

A New Species Tentatively Referred to *Antonietta*,
Antonietta janthina, from Japan

(Nudibranchia : Eolidoidea : Facelinidae)

BY

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(4 Text figures)

THE FIRST SPECIMEN of the species which forms the subject of this paper was collected by Baba in March 1937, when he lived in the Amakusa Marine Biological Laboratory, Kyushu University. The animal, though seemingly distinctive in the vermilion rhinophores and purple branchiae, could not at that time be identified. In later years more specimens were collected from some other stations of Japan which enabled him to continue a taxonomical study of the species. Meanwhile, Hamatani who was the collector of one of these latter specimens came to join with Baba in order to conduct the study of internal organs of the species from serially sectioned material. A new taxon, *janthina*, was finally established by the two authors and it was tentatively referred to *Antonietta* Schmekel, 1966 from the Mediterranean Sea, mainly because of the patterns of liver branchings.

Antonietta janthina Baba & Hamatani, spec. nov.

(Japanese name: Murasaki-mino-umiushi)

(Figures 1 to 4)

Distribution: Pacific coast of middle and southern Japan: Hayama, Sagami Bay; Seto, Kii; and Tomioka, Amakusa. Japan Sea coast of middle Japan: Ushitsu, Toyama Bay.

Holotype: Collected by Hamatani from the shore of Yuzaki, vicinity of the Seto Marine Biological Laboratory, 15 August 1962. After taking a picture of the living animal by Baba, it was fixed and prepared in serial horizontal sections.

Additional data referred to are as follows: One specimen collected and figured by the Biological Laboratory, Imperial Household, from shallow water of Samejima near Hayama, Sagami Bay, 19 March 1948. This was used especially for demonstrating jaws and radula. One specimen collected and figured by Baba from the outer shore of Magarizaki, vicinity of the Amakusa Marine Biological Laboratory, 2 March 1937. The animal was found feeding on a light brown hydroid colony (cf. *Hydractinia epiconcha*) which covered the surface of a snail shell housing a hermit crab. Two specimens collected and figured by Mr. Abe and other members of the Takaoka Biological Club, from the shore of Hime, near Ushitsu, Toyama Bay, 10 August 1971.

DESCRIPTION

External Form: The holotype measures 10mm in length. The general body form is fundamentally as usual in the family Facelinidae. That is, the body is slender, the oral tentacles are elongated, the rhinophores are shorter,

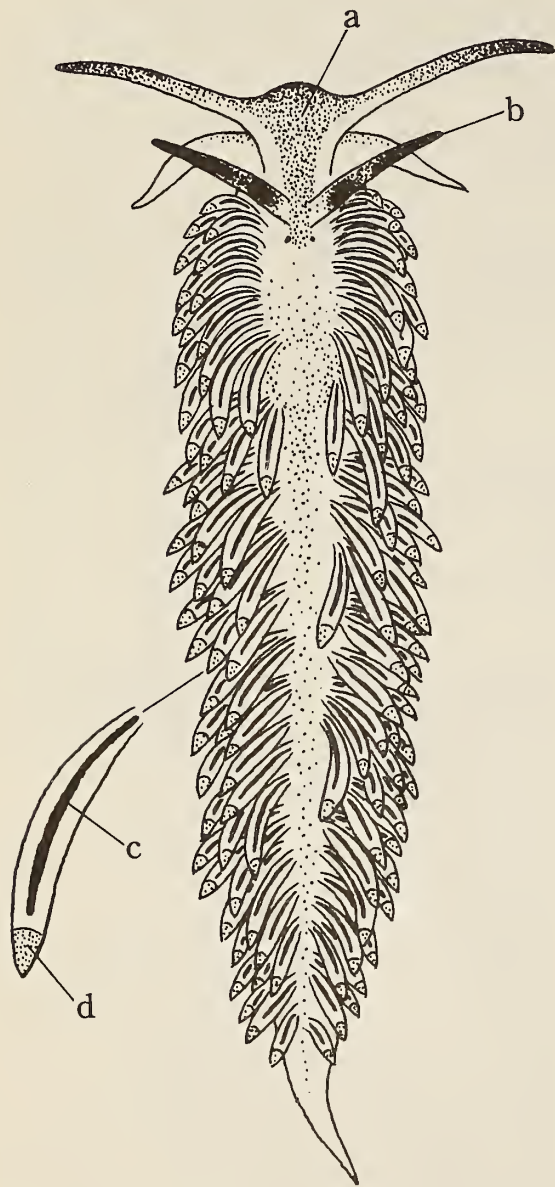


Figure 1

Antonietta janthina Baba & Hamatani, spec. nov.
from Seto, Kii, Japan

Living animal from dorsal side, length (Ac) 10 mm

- a - orange yellow head
- b - vermilion rhinophore
- c - purple diverticulum
- d - pale yellow cap

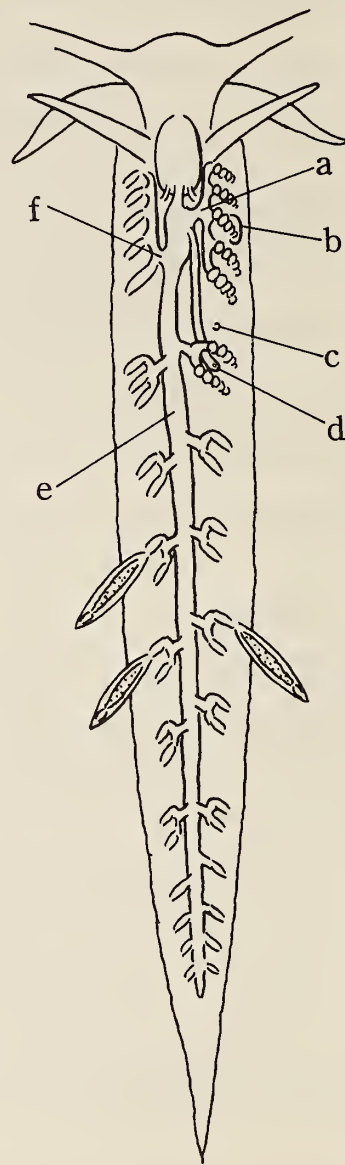


Figure 2

Antonietta janthina Baba & Hamatani, spec. nov.
from Seto, Kii, Japan

Digestive system; salivary glands not shown

- a - right liver
- b - genital orifices
- c - nephroproct
- d - anus
- e - left posterior liver
- f - left anterior liver

and the foot forms tentaculiform corners anteriorly. The rhinophores themselves are smooth on the surface. The tail is short and tapering behind.

The liver system is more similar in constitution to *Antonietta* (see SCHMEKEL, 1966), and *Palisa* (see EDMUNDS, 1964) than to *Learchis* (see BABA, 1969) which is synonymized by BURN & NARAYANAN (1970) with *Caloria*. The right liver (and the partner on the left side) is formed of 5 simple oblique branches, and the arrangement of branchial papillae on them is shown as 3, 5, 5, 6, and 8, successively. The left posterior liver is differentiated on each side into 6 horseshoes followed by 4 short oblique rows. The cleioproctoc anus lies in the middle of

the 1st right horseshoe which contains 5 papillae in each of two legs. The papillae decrease in number in the succeeding horseshoes. They are simply elongated fusiform. The nephroproct is interhepatic. The genital orifices are found below the middle of the right liver branches.

Coloration: The median part of the head is tinged with orange yellow. The oral tentacles are also orange yellow though this color is more or less accentuated towards the tip. The rhinophores are prominently vermilion-tinted except at their midlength where this color tends to disappear. The vein (= liver diverticulum) of the papillae is purple throughout its length, and not marked

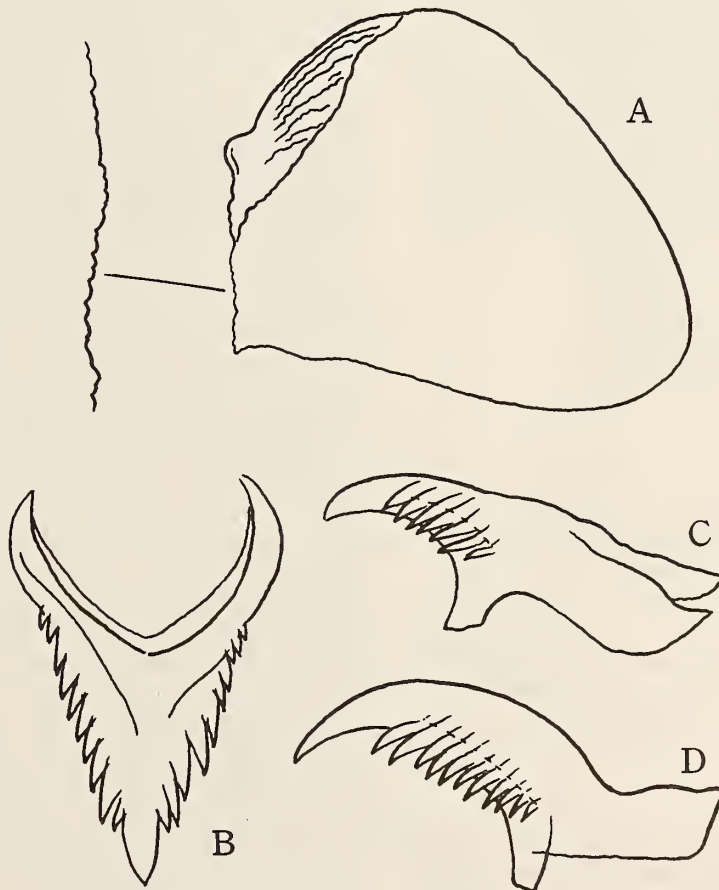


Figure 3

Antonietta janthina Baba & Hamatani, spec. nov.
from Hayama, Sagami Bay, Japan

A: Right jaw with the jagged edge enlarged

(× 60)

B - D: Teeth in different views

(× 520)

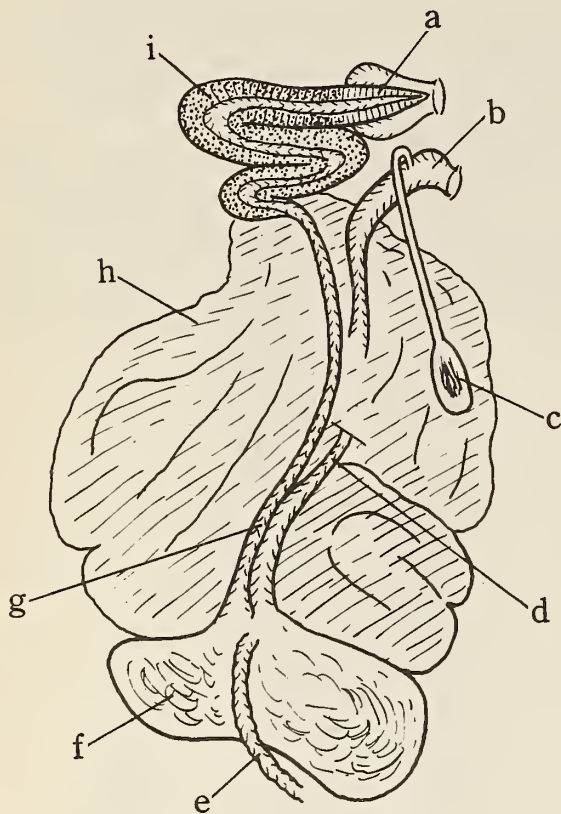


Figure 4

Antonietta janthina Baba & Hamatani, spec. nov.
from Seto, Kii, Japan

Genital system from dorsal side (× 40)

a - penis	b - outer oviduct	c - spermatocyst
	d - inner oviduct (distal part not defined)	
e - hermaphrodite duct	f - ampulla	
g - muscular part of vas deferens		
h - accessory female gland mass	i - prostatic part of vas deferens	

distally with a melanin black spot as shown in *Caloria* (see HAEFELFINGER, 1960) and *Learchis* (see BABA, 1969). The cap of the papillae is tinted pale yellow. The ground color of the integument (back, sides and sole) is fleshy white. The pericardial prominence is opaque white. Also there are irregular mottlings of opaque white on the median line of the dorsum. The anterior margin of the foot is slightly orange yellow. The tail is colorless.

Internal Anatomy: The mouth parts were studied on a specimen from Sagami Bay. As in *Learchis* and *Antonietta*, the jaws have no dorsal indentation (in *Caloria* these are indented dorsally). The jaw edge is jagged now, but details of denticulation could not be defined exactly (in *Antonietta* the jaw edge is said to be smooth). The radular formula is $35 \times 0.1 \cdot 0$. The central tooth is typically cuspidate as in that of *Antonietta*, and bears 8-11 denticles on either side of the highly produced median cusp. As in *Learchis* and *Antonietta*, the penis of the holotype is conical, unarmed, and without an accessory penial gland. The distal portion of the vas deferens forms a prostate. In the holotype there occurs a single bursa (=spermatocyst) attached to the outer oviduct (in *Learchis* there is a single bursa, and in *Antonietta* it is shown that there are 2 bursae on the female duct; see also MILLER, 1974).

DISCUSSION

It seems still difficult to identify the genera (and species) of the family Facelinidae satisfactorily (see EDMUNDS, 1970 and MILLER, 1974). Here the new species *janthina* was referred to *Antonietta* Schmekel, 1966 (Type: *A. luteorufa* from Naples) merely for the horseshoe-shaped composition of the left posterior liver branches, for the non-indented jaws, and for the unarmed penis not accompanied by an accessory gland. Actually there may be seen some minor differences existing between the genital systems of the 2 species, *A. luteorufa* and *A. janthina*.

According to BURN & NARAYANAN (1970) the southwest Pacific species *Learchis indica* Bergh, 1896 (see BABA, 1969) is synonymous with the Indian form *Eolis militaris* Alder & Hancock, 1864 (see also MILLER, 1974); furthermore, the genus *Learchis* Bergh, 1896 constitutes a junior synonym of *Caloria* Trinchese, 1888 known from the Mediterranean Sea (Type: *C. maculata*; see HAEFELFINGER, 1960). Then, *Caloria* (= *Learchis*) is distinguished from *Antonietta* by the left posterior liver which is formed of clusters (not horseshoes) of branches.

The species *Learchis poica* Marcus & Marcus, 1960 (from Miami) and *Palisa papillata* Edmunds, 1964 (from Jamaica and Miami) are similar to *Antonietta* in the type of the liver system, but they are distinguished from the latter, respectively, as follows: *Learchis poica* is provided with an accessory gland to the penis, and *Palisa papillata* has the rhinophores covered with small papillae on their posterior surface.

A thorough re-examination of the interrelationship between the above-mentioned genera (and species) is, therefore, to be expected in the future.

SUMMARY

1. A new species, *Antonieta janthina*, is suggested from Japan.
2. Externally this new species is especially distinctive in the vermilion rhinophores and purple diverticula of the branchial papillae.
3. Anatomical accounts regarding the jaws, radula, liver system and genitalia of this new species are given, together with some taxonomical comments.
4. This new species is assigned to the Mediterranean genus mainly for the horseshoe-shaped composition of the left posterior liver branches. The penis is unarmed, and there is no accessory gland to this organ.

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Literature Cited

- BABA, KIKUTARŌ
1969. Records of *Learchis indica* Bergh, 1896 from Japan and Hawaii (Nudibranchia: Eolidoidea). Publ. Seto Mar. Biol. Lab. 16 (6): 399-403; plt. 27
- BURN, ROBERT & K. R. NARAYANAN
1970. Taxonomic notes on *Eolis militaris* Alder and Hancock, 1864 (Opisthobranchia, Eolidacea). Journ. Malac. Soc. Austral. 2 (1): 83-86
- EDMUNDS, MALCOLM
1964. Eolid Mollusca from Jamaica, with descriptions of two new genera and three new species. Bull. Mar. Sci. Gulf & Caribb. 14 (1): 1-32; 16 text figs. (March 1964)
1970. Opisthobranchiate Mollusca from Tanzania. II. Eolidacea (Cuthonidae, Piseinotocidae and Facelinidae). Proc. Malac. Soc. Lond. 39 (1): 15-57; figs. 1-24
- HAEFELFINGER, HANS-RUDOLF
1960. Neue und wenig bekannte Opisthobranchier der Gattungen *Tropania* und *Caloria* aus der Bucht von Villefranche-sur-Mer (A.-M.). Rev. Suisse Zool. 67 (2): 226-238; 8 text figs.
- MARCUS, EVELINE DU BOIS-REYMOND & ERNST MARCUS
1960. Opisthobranchs from American Atlantic warm waters. Bull. Mar. Sci. Gulf & Caribb. 10 (2): 129-203; 97 text figs.
- MILLER, MICHAEL CHARLES
1974. Aeolid nudibranchs (Gastropoda: Opisthobranchia) of the family Glaucidae from New Zealand waters. Zool. Journ. Linn. Soc. 54 (1): 31-61; plt. 1; 10 text figs.
- SCHMEKEL, RENATE LUISE
1966. Zwei neue Facelinidae aus dem Golf von Neapel: *Facelina (A.) fusca* n. sp. und *Antonieta luteorufa* n. sp., n. gen. (Gastr. Opisthobranchia). Pubbl. Staz. Zool. Napoli 35 (1): 29-46; 6 text figs.

