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A NEW RECORD AND A REDESCRIPTION OF THE MARINE GASTROPOD *EUPLICA AMIRANTIUM* (E. A. SMITH, 1884)

Leopold III Biological Station, Laing Island. Contribution no. 42

by

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SUMMARY

Euplica amirantium (E. A. SMITH, 1884), found in several *Halimeda*- and sediment-samples from Laing Island (Papua New Guinea) is redescribed. The protoconch, radula and operculum are described for the first time. On the basis of shell characters and especially the protoconch, the species is assigned to the genus *Euplica* DALL, 1889.

RÉSUMÉ

Euplica amirantium (E. A. SMITH, 1884) a été trouvé dans plusieurs échantillons de *Halimeda* et de sédiment provenant de l'Île de Laing (Papua New Guinea). L'espèce est redécrite. Les caractères de la protonconque et de la radule sont décrites pour la première fois. L'espèce *E. amirantium* est classée dans le genre *Euplica* DALL, 1889 sur base des caractères de la coquille et surtout de la protoconque.

MATERIAL

The material has been collected by Dr. J. VAN GOETHEM and Mr. J. PIERRET, during the expeditions, sponsored by the Leopold III-foundation and the Ministry of National Education, in 1977, 1978 and 1979 to Laing Island, Hansa Bay, Madang Province, Papua New Guinea. Living *Euplica amirantium* have been found in several *Halimeda*-samples and in some sediment-samples.

Ordo : Neogastropoda
Superfamilia : Buccinacea RAFINESQUE, 1815
Familia : Pyrenidae SUTER, 1913
Genus : *Euplica* DALL, 1889
Euplica amirantium (E. A. SMITH, 1884)

Synonymy

1884 *Columbella amirantium* E. A. SMITH; Rep. Zool. Coll. Voy. « Alert », p. 494-495, pl. XLIV, Fig. K.

1900 *Columbella amirantium*, E. SMITH-HERVIER; J. Conch., Paris, XLVII, p. 314-315.

1904 *Columbella liocyma* PILSBRY; Proc. Acad. nat. Sci. Philad., LVI, p. 14-15, pl. III, Fig. 24.

1905 *Columbella liocyma* PILSBRY-PILSBRY; Proc. Acad. nat. Sci. Philad., LVII, p. 105.

1975 *Anachis liocyma* (PILSBRY)-HABE; Shells of the Western Pacific in color, Vol. II, p. 87, pl. 28, Fig. 15.

ANALYSIS

Diagnosis

Shell strongly contracted at the base; a white spot on the upper side of the varix of the body-whorl; columella with one deeply placed basal fold.

Description

a. Shell characters

Protoconch (Pl. I, 1, 3)

Protoconch characters are mainly based on scanning electron microscope (S.E.M.) observations.

About four strongly convex whorls; nucleus smooth : the remaining part with numerous small axial ribs; axial ribs interrupted just below the suture (only visible with S.E.M.); transition between protoconch and teleoconch with a deep sinus.

Teleoconch (Pl. I, 2)

Subpellucid; obesely fusiform; spire short with about three whorls; the body-whorl four times as long as the other part of the shell; whorls convex below the suture and strongly contracted at the base; all whorls with rounded axial ribs, with exception of the last quarter part of the body-whorl which is smooth; interstitials between the ribs shallow and smooth, somewhat broader than the ribs; about ten spiral grooves at the base of the body-whorl; number of axial ribs on the body-whorl varying from three to thirteen; axial ribs diminishing towards the base and ending just above the spiral grooves.

Aperture

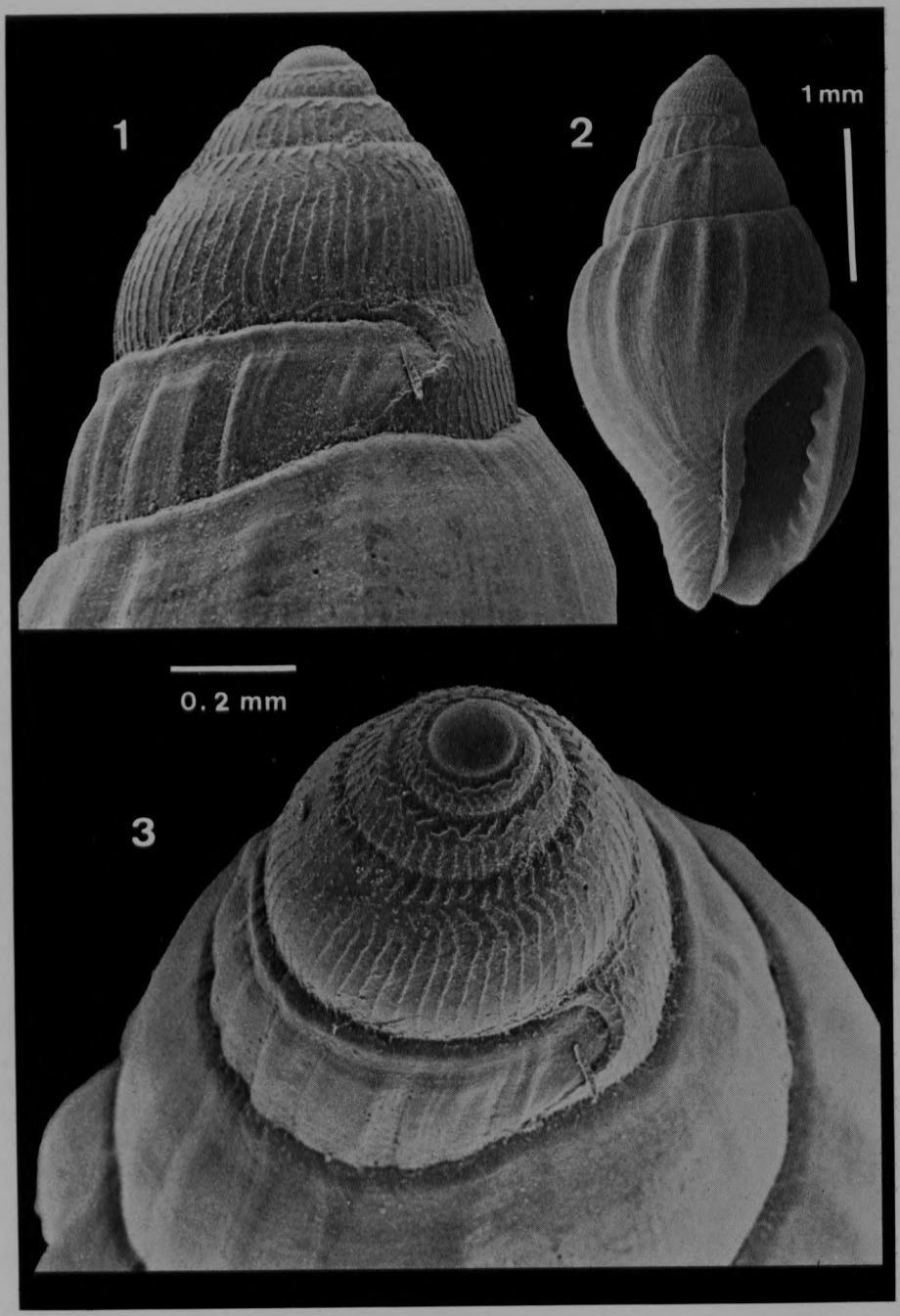
Aperture elongate, narrow and slightly oblique with regard to the shell-axis; outer lip very thick with a strong varix and with a sinus; inner side of outer lip with about seven to nine denticles (usually eight), the lowest four being smaller than the upper ones; siphonal canal somewhat curved backward; inner lip with about five small indistinct denticles; columella straight with a deeply basal fold at the base of the siphonal canal; peristome continuous, somewhat detached at the columellar side.

PLATE I

Euplica amirantium (E. A. SMITH, 1884), Laing Island, Papua New Guinea.

1. — Protoconch, lateral view; × 80.
2. — Adult shell, apertural view; × 20.
3. — Protoconch, apico-lateral view; × 80.

PLATE I



Colour

Nucleus white; protoconch usually having the same colour as the dominating colour of the teleoconch; colour of teleoconch varying from transparant white to yellow-brown; white spots on the pen-ultimate whorl, just below the suture; always a white spot on the varix of the outer lip; some specimens with a yellow-white shell and two small brown spiral bands on the spire-whorls and six bands on the body-whorl.

Dimensions

TABLE 1

Shell dimensions of Euplica amirantium from Laing Island (Papua New Guinea) (N = number of specimens; M = mean; S.D. = standard deviation; O.R. = observed range)

	N	M	S.D.	O.R.
Length (mm)	22	4.3	0.39	3.6-5.4
Width (mm)	22	2.1	0.21	1.8-2.7
Length body-whorl (mm)	22	2.4	0.25	2.0-3.1
No. axial ribs on body-whorl	22	10.8	2.04	3-13
No. denticles on outer lip	22	8.0	0.43	7-9

b. Radula (Fig. 1, 1-2)

Typical stenoglossate (1-1-1) radula; median tooth broadly rectangular, somewhat smaller in the middle; median teeth flanked by two tricuspid lateral teeth; upper cusp sharp, the middle one blunt; the lower devided into two small, blunt denticles.

c. Operculum (Fig. 1, 3)

Oval; marginal nucleus, triangular; outer side of the remaining part with dense concentric growth striations; inner side with a bilobed area of attachment of the columellar muscle.

Affinities and differences

Euplica amirantium (E. A. SMITH, 1884) is closely related to *Euplica loisae* REHDER, 1980 and to *Euplica varians* (SOWERBY, 1832) but differs from both species by the absence of separated nodes at the subangulate periphery. *E. amirantium* has only one basal columellar fold in contrast with *E. loisae*, having two columellar folds. *E. amirantium* differs from *E. varians* by the absence of the spiral sculpture. The structure of the protoconch with the axial lirae is remarkably similar in the three species.

Habitat

Most specimens lived on *Halimeda* (PNG 77/95; PNG 77/225; PNG 77/245; PNG 78/174) in the lagoon of Laing Island in the subtidal zone between dead coral. The depth varied from — 1 m to — 4 meters. Some dead specimens were obtained

from the east side of Laing Island, from a sediment sample, collected at a depth of — 10 meters (PNG 77/107). The remaining specimens came from a sediment sample dredged near the north side of Duangit reef (Hansa Bay) at a depth of — 10 to — 15 meters (PNG 79/349).

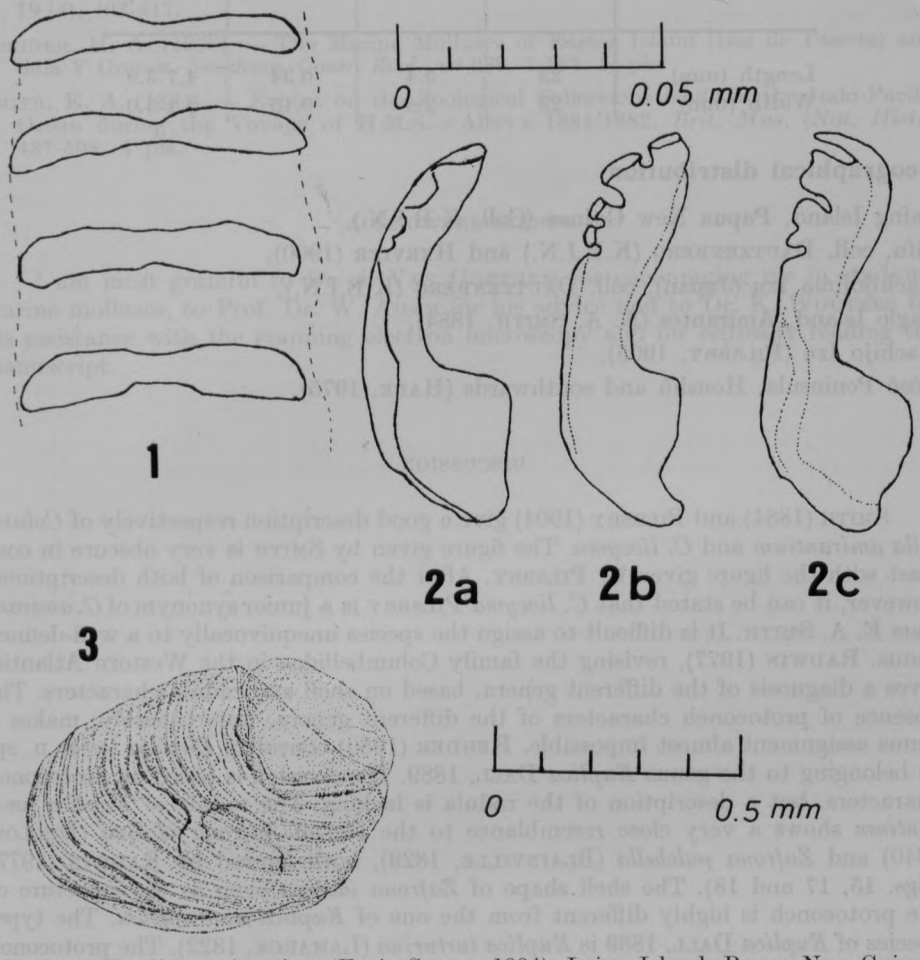


Fig. 1. — *Euplica amirantium* (E. A. SMITH, 1884), Laing Island, Papua New Guinea. 1 : Median radular tooth ; 2a : Right lateral tooth, inner lateral view ; 2b : Right lateral tooth, inner view ; 2c : Right lateral tooth, outer view ; 3 : Operculum, inner view.

Additional material examined

a) Two specimens from the DAUTZENBERG-collection (K.B.I.N.; I.G. 10591) from Hachijojima Izu (Japan). These specimens were identified by Mr. HIRASE as *Columbella liocyma* PILSBRY.

b) Numerous specimens from the same collection, identified as *Columbella amirantium* E. A. SMITH by R. P. HERVIER, from Lifu. The specimens from Lifu (Table II) were larger as those from Papua New Guinea.

TABLE 2

Dimensions of Euplica amirantium from Lifu (New Caledonia)

	N	M	S.D.	O.R.
Length (mm)	23	5.4	0.34	4.7-5.9
Width (mm)	23	2.8	0.15	2.4-3.0

Geographical distribution

Laing Island, Papua New Guinea (Coll. K.B.I.N.),
Lifu, coll. DAUTZENBERG (K.B.I.N.) and HERVIER (1900),
Hachijojima Izu (Japan), coll. DAUTZENBERG (K.B.I.N.),
Eagle Island, Amirantes (E. A. SMITH, 1884),
Hachijo Izu (PILSBRY, 1905),
Bôsô Peninsula, Honshû and southwards (HABE, 1975).

DISCUSSION

SMITH (1884) and PILSBRY (1904) give a good description respectively of *Columbella amirantium* and *C. liocyma*. The figure given by SMITH is very obscure in contrast with the figure given by PILSBRY. After the comparison of both descriptions, however, it can be stated that *C. liocyma* PILSBRY is a junior synonym of *C. amirantium* E. A. SMITH. It is difficult to assign the species unequivocally to a well-defined genus. RADWIN (1977), revising the family Columbellidae in the Western Atlantic, gives a diagnosis of the different genera, based on shell and radula characters. The absence of protoconch characters of the different genera, unfortunately, makes a genus assignment almost impossible. REHDER (1980) considers *Euplica loisae* n. sp. as belonging to the genus *Euplica* DALL, 1889. His decision is based on protoconch characters, but a description of the radula is lacking. The radula of *Euplica amirantium* shows a very close resemblance to the one of *Zafrona idalina* (DUCLOS, 1840) and *Zafrona pulchella* (BLAINVILLE, 1829), both figured by RADWIN (1977; Figs. 15, 17 and 18). The shell shape of *Zafrona idalina* even as the structure of the protoconch is highly different from the one of *Euplica amirantium*. The type-species of *Euplica* DALL, 1889 is *Euplica turturina* (LAMARCK, 1822). The protoconch of *E. turturina* is characterised by the presence of microscopically axial lirae; the outer lip of the aperture of the shell is dentate within and the columella has two or more columellar folds. As a consequence of the resemblance between *E. amirantium* and *E. turturina* we consider *E. amirantium* belonging to the genus *Euplica* DALL, 1889.

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