貝雑 VENUS (Jap. Jour Malac.)
Vol. 46, No. 3 (1987) : 137—146

リュウグウボタルガイ類の3新種

二 宮 泰 三
(東京都目黒区碑文谷 2-10-12)

Three New Species of the Genus *Amalda* from Japan, Caribbean Sea and Southwestern Australia (Gastropoda: Olividae)

Taizo NINOMIYA
(10-12 Himon-ya 2, Meguro-ku, Tokyo 152)

Abstract: Three new species of olivid gastropods of the genus *Amalda* are described. They are, *A.* (*Baryspira*) *utopica*, n. sp. from the Osumi Strait, Japan, *A* (*Alcospira*) *zeigleri*, n. sp. from off Turneffe Island, Gulf of Honduras, and *A.* (*Gracilispira*) *albanyensis*, n. sp. from Albany, West Australia.

Members of deepsea olivid gastropods belonging to the subfamily Ancillinae are all fascinating to the students of malacology as well as to the shell collectors. However, only a few systematic works on this group have been available (Chavan 1965, Ponder 1968, Kilburn 1977).

Many taxonomists use the name *Baryspira* Fischer, 1883 (Type species:

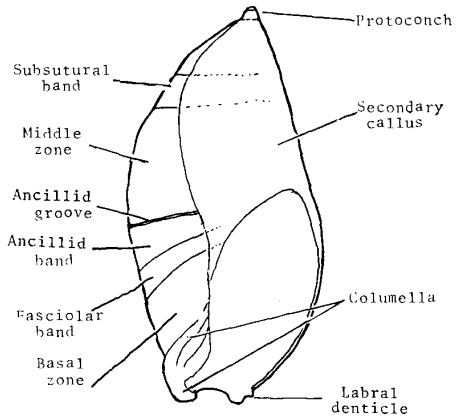

Fig. 1 Keys to conchological terms.
Protoconch (原殻), Secondary callus (二次滑層), Middle zone (体層域), Ancillid groove (体層下溝), Ancillid band (体層下帯), Subsutural band (縫合下帯), Fasciolar band (底部帯), Basal zone (基底域), Columella (軸柱), Labral denticle (外唇歯)

Ancillaria australis Sowerby, 1830, s.d. by Cossman, 1899) as the generic rank for many Australian, New Zealand and Japanese species. However, since Chavan (1965) reduced it as a subgenus of the genus *Amalda* H. & A. Adams, 1853 (Type species: *Ancillaria tankervilli* Swainson, 1825, s.d. by Vokes 1939), together with *Alcospira* Cossmann, 1899 (Type species: *Ancillaria papillata* Tate, 1889, o.d. by Cossmann, 1899), the modern authors proceed with taxa of the Ancillinae by him.

The present paper describes three new species of the genus *Amalda* (subgenus *Baryspira*) from Japan, Caribbean Sea and the southwestern Australia. The conchological terminology follows on Fig. 1.

I am grateful to Mr. Haruo Uomoto for his effort of dredging to obtain the materials from the rough sea of the Osumi Straits. My thanks go to Dr. Masuoki Horikoshi, Professor of Chiba University, Dr. E. Sandor, Professor of Queen Mary College, University of London, Mr. Peter Reichert of Sinshein, Germany, Mr. J. H. Wadham, Auckland Institute and Museum, New Zealand, Dr. Emilio F. Garcia, Professor of the University of Southwestern Luisiana, Dr. Akihiko Matsukuma, National Science Museum, Tokyo and Mr. J. A. Gabelish, Maylands, Western Australia for providing me with reference materials. I am very grateful to Dr. Takashi Okutani, Professor of Tokyo University of Fisheries for his kind review of this manuscript.

Amalda (*Baryspira*) *utopica*, n. sp.

(Fig. 2; Pl 1, figs. 1–4)

Diagnosis: *Amalda* (*Baryspira*) having a globose, ovate, biconical fusiform shell with spires completely covered by callus except for protoconch, and beautiful pinkish purple color with contrastingly deep color on top, subsutural and fasciolar bands.

Description: Shell medium in size, globose, ovate, biconical, fusiform, with aperture longer than spire height (60 : 40). Spire completely covered by callus except for blunt, mammillate protoconch, which consists of 1–½ coils and glossy, creamy white in color, and by fine granules on the whole surfaces of spire, fasciolar band, basal zone and most part of secondary callus. Ventral spire and a part of body whorl covered with secondary callus pad continuous from the columella. Many faint trace of fine grooves visible on the spire. Color pale pinkish purple with a deep color near apex, subsutural and fasciolar bands. Middle zone of the body whorl delimited by a white marginal line of the subsutural band adapically and white ancillid band adapically. Very fine spiral lines and fine axial striae become dense, forming a white part near the other lip, and marking the ancillid band with many oblique lines. Basal zone white and delimited by a shallow, and broad groove between the fasciolar band and columella. Columella white, twisted with 2–3 low folds. Aperture broad anteriorly, with a deep siphonal notch. Inner aperture white, but pinkish purple along the

inner lip. Outer lip thick but becomes thin adapically, with a labral denticle above the extremity of the ancillid band. Operculum orange, horny, ovo-quadrate with the subterminal nucleus and growth lines. Radula typical for the subgenus, with tricuspidate rachidian and a sickle-shaped lateral (Fig. 2).

Measurements in mm:

	Length	Width	Aperture length	W/L	A/L
Holotype	37.8	19.0	22.8	0.50	0.60
Paratype 1	41.2	20.2	25.0	0.49	0.61
Paratype 2	34.6	17.7	20.2	0.51	0.58
Paratype 3	30.4	15.5	18.4	0.51	0.61
Paratype 4	31.1	16.5	20.4	0.53	0.66
Paratype 5	33.9	17.3	21.6	0.51	0.64

Type depository: Holotype is deposited in the National Science Museum Tokyo, NSMT-Mo 64211, Paratype 2 in the American Museum of Natural History, New York, AMNH 222109. Other Paratypes in the Ninomiya collection.

Type locality: Osumi Straits, off the Cape of Sata, Kyushu, Japan, dredged in 150 meters deep.

Distribution: Osumi Straits, between south of Kyushu and Tanegashima Island.

Remarks: This new species was originally to be described by the late Dr. Tokubei Kuroda who loved such a beautiful olivid species. However, his untimely death last year does not allow him to incorporate the description. The above description was made carrying on his will with my deepest sympathy. This species has well been known for such a splendid shell with pinkish purple color, but only a few people have seen it and has never been described in due form. In 1980 a few specimens were collected alive with several dead shells from a depth of 150 meters in the Osumi Straits.

This new species resembles *Amalda* (*B.*) *aureocallus* Shikama & Oishi 1977, which was inadequately treated as a subspecies of a manuscriptal name "*Baryspira utopica*". It differs from this species in having a bulbous shape, prominently mammillated protoconch exposed from the spire callus, with white and pinkish purple color. This new species also resembles a color variety of *Amalda contusa* (Reeve, 1864) from South Africa but differs likewise. Radula teeth of this new species suggest its very close relation to Japanese *Amalda* (*B.*) *albocallosa* Lischke, 1874 and *A.* (*B.*) *mucronata* (Sowerby, 1830) from New Zealand (Fig. 3).

***Amalda* (*Alcospira*) *zeigleri*,** n. sp.

(Pl. 1, figs. 5–8)

Diagnosis: *Amalda* with an ovately fusiform shell, with an acuminate spire, exposed protoconch, and obscure spiral striae; subsutural and ancillid bands

with a series of irregular orange dots; middle zone of the body whorl with no marking.

Description: Shell ovately fusiform, with the periphery of the body whorl above the middle of shell, and with acute spire covered by a thin callus with extremely fine granules, except for mammillate protoconch which consists of two waxy white whorls. Spire whorls discernible by a very shallow groove delimited by a pale orange subsutural band, and obsolete striae on a waxy creamy portion. Last two or three subsutural and ancillid bands with a series of irregular orange squarish dots. Early whorls pale creamy in color. Secondary callus extends as a ridge-like deposit on the inner and columellar lips. Columellar pillar with some obscure folds, white in color, swollen, curving outwardly toward the aperture, projected posteriorly with a gentle concavity, and separated from surface by a wide and shallow furrow. Fasciolar band wide, delimited posteriorly by a groove, and divided into two parts by a spiral ridge on its center, tinted irregularly with orange color. Body whorl wide in the middle, delimited posteriorly by groove below the last subsutural band, and anteriorly by a very shallow groove above the ancillid band, glossy, smooth, orange creamy in color with very fine axial growth lines and very fine spiral striae, often marked with wider, white band above the ancillid band which diffused into ground color. A low labral denticle present on the terminal of a groove above the ancillid band. Aperture pinkish and darker in color than the surface of the shell, filled with a leaf-shaped operculum which pale brown, horny with subterminal nucleus and fine growth striae across the center line.

Measurements in mm:

	Length	Width	Aperture length
Holotype	27.2	12.2	13.6
Paratype 1	25.5	11.9	12.7
Paratype 2	22.8	10.8	12.0
Paratype 3	25.5	11.7	13.0

Type depository: Holotype is deposited in the National Science Museum Tokyo, NSMT-Mo 64210, Paratype 2 in the American Museum of Natural

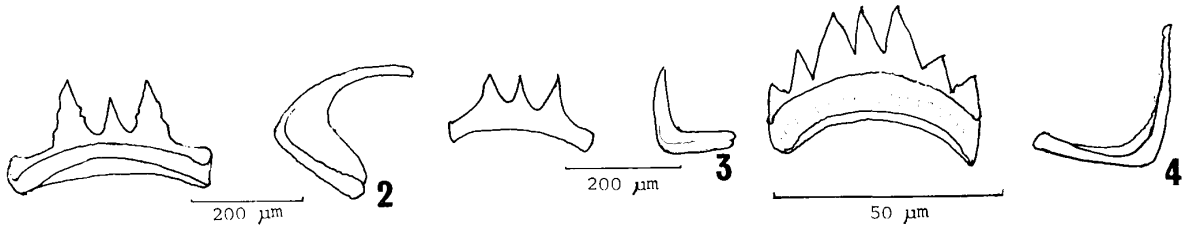

Fig. 2. Radula of *Amalda* (*Baryspira*) *utopica*, n. sp.
Fig. 3. Radula of *Amalda* (*Baryspira*) *mucronata* (Sowerby, 1830)
Fig. 4. Radula of *Amalda* (*Gracilispira*) *albanyensis*, n. sp.

History, New York, AMNH 206078, Paratypes 1 and 3 in the Ninomiya collection.

Type locality: South East of Turneffe Island, Gulf of Honduras, Caribbean Sea in 125 fathoms deep. (Lat. 17°17′N: Long. 87°59′W)

Distribution: Gulf of Honduras, Caribbean Sea.

Remarks: When I was assisting the late Dr. Rowland F. Zeigler in 1982, I found several specimens of an unnamed *Ancillaria* in my collection which had been sent me by Dr. E. Garcia of Lafayette in 1978 after he had returned from his trip to Venezuela. This species was a new species belonging to Subgenus *Alcospira* Cossmann, 1899.

In and around the Caribbean Sea, no Recent species belong to the subgenus *Alcospira* Cossmann 1899 has been known up to this date, but there are some fossil species, such as *Ancillaria chipolana* Dall, 1900 from Oligocene (which was referred to *Alcospira* by Chavan 1965), *Ancillaria lamellata* Guppy, 1866 from lower Miocene, Manzanilla, Trinidad (British West Indies) and *Ancilla paralamellata* Mansfield, 1930 from Miocene of Brasso, Trinidad. The last named one closely resembles this new species in the general shape, but differs from that in having distinct spiral striae covering the whole surface of the shell.

The closest Recent species belonging to *Alcospira* is from a distant zoogeographical area, southern Australia, such as, *Ancillaria lineata* Kiener, 1843, *A. marginata* Lamarck, 1811 and *A. monilifera* Reeve, 1864, but they all distinctly differ from this Caribbean species in having accessory markings in the middle zone.

Amalda (Gracilispira) albanyensis, n. sp.

(Fig. 4; Pl. 1, figs. 9, 10, 11)

Diagnosis: *Amalda* with slender and elongate fusiform shell with an acuminate spire; spire with no ridge or groove except for a narrow, distinct callused groove in the center of two whorls; subsutural band white having a series of very faint, interrupted orange flammules extending from the white ancillid band and to above the band; middle zone ornamented with punctated small square dots of faint orange.

Description: Shell slender, elongate fusiform, with an acuminate, high spire covered by a thin callus. Spire length longer than aperture length (54:46), with two turns of mammillate protoconch and four teleoconch whorls distinguishable by white subsutural band and with no spiral ridge or groove except a white groove on the center of two spire whorls which perfectly covered with callus. Middle zone wide, delimited posteriorly by the last subsutural band and anteriorly by ancillid groove. Fasciolar band and the white basal zone separated by a groove. Columella delimited by a broad and shallow groove. Columellar pillar with four folds tinted by pale purple. Ground color of shell pale orange

creamy, punctated with pale square dots from dark flammules in subsutural band through ancillid band. Fasciolar band spirally ornamented with irregular dark maculations. Protoconch pale reddish orange in color. A whitish secondary callus developed from the columellar callus to inner lip extending down to the adapical end of the body whorl. Aperture closed with a leaf-shaped operculum. Operculum horny, with terminal nucleus, and fine growth lines. Outer lip simple, with a trace of labral denticles. Central tooth of radula with three major cusps of which central one being narrow and two or three lateral cusps. Lateral tooth sharp, hook-shaped. (Fig. 4).

Measurements in mm:

	Length	Width	Aperture length	W/L	A/L
Holotype	11.4	4.0	4.5	0.35	0.39
Paratype 1	10.4	3.4	4.8	0.33	0.46
Paratype 2	12.4	4.1	5.5	0.33	0.44
Paratype 3	11.4	4.0	5.2	0.35	0.46
Paratype 4	11.6	4.0	5.5	0.34	0.47
Paratype 5	11.8	4.2	5.4	0.36	0.46
Paratype 6	12.8	4.3	6.1	0.34	0.48
Paratype 7	11.2	3.8	5.5	0.34	0.49
Paratype 8	12.8	4.2	6.0	0.33	0.47
Paratype 9	10.7	3.6	5.0	0.34	0.47

Type depository: Holotype and Paratype 1 are deposited in the National Science Museum Tokyo, NSMT-Mo 64212 a and b. Paratypes 2 and 3 in the American Museum of Natural History, New York, AMNH 217426. Others in the Ninomiya collection.

Type locality: Off Albany, West Australia, 5 m deep.

Remarks: In 1983 Mr. A. J. Gabelish of West Australia offered me the specimens of an appearently new species of *Amalda* from Albany of southern West Australia in 3 meters at sandy bottom. It is my great pleasure to name this interesting species after the locality where it was found.

This new species is close to *Alcospira edithae* (Pritchard & Gatliff 1898) (Pl. 1, fig. 13) from South Australia and *A.* (*Gracilispira*) *novaezelandiae* Sowerby, 1859 from New Zealand but it differs from them in having narrower shell with the spire without spiral ridge or groove except distinct, white grooves in the center of two spires which are completely covered by callus. The columellar pillar is tinted with pale purple.

This new species, *A. novaezelandiae* and *A. edithae* are referred to the subgenus *Gracilispira* Olson, 1956 (syn. *Austrancilla* Habe, 1959) in having the polycuspid type of the central tooth, the operculum with a terminal nucleus, and slender small shell.

要　約

Amalda (*Baryspira*) *utopica*, n. sp. マボロシリュウグウボタルガイ
(Fig. 2; Pl. 1, figs. 1–4)

歯殻は中型で，よく膨れた卵形で堅牢。殻口の高さは，螺塔の高さより低い(60：40)。螺塔は，やや大きい乳頭状の原殻を除いては完全に滑層で覆われる。原殻は1½層からなり，光沢のある乳白色である。また螺塔は，底部帯，基底域及び二次滑層の大部分と同様に，微細な顆粒面を示す。螺塔の腹面と体層の一部には，軸柱から連続した二次滑層の隆起が出来て，また極めて細い螺条が不明瞭な痕跡として見える。殻の色は，殻頂附近，縫合下帯及び底部帯においては，紫紅色を呈するが，体層域，螺塔の後部は，淡紅紫色をなし，縫合下帯の縁，体層下帯及び基底域は，軸柱，腹面の二次滑層と同様に白色である。体層下帯は，体層下溝と底部帯の間に区劃され，多くの斜線を描く。

基底域は浅く広い溝によって軸柱から区別され，上方は，底部帯により区別される。軸柱は白色で，先端部においてねじれ，2—3の低い襞を持つ。殻口には広い深い水管溝をもち，内面の基底域部分は白色でその他の部分は淡紅紫色を呈する。外唇は上部において厚く後方に向い薄くなり，体層下帯の端は突出した歯状突起で終る。蓋は橙色半透明革質で，四角形の変形した卵円形で，本亜属の特徴の一つとされている。

歯舌は3歯尖を具え，側歯は鎌の刃状。

測 定 値：殻長 38.7mm，殻幅 19.0mm（模式標本 NSMT-Mo 64211）

模式産地：九州佐多岬沖，水深 150m

比　　較：南アフリカ産の *Amalda contusa*(Reeve) ツマミリュウグウボタルガイのうち紫色を配した変異型があるが，本種の様な鮮かな淡紅紫色を呈しないばかりでなく，軸端に斜めに走る襞を有せず，二次滑層は螺塔では発達しないので，本種から区別出来る。*Baryspira utopica aureocallus* Shikama & Oishi, 1977 コガネボタルは，円筒形の褐色調の貝でむしろ *B. mucronata* (Sowerby) に近く，本種の亜種と見ることは困難である。

本種の歯舌の特徴は，*B. albocallosa* Lischke リュウグウボタルガイ（＝トガリリュウグウボタルガイ），*B. mucronata* (Sowerby) や *B. australis* (Sowerby) に近似していて，同一の種群に属することを示している。

Amalda (*Alcospira*) *zeigleri*, n. sp. カリブリュウグウボタルガイ
(Pl. 1, figs. 5–8)

殻は卵形状の紡錘形。螺塔は高く亜属に典型的な不規則な螺条をもち，乳頭状の原殻は滑層から露出し，螺層は淡い橙色の縫合帯で切られた浅い溝によって判別出来る。橙色の縫合下帯と底部帯は濃い橙褐色の長方形からなる点列を飾る。底部帯は橙色で基底帯と軸柱は白色。螺層と体層域は淡い桃黄色。二次滑層は軸柱から発達して腹部螺塔に及ぶが弱い。軸柱端はねじれて襞を作る。外唇には小歯がある。蓋は橙褐色葉状で核は下端に位置する。

測定値：殻長 27.2mm，殻幅 12.2mm（模式標本 NSMT-Mo 264210）

産地：カリブ海ホンヂュラス湾タンネツヘ島沖 125fms. 水深。

比較：1978年ホンヂュラス湾で採集された本種は螺塔に不規則な螺条を持ち縫合下帯と体層下帯に色紋を有し，明らかに亜属 *Alcospira* Cossmann, 1899 に属する1新種である。これまでカリブ海々域から本亜属に属する現生種は知られていない。化石種には本亜属に属する数種が記録されているが，そのうち英領インド，トリニダート産の *Ancillaria lamellata* Guppy は一般的形態においては本種

に似ている。しかし，この種においては不規則な螺条は螺塔部のみならず体層全体をおおっている点で全く異っている。南オーストラリア産の多くの種は本種に似ている。中でも *Aleospira marginata* Sowerby エリマキリュウグウボタルガイは最もよく本種ににているが，この種は体層部に色紋をもっているので本種から区別出来る。

Amalda (*Gracilispira*) *albanyensis*, n. sp. コビトリュウグウボタルガイ
(Fig. 4; Pl. 1, figs. 9–11)

殻は細長い紡錘形，螺塔は淡い滑層で被れ鋭く高い。螺塔と殻口長の比は56：46，螺塔は2層からなる乳頭状原殻と4階の後生殻の螺層からなる。螺層は白色の縫合下帯によって認めることができ，螺条や螺溝をもたない。螺層のうちの2層の中央に細く白い明らかな螺溝が滑層に埋没した状態で見られる。体層域は白色の縫合帯と底部溝に囲まれ，底部帯と基底域は下方底部溝で区別される。軸柱は広く浅い溝で区別され，軸柱先端は淡紫色に染められた4つの襞をもっている。殻の色は灰橙色で，やや濃色の四角形の斑点の規則的な列が体層域を覆っている。底部帯は濃色。原殻は淡い赤橙色。白色の二次滑層は軸柱から発達して，体層の上部に延び螺層に達する。殻口は葉状の蓋でおおわれる。外唇は単純で，痕跡的な歯がある。歯舌は3つの主歯尖と側方に2—3の小歯尖をもつ。側歯は鋭いが単純 (Fig. 3)。

測定値：殻長 11.4mm，殻幅 4.0mm（模式標本 NSMT-Mo 64212）

産　地：南西オーストラリア，アルバニア，水深5 m。

比　較：殻は細長い紡錘形をなし *Alcospira edithae* Pritchard & Gatliff ホソリュウグウボタルガイ (Pl. 1, fig. 13) に似ているが更に細く小形である。螺塔に螺条又は螺溝を作らない。軸柱端は紫色で染められているので，コビトリュウグウボタルガイからも容易に区別出来る。歯舌は多歯型尖で，ホソリュウグウボタルガイ及びニュージランド産の *A.*(*G.*) *novaezealandiae* Sowerby と同型である。また蓋の形もこれ等と同一特徴を示し，共に亜属 *Gracilispira* Olson. 1956 (＝*Austrancilla* Habe, 1959) に属する。

References

Abbott, R. T. & Dance, S. P. 1982. *Compendium of seashells*, 410 pp. E. P. Dutton N.Y.

Chavan, A. 1965. Essai de reclassification des Olividae, Ancillinae (gastropodes), *Bull. Soc. Geol. de France*, 7: 102–109.

Cossmann, A. E. M. 1899. Essais de paleoconchologie comparee, 3: 99–148.

Fischer, P. 1883. Manuel de conchyliogie et de paleontologie conchyliologique. 6: 513–600.

Gubby, R. J. L. 1866. On the relations of Tertiary formations of the West Indies. Description of the new species. *Quart. Jour. Geol. Soc. London*, 22: 570–590.

Habe, T. 1959. Radula of four gastropods from South Australia and New Zealand. *Jour. Malac. Soc. Australia*, 3: 37–38.

Kilburn, R. N. 1977. Description of new species of *Amalda* and *Chilotygma* (Gastropoda: *Ancilla* and *Ancillus*). *Ann. Natl. Mus.*, 23(1): 13–21.

Ponder, W. F. 1968. Nomenclatural notes on some New Zealand rachiglossan gastropods with descriptions of five new species. *Rec. Dominion Mus.*, 6(4): 29–47.

Plate 1

Explanation overleaf.

Explanation of Plate 1

1–4. *Amalda* (*Baryspira*) *utopica* n. sp. マボロシリュウグウボタルガイ
- **1–2.** Holotype (37.8mm in length)
- **3–4.** Paratype 1 (41.2mm)

5–8. *Amalda* (*Alcospira*) *zeigleri*, n. sp. カリブリュウグウボタルガイ
- **5–6.** Holotype (27.2mm)
- **7–8.** Paratype 1 (25.5mm)

9–12. *Amalda* (*Gracilispira*) *albanyensis*, n. sp. コビトリュウグウボタルガイ
- **9–10.** Holotype (11.4mm)
- **11.** Paratype 1 (10.4mm)
- **12.** Paratype 2 (12.4mm)

13. *Amalda* (*Gracilispira*) *edithae* (Pritchard & Gatliff, 1898)