripes; near parapodial border broad blue dashes, corresponding to orange portions of brim.

Preserved specimen 6 mm long, 4 mm broad. Back of head and body black except white edging of rhinophores, parapodia and anus; latter situated between mid-line and front edge of right parapodium. Ventral surface light; border of parapodia with black blotches alternating with light intervals and running out into gray triangles towards foot.

Radula comprising about 15 free teeth and several in ascus. Base and cusp each 25 μ long, tip of cusp a curved point; cutting edge with 15 blunt denticles; groove on outer surface long, shallow.

Named for Dr. Frederick M. Bayer.

Holotype: slug and radula slide (USNM 574438).

Discussion: The color, not quite unlike that of *E. ornata* (Pease, 1860; see Bergh, 1905: 84), characterizes the species well. Also the nature of the radular tooth is uncommon in *Elysia*, though not unique, as *E. livida* Baba (1955: f. 13) has a similar tooth.

21. *Elysia ratna* spec. nov. (Figs. 7-8)

Material: Palau Islands: Iwayama Bay: in 0-10 feet, in cave formed by west arm of Kogai-hantô, Auluptagel Id., near islets XXXIII and XXXIV. Sta. No. 47. F. M. Bayer et al. coll., July 28,

1955. One specimen.

Description: Length 14 mm, breadth 8 mm. Head covered by rhinophores, these black on sides, light, in preserved specimen cream, in middle. From black margins several spike-like pigmented stripes project towards light area, subdividing it. Dorsal side of body and parapodia black with light, now yellowish margin. Pericardial eminence with light longitudinal stripes. Ventral side with light and dark longitudinal stripes, these more numerous and darker on sole than on underside of parapodia. Foot with light borders, concave in front. Radula containing 20 free teeth and about same number in ascus. Base 22, cusp 28 μ long, tip hooked, cutting edge with about 18 pointed denticles; furrow on outer surface deep.

Holotype: slug and radula slide (USNM 575705).

Discussion: In the discussion of *Elysia latipes* (Marcus, 1960b: 899) the literature of the Indo-west-pacific species of *Elysia* was brought together. The new species differs from all those described in these papers by the great extent of black pigment, quite rare in *Elysia*. Furthermore, in the markedly dark forms of Bergh (1905: 85-87) the color is not arranged as it is in *E. ratna*. The stripes on rhinophores, pericardial eminence and underside are similar to those of *E. bayeri*, but the shape of the radular tooth is very different.

Order Notaspidea

Superfamily Pleurobranchacea

Family Pleurobranchidae

22. *Pleurobranchus peronii* Cuvier, 1804 (Vayssi re, 1898, emend.)

Palau Islands: in 0-4 feet on lagoon margin of reef, north of east point (Ngaremediu) of Urukthapel Island. Sta. No. 69. F. M. Bayer et al. coll., August 8, 1955. Two specimens and slide with radula and jaws (USNM 575667).

Oscaniella purpurea Bergh, 1897,

1905, is a synonym.

23. *Pleurobranchus* cf. *lugubris* (Bergh, 1905)

Palau Islands: Iwayama Bay: in 3-20 feet on coral shelf along west shore of SE peninsula of Koror Island, at mouth of Kaki Suid  (Oyster Pass). Sta. No. 236. H. A. Fehlman, S. Pierce, R. R. Rofen coll. One specimen and slide with radula and jaws (USNM 575670).

Palau Islands: Iwayama Bay: in 0-3 feet, eel-grass, sand, and coral flat in Geruherugairu-suido, between Kai-bakku Island, and Kogai-hant  of Auluptagel Island. Sta. No. 30. F. M. Bayer et al. coll., July 22, 1955. One specimen (USNM 575681).

24. *Berthella grisea* (Bergh, 1905)

Palau Islands: Iwayama Bay: 0-15 feet, "Bay of the Dragon Palace," west side of Kogai Peninsula, Auluptagel Island, between USA and Tai Islands. Sta. No. 100. F. M. Bayer et al. coll., August 16, 1955. One specimen and slide with radula and jaws (USNM 575676).

25. *Berthellina citrina* (R ppell and Leuckart, 1828)

Palau Islands: in 0-1 feet on reef flat, on outer barrier reef, about 2 miles SSW of Ngaremediu district, east of Urukthapel Island. Sta. No. 111. F. M. Bayer et al. coll., August 19, 1955. One specimen and slide with radula and jaws (USNM 575664).

Order Nudibranchia

Suborder Doridoidea

Infraorder Cryptobranchia

Family Hexabranchidae

26. *Hexabranchus marginatus* (Quoy and Gaimard, 1832)

Caroline Islands: Ifaluk Atoll: lagoon shore, Rauau, Falarik Island (taken from Golden Plover). Sta. No. 593. F. M.

Bayer coll., October 15, 1953. One specimen and slide with radula and jaws (USNM 574975).

Marshall Islands: Eniwetok Atoll: north of Rigoru Island. Sta. No. 4592. J. P. E. Morrison coll., June 2, 1946. One specimen (USNM 57422).

Family Dorididae
Subfamily Chromodoridinae

27. *Chromodoris lineolata* (van Hasselt, 1824)

Palau Islands: Iwayama Bay: on eel grass, sand and coral flat in Geruherugairu Pass, between Kaibakku Id. and Kogai-hantô, Auluptagel Id. Sta. No. 30, F. M. Bayer et al. coll., July 22, 1955. One specimen (USNM 575679).

Palau Islands: Iwayama Bay: on eel grass, sand and coral flat in Geruherugairu Pass, between Kaibakku Id. and Kogai-hantô, Auluptagel Id. Sta. No. 85A. F. M. Bayer et al. coll., August 12, 1955. One specimen (USNM 575675).

Palau Islands: Iwayama Bay: Sandy flat and fringing reef at south end of Gua-zima (Island XV); Abe's traverse XIII. Sta. No. 92. F. M. Bayer et al. coll., August 14, 1955. One specimen (USNM 575666).

Palau Islands: Koror Island: in Madalai District, extreme west end of Koror Island, shore at S end of Arakabesan-Madalai causeway, mangrove shore grading into mud and sand flat. Sta. No. 12. F. M. Bayer et al. coll., July 9, 1955. One specimen (USNM 575685): black with longitudinal lines, anastomosing here and there; margins of mantle sepia; branchial plumes sepia with white flecks; rhinophores dark sepia with white flecks; sole of foot grayish; tips of tentacles brownish yellow.

28. *Chromodoris* cf. *venusta* Bergh,
1905

Palau Islands: Iwayama Bay: east side of mouth of Kaki-suidô (Oyster Pass),

between Island XXIX and SE end of Koror Id. Sta. No. 220A. F. M. Bayer et al. coll., October 12, 1955. One specimen and slide of radula and jaws. (USNM 575702).

29. *Hypselodoris cuis*, spec. nov.
(Figs. 9-13)

Material: Caroline Islands: Kapingamarangi Atoll: Polim reef flat, near Tipongowarakam Pass, Greenwich (Ship) Pass. Sta. No. 723. C. Hand coll., August 12, 1954. One specimen.

Description: Length 6.5, breadth 3, height 3.5 mm. Light brownish with lighter opaque knots, which are subepidermal, longish, more or less symmetrically disposed in about 10 rows on notum and hyponotum. Skin smooth; brim of notum hardly salient. Tentacles grooved on outer side. Rhinophores nearer to border than to one another. Nine unipinnate gills. Foot narrower than notum; anterior border bilabiate, not notched in middle; tail projecting behind.

Labial cuticle forming two triangular areas of pleurobranchid-like platelets. Their prolonged either simple or split tips (Figs. 10-12) lie like scales over bases of following platelets. Radula with 52 rows of 35.0.35 teeth; no rhachidian thickening. Teeth with two principal cusps. Innermost tooth with 2 denticles on inner and 3 on outer side; following teeth with 3-5 denticles, only on outer side and number decreasing outwards.

Holotype: slug and slide of radula and labial armature (USNM 575708).

Discussion: As recently exposed (Marcus, 1960b: 901), I follow Odhner (1957) in suppressing *Glossodoris* Ehrenberg, 1831, and using *Chromodoris* Alder and Hancock, 1855, for species with unicuspidate teeth, *Hypselodoris* Stimpson, 1855, for those with bicuspidate ones.

While the labial armature of this subfamily generally consists of rodlets, straight or ending with a bifid hook, a number of species of *Hypselodoris* have

scale-like platelets as labial elements. According to Basedow and Hedley (1905: 141) Bergh's first *Chromodoris crossei* (1884: 648) is identical with the type-species of *Hypselodoris*, *Goniodoris*? *obscura* Stimpson (1855: 388-389). Hence simple labial hooklets combined with bicuspidate teeth (Bergh, 1883: pl. 7, 8) occur in the type-species. *H. runcinata* (Bergh, 1877: 479) and *H. marenzelleri* (Bergh, 1882: 219) are further examples.

Some species of *Hypselodoris* with platelets are: *H. crossei* (Angas, 1864; Bergh, 1905: 146), *H. semperi* (Bergh, 1877: 482; 1905: 147), *H. hilaris* (Bergh, 1890: 935; Baba 1953: 210), *H. nigrostriata* (Eliot, 1904: 394; 1905: 247), *H. tenuilinearis* (Farran, 1905: 342; Eliot, 1905: 246, 248), and *H. ransoni* (Pruvot-Fol, 1954b: 18). Though some of these species are evidently identical with one another (Eliot, l. c.; Pruvot-Fol, 1951b), the labial armature should not be disregarded; a list of synonyms as that given by Risbec (1953: 66) for *H. diardii* cannot be accepted.

H. cuis comes closest to *H. ransoni* from French Oceania and especially to *H. hilaris* from Amboina and the Kii Peninsula. *H. ransoni* has less outer denticles on the middle teeth than *cuis*, and its marginal teeth have no cusps. Moreover the labial armature of *H. ransoni* consists of four separate areas. The specimen of *H. hilaris* from Amboina has narrower labial platelets than *cuis*; in the variety from Middle Japan they do not differ, nor does the radula, but the back has 5 longitudinal bright purple lines which can hardly be assumed to have faded out into light knots.

30. *Hallaxa decorata* (Bergh, 1878)

Caroline Islands: Kapingamarangi Atoll: Polim reef flat, near Tipongo-wasakam Pass in Greenwich (ship) Pass. Sta. No. 722. C. Hand coll., August 12, 1954. One specimen and slide with radula and jaws (USNM 575694).

Subfamily Miamirinae

31. *Casella atromarginata* (Cuvier, 1804)

Marshall Islands: Bikini Atoll: in 28 fms., 4 miles south of west end of Bikini Id. Sta. No. R4356. J. P. E. Morrison coll., April 25, 1946. One specimen and slide with radula and jaws (USNM 574227).

32. *Casella rufomarginata* Bergh, 1890

Palau Islands: in shallow water on reef flat on outer barrier reef about 2 miles SSW of Ngaremediu District, east of Urukthapel Island. Sta. No. 111. F. M. Bayer et al. coll., August 19, 1955. One specimen and slide with radula and jaws (USNM 575673).

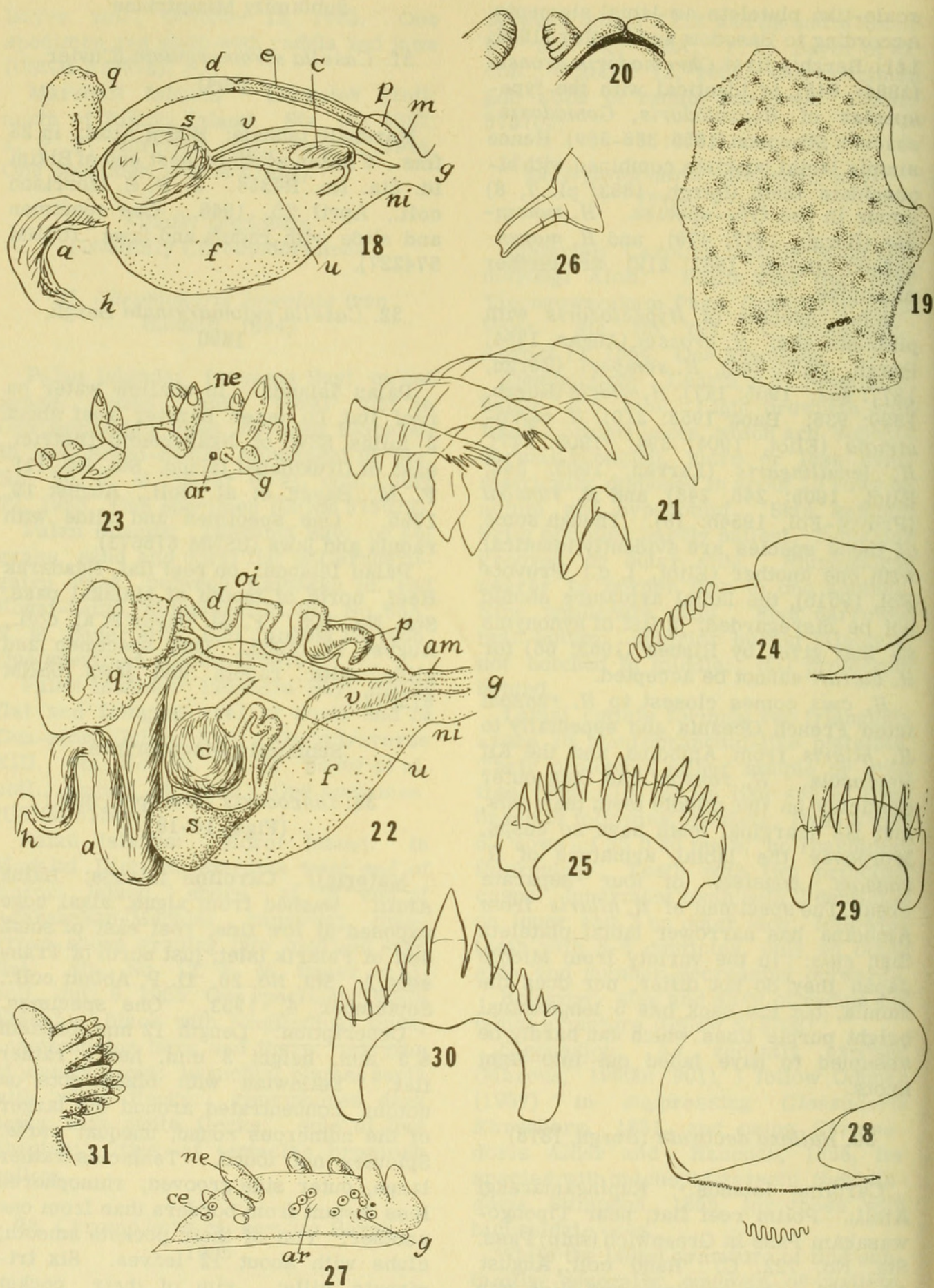
Palau Islands: on reef flat, Ngadarak Reef, north of mouth of Malakal pass. Sta. No. 106. F. M. Bayer et al. coll., August 17, 1955. One specimen and slide with radula and jaws (USNM 575672).

Subfamily Discodorinae

33. *Discodoris lora* spec. nov. (Figs. 14-18)

Material: Caroline Islands: Ifaluk Atoll: washed from algae, algal edge exposed at low tide, reef east of south end of Falarik islet, just north of Transect A. Sta. No. 26. D. P. Abbott coll., September 4, 1953. One specimen.

Description: Length 12 mm, breadth 6.5 mm, height 3 mm, hence rather flat. Yellowish with black dots on notum, concentrated around the larger of the numerous round, unequal warts. Spicules not found. Tentacles rather large, outer side grooved; rhinophores less distant from borders than from one another; rim of their pockets smooth; clubs with about 12 leaves. Six tri-pinnate gills; rim of their pocket smooth; anal region bulged out in the



preserved specimen, possibly thereby anus removed from centre. Hyponotum smooth, its transverse striation due to muscle fibres showing through epidermis. Foot nearly 4 mm broad, anterior border with transverse groove and median notch of upper lip; hind end round, not projecting beyond notum.

Labial cuticle yellow with up to 80 μ high, 12-15 μ thick rodlets, consisting of superposed discs. Pharynx big, 4 mm long. Radula narrow, long, projecting beyond hind end of pharyngeal bulb; 50 rows of 12.0.12 teeth. These hamate, smooth; innermost tooth 60 μ high, teeth in the middle 120 μ , outermost tooth shortest, 50 μ . The latter with long base and short cusp.

Hermaphrodite duct (h) dilated into sausage-shaped ampulla (a) whose outlet coincides with separation of male and female ducts. Efferent duct begins with voluminous prostate (q), continues (d) with simple musculature, followed by ciliate part surrounded by special muscle sheath (e), ending with pleurembolic penis (p), "glans" of Bergh's terminology, in male atrium (m) or "praeputium". Narrow vagina (v) between latter and nidamental duct (ni), leading to spermatheca (s). Uterine duct (u) begins immediately beside entrance of vagina. Spermatocyst (c) intercalary in uterine duct which enters female gland mass (f) far in front.

Holotype: Slug and slide with radula and labial rodlets (USNM 575709).

Discussion: The majority of the about 40 species of *Discodoris* is known from the Indo-West Pacific Ocean. Only the following 6 species with a similar narrow radula must be compared with *D. lora*. *D. indecora* Bergh, 1881,

from the Mediterranean Sea and the Cape Verde Islands is olivaceous with light dots, and its rhinophores have 15-20 perfoliations. *D. dubia* Bergh, 1904, *dubia* var., and *D. egena* Bergh, 1904, all from the NW coast of Tasmania, differ from *D. lora* by shape of the outermost radular tooth and number of rhinophorial leaves. *D. egena* is generically uncertain, as a prostate could not be found. The geographically closest *Discodoris* with narrow radula, *D. liturata* Bergh, 1905, N of Sumbawa, has black notum with few white blots, transversely striped notal margin set off from centre, and distally curved labial rodlets. *D. pallida* Baba, 1937, from the W coast of Kyushu, has 9 gills and 15 radular rows. The geographically far distant *D. erythraeensis* Vayssi re, 1912, from the Red Sea, is morphologically nearest to *D. lora*, but differs by its upright outermost radular tooth, whose base is quite short, and by black spots also on the sole.

34. *Discodoris ylva* spec. nov. (Figs. 19-22)

Material: Gilbert Islands: Onota Atoll: tide pool on *Heliopora* flat, 60 cm deep. A. H. Banner coll., August 1, 1951. One specimen.

Description: Length 11 mm, breadth 8 mm, rather flat. Yellowish, sprinkled with fine black dots on notum, concentrated in many bigger spots. Back with caryophyllidia which contain pigment specks, are bigger in middle, smaller towards borders. Spicules numerous, thin, some of them stand out from tip of caryophyllidia. Border of notum incomplete, probably due to autotomy. Hy-

FIG. 18. *Discodoris lora*, sp. n. Diagram of reproductive organs, from dissection.

FIGS. 19-22. *Discodoris ylva*, sp. n. FIG. 19. Dorsal view. FIG. 20. Tentacle from below and from above. FIG. 21. Innermost and 5 outermost teeth of radula. FIG. 22. Diagram of reproductive organs, from dissection.

FIGS. 23-26. *Catriona lonca*, sp. n. FIG. 23. Right side view. FIG. 24. Jaw and denticles of masticatory process. FIG. 25. Radular tooth. FIG. 26. Penial stylet.

FIGS. 27-30. *Catriona urquiza*, sp. n. FIG. 27. Right side view. FIG. 28. Jaw and denticles of masticatory process. FIG. 29. Smallest radular tooth. FIG. 30. Middle-sized radular tooth.

FIG. 31. *Noumeaella rehderi*, sp. n. Left rhinophore.

ponotum spiculate, transparent, showing spicules forming spikes around bases of caryophyllidia.

Tentacles hidden in concavity in front of fore end of foot, triangular with outer side thrown into 5 or 6 transverse folds. Rhinophores about as far from one another as from edges of notum, clubs with 14 leaves. Rim of rhinophorial pocket bordered with caryophyllidia. So is border of gill-cavity which is empty; gills probably bitten off. Anterior border of foot transversely grooved, upper lip notched; hind end of foot damaged.

Labial cuticle with two areas of yellowish, stratified 50 μ high rodlets. Radula with 21 rows and 30 teeth on either side of rhachis. Length of teeth, in micra: innermost 34, in middle 120, 26th to 30th 90, 80, 70, 60, 50. Most teeth simple hooks, of the outermost ones most frequently 2, exceptionally 1 or 3, with 1-5, generally 1 or 2, accessory cusps. Base of outermost tooth short.

Hermaphrodite duct (h) widens to form slender ampulla (a) whose outlet divides into male and female (oi) ducts. Male duct merges into massive white prostate (q). Following tubular duct first brown and glandular, then white, muscular (d). Soft pleurembolic penis (p) hangs into male atrium. Vagina (v) begins broad, narrows internally. Spermatheca (s) contains brownish masses. Uterine duct goes out from vagina, leads to spermatocyst (c) filled with silky white orientated sperm and is connected with female gland mass (f) by short insemination duct (u).

Holotype: Slug and two slides, one with radula and labial rodlets, and one with genital ducts (USNM 575377).

Discussion: The peculiar oral tentacles resemble those of *Tyrinna* Bergh, 1898, a widely distant genus related with *Cadlina* (Marcus, 1959: 29). Digitiform tentacles are common in *Discodoris* (Eliot, 1903: 553). If these are long and conspicuous as in *D. palma* Allan (1933: 448) from Pussy-cat Bay near Sydney, they might contract in such a way that outer folds are brought about. However, in the descriptions of preserved specimens of numerous species of *Discodoris*

transversely folded tentacles were never mentioned.

In the type-species of the genus, *D. boholiensis* Berg (1877: 519) and the 7 other species published together with it the cusps of all teeth are simple hooks. Species whose outer teeth have split cusps are *D. erubescens* Bergh (1884: 662), *D. lutescens* Bergh (1905: 103; misprint in title line), and *D. pallida* Baba (1937: 305). Together with *D. ylva* they could possibly constitute an own taxon and reduce the genus *Discodoris* which is difficult to follow in the present state. But the occurrence of split cusps is not sufficiently constant (Baba, 1937: 306) for a clear cut differentiating character. On the other hand this character cannot be neglected, and the otherwise similar *D. labifera* (Abraham, 1877; Farran, 1905: 335) must be held apart from *D. ylva* by reason of the simple hooks of its radular teeth.

D. erubescens has pointed villi on the notum, *D. lutescens* tuberculiform tentacles, and *D. pallida* 14-17 teeth in the half-row of the radula.

35. *Kentrodoris funebris* (Kelaart, 1859)

Palau Islands: Iwayama Bay: sandy flat and fringing reef at south end of Gua-zima (Island XV), Abe's Traverse XIII. Sta. No. 92. F. M. Bayer et al. coll., August 14, 1955. Two specimens and one radula slide (USNM 575665).

Caroline Islands: Kapingamarangi Atoll: Lagoon reef, Hare Island Sta. No. 606, C. Hand coll., August 6, 1954. One specimen (USNM 575686).

Caroline Islands: Kapingamarangi Atoll: Thokataman Is., poisoned along with fish by rotenone. C. Hand coll., July 12, 1953. One specimen (USNM 575687).

K. annuligera Bergh, 1876, is a synonym.

Subfamily Asteronotinae

36. *Halgerda elegans* Bergh, 1905

Marshall Islands: Rongelap Atoll: lagoon. Lt. Kaley coll., June 20, 1946.

One specimen and radula slide (USNM 574165). Color: deep purple with white ring-like markings.

Subfamily Platydoridinae

37. *Platydoris scabra* (Cuvier, 1804)

Caroline Islands: Kapingamarangi Atoll: lagoon reef under coral boulder, Tiatua Id. Sta. No. 157. C. Hand coll., July 13, 1954. One specimen and slide of radula and labial cuticle (USNM 575693).

Marshall Islands: Bikini Atoll: south half of Enyu Island. Sta. No. R 4028. J. P. E. Morrison coll., March 5, 1946. One specimen (USNM 574228).

38. *Platydoris cruenta* (Quoy and Gaimard, 1832)

Mariana Islands: Guam. J. L. Gressitt coll., October, 1945. One specimen and slide with radula and labial cuticle (USNM 574207).

Caroline Islands: Ifaluk Atoll: under rocks middle of reef flat, north end of Transect C. Falarik Id. Sta. No. 439. F. M. Bayer coll., October 1, 1953. Two specimens and slide with radula and labial cuticle (USNM 574965).

Caroline Islands: Ifaluk Atoll: from rocks and boulders of élang, south end of Falarik Id. Sta. No. 799. F. M. Bayer coll., October 31, 1953. One specimen (USNM 574983).

Gilbert Islands: Onotoa Atoll: in tide pool, 1 foot deep, on *Heliopora* flat. A. H. Banner coll., August 1, 1951. One specimen (USNM 575373).

39. *Platydoris* cf. *flammulata* Bergh, 1905

Caroline Islands: Ifaluk Atoll: from beneath boulders, outer élang of Elangelap Id. Sta. No. 351. F. M. Bayer coll., September 20, 1953. One specimen (USNM 574961).

Infraorder Phanerobranchia

Superfamily Nonsuctoria
Family Gymnodorididae

40. *Nembrotha nigerrima* Bergh, 1877

Palau Islands: reef flat of Ngadarak Reef, north of mouth of Malakal pass. Sta. No. 106. F. M. Bayer et al. coll., August 17, 1955. One specimen and slide with radula and labial cuticle (USNM 575671).

Palau Islands: lagoon margin of reef, north of east point (Ngaremediu) of Urukthapel Id. Sta. No. 69. F. M. Bayer et al. coll., August 8, 1955. Two specimens (USNM 575668).

Infraorder Porostomata
Family Dendrodorididae

41. *Dendrodoris nigra* (Stimpson, 1855)

Gilbert Islands: Onotoa Atoll: Sta. AI-III. D. W. Strasburg coll., July 16, 1951. One specimen (USNM 575369).

Gilbert Islands: Onotoa Atoll: reef flat, ocean side. J. E. Randall coll., September 9, 1951. One specimen (USNM 575370).

Gilbert Islands: Onotoa Atoll: Sta. No. A-5. A. H. Banner coll., July 25, 1951. One specimen (USNM 575376).

Family Phyllidiidae

42. *Phyllidia* (*Phyllidia*) *varicosa*
Lamarck, 1801

Mariana Islands: Saipan: lagoon west side of Saipan. Sta. No. c-7-a. P. E. Cloud, Jr. coll., April 10, 1949. One specimen (USNM 574620).

Mariana Islands: Guam: Oca Point. Sta. No. 102 (x55) (Namru 2). D. H. Johnson coll., May, 1945. One specimen (USNM 574210).

Mariana Islands: Guam: small pools at zero tide, near Oca Point, D. G. Frey coll., November 20, 1954. One specimen (USNM 574353).

Palau Islands: inner margin of reef, SW of Ngarduis, SE coast of Babel-

thuap. Sta. No. 262. F. M. Bayer coll., November 4, 1955. Two specimens (USNM 575714).

Caroline Islands: Ifaluk Atoll: *Helio-pora* zone south of Elangelap Id. Sta. No. 713. F. M. Bayer coll., October 23, 1953. One specimen (USNM 574977).

Caroline Islands: Ifaluk Atoll: in 20 feet in main pass. Sta. No. 742. Yaniseiman coll., October 25, 1953. One specimen (USNM 574982).

Caroline Islands: Ifaluk Atoll: Elangelap Island. Sta. No. 626. R. R. Rofen coll., 1953. One specimen (USNM 574976).

Marshall Islands: Bikini Atoll: tidal pools at tip of sand spit, western end of atoll. Sta. No. S-42-564. L. P. Schultz and V. E. Brock coll., August 18, 1947. One specimen (USNM 574443).

Gilbert Islands: Onotoa Atoll: In outer lagoon, slightly less than 4 miles north of and 85° west of Aiaki, Maneba. Sta. No. GOC 28. P. E. Cloud, Jr. coll., July 30, 1951. One specimen (USNM 574933).

Gilbert Islands: Onotoa Atoll: SE end of reef area known as Rakai Ati, south side of big windward point of reef, near center of atoll. Sta. No. GOC 36. P. E. Cloud, Jr. coll., August 20, 1951. One specimen (USNM 575372).

43. *Phyllidia (Phyllidiella) pustulosa*
Cuvier, 1804

Palau Islands: north side of Urukthapel Island: in 0-7 ft. in shallow pass between Butottoribo Id. and next island to south, Sta. No. 27. F. M. Bayer et al. coll., July 20, 1955. One specimen (USNM 575651).

Palau Islands: Iwayama Bay: in 2-3 feet on reef flat, south shore of Island II, between shore and deep reef pool. Sta. No. 133. F. M. Bayer et al. coll., August 28, 1955. One specimen (USNM 575653).

Caroline Islands: Kapingamarangi Atoll: lagoon reef at Ringutoro Island. Sta. No. 689. C. Hand coll., August

11, 1954. Two specimens (USNM 575656).

Caroline Islands: Kapingamarangi Atoll: Polim reef flat near Tipongowakaram Pass, Greenwich (Ship) Pass. Sta. No. 724. C. Hand coll., August 12, 1954. One specimen (USNM 575654).

Caroline Islands: Kapingamarangi Atoll: lagoon reef, Tapatuaitu Island. Sta. No. 862. C. Hand coll., August 21, 1954. One specimen (USNM 575655).

Caroline Islands: Kapingamarangi Atoll: under boulder, lagoon side of emergent area, Tapatuaitu Island. Sta. No. 297. C. Hand coll., July 21, 1954. One specimen (USNM 575657): dark green in color with white pimples.

Caroline Islands: Kapingamarangi Atoll: lagoon reef, Tapatuaitu Id. Sta. No. 862. C. Hand coll., August 21, 1954. One specimen in the collections of the U. S. National Museum.

44. *Phyllidia (Phyllidiella) nobilis*
(Bergh, 1869)

Caroline Islands: Ifaluk Atoll: under rocks, reef flat half way between Elangelap and NW end of Falarik Island. Sta. No. 378. F. M. Bayer coll., September 21, 1953. One specimen (USNM 574962).

Caroline Islands: Ifaluk Atoll: from clump of *Stylophora*, in 2 1/2 feet of water at low tide, reef flat south of Elangelap Island. Sta. No. 382. F. M. Bayer coll., September 23, 1953. One specimen (USNM 574963).

Caroline Islands: Ifaluk Atoll: beneath rocks, *Helio-pora* zone, between Elangelap and Ella Islands. Sta. No. 386. F. M. Bayer coll., September 23, 1953. Two specimens (USNM 574964).

Caroline Islands: Ifaluk Atoll: in *Helio-pora* zone, south of Elangelap Id. Sta. No. 713. F. M. Bayer coll., October 23, 1953. Two specimens (USNM 574978).

Caroline Islands: Ifaluk Atoll: in 1

fathom on reef flat, 800 feet from shore, west of northern end of Falarik Id. Sta. No. 802 (R. R. Rofen Sta. 146). Bakal, Tachim, Yarof, Yari coll., October 29, 1953. Two specimens (USNM 574984).

Marshall Islands: Rongelap Atoll: intertidal at Naen Id. M. W. Johnson coll., July 17, 1946. One specimen (USNM 574230).

45. *Fryeria rüppelli* Bergh, 1869

Caroline Islands: Ifaluk Atoll: beneath rocks, in *Heliopora* zone, reef between Elangelap and Ella Islands. Sta. No. 386. F. M. Bayer coll., September 23, 1953. One specimen (USNM 574964).

Caroline Islands: Kapingamarangi Atoll: north pass, Saratokmalei Reef, near Teawaitua Ship Pass. Sta. No. 784. C. Hand coll., August 14, 1954. One specimen (USNM 575692).

Suborder Dendronotoidea
Family Bornellidae

46. *Bornella digitata* (Adams and Reeve, 1848)

Caroline Islands: Kapingamarangi Atoll: "microatoll", Touhou Id. Sta. No. 88. C. Hand coll., July 2, 1954. One specimen (USNM 575691).

Caroline Islands: Kapingamarangi Atoll: Sta. No. 173. C. Hand coll., One specimen (USNM 575695).

Family Dotoidae

47. *Doto* cf. *albida* Baba, 1955

Palau Islands: Urukthapel Island: in 2-4 feet, outer reef at eastern end. Sta. No. 28. F. M. Bayer et al. coll., July 21, 1955. One specimen and 1 radula slide (USNM 575673).

Suborder Eolidoidea
Infraorder Acleioprocta
Family Cuthonidae

48. *Catriona lonca* spec. nov. (Figs. 23-26)

Material: Palau Islands: Ngemelis Islands: 1 1/2 to 6 ft. on seaward reef flat at south end of Ngemelis Id. Sta. No. 61. F. M. Bayer et al. coll., August 6, 1955. One specimen.

Description: Colorless: 1.5 mm long. Rhinophores and tentacles smooth, former twice as long as latter. Right rhinophore small, in regeneration; left tentacle wanting. Foot rounded in front, corners not elongated; tail pointed. Cerata fusiform, cnidosacs (ne) distinct. One anterior branch of digestive gland with 2 cerata; interhepatic space containing common genital aperture (g) and anus (ar); posterior liver with 4 groups of cerata, the two first with 2 cerata each, the two hinder each with one ceras.

Masticatory process of mandible with single series of numerous high denticles. Radula consists of about 40 rows. Tooth low, median cusp receded from cutting edge due to its insertion lying farther back than bases of lateral denticles. Number of these 5-8; size varied. Alternate position of bigger and smaller denticles in succeeding teeth produces slanting rows along radula as in *Doto* (Marcus, 1959, f. 158; 1960a: 168), *Miesea evelinae* (Marcus, 1957: 466), and *Catriona maua* (id., 1960a: 179). Penis bulbar, with cuticular, 40 μ long stylet.

Holotype: slug and slide with radula, jaw, and penial stylet (USNM 575707).

49. *Catriona urquiza*, spec. nov. (Figs. 27-30)

Material: Caroline Islands: Ifaluk Atoll: washed from algae or sponge, from 1-3 feet, patch reef on lagoon shelf, about 75 feet from shore, Katelu area, SW Falarik Id. Sta. No. 144-E-7. D. P. Abbott coll., October 21, 1953. One specimen.

Description: Colorless: length 2 mm. Tentacles and rhinophores smooth and of equal size. Foot rounded in front,

without lengthened corners; tail pointed. Cerata short, blunt, cnidosacs (ne) one third of their length. Anterior liver one horseshoe with 5 cerata, posterior digestive gland with 3 rows of 3, 3 and 2 cerata. Anal papilla (ar) in interhepatic space, near first group of posterior liver. Genital aperture (g) between limbs of anterior horseshoe.

Masticatory process of jaw with about 60 saw-like denticles. Radula of 21 teeth. Smallest, oldest tooth $22\ \mu$ high and broad, newest one $50\ \mu$ high and broad. First with receded median cusp and 3 lateral denticles on each side. In later developed teeth recession of middle cusp less pronounced; 4-5 lateral denticles, lower and thicker than older ones. Minute cuticular stylet of penis and absence of accessory penial gland observed in sections.

Holotype: hind end of slug and two slides: one with radula and jaw, one with transverse sections of anterior part (USNM 575710).

Discussion of *Catriona lonca* and *C. urquisa*: My reason for the use of the generic names *Catriona* and *Cratena* was recently published (Marcus, 1960c: 258).

Only few species of *Catriona* have less than 3 rows of cerata on the right digestive gland. *C. bylgia* (Bergh, 1870: 4) differs by broadened jaws from the present species; *C. cucullata* (Bergh, 1905: 230) by black color marks, still present in preserved slugs. *C. susa* Marcus (1960b: 916) whose tooth is similar in shape to that of *urquisa* has 36 teeth with the same body length and 32 denticles on the masticatory process.

Further Indo-West Pacific cuthonids which must be compared are *Ennoia briareus* Bergh (1896: 393) and *Myja longicornis* Bergh (1896: 391). The first has 2 anterior liver

groups, smooth masticatory border, and unarmed penis; the second, one right liver group as *lonca*, but no stylet.

Two West Atlantic species of *Catriona* with 1-2 ducts of the anterior digestive gland (Marcus, 1957: 459; 1958: 45) differ from *lonca* and *urquisa* by mandibles and radulae.

The Indo-West Pacific eolidaceans whose position of the anus and ramification of the anterior liver have not been described were compared with *Catriona lonca* and *C. urquisa* according to the pharyngeal armature.

Infraorder Cleioprocta
Family Favorinidae
Subfamily Favorininae

50. *Pteraeolidia semperi* (Bergh, 1870)

Palau Islands: Iwayama Bay: crawling on rocks among hydroids, coral shelf, west shore of SE peninsula of Koror Id., mouth of Kakisuidô (Oyster Pass) between Islands XXIX and east end of Koror. Sta. No. 236 A. F. M. Bayer, R. R. Rofen, Rikrik coll., October 18, 1955. Three specimens and 1 slide with radula and jaws (USNM 575658). These animals were of a pale violet color.

Palau Islands: in 2 1/2-3 1/2 ft., at night on reef flats south of Ngaremediu (Raeldil) Sta. No. 254. F. M. Bayer et al. coll., October 27, 1955. One specimen (USNM 575659).

Caroline Islands: Kapingamarangi Atoll: lagoon edge of lagoon reef, Tiatua Island. Sta. No. 173. C. Hand coll., July 13, 1954. Two specimens (USNM 575660).

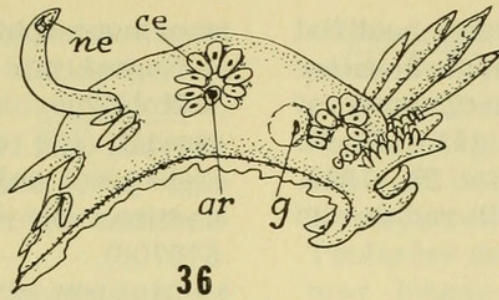
51. *Phyllodesmium hyalinum* Ehrenberg,
1831

FIGS. 32-36. *Noumeaella rehderi*, sp. n. FIG. 32. Rhinophores from behind. FIG. 33. Jaw and denticles of masticatory process. FIG. 34. Radular tooth. FIG. 35. Diagram of reproductive organs, reconstructed from serial sections. FIG. 36. Right side view.

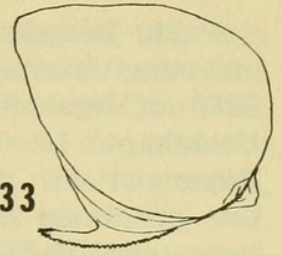
FIGS. 37-41. *Muessa evelinae*, g.n., sp.n. FIG. 37. Right side view. FIG. 38. Jaw and masticatory denticles. FIG. 39. Radular tooth. FIG. 40. Penial stylet. FIG. 41. Diagram of reproductive organs, reconstructed from serial sections.



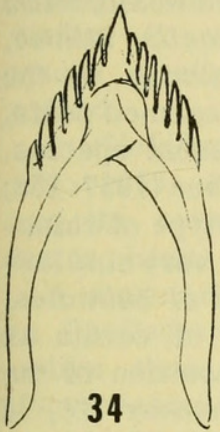
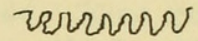
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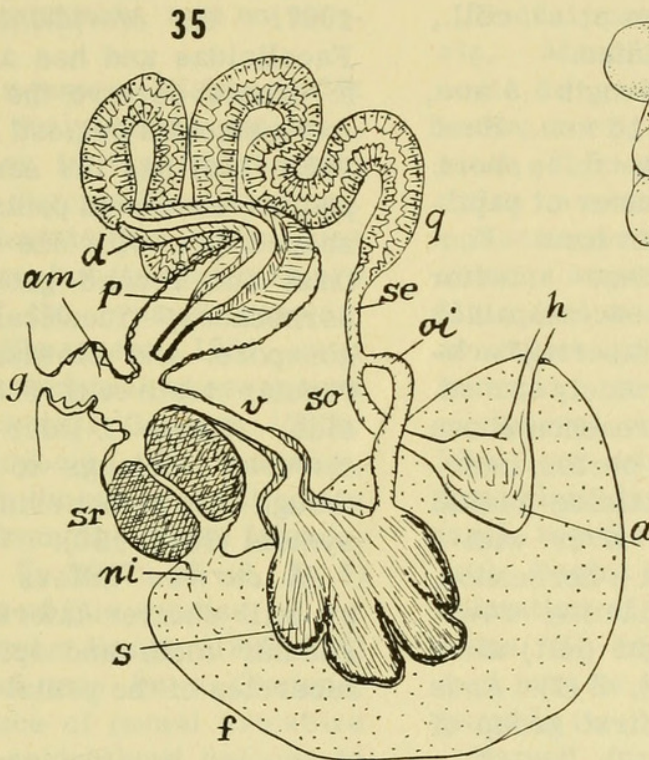
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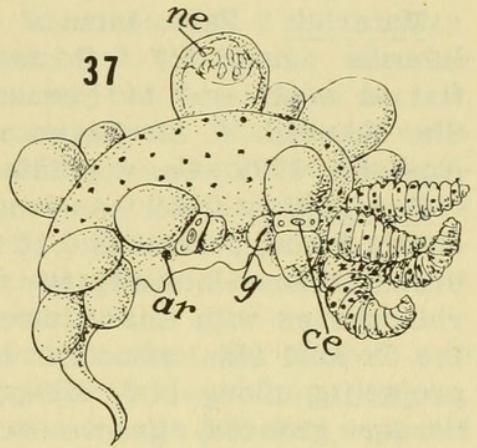
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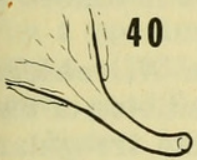
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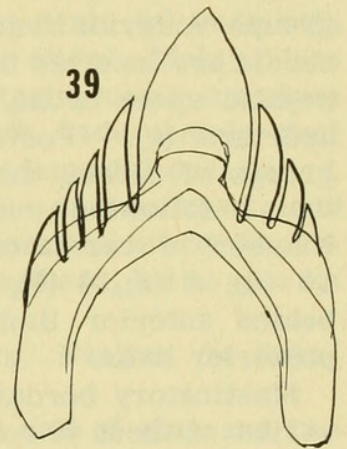
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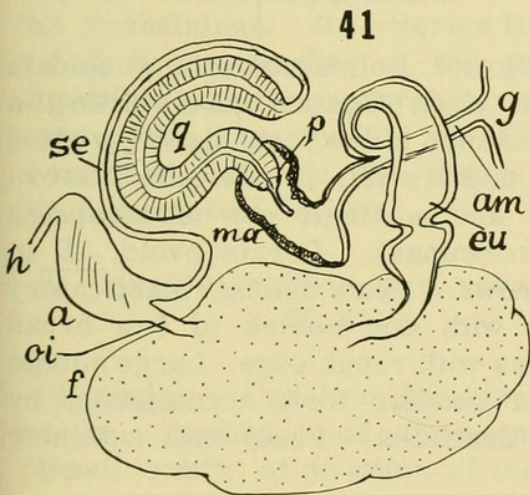
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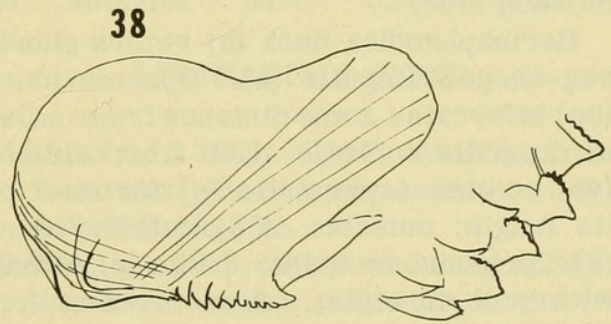
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Palau Islands: in 0-1 feet, reef flat on outer barrier reef about 2 miles SSW of Ngaremediu District, east of Urukthapel Id. Sta. No. 111. F. M. Bayer et al. coll., August 19, 1955. One specimen and slide with radula and jaws. (USNM 575650).

52. *Noumeaella rehderi* spec. nov. (Figs. 31-36)

Material: Palau Islands: Ngemelis Islands: in 1 1/2-6 ft., seaward reef flat at south end of Ngemelis Island. Sta. No. 61. F. M. Bayer et al. coll., August 6, 1955. One specimen.

Description: Colorless; length 3.5 mm, cerata 1 mm, cnidosacs 0.15 mm. Head broad, widened laterally; tentacles short; rhinophores with thick cluster of papillae on hind side, smooth in front. Foot projecting along body sides, anterior border grooved, groove accompanies projecting corners. Body tapering backwards. Cerata slender, in widely spaced groups. Anterior liver a horseshoe whose cerata are inserted in one series, interhepatic space broad, containing genital aperture (g). Posterior liver with 4 groups of cerata, the first a horseshoe, the 3 following ones slanting rows. Number of cerata on right (left) side: 10 (6), 9 (6), 4 (4), 2 (2), 2 (1). Anus behind anterior limb of first group of posterior liver.

Masticatory border of jaw with single series of about 40 rough denticles. Radula with 18 rows, central cusp pointed, 6-7 rather short, sharp lateral denticles on each side.

Hermaphrodite duct (h) enters short, bag-shaped ampulla (a). Spermoviduct (so) bifurcates some distance from outlet of ampulla. Male duct first simple (se) continues prostatic (q) for most of its length; muscles of ejaculatory duct (d) thickened to bulbar penis (p) ending with smooth stylet. Inner oviduct (oi) enters voluminous lobed spermatheca (s) where sperms lie with heads attached to wall. Vagina (v) narrow. Outlet of gland mass (f) or nidamental duct (ni) passes into common atrium (am) with

enormous sphincter (sr).

Named for Dr. Harald A. Rehder.

Holotype: fore and hind end of slug in vial, and two slides: one with radula and jaw, one with transverse serial sections of region of gonopore (USNM 575706).

Discussion: Similar rhinophores as in the present species occur in *Berghia* Trinchese, 1877, and *Baeolidia* Bergh, 1888, both with pectinate radular teeth. Among the Eolidacea with cuspidate teeth these rhinophores are known in *Moridilla* Bergh, 1888, and *Noumeaella* Risbec, 1937. As *Moridilla* belongs to the Facelinidae and has an unarmed penis, it cannot receive the present species.

Noumeaella curiosa Risbec (1937: 163; 1953: 159) has the same type of rhinophores, an armed penis, a very similar-shaped jaw with one row of denticles, first and second groups of cerata as horseshoes, identical position of the gonopore, and similar number (16) of radular teeth with 8 denticles on each side. Hence I infer that *Noumeaella curiosa* belongs to the Cleioprocta, though this is not evidenced in Risbec's system (1953: 120).

N. curiosa differs from *N. rehderi* by still shorter lateral denticles of the radular tooth and spine-like irregular tubercles of the penial stylet.

Muessa, gen. nov.

Cleioproct Eolidacea with cuspidate radular tooth (against Aeolidiidae), a single branch of the right digestive gland (liver) and its left counterpart (Favorinidae) and a single row of cerata on it (Favorininae). Cerata ovoid, all in short rows. Jaws oblong, masticatory border with one series of few broad denticles with rough edge. Large middle cusp of radular tooth accompanied by strong denticles. Penis with cuticular stylet.

Type-species: *Muessa evelinae*, spec. nov.

The annulate tentacles and rhinophores of the type-species are not included in the diagnosis of the genus, because the

shape, at least of the rhinophores, cannot be utilized for generic distinctions in Facelinidae and Favorinidae (Marcus, 1957: 474; 1958: 60; 1960b: 924). Nevertheless, annulate tentacles are exceptional even in preserved specimens of these families.

I considered allocating the new species to *Herviella* Baba (1949: 107, 180), a favorinine genus with seriate cerata. However, the jaw and the *Globiferina*-like cerata of the present species differ widely from the type-species of *Herviella*, *H. yatsui* Baba, 1949 (l. c.) whose penial armature was not described.

In *Globiferina noumeae* Risbec (1937: 163; 1953: 157) the penis is unarmed, and the anus lies in the interhepatic space, hence the species is acleioproct.

A singularly dentate jaw occurs also in *Phyllodesmium*, but its denticles are unlike those of the present species. *Phyllodesmium* Ehrenberg, 1831, must be added to the Favorininae whose genera were mentioned recently (Marcus, 1960b: 922). Its type-species, *P. hyalinum*, is represented in the present collection by a specimen from the Palau Islands. Baba (1933: f. 7; 1937: pl. 2, f. 5) gave good figures of this species.

Ennoia longicirrho Bergh (1905: 234) is cleioproct and may be a *Cratena*, though the absence of penial armature was not stated; evidently it belongs to the Favorininae. Its anterior liver and the 2 first branches of the posterior digestive gland are horseshoes. The acleioproct type-species of *Ennoia* is mentioned here in the discussion of the 2 species of *Catriona*.

53. *Muessa evelinae* spec. nov. (Figs. 37-41)

Material: Caroline Islands: Ifaluk Atoll: washed from algae, intertidal "fossil reef", at junction of outer and inner reef flats, east of south end of Falarik Id., Sta. No. 83-D-4. D. P. Abbott coll., September 29, 1953. One specimen.

Description: Yellowish, as if it was preserved in picric liquid; minute black rings, principally subepidermal, on head, cephalic appendages, back, and some on sides of body. Length, when extended, 3 mm, breadth 0.8 mm, cerata 0.6 mm. Tentacles and rhinophores annulate, former longer than latter. Foot rounded in front; tail long, pointed. Cerata egg-shaped, cnidosacs (ne) broad. Anterior liver one group of 3 cerata, posterior liver with 3 groups of 3, 2 and 1 ceras. Genital aperture (g) behind anterior group, anus (ar) below cerata of second.

Buccal cavity with sculptured cuticle. Mandible as described in diagnosis of genus. Radula with 14 dark brown teeth; middle cusp broad, prominent, 2-5, generally 3-4, strong denticles on each side.

Hermaphrodite duct (h) dilated into oblong ampulla (a) containing sperm. Male (se) and female (oi) duct separate at outlet of ampulla. Efferent duct muscular in central, prostatic (q) in peripheral course; penis (p) ends with 70 μ long cuticular stylet. Male atrium (ma) glandular, entering common atrium (am) together with wide female duct (eu). Vagina and nidamental duct united. Dilatation of female duct between gland mass (f) and constriction of female duct may be spermatheca, but no sperms found in it.

Named for Mrs. Eveline du Bois-Reymond Marcus.

Holotype: hind end of slug and two slides: one with radula and jaws, one with transverse serial sections of anterior part, (USNM 575711).

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ZUSAMMENFASSUNG

ÜBER EINIGE MICKONESISISCHE OPISTHOBRANCHIER

Eine Sammlung des U. S. National Museums von 130 Opisthobranchiern aus Mikronesien enthielt 53 Arten. Nur 10 Arten sind neu und 5 von diesen unter 5 mm lang. Diese niedrigen Zahlen zeigen die Einheitlichkeit der indo-westpazifischen Riff-Fauna, deren grössere Hinterkiemenschnecken grossenteils schon bekannt sind. Die hier beschriebenen neuen Arten sind: *Stiliger (Ercolania) illus*, *Elysia bayeri*, *Elysia ratna*, *Hypselodoris cuis*, *Discodoris lora*, *Discodoris ylva*, *Catriona lonca*, *Catriona urquiza*, *Noumeaella rehderi*, und *Muessia evelinae*, der Gattungstyp einer neuen Gattung der Favorinidae, verwandt mit *Herviella*.

RESUMEN

SOBRE ALGUNOS OPISTOBRANQUIOS DE MICRONESIA

De una coleccion de 130 especímenes de opistobranquios de Micronesia perteneciente al Museo Nacional de Estados Unidos, y compuesta de 53 especies, sólo 10 eran nuevas y la mitad de estas de longitudes menores a 5 mm. Esta pequeña cantidad señala la uniformidad de los opistobranquios en los arrecifes del Océano

Indo-Pacífico occidental, cuyas especies de mayor tamaño son en su mayoría conocidas. Se describen las siguientes especies: *Stiliger (Ercolania) illus*, *Elysia bayeri*, *Elysia ratna*, *Hypselodoris cuis*, *Discodoris lora*, *Discodoris ylva*, *Catriona urquisa*, *Noumeaella rehderi*, y *Muessia evelinae* especie tipo de un género nuevo de Favorinidae, afín to *Herviella*.

RESUMO

SÔBRE ALGUNS OPISTHOBÂNQUIOS DA MICRONÉSIA

Entre 130 lotes de opistobrânquios da Micronésia, pertencentes ao U. S. National Museum, houve 53 espécies das quais apenas 10 são novas. O comprimento da metade das últimas é aquém de 5 mm. Estes números baixos mostram a uniformidade da fauna dos opistobrânquios dos recifes no Indo-pacífico ocidental, cujas espécies maiores já se conhecem, em grande parte. As novas espécies aqui descritas são: *Stiliger (Ercolania) illus*, *Elysia bayeri*, *Elysia ratna*, *Hypselodoris cuis*, *Discodoris lora*, *Discodoris ylva*, *Catriona lonca*, *Catriona urquisa*, *Noumeaella rehderi*, e *Muessia evelinae*, o tipo dum novo gênero das Favorinidae, parente de *Herviella*.



Marcus, Ernst. 1965. "Some Opisthobranchia from Micronesia." *Malacologia* 3, 263–286.

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