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TWO NEW OPISTHOBRANCH MOLLUSKS  
FROM BAJA CALIFORNIA

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Very little work has been done on nudibranchs in waters associated with Baja California, a fact mentioned by Marcus (1961:57). Recent work has shown that the waters of the Gulf of California and of the Pacific coast of Baja California support a high population of these animals. Among the most interesting finds are two very similar appearing members of the family Dorididae which are newly described below.

Collections have been made possible through a variety of circumstances. Dr. Kenneth Norris, whom I accompanied on a trip to the Sebastian Vizcaino Bay area in 1953, provided time to collect nudibranchs. I accompanied Dr. Richard C. Banks to Cerralvo Island in June, 1962, and collected marine organisms in that area; this was made possible with the aid of his grant from the National Science Foundation and the cooperation of the San Diego Natural History Museum. John Sloan provided specimens from Cedros Island (WMF 129) and Angel de la Guardia Island (WMF 250). Mrs. Fay Wolfson donated a specimen from Gonzaga Bay (WMF 112). Clinton Collier gave me a specimen from Gonzaga Bay (WMF 303).

I wish to thank Mrs. Rosemarie Fiebig for translation of several German references.

I follow Odhner (1957) in using the name *Chromodoris* Alder and Hancock 1855 for glossodorid species with hamate teeth.

***Chromodoris norrisi*, spec. nov.**

*Type*. — The type was collected by the author (WMF 49) at Cerralvo Island (24° 10' N, 109° 52' W), Baja California, Mexico, on May 26, 1962. It is deposited in the Invertebrate Type Series of the California Academy of Sciences, San Francisco, California, where it is registered as IZ No. 4. With two of the paratypes (IZ Nos. 5 and 6), it will be associated with the Frank Mace MacFarland Memorial Collection of Opisthobranchs.

*Description*. — The body is white with a faint tinge of cobalt violet on the notum between the rhinophores and gills (plate 1a). This band of violet, apparently due to the violet liver, is present only on some specimens. The notum is edged with cadmium orange dashes of varying lengths. The surface of the notum in larger animals is covered with as many as 200 deep cobalt violet dots, and a few light red ones, of varying size. Approximately 100 cadmium yellow and light yellow dots of greater and slightly varying diameter are intermingled with the violet dots. The number of dots is considerably less in smaller animals. The side of the body has a few violet dots; the underside of the notum is plain, except around the head in some specimens. The



PLATE 1a. *Chromodoris norrisi* from Cerralvo Island, Baja California, Mexico.



PLATE 1b. *Chromodoris banksi* from Puertecitos, Baja California, Mexico.

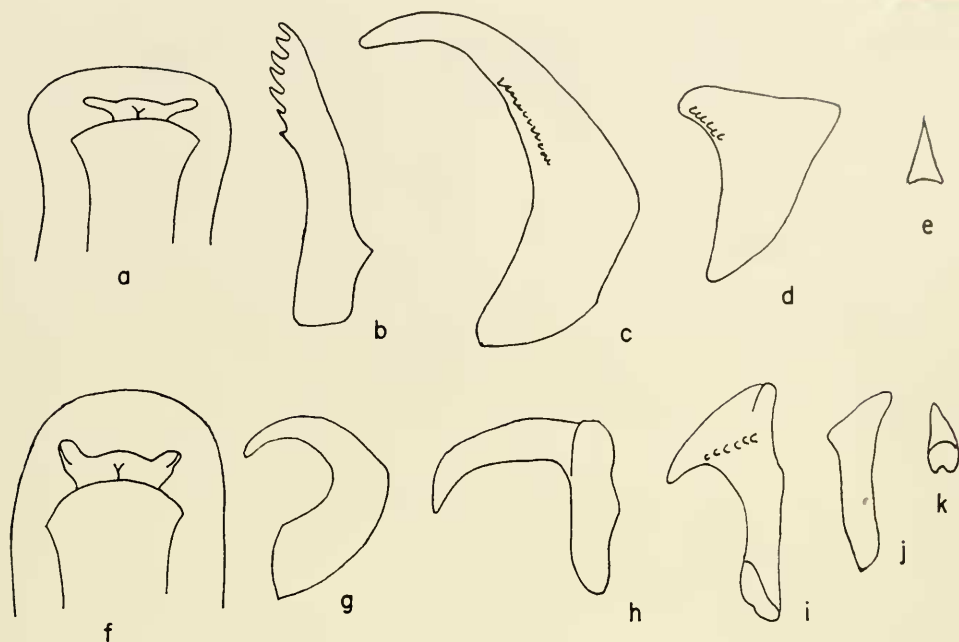


FIG. 1. a-e, *Chromodoris norrisi*: a, ventral view; b, far lateral tooth; c, 30th radular tooth; d, 2nd radular tooth; e, rachis. f-k, *Chromodoris banksi*: f, ventral view; g, 29th tooth; h, 25th tooth; i, 7th tooth; j, 1st tooth; k, rachis.

exposed posterior edge of the foot is cadmium orange. The rhinophore is largely white; the distal part is sometimes deep cadmium orange-red, except for a white tip. The lower portion of the clavi contain very small black specks. The branchae are white, with deep cadmium orange tips in some specimens. There are very small eye spots beneath two clear areas which are just posterior and medial to the rhinophores. There are numerous opaque white subepidermal glands visible under the inner edge of the notum.

The body shape is very similar to other chromodorids. Ten specimens collected at Cerralvo Island varied in size from 17.61 mm. long, 10.32 mm. broad, and 6.13 mm. high. The notum covers the entire animal except for the foot, which extends for a short distance beyond the posterior rim. The notum is generally smooth. The foot is slightly expanded and rounded anteriorly, and slightly bilabiate (fig. 1a). The lower lip is thick and the upper lip thinner. The tail is slightly pointed.

The pronounced rhinophores, with 20-25 deeply perfoliate clavi, are borne on short stalks and are completely retractile into low, smooth sheaths.

There are 11 simply pinnate retractile branchial filaments. Some animals have the filaments branched at the distal end up to five times. The branchae are joined at their bases in a circlet. The most anterior filament is the largest. The tubular anal papilla is slightly elevated and fleshy, and all but the posterior part is surrounded by the branchial base.

The penis is unarmed.

The radulae (fig. 1b-e) from 6 individuals had dental formulae ranging from 41 to 65.1-64 to 48, with 63 to 111 rows. The type has the formula 68 x 45.1-48. There is a lip plate present composed of small hooks.

*Range.* — Animals have been taken at Cedros Island ( $28^{\circ} 7' N$ ,  $115^{\circ} 11' W$ ) and Puerto Rompiente ( $27^{\circ} 43' N$ ,  $115^{\circ} 00' W$ ) on the Pacific coast of Baja California and Cerralvo Island ( $24^{\circ} 10' N$ ,  $109^{\circ} 52' W$ ), Bahía de los Angeles ( $29^{\circ} 05' N$ ,  $113^{\circ} 36' W$ ) and San Luis Gonzaga Bay ( $29^{\circ} 49' N$ ,  $114^{\circ} 24' W$ ) in the Gulf of California. Animals have been collected in May, June, December and January.

*Comments.* — Most animals were taken intertidally in rocky areas; some at Cerralvo Island were seen moving about on the rocks during the day but most were taken from under rocks. Some were taken in 10 feet of water.

### **Chromodoris banksi**, spec. nov.

*Type.* — The type was taken by the author (WMF 101) 2.3 miles south of Puertecitos ( $30^{\circ} 24' N$ ,  $114^{\circ} 40' W$ ), Baja California, Mexico, on December 14, 1962. The type is deposited in the Invertebrate Type Series of the California Academy of Sciences, where it is registered as IZ No. 1. With two paratypes (IZ Nos. 2 and 3), it will be associated with the Frank Mace MacFarland Memorial Collection of Opisthobranchs.

*Description.* — The body is white with brown-black spots of varying size on the notum, the side of the body, and under the mantle (plate 1b). Mixed randomly with the dark spots on the notum are cream colored spots and occasionally an orange one. The edge of the notum is translucent white with an uninterrupted orange line next to it. The edge of the foot is ringed with light yellow in one animal, the color intensifying to a bright cadmium orange at the exposed part of the tail; this area is colorless in the other specimens. The tip of the tail has a few cream colored spots. The tips of the rhinophores and gills are rimmed with orange. The remainder of the rhinophores and gills is white.

The body shape is very similar to that of other chromodorids. The three specimens measured 24, 33, 15 mm. long, 13, 8, 5 mm. broad and 7, 5, 3.5 mm. high. The notum covers the entire animal except for the foot, which extends for a short distance beyond the posterior rim. The notum is generally smooth. The foot is slightly expanded and rounded anteriorly, and slightly bilabiate (fig. 1f). The lower lip is thick and the upper lip thinner. The rhinophores have 11 perfoliate clavi and low, smooth sheaths. There are nine simply pinnate retractile branchial filaments. The branchae are joined at their bases in a crescent. The most anterior filament is the largest. The tubular anal papilla is slightly elevated, fleshy, and all but the posterior part is surrounded by the crescentic branchial base.

The penis is unarmed.

The radula (fig. 1g-k) from the type has the dental formula  $124 \times 32-1-32$ . A lip plate composed of small hooks is present.

*Range.* — Animals have been taken at 2.3 miles south of Puertecitos ( $30^{\circ} 24' N$ ,  $114^{\circ} 40' W$ ), San Luis Gonzaga Bay ( $29^{\circ} 49' N$ ,  $114^{\circ} 24' W$ ) and Puerto Refugio, Angel de la Guardia Island ( $29^{\circ} 33' N$ ,  $113^{\circ} 35' W$ ), Baja California. Animals have been collected in December, January and March.

### LITERATURE CITED

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