



## The superfamily Pyramidelloidea Gray, 1840 (Mollusca, Gastropoda, Heterostropha) in West Africa. 9. The genus *Clathrella*

## La superfamilia Pyramidelloidea Gray, 1840 (Mollusca, Gastropoda, Heterostropha) en África Occidental. 9. El género *Clathrella*

Anselmo PEÑAS\* and Emilio ROLÁN\*\*

Recibido el 24-III-2001. Aceptado el 17-IX-2001

### ABSTRACT

*Clathrella volumen* n. sp., the only West Africa species of the genus *Clathrella* is described here. Comparison of the new species with *C. clathrata* and *C. sulcosa* demonstrates they can be distinguished on the basis of shell characters.

### RESUMEN

Se revisa la única especie del género *Clathrella* encontrada en África Occidental que se describe como nueva para la ciencia. La nueva especie es comparada con otros taxones próximos como *C. clathrata* y *C. sulcosa* diferenciándola en base a los caracteres de la concha.

KEY WORDS: Pyramidelloidea, *Clathrella*, West Africa, new species.

PALABRAS CLAVE: Pyramidelloidea, *Clathrella*, África Occidental, nuevas especies

### INTRODUCTION

BROCCHI (1814: 298, pl. 1, figs. 3a,b) described *Nerita sulcosa*, a fossil species, from the Pliocene outcrops near Piacenza (North Italy). This material appears to be more properly assigned to the pyramidellid genus *Clathrella*.

Most of the older works on the African molluscan fauna, mentions a species that appears to belong to the taxon of Brocchi, but which is frequently placed in the Vanikoridae. NICKLÉS (1950) recorded *Fossarus sulcosus*, present in the european Miocene and Pliocene, and live collected material from Mauritania. ROLÁN AND FERNANDES (1993) recorded similar material under the same name,

from São Tomé in a checklist of the species of the archipelago. ROLÁN AND RYALL (1999) referred this material to *Clathrella sulcosa*, in the Pyramidellidae.

In our studies we have reached the conclusion that the recent African species is different from the fossil *N. sulcosa* of Brocchi and therefore it is described as new in the present work.

#### Abbreviations:

MHNM Museo Civico di Storia Naturale, Milano

MNHN Muséum National d'Histoire Naturelle, Paris

\* Carrer Olérdola, 39, 5º C, 08800 Vilanova i la Geltrú, (Barcelona).

\*\* Cánovas del Castillo, 22, 36202 Vigo (Pontevedra).

MNCN Museo Nacional de Ciencias  
Naturales, Madrid  
CAP collection A. Peñas, Vilanova i la  
Geltrú  
CER collection E. Rolán, Vigo

CJP collection J. Pelorce, Le Grau du  
Roi  
sp specimen with soft parts  
s empty shell  
j juvenile

## RESULTS

Order HETEROSTROPHA  
Superfamily PYRAMIDELLOIDEA  
Familia AMATHINIDAE Ponder, 1987

Genus *Clathrella* Récluz, 1864

Type species: *Nerita costata* Brocchi, 1814, by original designation.

*Clathrella volumen* spec. nov. (Figs. 8-16)

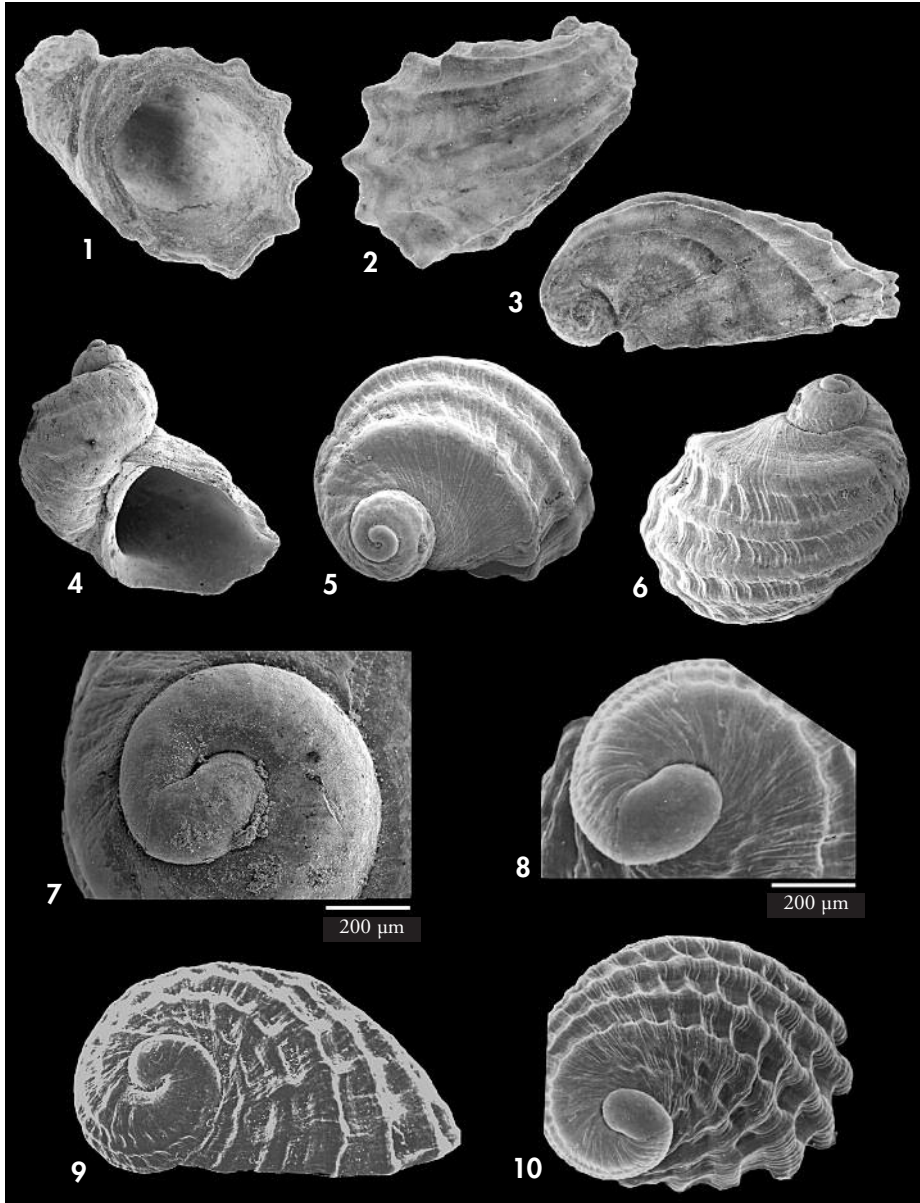
**Type material:** Holotype (Figs. 11-13) in the MNHN; paratypes in MNCN (1), CAP (1), CER (1), from the type locality; 61 paratypes in MNHN from Guinea Conakry: Expeditions "Sedigui" and "Chalgui 7": 1 s, W of the Ile de Los/Conakry, stn. B11DW, 9° 30' N 15° 09.6' W, 45 m (MNHN); 10 s, W of the Ile de Los/Conakry, stn. 261, 9° 30' N 14° 02' W, 25 m (MNHN); 7 s, W of the frontier of Sierra Leona, stn. 71, 9° 05.9' N 13° 35' W, 23 m (MNHN); 1 s, W of the frontier of Sierra Leona, stn. 72, 9° 06' N 13° 32' W, 16 m (MNHN); 1 s, W of the frontier of Sierra Leona, stn. 69, 9° 06' N 13° 41' W, 23 m (MNHN); 3 s, W of the frontier of Sierra Leona, stn. B27DW, 9° 06.6' N 14° 04' W, 45-47 m (MNHN); 1 s, W of Kaporo, stn. 276, 9° 36' N 14° 06' W, 18 m (MNHN); 2 s, W of Kaporo, stn. 277, 9° 36' N 14° 09' W, 23 m (MNHN); 1 s, W of Kaporo, stn. 302, 9° 36' N 15° 24' W, 36 m (MNHN); 1 s, W of the Morébaya River, stn. 174, 9° 24' N 13° 57' W, 21 m (MNHN); 2 s, W of Ouendi, stn. B7DW, 9° 55.5' N 14° 27' W, 23 m (MNHN); 1 j, W of Ile Tannah, stn. 13D, 9° 09' N 13° 37' W, 18-20 m (MNHN); 4 s, W of Ile Tannah, stn. 80, 9° 12.3' N 13° 37' W, 16 m (MNHN); 1 s, W of Ile Tannah, stn. 81, 9° 12' N 13° 40.5' W, 20 m (MNHN); 6 s W Ile Tannah, stn. 82, 9° 12' N 13° 43.5' W, 24 m (MNHN); 2 s, W of Ile Tannah, stn. 83, 9° 12' N 13° 46.8' W, 28 m (MNHN); 1 s, W of Ile Tannah, stn. 84, 9° 12' N, 13° 49.5' W, 33 m (MNHN); 1 s, W of Baie de Sangarea, stn. 338, 9° 42' N 15° 39.5' W, 38 m (MNHN); 1 s, W of Koumba River, stn. B6CH, 10° 21.5' N 14° 48.5' W, 20 m (MNHN); 5 s, W of Ile Kabak, stn. 153, 9° 18' N 14° 03' W, 26 m (MNHN); 1 j, W of Ile Kabak, stn. 155, 9° 18' N 13° 57' W, 21 m (MNHN); 1 s, W of Pointe Goro, stn. 534, 10° 06' N 16° 21' W, 50 m (MNHN); 5 s, W of Pointe Goro, stn. 544, 10° 06' N 15° 50' W, 41 m (MNHN); 2 s, W of Cap Verga, stn. 593, 10° 12' N 14° 50.5' W, 34 m (MNHN).

**Other material examined:** Mauritania: 6 s, Bank d'Arguin, beached (CER); 1 s, Bahía de l'Etoile, 3 m (CER). Senegal: 5 s, M'Bao, Cap Vert, 8 m, (CJP); 3 j, Gorée, Dakar (CJP). Guinea Bissau: Expedition "Chalbis II": 3 j, S of Ilha do Mel, stn. 8, 10° 41' N 15° 44.5' W, 25 m (MNHN). Ghana: 20 s, 13 j, Miamia, 8-25 m (Fig. 14)(CER); 2 s, Miamia, 8-25 m (CAP). São Tomé and Príncipe: 4 s, Baía das Agulhas, Príncipe I., 8 m (CER). Angola: 1 s, Matuco, 120 m (CER); 4 s, Palmeirinhas, 15-20 m (Figs. 15-16)(CER); 10 s, 2 sp, Buraco, 3 m (CER); 3 s, Buraco, 3 m (CAP); 2 s, Mussulo, litoral (CER); 1 s, Cacucaco, 20 m (CER).

**Type locality:** Guinea Conakry, W of the frontier of Sierra Leona, Stn. 71, 9° 05.9' N 13° 35' W, 23 m.  
**Etymology:** The specific name derives of the latin word "volumen" meaning "coiled".

**Description:** Shell (Figs. 11-16) capuli-form, solid, white, with a short spire scarcely prominent only when the shell has less than 1<sup>1</sup>/<sub>2</sub> whorls. Protoconch (Figs. 8-10) emergent and very short, about 273 µm. Teleoconch with between 1-2 spiral

whorls and a fast expansion. At the beginning there are only 2-3 spiral cords, but more new ribs appear near the suture. In the last whorl there are between 12 and 16 prominent cords. Over the entire shell, these cords are crossed by slightly proso-



Figures 1-3. *Nerita sulcosa*, holotype, 11.4 mm, (MHNM) from Pliocene of Piacenza (North Italy). Figures 4-7. *Clathrella* sp., from Ferrière-Larçon "Placete (La)", Indre and Loire, Langhien de Touraine (MNHN, coll. Lozouet and Maestrati) Middle Miocene. 4-6: shells of 3.1, 3.8 and 3.8 mm; 7: protoconch. Figures 8-10. *Clathrella volumen* spec. nov. 8: protoconch; 9, 10: juvenile shells, 1.6 and 1.2 mm.

*Figuras 1-3. Nerita sulcosa, holotipo, 11,4 mm, (MHNM) del Plioceno de Piacenza (norte de Italia). Figuras 4-7. Clathrella sp., de Ferrière-Larçon "Placete (La)", Indre y Loire, Langhien de Touraine (MNHN, col. Lozouet y Maestrati) Mioceno medio. 4-6: conchas de 3,1, 3,8 y 3,8 mm; 7: protoconcha. Figuras 8-10. Clathrella volumen spec. nov. 8: protoconcha; 9, 10: conchas juveniles, 1,6 y 1,2 mm.*

cline axial ribs, narrower than the cords and visible in the interspaces. These ribs are a little irregular and with growth lines between, more separated in the last whorl and sometimes causing elevation on the spiral cords. Aperture rounded, a little ovoid, the border serrated due to the end of the cords.

*Animal:* The only information recorded is that it is white in colour. We have dissolved two dry animals from Angolan material in order to observe radula or jaws, but they were not found.

*Dimensions:* The holotype is 12.5 mm in maximum dimension. The largest shell examined is 14.7 mm.

*Habitat:* *C. volumen* is found attached to stones or shells at variable depths.

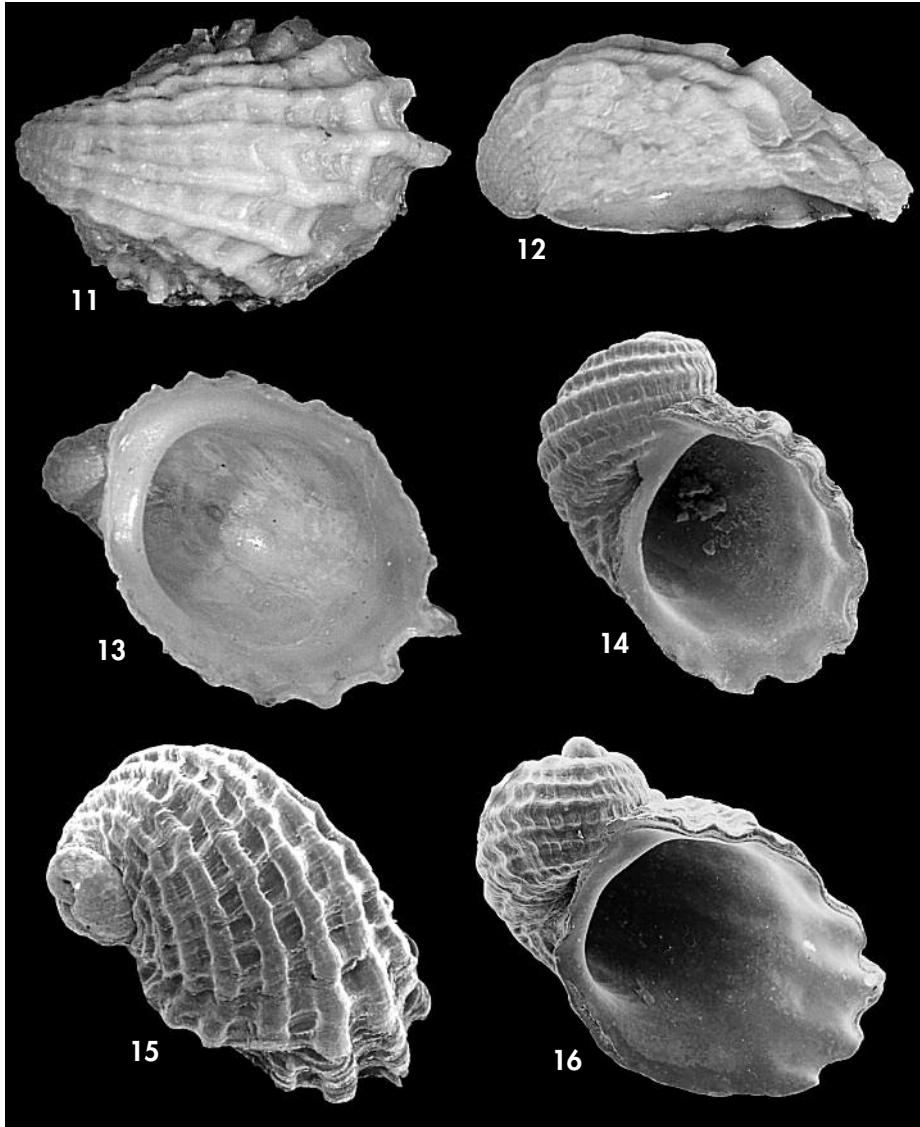
*Distribution:* It is known from Mauritania to Angola, and is present in São Tomé island, but not in the Cape Verde archipelago.

*Discussion:* AARTSEN, MENHORST AND GITTENBERGER (1984) placed *Nerita costata* Brocchi, 1814 in the genus *Clathrella* Recluz, 1864 and considered that this genus is more appropriated than *Phasianema* S. Wood, 1872 where this species is often placed. The type species of the genus *Clathrella* is *Nerita costata* Brocchi, 1814 (= *Fossarus clathratus* Philippi, 1844). *Nerita sulcosa* Brocchi, 1814 has also been placed in the genus *Clathrella* (as in ROLÁN AND RYALL (1999)) due to its similarity to *C. costata*. LOZOUET, LESPORT AND RENARD (2001) use the genus *Carinorbis* Conrad, 1862 for the species *Turbo burdigalus* (d'Orbigny, 1852), which has a shell morphology similar to *Nerita costata*. SCHANDER, VAN AARTSEN AND CORGAN (1999) consider that the genus *Carinorbis* is valid and synonymized it with the genus *Clathrella*, with reservations. PONDER (1987) employs the genus *Amathinoides* Sacco, 1896 for the species *Nerita sulcosa* but he also mentions that this genus is probably best considered a synonym of *Clathrella*. This synonymy is also accepted by LOZOUET, LESPORT AND RENARD (2001). We have placed our new species which is very similar to *Clathrella sulcosa* in this genus, because *Carinorbis* may be

different as it designates smaller and more globose shells with a more prominent spire.

*Clathrella volumen* spec. nov. can be differentiated from *Clathrella clathrata* (Philippi, 1844) from European seas and Canary Islands because the latter species is smaller in size (usually reaching 3-4 mm), the spire is always clearly prominent and the development of the spire is smaller. In contrast, the protoconch of *C. volumen*, is only scarcely prominent in the smallest shells, and not at all in larger ones. Furthermore, in *C. clathrata* the emergent part of the protoconch is larger and almost as long as it is wide, while in *C. volumen* it is more elongate. The whorl expansion in *C. clathrata* is slow and uniform, while it is faster in *C. volumen*. So, the apertural size is smaller in relation to the height of the shell in *C. clathrata* than in *C. volumen*.

Because *C. volumen* was called *Clathrella sulcosa* (Brocchi, 1814) in some previous works on African shells, a comparison with this taxon is necessary. We have examined photographs of the holotype of *C. sulcosa* (Figs. 1-3) in the MHNM and the shell of 11.4 mm appears to be different from *C. volumen* in the following characters: the spire of *Clathrella sulcosa* is slightly prominent, the aperture is almost circular (somewhat ovoid in *C. volumen*); the spiral sculpture is reduced to 8 strong cords (in *C. volumen* there are 16 cords in larger shells and 12-14 in smaller); the upper part of the teleoconch is almost smooth (Fig. 3) up to the first spiral cord (while in *C. volumen* new cords appear subsequently (see Figs. 9, 10, 12, 14, 15 and 16). Also, axial ribs are not present in *C. sulcosa*, while in *C. volumen* they are well marked throughout the shell, being smaller and more distant on the last whorl. As the protoconch of the holotype of *N. sulcosa* is not in good condition, we have examined material from other shells which are from Ferrière-Larçon (France) (see Figs. 4-7). In these shells, probably the same species, the protoconch appears very similar to that



Figures 11-16. *Clathrella volumen* spec. nov. 11-13: holotype, from Guinea Conakry, 12.5 mm (MNHN); 14: shell, 1.7 mm, Miami, Ghana, (CER); 15, 16: shells, 2.4 and 2.5 mm, Palmeirinhas, Angola (CER).

*Figuras 11-16. Clathrella volumen spec. nov. 11-13: holotipo, de Guinea Conakry, 12,5 mm (MNHN); 14: concha, 1,7 mm, Miami, Ghana, (CER); 15, 16: conchas, 2,4 y 2,5 mm, Palmeirinhas, Angola (CER).*

of *C. volumen*, but 338  $\mu\text{m}$  in diameter (in *C. volumen* it is 273  $\mu\text{m}$ ). The other shell characters of *C. sulcosa* are: a more prominent spire, fewer spiral cords,

axial sculpture slightly marked, and the upper part of the whorls below the suture is smooth, without new spiral cords.



## ACKNOWLEDGMENTS

We thank the PARSYST project and the MNHN which allowed us to examine the material of this species; to Alessandro Garassino (MHNM) for the photographs of the holotype of *Nerita sulcosa*; Pierre Lozouet for his help and the loan of fossil material employed in comparison; J. Pelorce for the loan of material; to Jesús

Méndez (CACTI of the University of Vigo) for the SEM photographs; Jesús S. Troncoso (Department of Ecología y Biología Marina of the University of Vigo) for the photos with the digital camera.

This work has been partially supported by the project of the XUNTA DE GALICIA PGIDT00PXI30121PR.

## BIBLIOGRAPHY

- AARTSEN, J. J. VAN, MENKHORST, H. P. M. G. AND GITTENBERGER, E. 1984. The marine Mollusca of the Bay of Algeciras, Spain, with general notes on *Mitrella*, Marginellidae and Turridae. *Basteria*, Suppl. 2: 1-135.
- BROCCHII, G., 1814. *Conchiologia fossile subapennina con osservazioni geologiche sugli Appennini e sul suolo adiacente*. Stamperia Reale, Milano, vol II, pp 241-712.
- LOZOUET, P., LESPORT, J. F. AND RENARD, P., 2001. Révision des Gastropoda (Mollusca) du Stratotype de l'Aquitainien (Miocène inf.) site de Saucats "Larley", Gironde, France. *Cossmanniana*, H. série 3: 1-189.
- NICKLÉS, M., 1950. *Mollusques testacés marins de la côte occidentale d'Afrique*. Lechevalier, Paris, 269 pp.
- PONDER, W. F., 1987. The anatomy and relationships of the Pyramidellacean limpet *Amathina tricarinata* (Mollusca: Gastropoda). *Asian Marine Biology*, 4: 1-34.
- ROLÁN, E. AND FERNANDES, F., 1993. Moluscos marinos de São Tomé y Príncipe: actualización bibliográfica y nuevas aportaciones. *Iberus*, 11(1): 31-47.
- ROLÁN, E. AND RYALL, P., 1999. Checklist of the Angolan marine molluscs. *Reseñas Malacológicas*, 10: 1- 132.
- SCHANDER, C., AARTSEN, J. J. VAN AND CORGAN, J. X., 1999. Families and genera of the Pyramidelloidea (Mollusca: Gastropoda). *Bollettino Malacologico*, 34 (9-12): 145-146.