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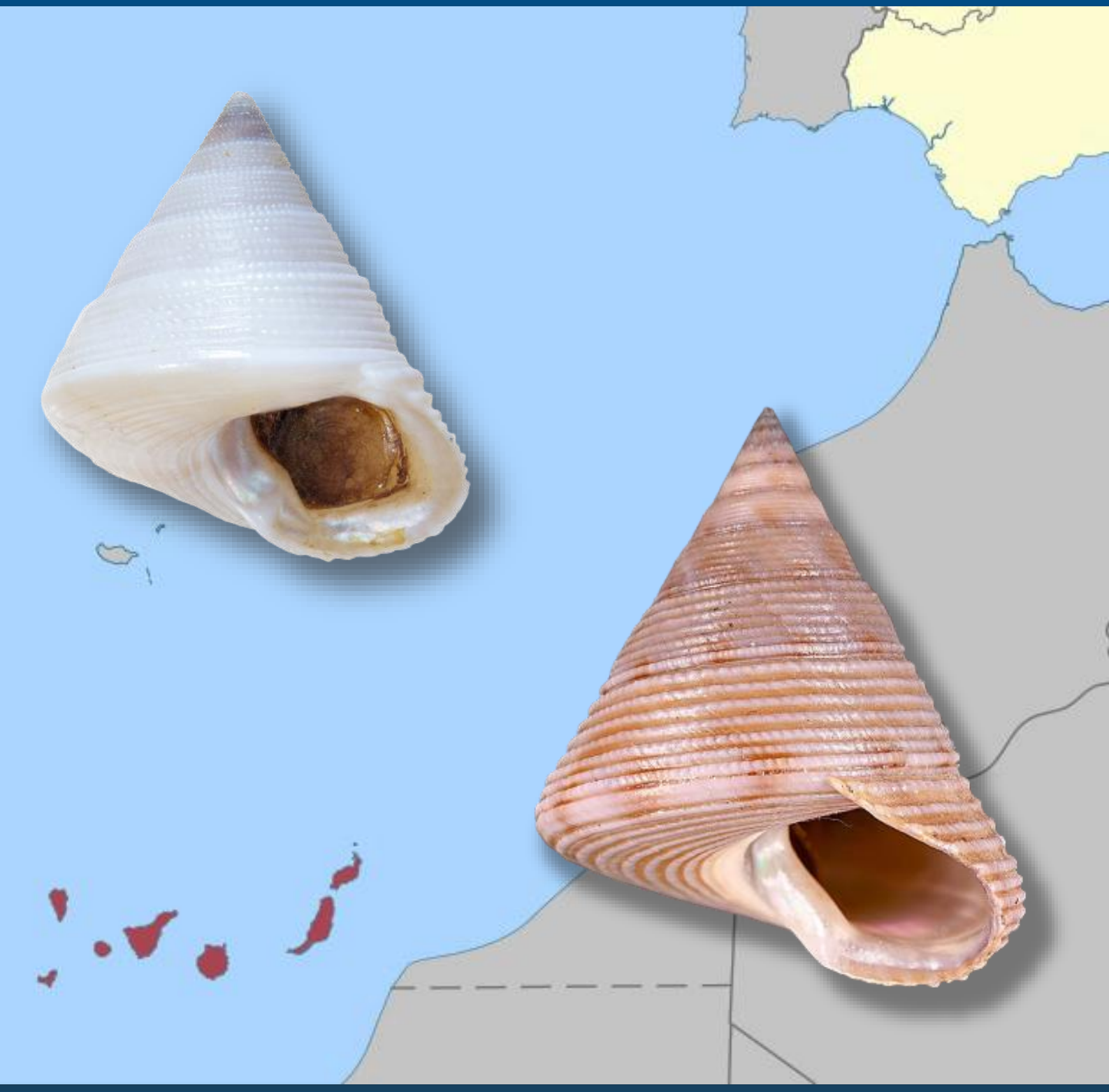

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Content:

Covers:

- **Front cover:** *Calliostoma lithocolletum* Dautzenberg, 1925 at the top and *Calliostoma simulatum* sp. nov. at the bottom
- **Back cover:** Dautzenberg, Ph., 1927. Mollusques provenant des campagnes scientifiques du prince Albert I^{er} de Monaco dans l'Océan Atlantique et le Golfe de Gascogne. *Résultats des campagnes scientifiques accomplies sur son yacht par Albert I^{er} prince souverain de Monaco*. LXXII: 1-400, **Pl. VI**.

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A case of stolen identity: *Calliostoma lithocolletum*, and the description of a new species from the Canary Islands

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Keywords: Mollusca, Gastropoda, CALLIOSTOMATIDAE, *Calliostoma lithocolletum*, *Calliostoma simulatum* sp. nov., Canary Islands, eastern Atlantic.

Abstract: *Calliostoma lithocolletum* Dautzenberg, 1925 is only known from the holotype. Due to apparent careless control of the original description and the holotype, the name *C. lithocolletum* has been attributed by Nordsieck & García-Talavera (1979) to a species with different characteristics and colour. In the last decennia the mistake was taken over by subsequent authors, creating a chaos in the difficult study of eastern Atlantic calliostomatids. In this paper, the confused species from the Canary Islands is compared with the original species and described as *Calliostoma simulatum*.

Abbreviations:
CFN: Private collection of Frank Nolf (Oostende, Belgium)
CSH: Private collection Steve Hubrecht (Koksijde, Belgium)
D.: Diameter
H.: Height
MOM: Musée Océanographique de Monaco
P: primary cord
RBINS: Royal Belgian Institute of Natural Sciences (Brussels, Belgium)
S: secondary cord

Introduction: CALLIOSTOMATIDAE is a rather small family, with an estimated 250 species of medium size. Species are unusual among vetigastropods in that they are carnivores, eating sessile invertebrates, predominantly cnidarians, especially hydroids, but also sponges or tunicates and decaying flesh of dead animals (carrion). Calliostomatids are found from shallow to deep-water depths and occur in all oceans, ranging from the polar to the tropic latitudes. The systematics of this group, particularly at the level of subfamily relationships, are still in need of revision. Shells are conical to circular with straight or with typical slightly curved sides. Protoconch honeycomb pattern. Basis flat or slightly swollen, with or without an umbilicus, aperture oblique forming a rounded square, outer lip not thickened. Columella without teeth, straight or slightly concave, becomes thicker downwards and meets the lower lip in an oblique angle. The head of the animal shows a quite long incomplete tube (pseudoproboscis). Cephalic tentacles elongate, tapered, papillate, well developed eyes on swellings at their outer base in all species. Sexes separate.
The specific diversity of trochoideans and particularly Calliostomatidae species, from infralittoral and circalittoral levels of the eastern Atlantic from Mauritania to southern Angola, appears to be rather poor, compared to other marine provinces as well as to the neighbouring Lusitanian Province which shelters a higher number of trochoidean species. Moreover, there has always been little information about deep-water species of *Calliostoma* from the eastern Atlantic. The only important works are those from Dautzenberg (1889, 1925, 1927), Dautzenberg & Fischer (1896, 1897) and Locard (1897-1898). In the last decade, new information about E Atlantic Calliostomatidae was restricted to sporadic papers in magazines, in which a dozen new species were described. The present paper focuses on the wrong interpretation of the original description of *C. lithocolletum* by different authors which caused a kind of domino effect of mistakes, neglecting the true status of a species from the Canary Islands.

Systematics:

Family CALLIOSTOMATIDAE Thiele, 1924 (1847)

Genus ***Calliostoma* Swainson, 1840**

Typetaxon: *Calliostoma conulus* (Linnaeus, 1758)

Shell trochiform or turbiniform, small to moderately large (10-100 mm), umbilicate or anomphalous, internally nacreous. Protoconch sculptured with a network or threads that enclose roughly hexagonal spaces. First teleoconch whorl convex, subsequent whorls flat to convex or angulate; sculpture rarely absent, usually consisting of nodular spiral cords that multiply by intercalation and axial riblets, the axial generally restricted to earliest whorls, though in some species persistent throughout. Operculum chitinous, thin and multispiral (Marshall, 1995).

***Calliostoma simulatum* sp. nov.**

(Pl. I, figs 1-6; Pl. II, figs 7-11; Pl. III, figs 12-17; Pl. IV, figs. 18-23; Pl. V; Pl. VI; Pl. VII, fig. 24)

Type material:

Holotype: Pl. III, figs 15-17.

Off Santa Cruz de la Palma, La Palma, Canary Islands. Trawled by fishermen at a depth of 100 m. 1976.

H. 26.33 mm D. 23.90 mm.

RBINS-I.G.: 34618-MT.3989

Paratypes 1-2: Pl. IV, figs 18-23.

Off Santa Cruz de le Palma, La Palma, Canary Islands. Trawled by fishermen at a depth of 100 m. 1976.

Paratype 1: H. 27.25 mm D. 24.64 mm. CFN. Pl. IV, figs 18-20.

Paratype 2: H. 29.17 mm D. 25.19 mm. CFN. Pl. IV, figs 21-23.

Paratypes 3-6:

Garafía, La Palma, Canary Islands. Trawled by fishermen at a depth of 80-120 m.

Paratype 3: H. 31.11 mm D. 27.05 mm. CFN. Pl. I, figs 4-6.

Paratype 4: H. 32.02 mm D. 27.39 mm. CFN. Pl. II, figs 7-9.

Paratype 5: H. 28.64 mm D. 26.79 mm. CFN. Pl. II, figs 10-11.

Paratype 6: H. 30.75 mm D. 27.86 mm. CFN. Pl. III, figs 12-14

Paratypes 7-12: CFN.

Paratype 13: Off N Gran Canaria, Canary Islands. Trawled by fishermen at a depth of 100-150 m. 29.1 mm. CSH. Pl. I, figs 1-3.

Description:

Shell trochiform, moderately small and thick (20-30 mm), slightly higher than wide. Protoconch dark, first whorls distinctly granulated, teleoconch with 9 straight whorls, last whorl slightly convex in larger specimens. Periphery rounded, sutures incised, sculpture almost with 7 strong (eventually 5) granulated main ridges with very few weaker secondary ridges. Whorls 3-6 often have the tendency to be eroded and are mostly devoid of dense, whitish and delicate granulations. Base almost flat, sculptured with 9-10 (occasionally 7 or 11) distant standing, flat spiral cords. No umbilicus, umbilical area slightly hollowed and surrounded by a thick white callus. Columella oblique with an obscure dentition below, broadly nacreous. Aperture inside smooth, nacreous. Edge sharp, with a brownish pearly interior.

Basic colour dirty brown or greyish purple, sometimes reddish with an indistinct flame pattern of brown blotches, especially in the lower part of each whorl. Spiral cords and ridges on the base creamy white in contrast with the dark background colour. Sometimes scaly in the vicinity of the columellar edge.

Operculum corneous, circular, multispiral and light brown.

Measurements: from 20 to 32 mm.

Type locality: Off Santa Cruz de la Palma, La Palma, Canary Islands. Trawled by fishermen at a depth of 100 m. 1976.

Distribution: restricted to La Palma, Gran Canaria and Tenerife (Canary Islands).

Etymology: The name '*simulatum'* refers to the counterfeiting character of this species which has been confused with *C. lithocolletum* after the misinterpretation of figures and texts by subsequent authors in the literature of the past fifty years, who pretended to deal with the real Dautzenberg species.

Discussion:

Comparison with other related species:

- ***Calliostoma lithocolletum* Dautzenberg, 1925**

(Pl. VIII; Pl. IX, figs 27-32; Pl. X, figs 33-35)

Once the name '*C. lithocolletum*' was designated to the new species from the Canary Islands [(Nordsieck & García-Talavera, 1979) (Pl. V), several authors (Nordsieck, 1982; Vilvens & Swinnen, 2003; Hernandez et al., 2011 (Pl. VI); Alf et al., 2020 (Pl. VII, fig. 24)] used the wrong name without checking the original text and holotype from Dautzenberg (1925). These authors used images of the new species, except Beck et al. (2006) (Pl. VII, fig 25) who figured a juvenile specimen of *Calliostoma gubbiolii* Nofroni, 1984 instead of the real *C. lithocolletum*. Only van Aartsen et al. (1984) referred to the holotype in the MOM and figured the correct image.

As the new species has nearly always been confused with *Calliostoma lithocolletum* Dautzenberg, 1925, we reproduce here a free translation of the original French description:

'*Shell shiny, solid, imperforate, trochiform, composed of ten flat whorls crossed by decurrent cords composed of regular, fine and numerous granulations. These cords are five in number on the penultimate whorl and seven on the last whorl. The granulations of the two upper rows are a little stronger than those of the others, which gives the whorls a slightly stepped appearance. Last whorl angular at the periphery. Base slightly convex and provided with a dozen flattened concentric cords. Aperture subquadrangular and provided at the interior and on the columellar area by a thick brilliant mother-of-pearl layer. Edge of mouth sharp. Operculum horny, thin, circular, multispiral with a central nucleus.*

Colour sandy, pale rose ***('coloration fauve rosé clair').*** *The granulations of the two superior rows are slightly paler than the background, creating a pearly appearance. The rows on the base are scattered by small, nearly visible dots.*

The species looks like Calliostoma zizyphinum*, but the shell surface is covered by numerous granulations giving the rows the arrangement of small pearls*.'

Type locality: Seine Seamount, off Madeira. 33°47' N/ 14°21' W. Trawled at a depth of 185 m. 26 July 1905. Station 2034 of Campagne Alice 2. 1 live caught specimen.

H. 24 mm, D. 22 mm.

Images of the original illustrations and photographs of the holotype are found on Plates VIII, IX & X.

The holotype appears to be nearly completely white, except for the first whorls, and subsequent authors were misled by Dautzenberg's expression '*coloration fauve rosé clair*', terms he often used in the description of variations.

The new species superficially looks like *C. lithocolletum* regarding outline and general ornamentation of the cords, but this is actually a rust-coloured shell and no white specimens are known.

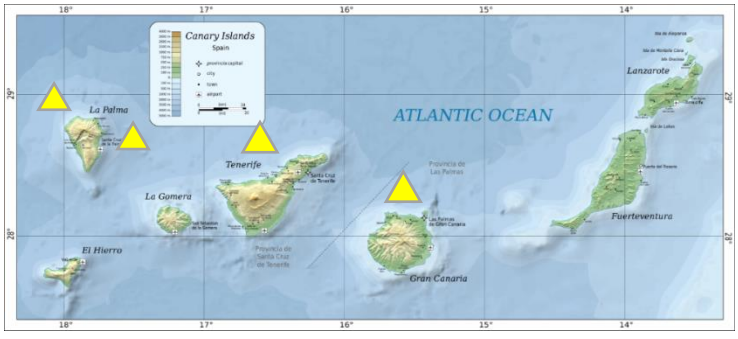
Dautzenberg's species clearly differs from the new species by the following characteristics:

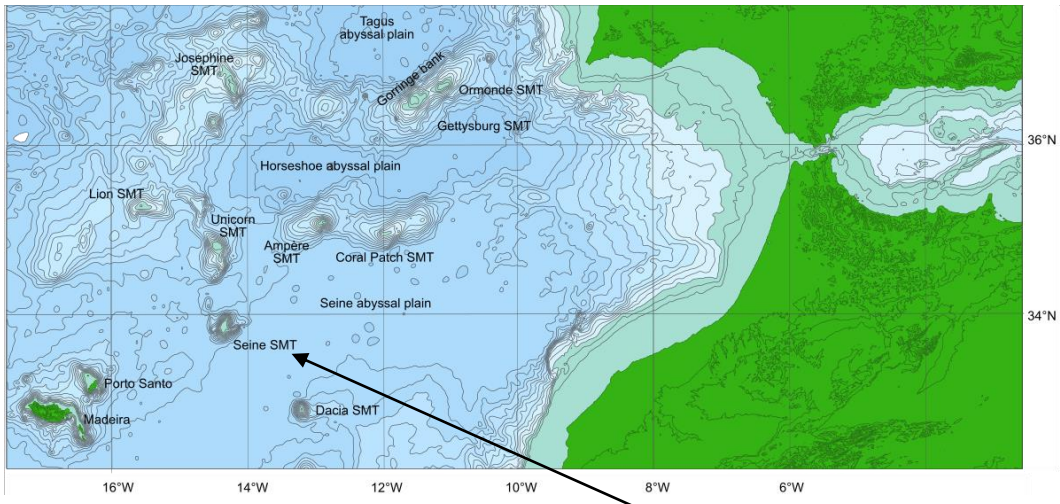
- 10 flat collapsed whorls instead of 9;
- the decurrent cords are all composed of regular, fine and numerous beads;
- the rather stepped outline of whorls;
- the less conical outline, caused by the more depressed whorls;
- the last whorl being angular at the periphery;
- base with 12 flattened concentric cords, instead of 9-10;
- the tiny knob at the columellar area;
- the creamy white colour of the shell.

- ***Calliostoma delonguevilleae*** **Vilvens & Swinnen, 2017** (Pl. VII, fig. 26). This species closely resembles *C. simulatum* regarding outline and colour, but the cords are smooth and devoid of beads. A number of 5 spiral cords on each whorl and 6 on the base. The distance between the cords is larger than the cords themselves. Colour yellowish orange with obscure darker flames.
- ***Calliostoma zizyphinum*** **(Linnaeus, 1758)**. Vilvens (2019) considered the present species erroneously as a form of *C. zizyphinum* (L., 1758). The latter and especially the form usually referred to as *conuloides* (Lamarck, 1822) has about 12 narrow spiral cords on the base with deeper grooves between them. Whorls possess 4-5 primary spiral cords and several secondary cords. These ridges are sharper, without granulation and the shoulder is very prominent and more angular. *C. zizyphinum* is extremely variable in every population in contrast with the constant characteristics of *C. simulatum*.

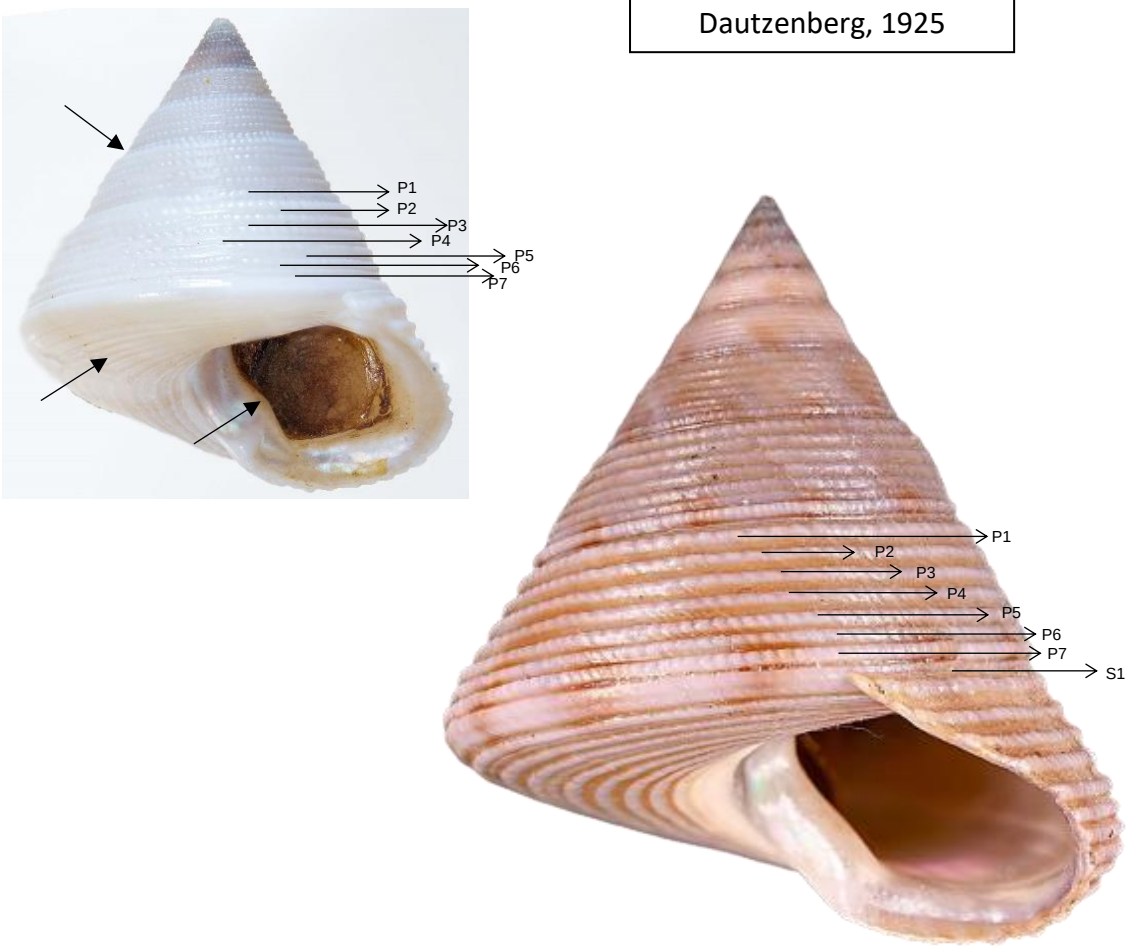
Conclusion: The new species has definitely nothing to do with *C. lithocolletum*, from which it differs by all the enumerated characteristics and has to be regarded as a forgotten species validated in this paper.

Geographic distribution of *Calliostoma simulatum* sp. nov.





Geographic location of *Calliostoma lithocolletum* Dautzenberg, 1925



Text fig. 1: Key to standard calliostomatid spiral cord numbers on the last whorl of
Calliostoma lithocolletum and *Calliostoma* sp. nov.
P = primary spiral cord, S = secondary spiral cord
At the left: *C. lithocolletum*; at the right: *Calliostoma simulatum* sp. nov.

Acknowledgements: We are grateful to Michèle Bruni and her colleague Michel Dagnino, both of the 'Musée Océanographique de Monaco' for taking photographs of the holotype of *Calliostoma lithocolletum*. Thierry Backeljau was so kind to provide useful information about this shell. We want to thank Johan Verstraeten (Belgium) for continuing interest in our research and Jan Libbrecht (Nazareth, Belgium) for the careful checking of the English manuscript. A special word of thanks to Delphine Clement and Dirk Nolf (Oostende, Belgium) for software assistance.

References:

Aartsen, J.J. van, Menkhorst. H.P.M.G. & Gittenberger, E., 1984. The marine Mollusca of the Bay of Algeciras, Spain, with general notes on Mitrella, Marginellidae and Turridae. *Basteria*, supplement, n°2: 1-135

Alf, A., Brenzinger, B., Haszprunar, G., Schrödl, M. & Schwabe, E., 2020. *A Guide to Marine Molluscs of Europe.* ConchBooks, Harxheim. 803 pp.

Ardovini, R. & Cossignani, T., 2004. *West African Seashells (including Azores, Madeira and Canary Is.).* L'Informatore Piceno, Ancona. 319 pp.

Beck, T., Metzger, T., Prof. A. Freiwald, 2006. *Biodiversity Inventorial Atlas of microbenthic seamount animals*. OASIS – BIAS. Compiled by Partner 9, FAU (Friedrich-Alexander-University of Erlangen-Nuremberg. 127 pp.

Blainville, H.M.D. de, 1828-1830. Malacozoaires ou Animaux Mollusques. [in] *Faune Française*. Levrault, Paris. 320 pp., livr. 28 (3 July 1830), p.241-320.

Born, I. von, 1778. Index rerum naturalium Musei Caesarei Vindobonensis. Pars I.ma. Testacea. Verzeichniss der natürlichen Seltenheiten des k. k. Naturalien Cabinets zu Wien. Erster Theil. Schaltiere. [1-40], 1-458, [1-82]. Vindobonae [Vienna]; (Krauss).

Bruins, R.W.B., 1985. *Calliostoma gubbiolii* Nofroni, 1984 (Prosobanchia: Trochidae) uit Portugal. *Basteria*, **49**: 55-58.

Dautzenberg, Ph., 1889. Contribution à la faune Malacologique des Iles Açores. *Résultats des Campagnes Scientifiques accomplies sur son yacht par Le Prince Albert I^er^ prince de Monaco*: 1-112.

Dautzenberg, Ph., 1925. Mollusques nouveaux provenant des croisières du prince Albert I^er^ de Monaco. *Bulletin de l'Institut Océanographique*, **457**: 1-12.

Dautzenberg, Ph., 1927. Mollusques provenant des campagnes scientifiques du prince Albert I^er^ de Monaco dans l'Océan Atlantique et le Golfe de Gascogne. *Résultats des campagnes scientifiques accomplies sur son yacht par Albert I^er^ prince souverain de Monaco*. **LXXII**: 1-400.

Dautzenberg, Ph. & Fischer, H., 1896. Campagnes scientifiques de S.A. le prince Albert Ier de Monaco. Dragages effectuées par l'Hirondelle et par la Princesse-Alice 1888-1895. 1. Mollusques Gastropodes. *Extrait des Mémoires de la Société Zoologique de France*, **9**: 395-498.

Dautzenberg, Ph. & Fischer, H., 1897. Campagnes scientifiques de S.A. le prince de Monaco. Dragages effectuées par l'Hirondelle et par la Princesse-Alice 1888-1896. *Extrait des Mémoires de la Société Zoologique de France,* **X**: 139-234.

Hernandez, J.M., Rolán, E., Swinnen, F., Gómez, R. & Pérez, J.M., 2011. *Moluscos y conchas marinas de Canarias.* Coord. E. Rolán. ConchBooks, Hackenheim. 716 pp.

Hickman, C.S. & McLean, J.H., 1990. Systematic revision and suprageneric classification of trochacean gastropods. *Science Series of Natural History Museum of Los Angeles County*. **35**: 1-169.

Lamarck, J.-B. M. de, 1882. Histoire naturelle des animaux sans vertèbres. Tome septième. Paris. 711 pp.

Locard, A., 1897-1898. Expéditions scientifiques du Travailleur et du Talisman pendant les années 1880, 1881, 1822 et 1883. Mollusques testacés. Tome 1. Ed. Masson. Paris, 516 pp. Tomle 2, Ed. Masson, Paris, 515 pp.

Marshall, B.A., 1995. Calliostomatidae from New Caledonia, the Loyalty Islands and the northern Lord Howe Rise. *In*: A. Crosnier & Ph. Bouchet (eds), Résultats des Campagnes MUSORSTOM, volume 14, *Mémoires du Muséum national d'Histoire naturelle*, **167**: 381-458.

Nicklès, M., 1950. Mollusques testacés marins de la côte occidentale d'Afrique. Manuels Ouest-Africains: 2. Paris. Lechevalier. 269 pp.

Nordsieck, F., 1982. *Die europäischen Meeres-Gahäuseschnecken (Prosobranchia).* Gustav Fischer Verlag, Stuttgart. 539 pp.

Nordsieck, F. & García-Talavera, F., 1979. *Moluscos Marinos de Canarias y Madera (Gastropoda).* Aula de Cultura de Tenerife. 208 pp + 46 pls.

Philippi, R.A., 1844. *Enumeratio molluscorum Siciliae cum viventium tum in tellure tertiaria fossilium, quae in itinere suo observavit*. Vol. 2. Halle [Halis Saxorum]. Eduard Anton, iv + 303 pp, pls. 13-28.

Philippi, R.A., 1846-1855. Die Kreiselschnecken oder Trochoideen (Gattungen *Turbo*, *Trochus*, *Solarium*, *Rotella*, *Delphinula*, *Phasianella*). In Abbildungen nach der Natur mit Beschreibungen. In: Küster, H.C.; *Ed. Systematisches Conchylien Cabinet von Martini und Chemnitz. Zweiten Bandes, dritte Abteilung*. **2**(3): 1-372, pls. 1-49. Nürnberg: Bauer & Raspe.

Poppe, G.T. & Goto, Y., 1991. *European Seashells* (vol. I). Verlag Christa Hemmen. Wiesbaden. 352 pp.

Rolán, E. & Suarez, M., 2007. Primera cita de *Calliostoma leptophyma* (Mollusca, Calliostomatidae) para aguas de la Península Ibérica. *Noticario SEM*, **47**: 39-43.

Rubio Salazar, F. & Gubbioli, F., 1993. A new *Calliostoma* from West Africa. *La Conchiglia*, **267**: 20-23.

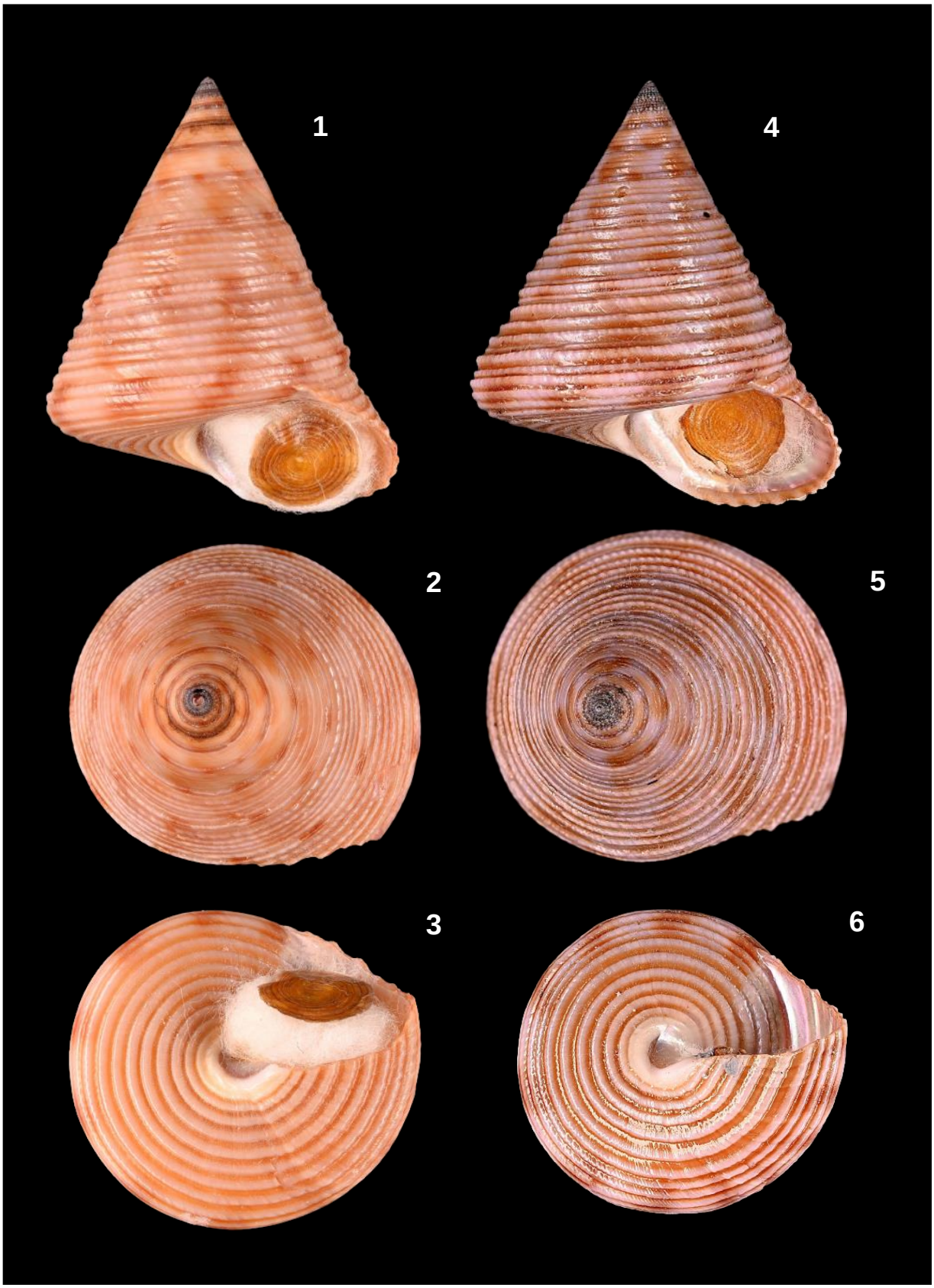
Vega Luz, R., 1988. New information on *Calliostoma gubbiolii* Nofroni, 1984. *La Conchiglia*, **236-237**: 28.

Vilvens, C. & Swinnen, F., 2003. Description of *Calliostoma heugteni* n. sp. (Gastropoda: Trochidae: Calliostomatidae) from eastern Atlantica. *Novapex*, **4**(4): 119-123.

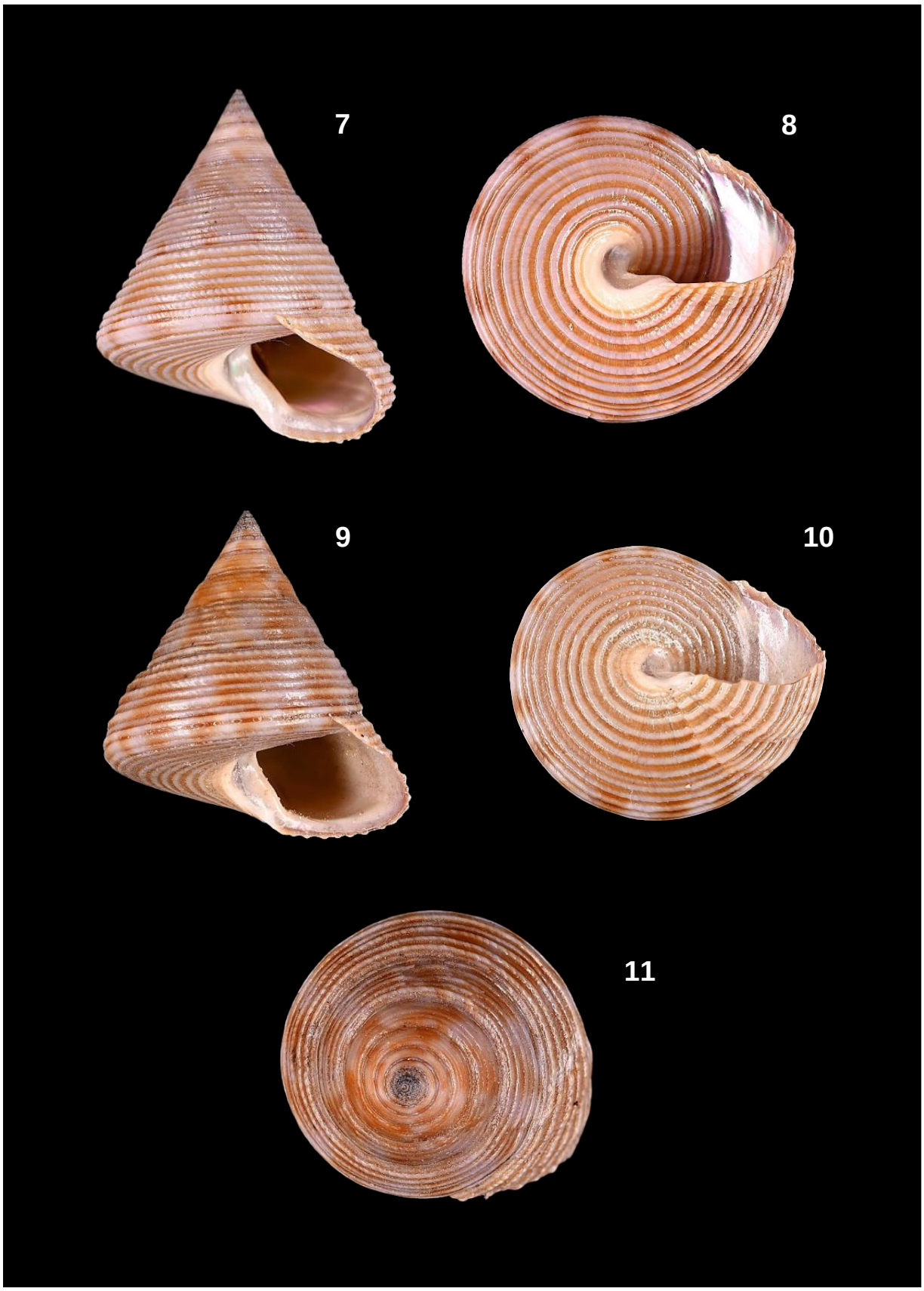
Vilvens, C. & Swinnen, F., 2017. A new record and a new species of *Calliostoma* (Gastropoda: Trochoidea: Calliostomatidae) from southwestern Mediterranean Sea and adjacent Atlantic area. *Gloria Maris*, **56**(1): 20-23.

Vilvens, C., 2019. *La systématique des Calliostomatidae Thiele, 1924*. ClassificationCalliostomatidaeVilvens2919.pdf

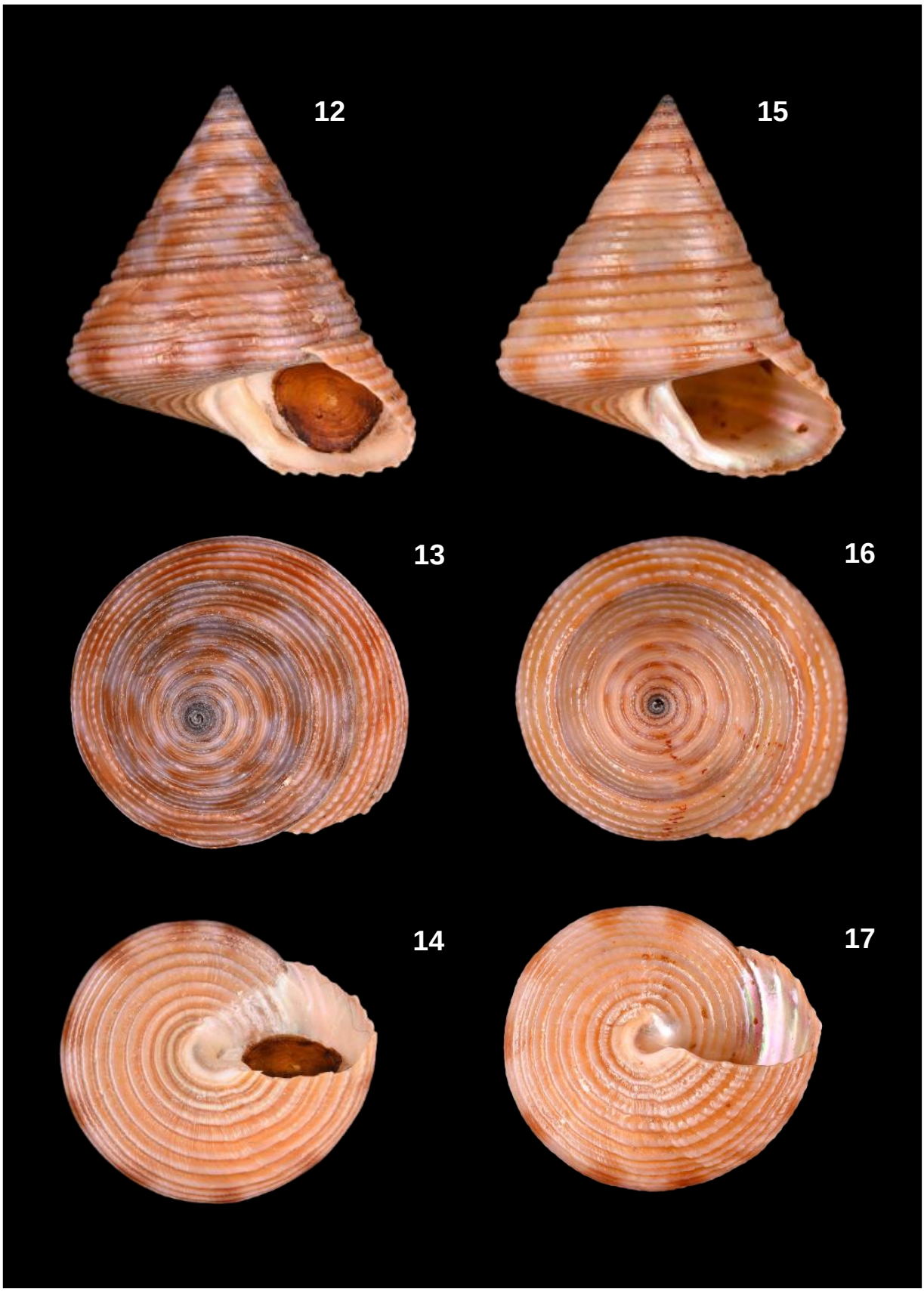
Williams, S.T., Donald, K.M., Spencer, H.G. & Nakano, 2010. Molecular systematics of the marine gastropod families Trochidae and Calliostomatidae (Mollusca: Superfamily Trochoidea). *Molecular Phylogenetics and Evolution*, **54**: 783-809.



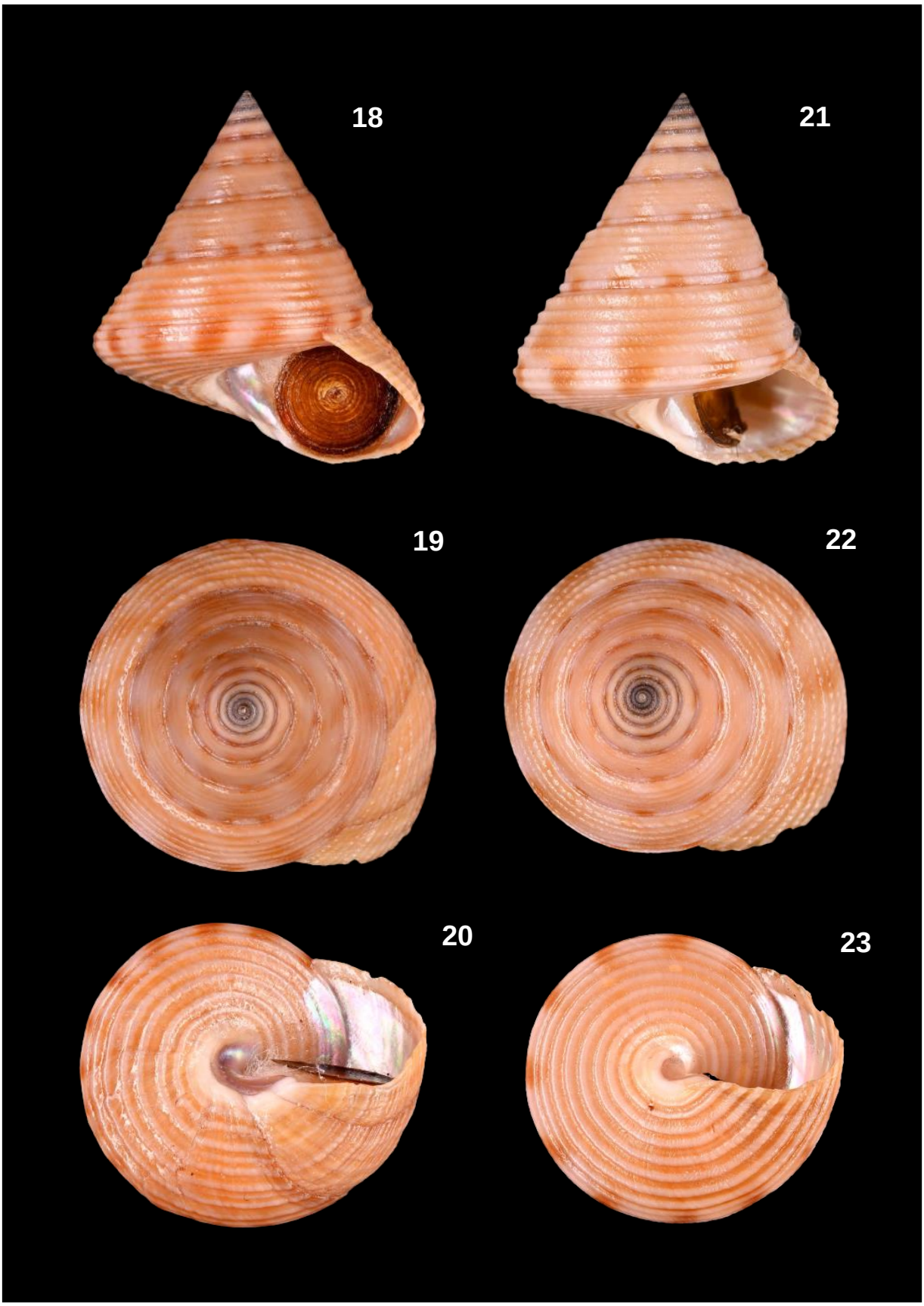
Pl. I. Figs 1-6. *Calliostoma simulatum* sp. nov.; 1-3: N of Tenerife, Canary Islands. Trawled by fishermen at a depth of 250 m. July 1993. H. 16.8 mm. CSH. Paratype 13; 4-6: Garafía, La Palma, Canary Islands. Trawled by fishermen at 80-120 m. H. 31.11 mm D. 27.05 mm. CFN. Paratype 3.



Pl. II. Figs 7-11. *Calliostoma simulatum* sp. nov. CFN; Garafía, La Palma, Canary Islands. Trawled by fishermen at 80-120 m; 7-8: H. 32.02 mm D. 27.39 mm. Paratype 4; 9-11: H. 28.64 mm D. 26.79 mm. Paratype 5.

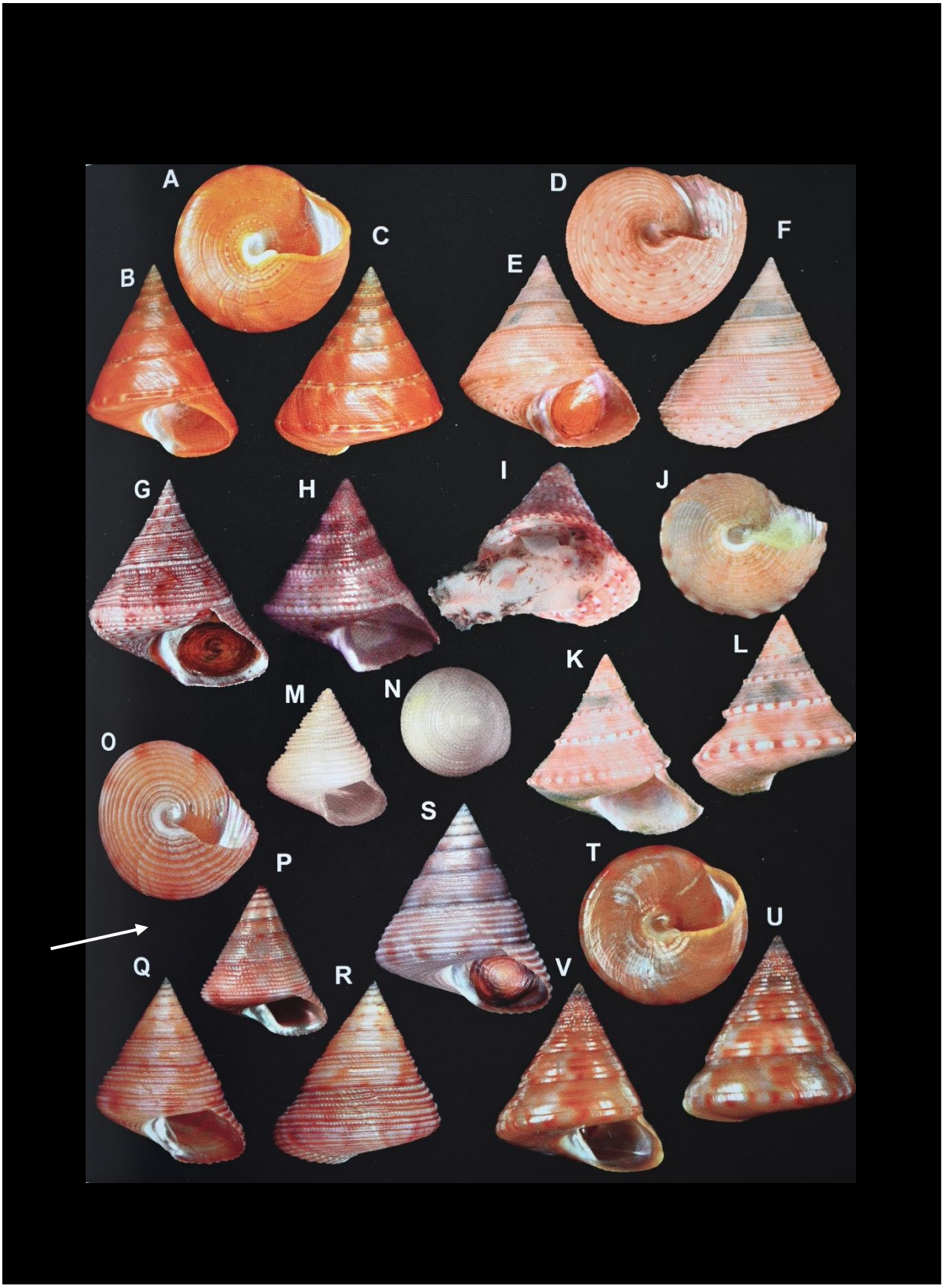


Pl. III. Figs 12-17. *Calliostoma simulatum* sp. nov.; Garafía, La Palma, Canary Islands. Trawled by fishermen at 80-120 m; 12-14: H. 30.75 mm D. 27.86 mm. Paratype 6. CFN; 15-17: Off Santa Cruz de la Palma, La Palma, Canary Islands. Trawled by fishermen at a depth of 100 m. 1976. H. 26.33 mm D. 23.90 mm. **Holotype. RBINS**.

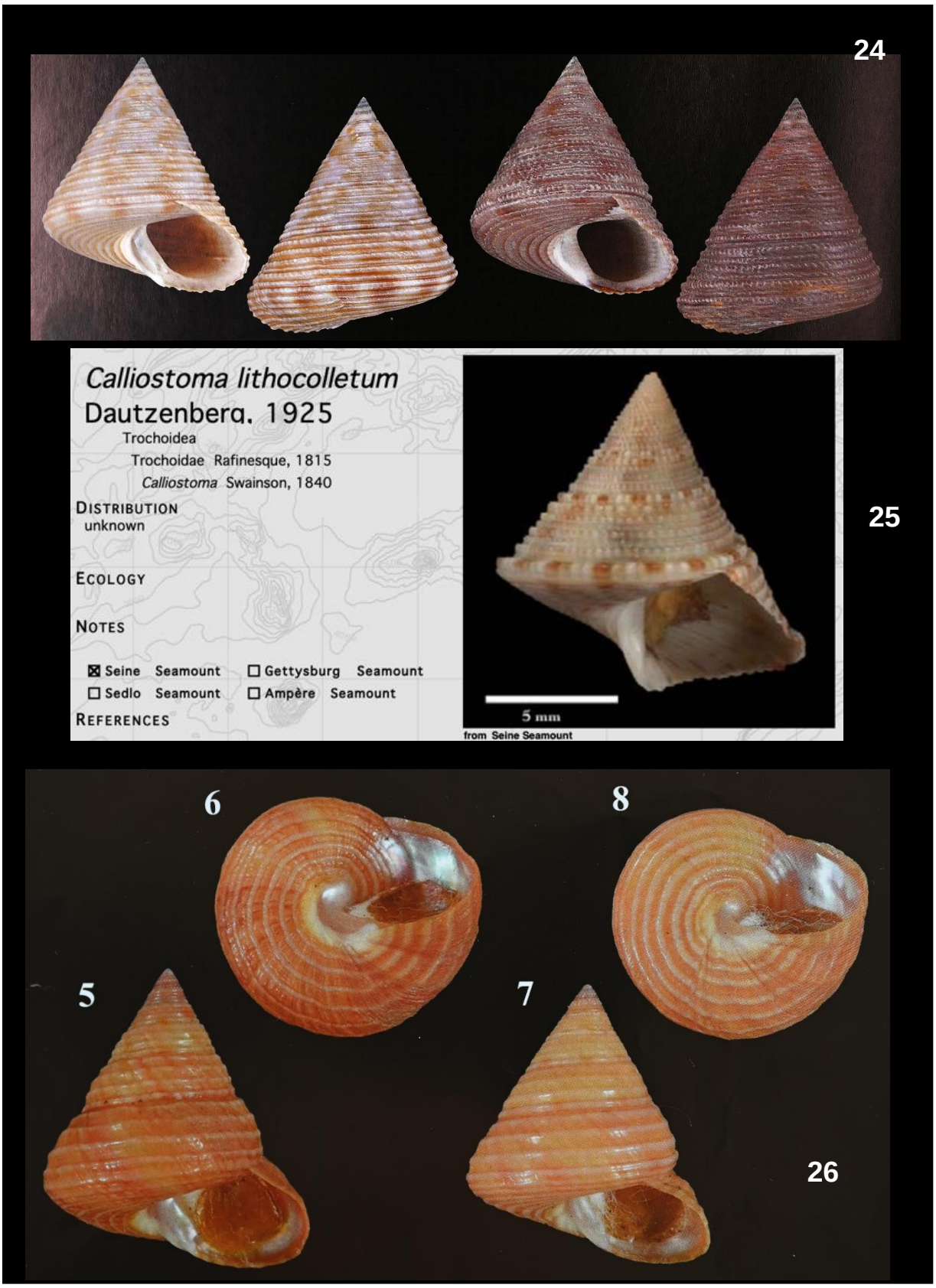


Pl. IV. Figs 18-23. *Calliostoma simulatum* sp. nov. CFN; Off Santa Cruz de la Palma, La Palma, Canary Islands. Trawled by fishermen at a depth of 100 m. 1976; 18-20: H. 27.25 mm D. 24.64 mm. Paratype 1; 21-23: H. 29.17 mm D. 25.19 mm. Paratype 2.

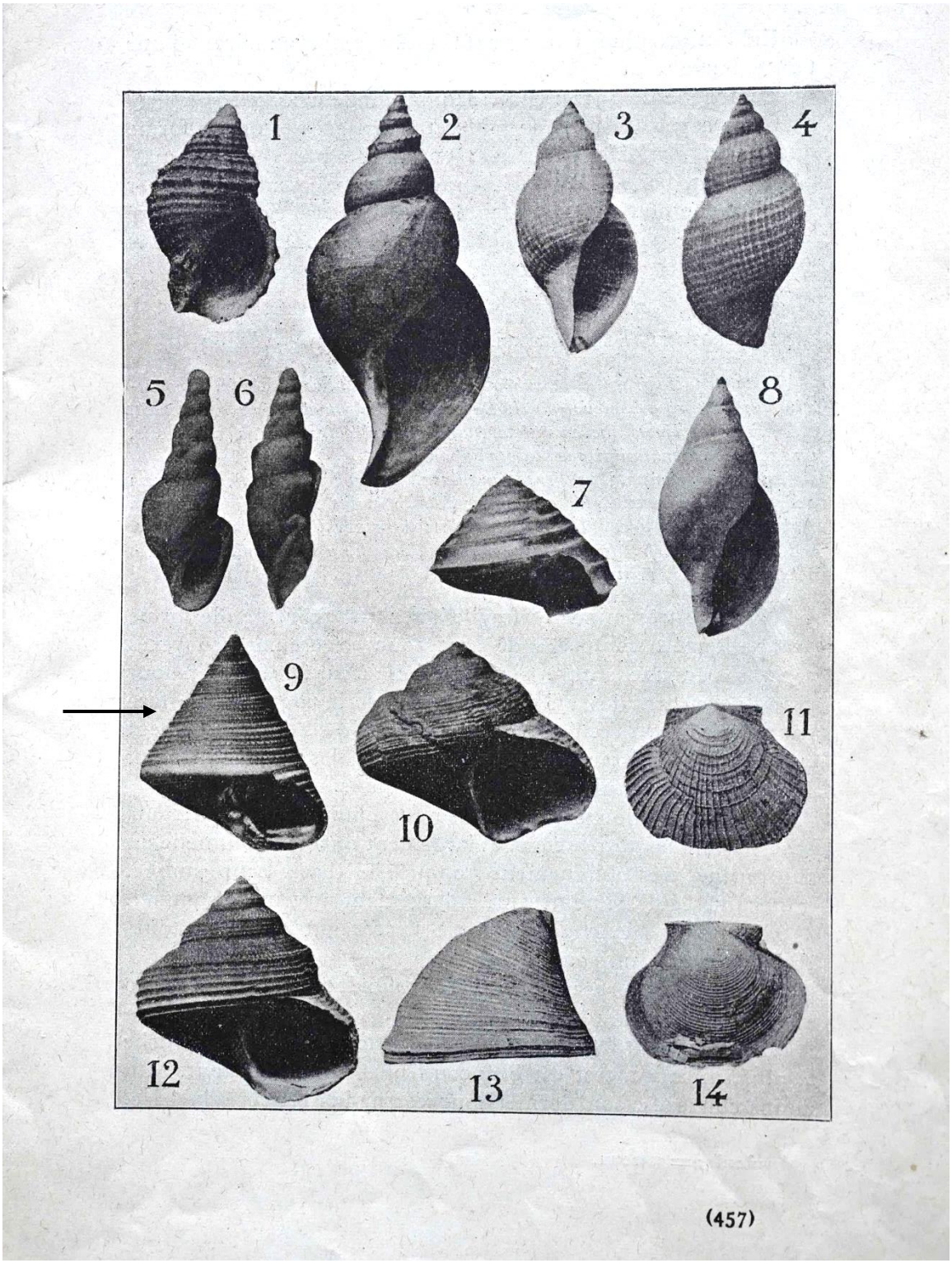
Pl. V. Nordsieck, F. & García-Talavera, F., 1979. *Moluscos Marinos de Canarias y Madera (Gastropoda).* Aula de Cultura de Tenerife. Pl. VII, fig. 4. '*Calliostoma lithocolletum*' (= *C. simulatum* sp. nov.)



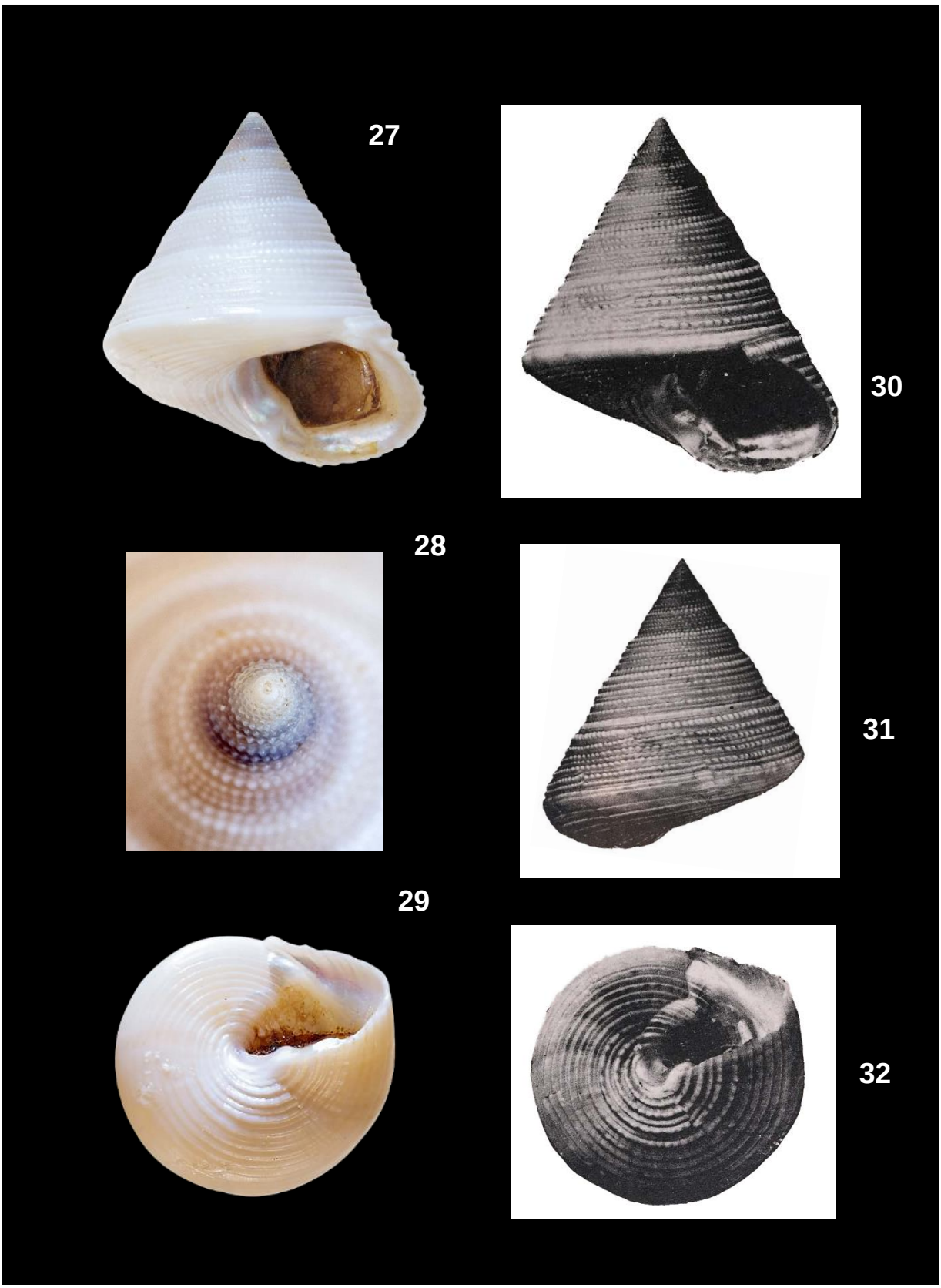
Pl. VI. Hernandez, J.M., Rolán, E., Swinnen, F., Gómez, R. & Pérez, J.M., 2011. *Moluscos y conchas marinas de Canarias.* Coord. E. Rolán. ConchBooks, Hackenheim. Pl. 20, figs O-S: '*Calliostoma lithocolletum*' (= *C. simulatum* sp. nov.)



Pl. VII. Fig. 24: Alf, A., Brenzinger, B., Haszprunar, G., Schrödl, M. & Schwabe, E., 2020. *A Guide to Marine Molluscs of Europe.* ConchBooks, Harxheim. Pl. 69: *'Calliostoma lithocolletum* Dautzenberg, 1925' (= *C. simulatum* sp. nov.); Fig. 25: Juvenile specimen of *C. gubbiolii* Nofroni, 1984) in: Beck, T., Metzger, T., Prof. A. Freiwald, 2006. *Biodiversity Inventorial Atlas of microbenthic seamount animals*. OASIS – BIAS. Compiled by Partner 9, FAU (Friedrich-Alexander-University of Erlangen-Nuremberg Fig. 26: *Calliostoma delonguevilleae* Vilvens & Swinnen, 2017 in: *Gloria Maris*, **56**(1): figs 5-8.



Pl. VIII. Dautzenberg, Ph., 1925. Mollusques nouveaux provenant des croisières du prince Albert I[er] de Monaco. *Bulletin de l'Institut Océanographique*, **457**: fig.9: *Calliostoma lithocolletum*.



Pl. IX. Figs 27-32: *Calliostoma lithocolletum* Dautzenberg, 1925; 27-29: Holotype. MOM; figs 30-32: Dautzenberg, Ph., 1927. Mollusques provenant des campagnes scientifiques du prince Albert I^{er} de Monaco dans l'Océan Atlantique et le Golfe de Gascogne. *Résultats des campagnes scientifiques accomplies sur son yacht par Albert I^{er} prince souverain de Monaco*. **LXXII**: Pl. 6, figs 24-26.

Pl. X. Figs. 33-35: *Calliostoma lithocolletum* Dautzenberg, 1925. Holotype. MOM.

A tiny new *Calliostoma* species from Senegal

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Keywords: Mollusca, Gastropoda, CALLIOSTOMATIDAE, *Calliostoma pini* sp. nov., Senegal, eastern Atlantic.

Abstract: At the end of the past century a dozen specimens of a small *Calliostoma* species were offered for sale by the late Marcel Pin (Dakar, Senegal) as *C. dubium* (Philippi, 1844). In fact, that shell was very different from '*C. dubium*' [(synonym of *C. conulus* (L., 1758)] and it revealed to be a new species, described as *Calliostoma pini* in this paper.

Abbreviations:
CFN: Private collection of Frank Nolf (Oostende, Belgium)
CSH: Private collection Steve Hubrecht (Koksijde, Belgium)
D.: Diameter
H.: Height
RBINS: Royal Belgian Institute of Natural Sciences (Brussels, Belgium)

Introduction:
The family Calliostomatidae is well represented in all world seas from tropical waters to polar seas and this with about 450 recent species. The eastern Atlantic is less endowed with only some 30 species but with more than 140 recorded names and a nomenclatural chaos.
Within the East Atlantic, Lusitanian and Mediterranean seas have primarily the highest variety of species, admittedly several very rare and only known from the holotype and few specimens.
The Tropical West African Province covers fewer species. A few Lusitanian *Calliostoma* species reach the northern part of the West African Province, mainly the Peninsula of Cap Vert in Senegal.
Senegal is one of the better sampled countries for molluscs in the West African region together with the Cape Verde Peninsula. The Dakar area with a varied shoreline and relatively calm coastal water is probably the best studied region in tropical West Africa. The Bay of Gorée yields a great diversity of species.
The late Marcel Pin (1936-1998) of Dakar (Senegal) was an amateur collector/shell dealer. He collected large quantities of material during the 1989's and early 1990's, mostly from his own dredgings in the Dakar region but also from shrimp boats working off the Casamance and further on to Guinea-Bissau.

One of the smaller but distinctive *Calliostoma* species brought up in reasonable numbers was called *Calliostoma dubium* (Philippi, 1844) by Marcel Pin, no doubt inspired by the popular regional guide by Maurice Nicklès who made a free interpretation of the picture of Philippi's original description of *Calliostoma dubium*. The latter name is now generally considered preoccupied and unavailable and relegated in synonymy of *Calliostoma conulus* (Linnaeus, 1758), although quite some collectors of Mediterranean shells still use the name for some forms of the *Calliostoma laugieri* (Payraudeau, 1826) complex. In any case the "*dubium*" from Marcel Pin is a very different from either Philippi's "*dubium*" or *C. conulus* and/or *C. laugieri* and is therefore here described as a new species.

Systematics:

Family CALLIOSTOMATIDAE Thiele, 1924 (1847)
Genus ***Calliostoma* Swainson, 1840**
Typetaxon: *Calliostoma conulus* (Linnaeus, 1758)

***Calliostoma pini* sp. nov.**
(Pl. I, figs 1-8; Pl. II, figs 9-17)
Type material:
Holotype: Pl. I, figs 7-8.
Gorée, Senegal. Dredged by fishermen at a depth of 20 m. February 1993.
H. 10.98 mm D. 9.30 mm. RBINS-I.G.: 34618-MT.3992

Paratypes 1-5:
Gorée, Senegal. Dredged by fishermen at a depth of 20 m. September 1993. CSH.
Paratype 1: H. 10.69 mm D. 8.57 mm.
Pl. I, figs 3-6.
Paratype 2: H. 10.71 mm D. 8.60 mm
Pl. II, figs 9-11.
Paratype 3: H. 9.09 mm D. 7.66 mm
Pl. II, figs 12-14.
Paratype 4: H. 9.71 mm D. 8.14 mm
Pl. II, figs 15-17.
Paratype 5: H. 11.13 mm D. 9.23 mm
Pl. I, figs 1-3.
Paratypes 6-7:
Bay of Dakar, Senegal. Dredged by fishermen at a depth of 10 m. February 1993. CFN.
Paratype 6: H. 9.58 mm D. 9.22 mm
Paratype 7: H. 8.52 mm D. 8.76 mm

Description: Shell very small for the genus (9-12 mm, conical, rather high spired, higher than wide (average ratio H/D: 1.20), and height about 2.7 higher than aperture. Spire angle about 40°-45° with honeycomb microsculpture, followed by two spiral segments beginning with a coarse axial fold and ending with a microsculpture made by 4-5 spaced spiral cords.
Teleoconch of 7 whorls, flat sided, last whorl slightly concave, its peripheral area more rounded than in the upper teleoconch whorls. Each whorl has three primary spiral cords and the periphery is slightly carinated and rounded, creating a stepped outline. Just beneath the suture there is one secondary cord. Shallow interspaces between the ridges. Suture well defined. Whorls 1 to 4 provided with granulated cords, with many small equally spaced beads, in contrast with the last 3 whorls which are devoid of granules. Base with 10-12 flattened smooth spiral cords, completely free of beads.
Half of the specimens may have a very small umbilicus half closed by a nacreous callus. The other half has an umbilical region completely closed with a white callus.
Aperture subquadrate, nacreous, parietal edge straight, columellar edge subventrical, slightly sinuous.
Operculum small, subcircular, smooth, yellowish brown.
Background colour yellowish or light tan and ornamented with light brown blotches and flames scattered over the surface of the whorls. Each of the spiral cords of the base possesses a series of alternating brownish and yellowish dots.
Animal and radula unknown.

Measurements: H. from 9 to 11 mm, D. from 7.5 to 9.3 mm

Type locality: holotype and paratypes are only known from Gorée, Dakar, Senegal. Dredged from a depth of 10-20 m.

Distribution: This species seems to be restricted to the environment of Dakar, Senegal.

Etymology: The name '*pini*' is derived from the late Marcel Pin, shell dealer and author of several papers about seashells from his home town Dakar and the surrounding seas. In the eighties of the last century, he distributed many samples of the present species all over the world, but the species remained unnamed during several decades.

Discussion: The species is very close to the smaller calliostomatid species ***Calliostoma angolense* Boyer, 2007** (6-7 mm) (= C. *fernandesi* Boyer, 2006) (Pl. V). Spiral cords are more prominent and deeper incised. *C. pini* has a characteristic stepped outline without granulose spiral cords on the last three whorls, whereas in *Calliostoma angolense* all the whorls are provided with crowded small beads.

Other similar calliostomatids from the NW African waters and the Gibraltar area are:

- ***C. conulus* (Linnaeus, 1758)** (Pl. III, figs 18-20): larger (10-25 mm), with smooth shiny whorls, no granulated spiral cords but sometimes with incised threads, most specimens are bright orange-brown coloured but marbled greenish specimens may also occur.
- ***C. funiculatum* Ardovini, 2011** (Pl. IV, figs 27-35): more conical, the periphery ridge is rounded and not sharply carinated, the concentric spiral cords are broader than in *C. pini.*
- ***C. lusitanicum* Nordsieck & Talavera, 1979** (Pl. III, figs 21-26): less conical, more pyramidal, with 8-9 flat whorls, slightly carinated at the periphery and with three spiral bands. Columella with a ridge looking as a pseudo umbilicus and a white crescent around it.

Conclusion: There are sufficient differences with similar species from the Lusitanian region and the West African waters to conclude *C. pini* is a valid new species.

Acknowledgements: Johan Verstraeten was involved in the discussions about the status of the new species and Jan Libbrecht made all the necessary corrections to the English manuscript.

References:

Alf, A., Brenzinger, B., Haszprunar, G., Schrödl, M. & Schwabe, E., 2020. *A Guide to Marine Molluscs of Europe.* ConchBooks, Harxheim. 803 pp.

Ardovini, R. & Cossignani, T., 2004. *West African Seashells (including Azores, Madeira and Canary Is.).* L'Informatore Piceno, Ancona. 319 pp.

Ardovini, R., 2011. *Calliostoma funiculatum* n. sp. (Gastropoda, Calliostomatidae) Sicilia occidentale, Isole Egadi. *Malacologia Mostra Mondiale*, **71**: 19-20.

Ardovini, R., 2021. Sul rinvenimento di tre esemplari del raro *Calliostoma funiculatum* Ardovini, 2011 nel Mare delle Isole Egadi (Sicilia occidentale). *Malacologia Mostra Mondiale*, **111**: 16.

Blainville, H.M.D. de, 1828-1830. Malacozoaires ou Animaux Mollusques. [in] *Faune Française*. Levrault, Paris. 320 pp., livr. 28 (3 July 1830), p.241-320.

Born, I. von, 1778. Index rerum naturalium Musei Caesarei Vindobonensis. Pars I.ma. Testacea. Verzeichniss der natürlichen Seltenheiten des k. k. Naturalien Cabinets zu Wien. Erster Theil. Schaltiere. [1-40], 1-458, [1-82]. Vindobonae [Vienna]; (Krauss).

Boyer, F., 2006. A new *Calliostoma* species (Gastropoda: Calliostomatidae) from Angola*. Iberus*, **24**(2): 55-59.

Boyer, F., 2007. A replacement name for *Calliostoma* (*Fautor*) *fernandesi* Boyer, 2006. *Iberus*, **25**(1): 115-116.

Gofas, S., 1991. Un nouveau *Jujubinus* d'Angola. *Apex*, **6**(1) : 21-24.

Gofas, S., Afonso, J.P. & Brandáo, M., 1985. *Conchas e Moluscos de Angola = Coquillages et Mollusques d'Angola*. [*Shells and molluscs of Angola*]. Universidade Agostinho/Elf Aquitaine Angola: Angola. 140 pp.

Hickman, C.S. & McLean, J.H., 1990. Systematic revision and suprageneric classification of trochacean gastropods. *Science Series of Natural History Museum of Los Angeles County*. **35**: 1-169.

Lamarck, J.-B. M. de, 1882. Histoire naturelle des animaux sans vertèbres. Tome septième. Paris. 711 pp.

Marshall, B.A., 1995. Calliostomatidae from New Caledonia, the Loyalty Islands and the northern Lord Howe Rise. *In*: A. Crosnier & Ph. Bouchet (eds), Résultats des Campagnes MUSORSTOM, volume 14, *Mémoires du Muséum national d'Histoire naturelle*, **167**: 381-458.

Nicklès, M., 1950. Mollusques testacés marins de la côte occidentale d'Afrique. Manuels Ouest-Africains: 2. Paris. Lechevalier. 269 pp.

Nordsieck, F., 1982. *Die europäischen Meeres-Gahäuseschnecken (Prosobranchia).* Gustav Fischer Verlag, Stuttgart. 539 pp.

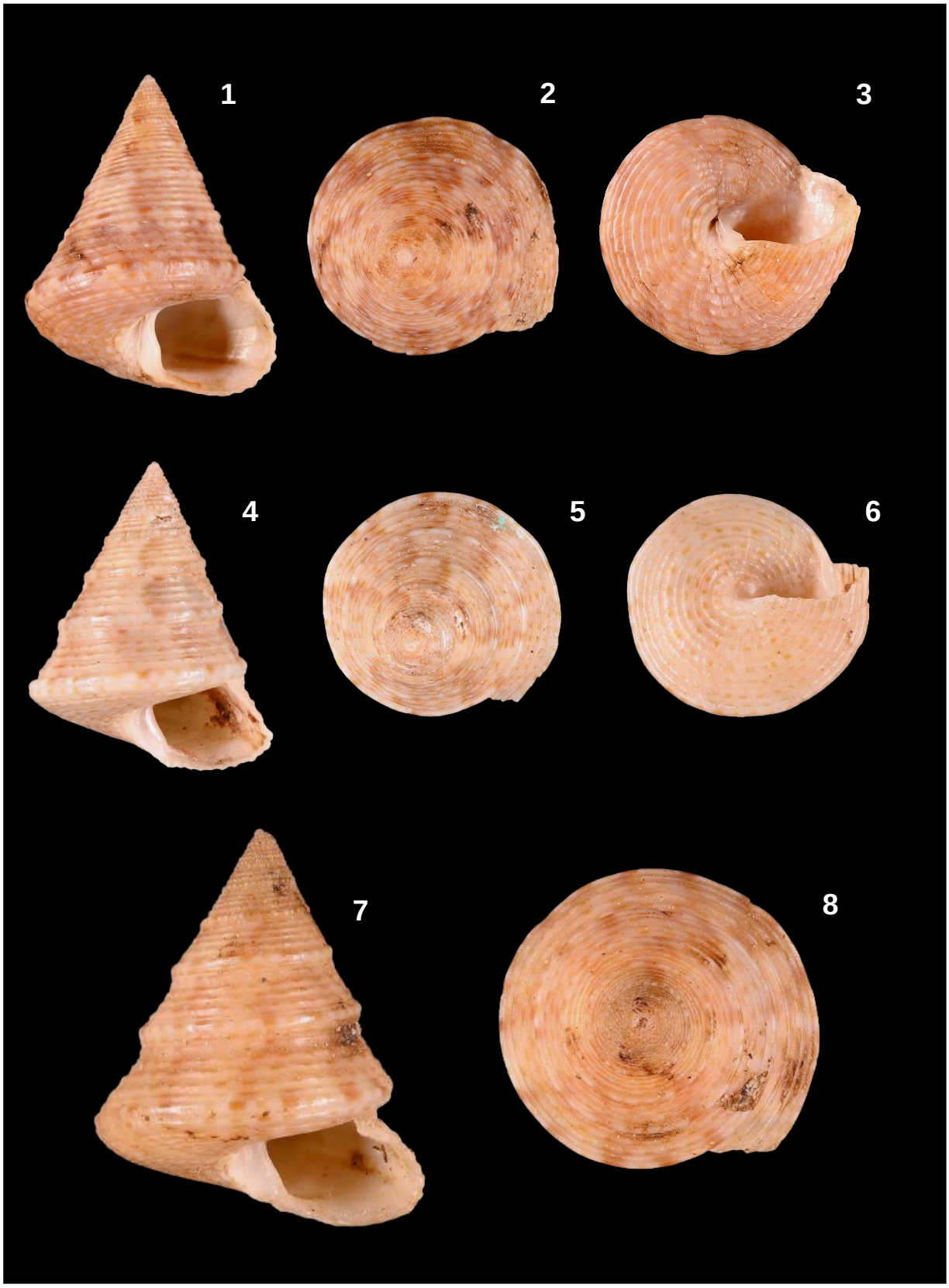
Philippi, R.A., 1844. *Enumeratio molluscorum Siciliae cum viventium tum in tellure tertiaria fossilium, quae in itinere suo observavit*. Vol. 2. Halle [Halis Saxorum]. Eduard Anton, iv + 303 pp, pls. 13-28.

Philippi, R.A., 1846-1855. Die Kreiselschnecken oder Trochoideen (Gattungen *Turbo*, *Trochus*, *Solarium*, *Rotella*, *Delphinula*, *Phasianella*). In Abbildungen nach der Natur mit Beschreibungen. In: Küster, H.C.; *Ed. Systematisches Conchylien Cabinet von Martini und Chemnitz. Zweiten Bandes, dritte Abteilung*. **2**(3): 1-372, pls. 1-49. Nürnberg: Bauer & Raspe.

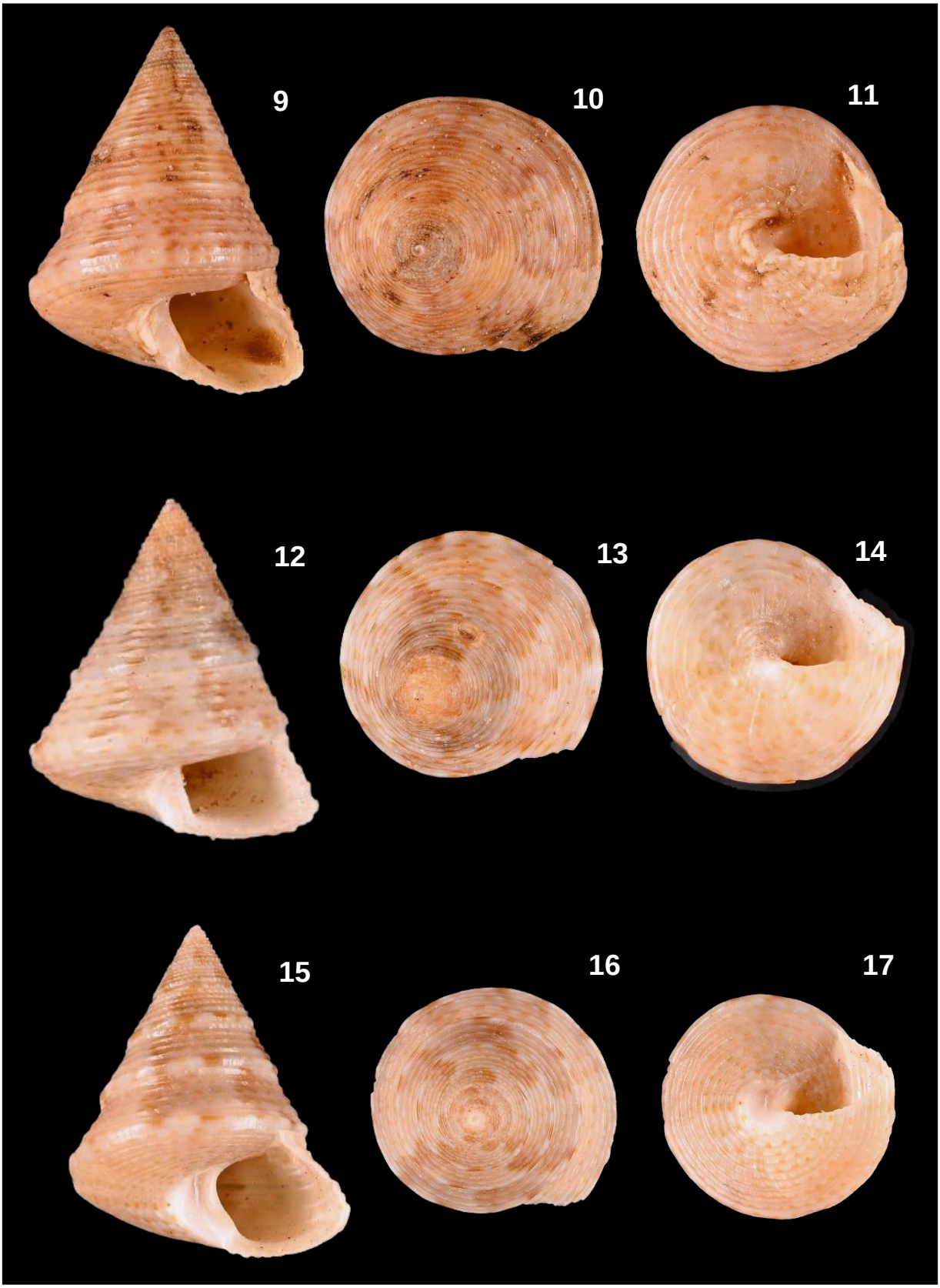
Poppe, G.T. & Goto, Y., 1991. *European Seashells* (vol. I). Verlag Christa Hemmen. Wiesbaden. 352 pp.

Rolán, E. & Ryall, P., 1999. Checklist of the Angolan Marine Molluscs. *Sociedad Española de Malacología. Reseñas Malacológicas X*. Madrid.132 pp.

Williams, S.T., Donald, K.M., Spencer, H.G. & Nakano, 2010. Molecular systematics of the marine gastropod families Trochidae and Calliostomatidae (Mollusca: Superfamily Trochoidea). *Molecular Phylogenetics and Evolution*, **54**: 783-809.

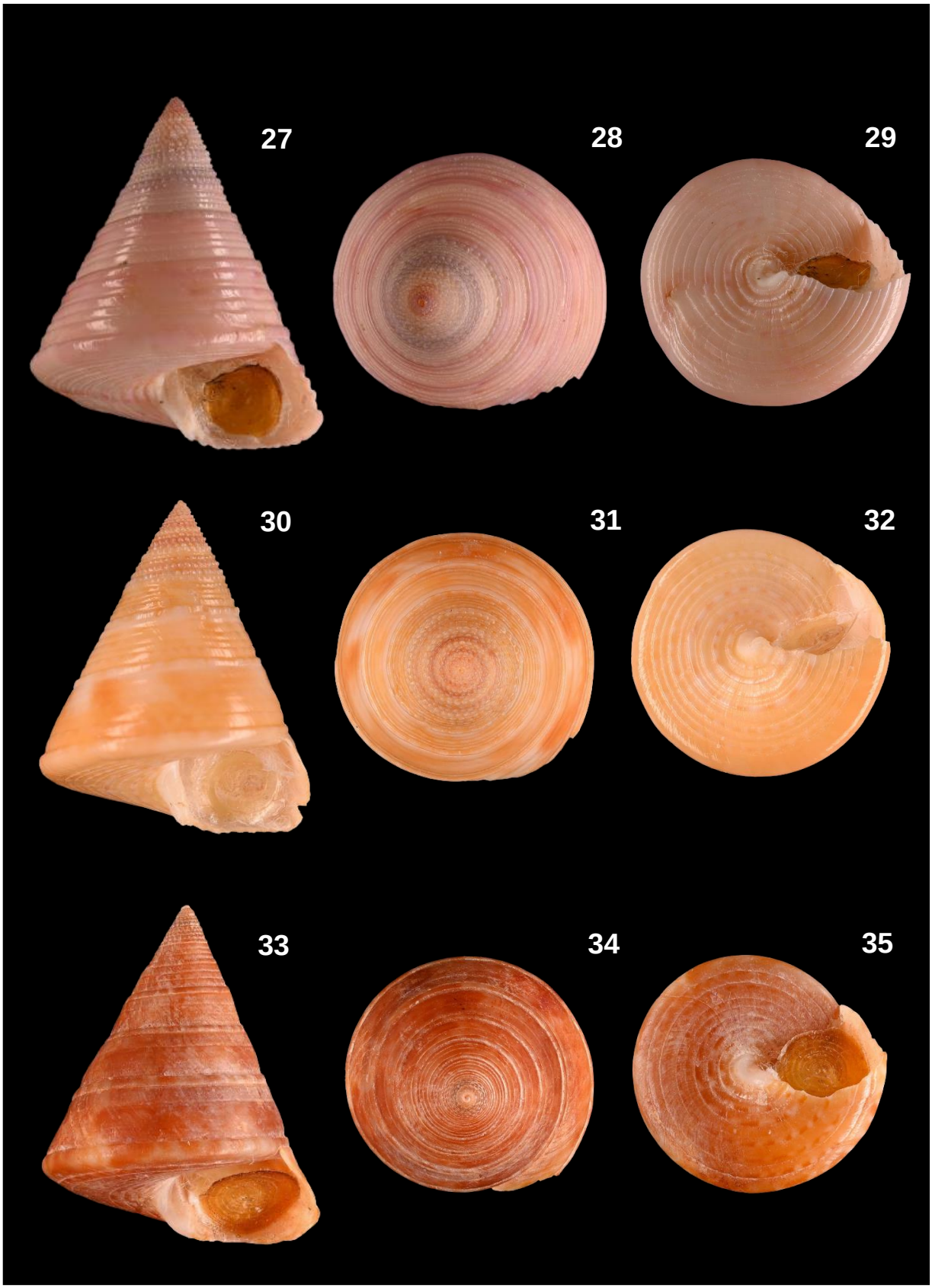


Pl. I. *Calliostoma pini* sp. nov. Gorée, Senegal. Trawled by fishermen at a depth of 20 m. February 1993; 1-3: Paratype 5. H. 11.13 mm D. 9.23 mm. CSH; 4-6: Paratype 1: H. 10.69 mm D. 8.57 mm. CSH; 7-8: **Holotype. RBINS**: H. 10.90 mm D. 9.37 mm.



Pl. II. Figs 9-17: *Calliostoma pini* sp. nov. Gorée, Senegal. Trawled by fishermen at a depth of 20 m. February 1993. CSH; 9-11: Paratype 2. H. 10.71 mm D. 8.60 mm; 12-14: Paratype 3: H. 9.09 mm D. 7.66 mm; 15-17: Paratype 4. H. 9.71 mm D. 8.14 mm.

Pl. III. Figs 18-20: *Calliostoma conulus* (Linnaeus, 1758). Armação de Pêra, Faro, Algarve, Portugal. Under rock-on-rock platform. SCUBA-dived at a depth of 23 m. January 2000. H. 21.99 mm D. 20.07 mm. CFN; 21-26: *Calliostoma lusitanicum* F. Nordsieck & García-Talavera, 1979 (taxon inquirendum). Puerto del Carmen, Lanzarote, Canary Islands. Under rock. Dived at a depth of 10 m. CFN; 21-23: H. 7.87 mm D. 7.46 mm; 24-26: H. 10.08 mm D. 9.58 mm.



Pl. IV. Figs 27-35. *Calliostoma funiculatum* Ardovini, 2011. CSH; Gibraltar Strait, Morocco. In detritus of *Corallium rubrum* (Linnaeus, 1758) at a depth of 80-120 m. September 2010; 27-29: H. 15.72 mm D. 13.07 mm; 30-32: H. 14.01 mm D. 11.65 mm; 33-35: Santa Pola, Alicante Province, Spain. Dredged at a depth of 80 m. H. 11.50 D. 9.57 mm.

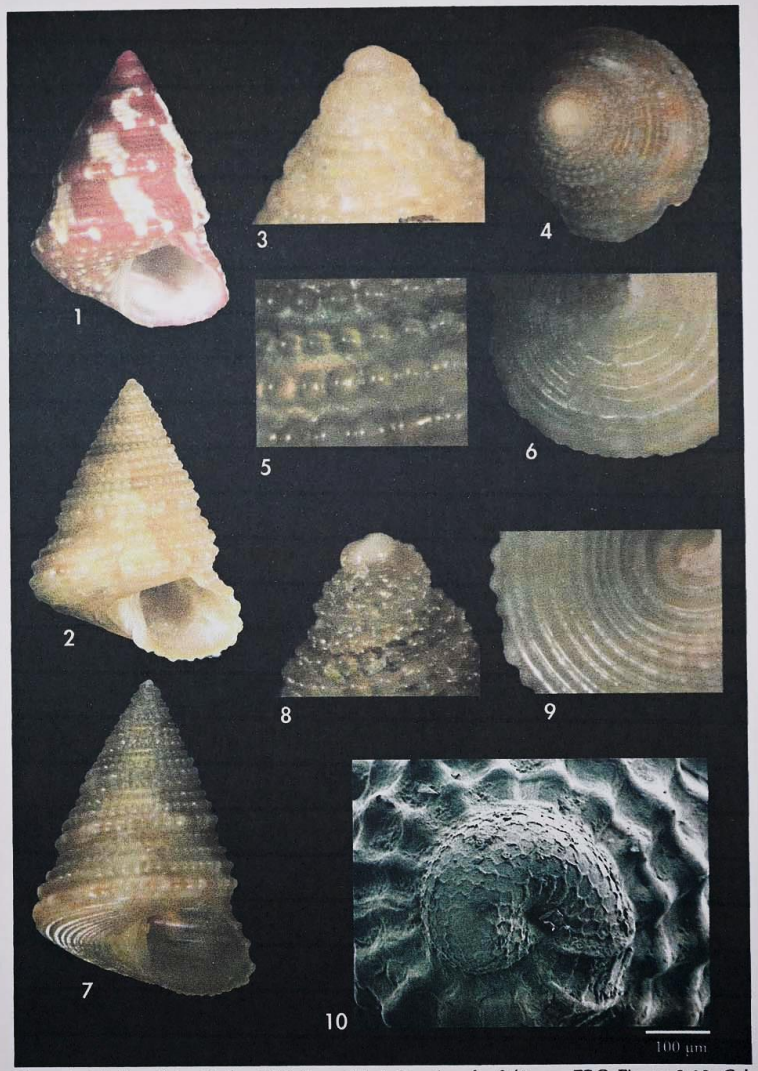


Figure 1. *Jujubinus fulgor* Gofas, 1991, Santa Maria Bay, Angola, 6.40 mm, FBC. Figures 2-10. *Calliostoma* (*Fautor*) *fernandesi* sp. nov., Santa Maria Bay, Angola. 2-6: holotype MNHN, 6.00 mm; 7-9: paratype n°1, 6.10 mm, F. Boyer collection; 10: protoconch of paratype n°1, width: 300 µm.
Figura 1. Jujubinus fulgor *Gofas, 1991, Santa Maria Bay, Angola, 6.40 mm, FBC. Figuras 2-10.* Calliostoma (Fautor) fernandesi *sp. nov., Santa Maria Bay, Angola. 2-6: holotype MNHN, 6.00 mm; 7-9: paratype n°1, 6.10 mm, F. Boyer collection; 10: protoconch of paratype n°1, width: 300 µm.*

Pl. V. *Calliostoma angolense* Boyer, 2007 (= *C. fernandesi* Boyer, 2006): A new *Calliostoma* species (Gastropoda: Calliostomatidae) from Angola. *Iberus*, **24**(2): figs 2-10.

Description of a new species within the genus *Propeamussium* (Bivalvia: Propeamussiidae) from the Mississippi River Delta

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Keywords: Mollusca, Bivalvia, Pectinoidea, PROPEAMUSSIIDAE, *Propeamussium*, USA, Gulf of Mexico, new species.

Abstract: A new species of the family PROPEAMUSSIIDAE from the Gulf of Mexico is described on morphological basis and compared with congeneric species from the family in that region.

Introduction: Some years ago, Mr. Don Pisor from San Diego, USA showed the author four fragile *Propeamussium* specimens from Louisiana, Texas. Later on, I could manage to acquire additional specimens marked as *Propeamussium* sp., also from the Mississippi River Delta. After further study, I learned that all the material was obtained by Emilio Garcia from research dredging trips.
The delta is created as the Mississippi River deposits sediment along its banks and adjacent basins before flowing into the deep waters of the northern Gulf of Mexico. In the past 7500 years, the delta has regularly changed creating 7 different lobes. Currently, the river flows into the sea via the Balize Delta. All specimens came from mud bottom in relatively deep water.
As the number of all known species in this family in the Gulf of Mexico is rather limited, distinction between congeners and the treated species was facilitated. So, it is here described as new to science.
A specimen of the new species has already been figured by Garcia & Lee as *Propeamussium sp*. (n° 52a) in an online article on the website www.jaxshells.org.

Abbreviations:
AG: Arne Ghys collection, Belgium
Lv: left valve
MNHN: Muséum national d'Histoire naturelle, Paris, France
USNM: Smithsonian National Museum of Natural History, Washington DC, USA
Rv: right valve
sp: specimen

SYSTEMATICS:
Class BIVALVIA Linnaeus, 1758
Subclass AUTOBRANCHIA Grobben, 1894
Infraclass PTERIOMORPHIA Beurlen, 1944
Order PECTINIDAE Gray, 1954
Suborder PECTININA Waller, 1978
Superfamily PECTINOIDEA Rafinesque, 1815
Family PROPEAMUSSIIDAE Abbott, 1954
Genus *Propeamussium* De Gregorio, 1884
(based on WoRMS – March 2023)
Propeamussium simoni sp. nov.

Type material:
Holotype: (MNHN-IM-2000-38536), off Louisiana, USA - 28°29.155' N - 89°32.159' W to 28°31.870' N - 89°32.687' W, dredged alive by research vessel at 387-595 m depth on 26 August 2011, 1 sp., 13.2 x 12.4 mm.

Paratype 1: (AG), off Louisiana, USA, 28°29.155' N - 89°32.159' W to 28°31.870' N - 89°32.687' W, dredged alive by research vessel at 387-595 m depth on 26 August 2011, 1 sp., 16.1 x 16.5 mm.
Paratype 2: (AG), off Louisiana, USA 28°29.155' N - 89°32.159' W to 28°31.870' N - 89°32.687' W, dredged alive by research vessel at 387-595 m depth on 26 August 2011. 1 sp., 14.4 x 14.1 mm.
Paratype 3: (USNM 1522412), off Louisiana, USA -28°29.2' N - 89°32.2' W to 28°31.870' N - 89°32.687' W, dredged alive by research vessel at 387-595 m depth on 26 August 2011. 1 sp., 15.7 x 15.5 mm.
Paratype 4: (AG), off Southern Louisiana, USA - dredged from 550 m depth. 1 sp., 15.7 x 15.2 mm.
Paratype 5: (AG), off Mississippi River Delta, Louisiana, USA, Gulf of Mexico - 28°23.935' N - 89°22.508' W to 28°20.939' N - 89°20.779' W, dredged in mud bottom at 675-765 m depth by research vessel. 1 sp., 12.3 x 12.6 mm.
Paratype 6: (AG), off Mississippi River Delta, Louisiana, USA, Gulf of Mexico - 28°23.935' N - 89°22.508' W to 28°20.939' N-89°20.779' W, dredged in mud bottom at 675-765 m depth by research vessel. 1 sp., 14.5 x 16.0 mm.

Type locality: off Mississippi River Delta, Louisiana, USA, Gulf of Mexico, 28°29.155' N - 89°32.159' W to 28°31.870' N - 89°32.687' W.

Description: Fragile shell of about 14 mm height. Both valves translucent, subcircular (slightly wider than high), inequivalve (left valve more convex than right valve), inequilateral (anterior part slightly bigger than posterior), anterior auricle smaller than posterior ear, umbonal angle 110°, disc gape narrow. Both valves have 8 interior ribs starting in early growth stage (2000 µm) and extending to submarginal area. The first and the last internal ribs are somewhat more pronounced compared to the other 6 ones. Resilifer rather broad triangular.
The prodissoconch of the left valve is about 170 µm long, smooth, convex and D-shaped. This smooth microsculpture continues with some delicate commarginal growth lines on both auricles and on the rest of the valve. Hinge line is straight, dorsal margin weakly lamellated near anterior and posterior margin, starting from the middle of the ear to the end of the auricle. The anterior margin of the auricle is small and almost in extension of the disc, margin of the posterior ear straight. The posterior auricle is about 1.2x bigger than the anterior one. The central part of the left valve is convex and becomes flatter near the margins.
The glossy right valve is sculptured with fine, regularly close-set commarginal lirae with granulate interstitial microsculpture and in between the lirae with fine, radial scratches. Both ears are smooth, hinge line is straight with on the anterior side some small lamellations starting from the middle to the end of the ear, no byssal notch or byssal fasciole and ctenolium absent. Right valve is slightly less convex compared to the left valve. The first 4/5 of the lower valve is opaque to whitish translucent, reaching to the end of the internal ribs, the outermost layer of simple prismatic calcite is transparent.

Geographic distribution: Only found in the Mississippi Delta, Louisiana, Texas, USA. The new species was dredged by Emilio Garcia on three different spots. Prolific specimens are coming from the type locality. Paratypes 5 and 6 were dredged from a mud bottom. A third locality is 28°25.812' N - 89°24.971' W to 28°24.246' N - 89°22.532' W where material was found on mud and shell hash bottom at 640-576 m depth.

Comparison: The most similar species from the Gulf of Mexico is *Parvamussium marmoratum* (Dall, 1881) because of the (usual) absence of a macrosculpture on the left valve. The latter is a rather variable species that belongs to another genus and differs by the internal ribbing starting at later ontogeny, generally with 10 internal ribs on both valves, absence of lateral gapes and a well-developed byssal notch. *Parvamussium pourtalesianum* (Dall, 1886) is treated as a synonym of *P. marmoratum*.

Parvamussium cancellatum (E.A. Smith, 1885) differs by the strong sculpture on the left valve, consisting of fine, concentric lirae crossed by commarginal lirae, more equal ears, having a top angle of 117°, being higher than long and by having more internal ribs (9-11).

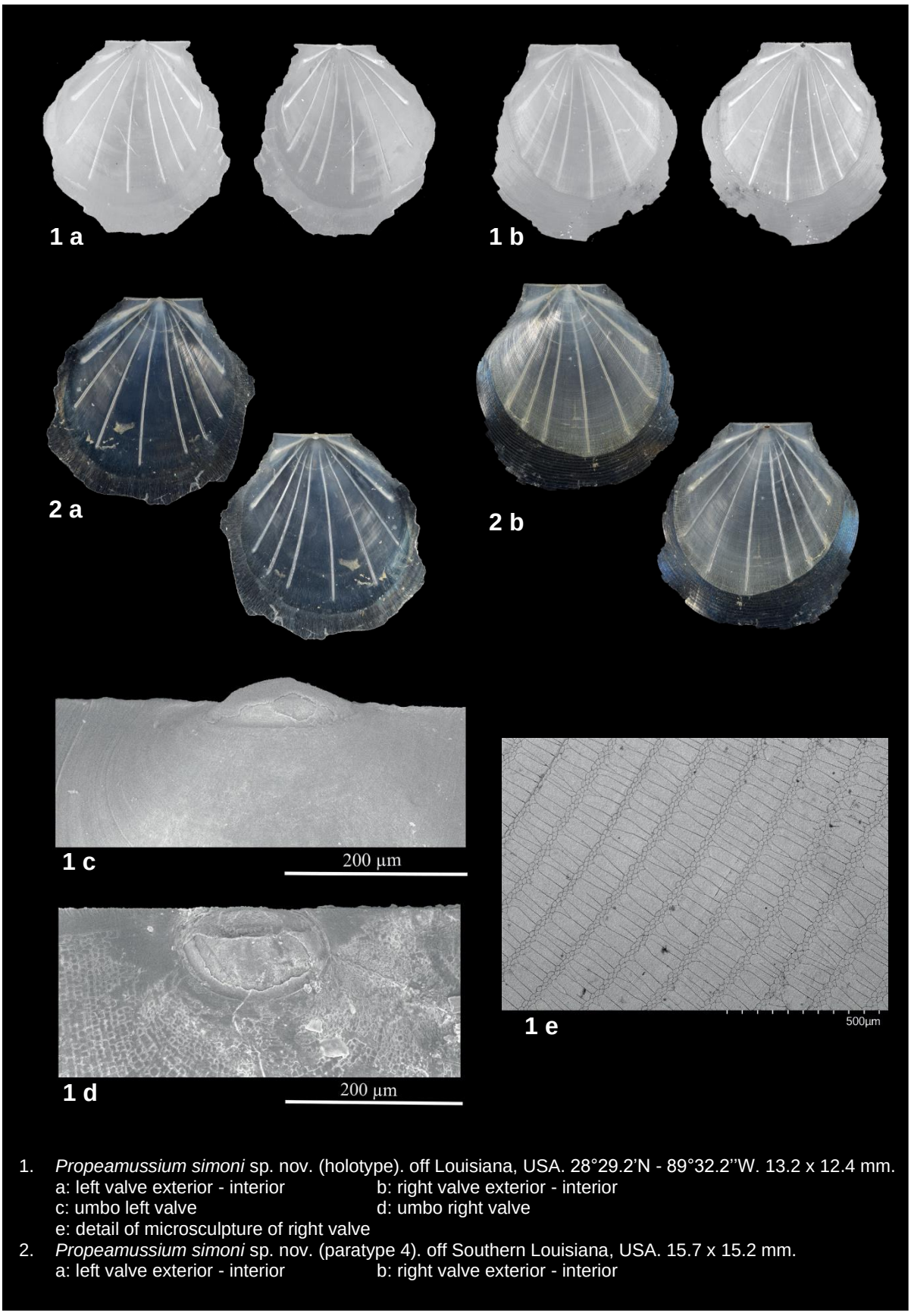
Parvamussium dalli (E. A. Smith, 1885) from the Caribbean Sea is much larger in (adult) size (between 40-80 mm), has more elongated valves with more internal ribs and differs by having equal and small ears compared to the rest of the shell size.

Etymology: *Propeamussium simoni* sp. nov. is named after the author's son Simon Ghys.

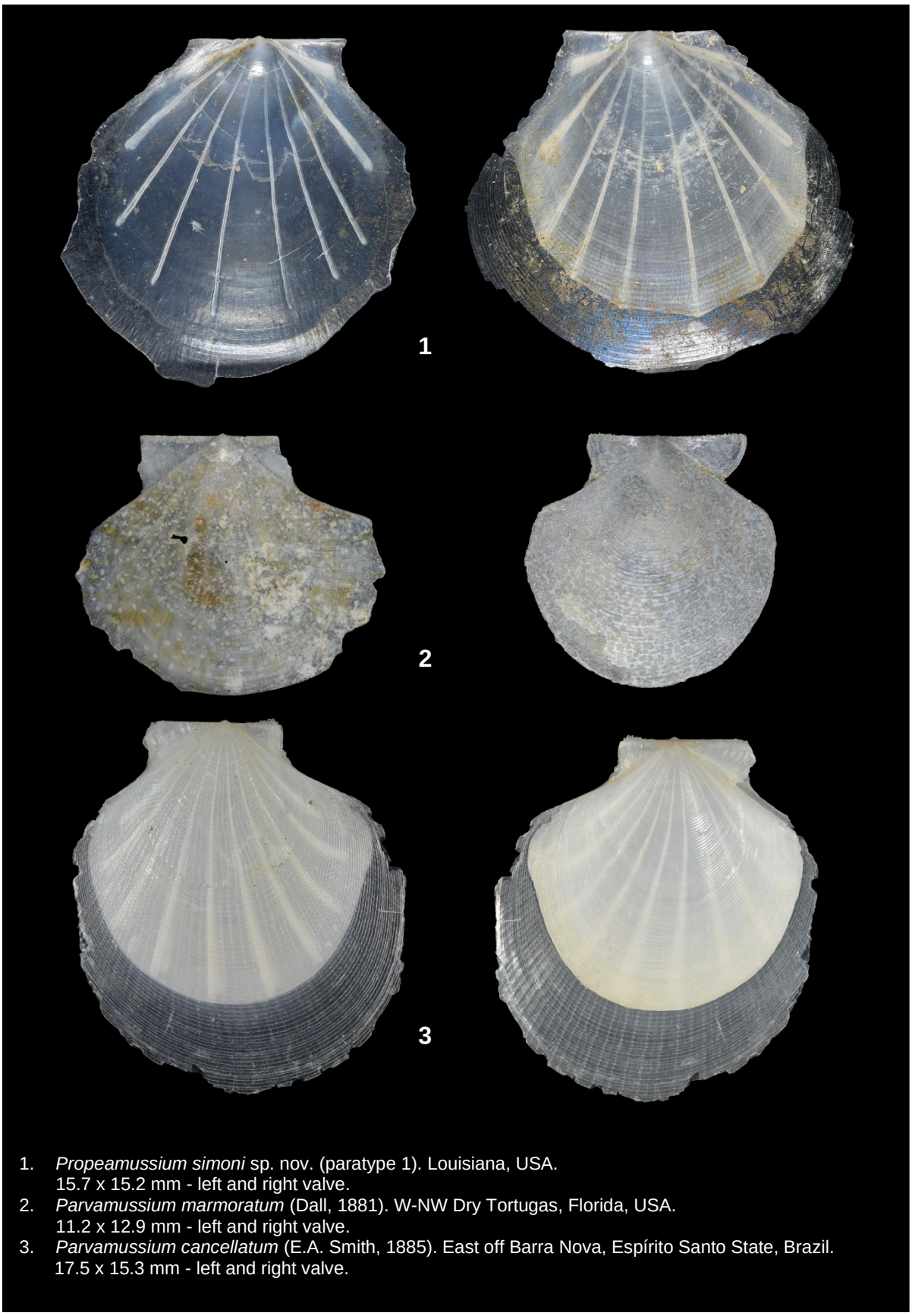
Acknowledgements: I want to thank Mr. Philippe Maestrati, Mrs. Virginie Héros and Mrs. Mélanie van Weddingen from MNHN (Paris) for taking the SEM pictures of the holotype. I also wish to express my gratitude to Yves Terryn and Bret Raines (USA) for the continued technical and scientific support in my study of this family. Steve Hubrecht, Jan Libbrecht and F. Nolf (Belgium) made accurate remarks about contents and spelling of the manuscript. Delphine Clement (Begium) helped to process the plates. Also special thanks to Emilio Garcia and Harry Lee (USA) for providing additional information regarding the dredging operations and localities. And last but not least I want to thank Mr. Don Pisor (San Diego, USA) for providing the first samples of this new species.

References:
Dall, W. H., 1881. Reports on the results of dredging under the supervision of Alexander Agassiz, in the Gulf of Mexico and in the Caribbean Sea, 1877-79, by the U.S. Coast Sur- vey steamer “Blake,” Lieutenant-commander C. D. Sigsbee, U.S.N., and Commander J.R. Bartlett, U.S.N., commanding. XV. Preliminary report on the Mollusca. *Bulletin of the Museum of Comparative Zoology*, **9**(2): 3-144.
Dall, W. H., 1886. Reports on the results of dredging under the supervision of Alexander Agassiz, in the Gulf of Mexico (1877-78) and in the Caribbean Sea (1879-80), by the U.S. Coast Survey Steamer “Blake,” Lieut.-Commander C. D. Sigsbee, U.S.N., and Commander J. R. Bartlett, U.S.N., commanding. XXIX. Report on the Mollusca. Part I. Brachiopoda and Pelecypoda. *Bulletin of the Museum of Comparative Zoology*, **12**(6): 171-318.
Dijkstra, H. H. & Beu, A. G., 2018. Living Scallops of Australia and Adjacent Waters (Mollusca: Bivalvia: Pectinoidea: Propeamussiidae, Cyclochlamydidae and Pectinidae). *Records of the Australian Museum*, **70**(2): 113-330.
Garcia, E.F. & Lee, H.G. Report on molluscan species found in the offshore waters of Louisiana, including many extensions of known range and un-known species. http://www.jaxshells.org/efg1030.htm
Smith, E. A., 1885. Report on the Lamellibranchiata collected by H.M.S. Challenger during the years 1873-76. In C.W. Thomson & J. Murray: Report on the Scientific Results of the Voyage of H.M.S Challenger during the years 1873-1876. *Zoology*, **13**: 1-341, pls. 1-25.
Waller, T. R. (2011). Neogene Paleontology of the Northern Dominican Republic. 24. Propeamussiidae and Pectinidae (Mollusca: Bivalvia: Pectinoidea) of the Cibao Valley. *Bulletins of American Paleontology*, **381**: 1-198.

Localisation of dredgings off the Mississippi Delta



1. *Propeamussium simoni* sp. nov. (holotype). off Louisiana, USA. 28°29.2'N - 89°32.2''W. 13.2 x 12.4 mm.
   a: left valve exterior - interior b: right valve exterior - interior
   c: umbo left valve d: umbo right valve
   e: detail of microsculpture of right valve
2. *Propeamussium simoni* sp. nov. (paratype 4). off Southern Louisiana, USA. 15.7 x 15.2 mm.
   a: left valve exterior - interior b: right valve exterior - interior



1. *Propeamussium simoni* sp. nov. (paratype 1). Louisiana, USA.
   15.7 x 15.2 mm - left and right valve.
2. *Parvamussium marmoratum* (Dall, 1881). W-NW Dry Tortugas, Florida, USA.
   11.2 x 12.9 mm - left and right valve.
3. *Parvamussium cancellatum* (E.A. Smith, 1885). East off Barra Nova, Espírito Santo State, Brazil.
   17.5 x 15.3 mm - left and right valve.

Clelandella namibiensis (Gastropoda: Trochoidea: Trochidae: Cantharidinae), a new species from SW Africa

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Keywords: Mollusca, Gastropoda, CALLIOSTOMATIDAE, *Clelandella*, *Clelandella namibiensis* sp. nov., Namibia, E Atlantic.

Abstract: *Clelandella namibiensis* sp. nov. from Namibia (SW Africa), is described in this paper and compared with similar species from the eastern Atlantic.

Abbreviations:
CFN: Private collection of Frank Nolf (Oostende, Belgium)
D.: Diameter
H.: Height
PEMARCO: Pêche maritime du Congo
RBINS: Royal Belgian Institute of Natural Sciences (Brussels, Belgium)

Introduction: The first "*Calliostoma"* reported from Angolan waters was *Calliostoma fragum* (Philippi, 1848) dredged by the S.M.S. Gazelle Expedition in 1874 at a depth of 79 fathoms just south of the mouth of the Congo River. One dead specimen was found, and the species was presumably determined by Théophil Studer, the only naturalist on board of the ship. We now consider "*Trochus fragum Philippi*" to be a *Calthalotia*, in the subfamily Cantharidinae of the family Trochidae. This species was described by Philippi (1848). In neither case the type locality was mentioned, but Philippi refers to a picture on Pl. 38, fig. 4 by Küster (1837) (Pl. VII). Later on, Martens (1904) reported the presence of *Trochus fragum* from the Congo River mouth at 06°22.1' S/ 11°41' E, south of the Congo River mouth, offshore Angola by the Gazelle Expedition in the species listing, without figures and comments (Anon, 1889). Unfortunately, the occurrence of this '*Calliostoma fragum* Philippi' in Angolan waters was subsequently 'confirmed' in several publications (a.o. Rolán, E. & Ryall, P., 1999) without extended critical study. Moreover, until today no specimens, corresponding to the figure by Küster, have been reported from West African waters. The shell represented on Pl. 38, fig. 4 rather resembles an Indo-Pacific species. Nowadays, *C. fragum* is assumed to occur from the Red Sea across the Indian Ocean to New South Wales (Australia). Does the figure really show an Angolan or an Indo-Pacific species? Moreover, is the dead collected specimen a *Calliostoma* or a *Clelandella* species? Regardless of this questions, the figure of the '*Calliostoma'* does not match any of the specimens treated in this paper, neither the material from N Angola which will be described in a subsequent article (Nolf & Hubrecht, 2022).

Hundreds of interesting shells were gathered by A. Coenye, a Belgian navigating officer of PEMARCO (Pêche maritime du Congo), when he operated off the coasts of Congo-Kinshasa and Angola in the years 1960-1973. Many of them concerned new species, described in the magazine '*Neptunea'*. A great part of this material was also dredged between the mouth of the Cunene river (the border between Angola and Namibia) and Cape Fria (Namibia, SW Africa), and contained a sample of seven specimens revealed to be a new species of *Clelandella*, here described.

Systematics:
Superfamily: TROCHOIDEA Rafinesque, 1915
Family: TROCHIDAE Rafinesque, 1815
Subfamily: CANTHARIDINAE Gray, 1857
Genus: *Clelandella* Winckworth, 1932
Type species: *Trochus clelandi* W. Wood, 1828 (= *Trochus miliaris* Brocchi, 1814) Pliocene, northern Italy.

The trochoid genus *Clelandella* has long been considered monotypic, with the sole species *C. miliaris* (Brocchi, 1814) known from N Norway to W Africa and into the Mediterranean Sea, where it has lived since the Pliocene period. The systematic position of "*Trochus*" *miliaris* has always been a matter of discussion. First of all, it was placed in the genus *Calliostoma* (a.o. Norman, 1893; Dautzenberg, 1927), later on in *Zizyphinus* (Calliostomatinae) (Brusina, 1866) and in the monodontine genus *Jujubinus* (Monterosato, 1884). Winckworth (1932)

proposed the subgenus *Clelandella* with *Trochus clelandi* Wood, 1828, a synonym of *T. miliaris*, as type species. Further on, Nordsieck (1968) raised *Clelandella* to the status of a genus within the Calliostomatinae. Cretella et al. (1990) submitted a lot of arguments to place *Clelandella* in the Monodontinae along with *Jujubinus*, based upon external head-foot and radular morphology. In this paper the new classification by Williams et al. (2010) is followed, as it was considered by Hickman & McLean (1990) and also by Bouchet & Rocroi (2005).

Shell conical, solid, nearly as high as broad. Whorls sculptured with beaded spiral cords; periphery of last whorl with peripheral angle, usually with a peripheral rim. Base also provided with beaded spirals. Axis imperforate or with a minute umbilicus. Aperture with nacreous surface inside and a thin sharp lip. Shell colour variable with flames or articulated pattern on the cords.

***Clelandella namibiensis* sp. nov.**

(Pl. I, Figs 1-6; Pl. II, Figs 7-12; Pl. III, Figs 13-18)

Type material:

The present material was dredged by the PEMARCO-fisheries at a depth of 275 m between the mouth of the Cunene river (18°27' S/ 12°01' E) and Cape Fria (17°15' S/ 11°45' E), Namibia, SW Africa in 1973.

Holotype: H. 10.95 mm D. 9.41 mm.
Pl. III, figs 13-15.
RBINS-I.G.: 34618-MT.3991.

Paratype 1: H. 12.11 mm D. 10.90 mm.
Pl. I figs 1-3.

Paratype 2: H. 10.14 mm D. 9.58 mm.
Pl. I, figs 4-6.

Paratype 3: H. 11.56 mm D. 11.21 mm.
Pl. II, figs 7-9.

Paratype 4: H. 10.82 mm D. 9.77 mm.
Pl. II, figs 10-12.

Paratype 5: H. 9.78 mm D. 10.31 mm.
Pl. III, figs 16-18.

Paratype 6: H. 13.12 mm D. 11.95 mm.

Description: Shell conical, as high as broad. Protoconch less than one whorl, teleoconch with 7-8 whorls. First teleoconch whorls flat, later whorls becoming slightly swollen and convex, especially in larger adult specimens. Sutures nearly visible by the presence of a secondary ridge. Whorls with beaded spiral cords, as wide as interspaces, with 6 rows of pointed granulations in the last whorl. Peripheral cord duplicate with adapical and abapical component slightly stronger developed than the others. Some specimens may possess alternating secondary spiral threads. Base slightly convex and bearing 11-12 spiral cords. Nearly closed umbilicus with a white nacreous callus. Aperture iridescent nacreous. Shell colour salmon pink covered with red-brown flames, spiral cords with darker and paler alternating dots.

Measurements: from 10 to 13 mm.

Type locality: Between the mouth of the Cunene river and Cape Fria, Namibia.

Etymology: The name *Clelandella namibiensis* refers to Namibia, the only locality from which specimens are known.

Discussion: The new species can be compared with the following species from the E Atlantic and the Mediterranean Sea:

- ***Clelandella dautzenbergi*** Gofas, 2005 (Pl. VI, Fig. 34) with an imperforate axis, canaliculated sutures, the base with 6-10 spiral cords, the stronger developed peripheral cord and the whitish background colour of the whorls covered with greenish flames.
- ***Clelandella* sp.** illustrated by Gofas (2005) (Pl. VI, Fig. 35) from Dakar, Senegal and Ivory Coast. Specimens have a convex last whorl, a more blunt periphery with larger beads and a distinct rim on large specimens. The umbilicus is closed. Examined specimens of this undescribed form or species showed intermediate features and some tended to be similar with *C. miliaris* (Brocchi, 1814). *Clelandella namibiensis* sp. nov. on the other hand, appeared to show constant characteristics in its population, but it is possible that the specimens from Senegal also belong to *C. namibiensis*.
- ***Clelandella miliaris* (Brocchi, 1814)** (Pl. IV, Figs 19-24; Pl. V, Figs 25-27): a species that occurs from the NE Atlantic, the Mediterranean Sea and NW African waters. It is smaller and has often a very thickened peripheral spiral cord and much finer granules on the spiral cords.
- ***Clelandella myriamae* Gofas, 2005** (Pl. V, Figs 28-30) and ***C. artilesi* Vilvens et al., 2011** (Pl. VI, Figs 31-33) are completely different.

Conclusion: *Clelandella namibiensis* is a new species which is different from all other *Clelandella* representatives in the E Atlantic and can be considered the southernmost *Clelandella* species known to date.

Acknowledgments: I want to express my gratitude to Steve Hubrecht for the intensive literature research in connection with the presence of *Calliostoma fragum* Philippi, 1846 in Angolan waters and for the loan of specimens from his collection. I thank Jan Libbrecht for carefully correcting the English text.

References:

Anon, 1889. *Die Forschungsreise S.M.S. "Gazelle" in den Jahren 1874 bis 1876: unter Kommando des Kapitän See Freiherrn von Schleinitz von Hydrographischen Amt des Reichs-Marine-Amts.* III. Theil. Zoologie und Geologie, E.S. Mittler und Sohn, 1889.

Ardovini, R. & Cossignani, T., 2004. *West African Seashells (including Azores, Madeira and Canary Is.).* L'Informatore Piceno, Ancona. 319 pp.

Brocchi, G.B., 1814*. Conchiologia fossile subappenninica con osservazioni geologiche sugli Appennini e sul suolo adiancente, Vol.1, 2*. Milano.

Brusina, S., 1866. Contribuzione pella fauna dei molluschi dalmati. *Verhandlungen der Kaiserlich-königlichen Zoologisch-botanisch Gesellschaft in Wien*, **16**: 1-134.

Bouchet, P. & Rocroi, J.P., 2005. Classification and nomenclator of gastropod families. *Malacologia*, **47**(1-2): 1-397.

Cretella, M. Scillitani, G. & Picariello, O, 1990. The systematic position of "*Trochus*" *miliaris* Brocchi, 1814 (Gastropoda: Trochidae); morphological and biological evidences. *Lavori della Societa Italiana di Malacologia*, **23**: 51-81.

Dautzenberg, Ph., 1927. Mollusques provenant des campagnes scientifiques du prince Albert I^{er} de Monaco dans l'Océan Atlantique et le Golfe de Gascogne. *Résultats des campagnes scientifiques accomplies sur son yacht par Albert I^{er} prince souverain de Monaco*. **LXXII**: 1-400.

Gofas, S., 2005. Geographical differentiation in *Clelandella* (Gastropoda: Trochidae) in the Northeastern Atlantic. *Journal of Molluscan Studies*, **71**: 133-144.

Gofas, S., 2009. *Clelandella miliaris* (Brocchi, 1814). In: taxonomic database of the European Marine Mollusca of the Department of Systematics & Evolution of the Muséum national d'Histoire naturelle, Paris.

Gofas, S., 2010. *Clelandella miliaris* (Brocchi, 1814). In: Bouchet, P., Gofas, S. & Rosenberg, G., 2010. World Marine Mollusca database.

Hickman, C.S. & McLean, J.H., 1990. Systematic revision and suprageneric classification of trochacean gastropods. *Science Series of Natural History Museum of Los Angeles County*. **35**: 1-169.

Kaicher, S.D., 1979. *Card catalogue of world-wide shells*. Trochidae Part 1. #21. Cras 2072-2177.

Küster, H.C., 1837. *Systematisches Conchylien-Cabinet von Martini and Chemnitz.* Nürnberg.

Martens, E. von, 1904. Die beschalten Gastropoden der deutschen Tiefsee-Expedition 1898-1899. In: Chun, C. (Ed). *Wissenschaftliche Ergebnisse der deutschen Tiefsee-Expedition auf dem Dampfer "Valdivia".* **7**(A): 1-146, pl i-v.

Monterosato, T.A. di, 1884. *Nomenclatura generica e specifica di alcune conchiglie Mediterranee.* Virzi, Palermo.

Nicklès, M., 1950. Mollusques testacés marins de la côte occidentale d'Afrique. Manuels Ouest-Africains: 2. Paris. Lechevalier. 269 pp.

Nolf, F. & Hubrecht, S., 2022. A new look at East Atlantic calliostomatids, resulting in the introduction of two new species. *Neptunea*, **16**(4): 1-34.

Nordsieck, F., 1968. *Die europäischen Meeres-Gahäuseschnecken (Prosobranchia).* Vom Eismeer bis Kapverden and Mittelmeer. Gustav Fischer Verlag, Stuttgart. 273 pp.

Norman, A.M., 1893. A month on the Trondjhem fiord. *Annals and Magazine of Natural History, Series 6*, **12**: 341-367.

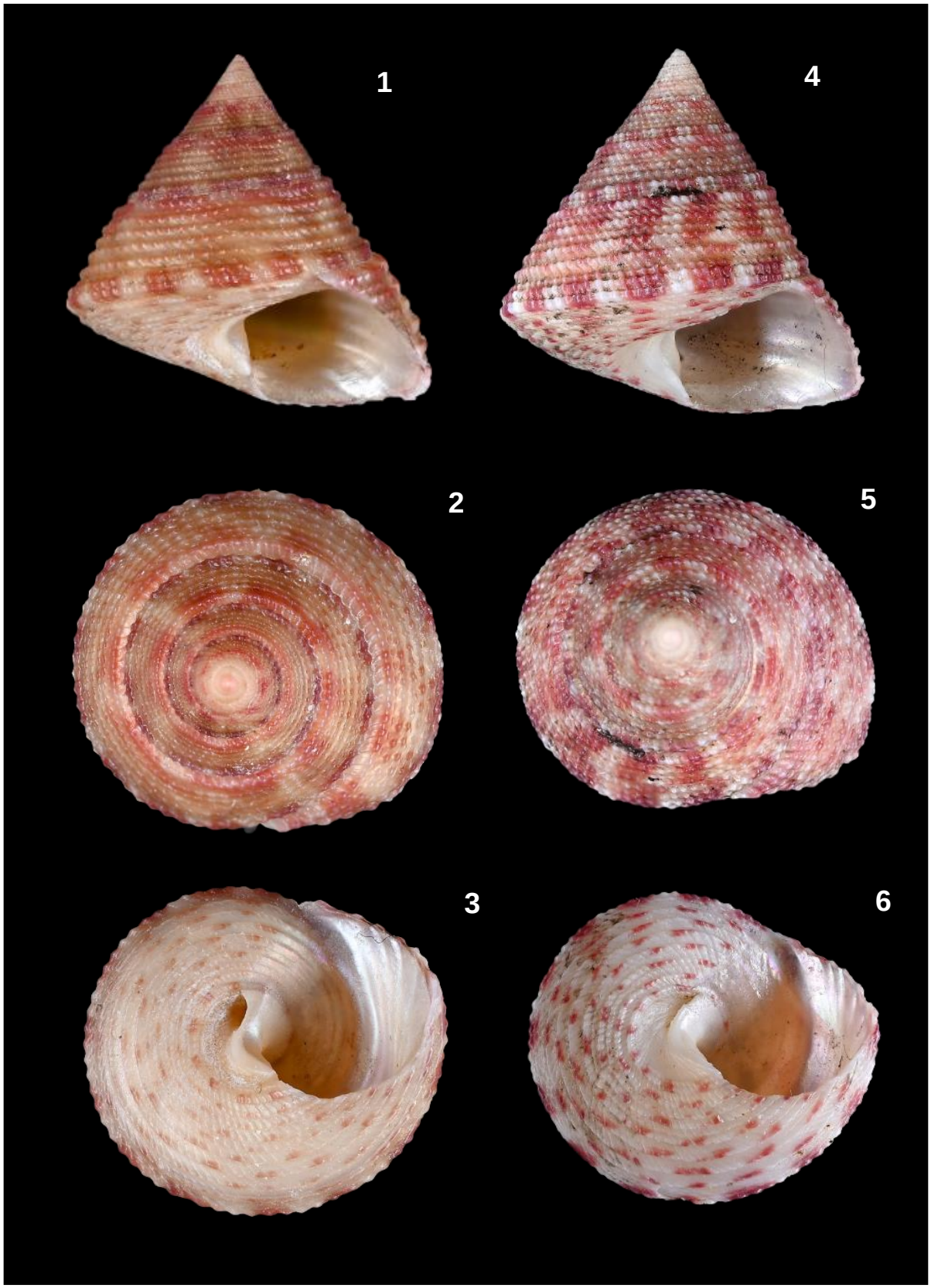
Philippi, R.A., 1846. *Kreiselschnecken oder Trochoidea (Gattungen Turbo, Trochus, Solarium, Rotella, Delphinula, Phasianella).* Kassel. 372 pp + 49 pl.

Philippi, R.A., 1848. Centuria altera testaceorum novorum. *Zeitschrift für Malakozoologie*, **5**(7): 99-112.

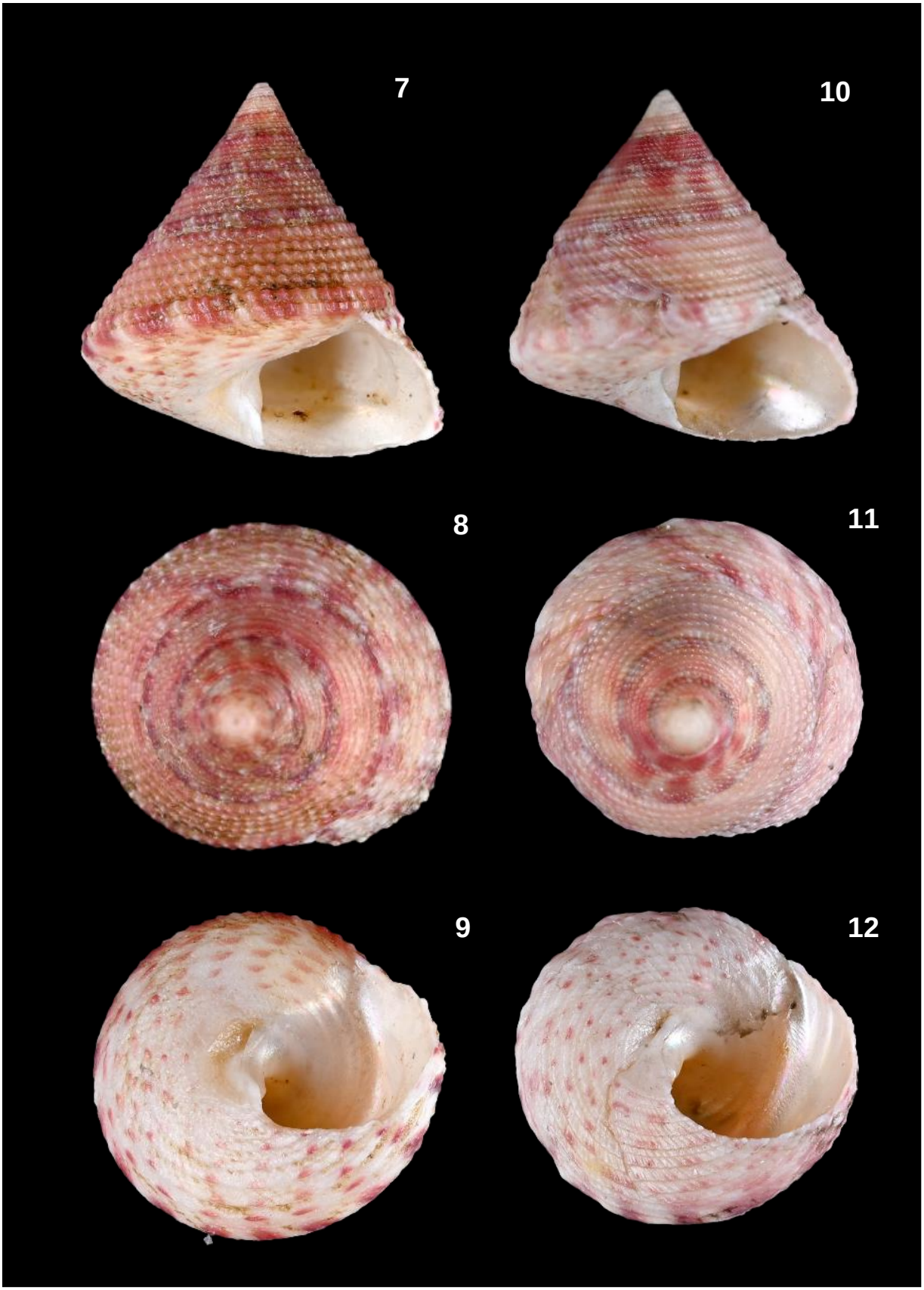
Vilvens, C., Swinnen, F. & Deniz Guerra, F., 2011. A new species of *Clelandella* (Gastropoda: Trochoidea: Trochidae: Cantharidinae) from Western Sahara. *Novapex*, **12**(1-2): 49-55.

Williams, S.T., Donald, K.M., Spencer, H.G. & Nakano, 2010. Molecular systematics of the marine gastropod families Trochidae and Calliostomatidae (Mollusca: Superfamily Trochoidea). *Molecular Phylogenetics and Evolution*, **54**: 783-809.

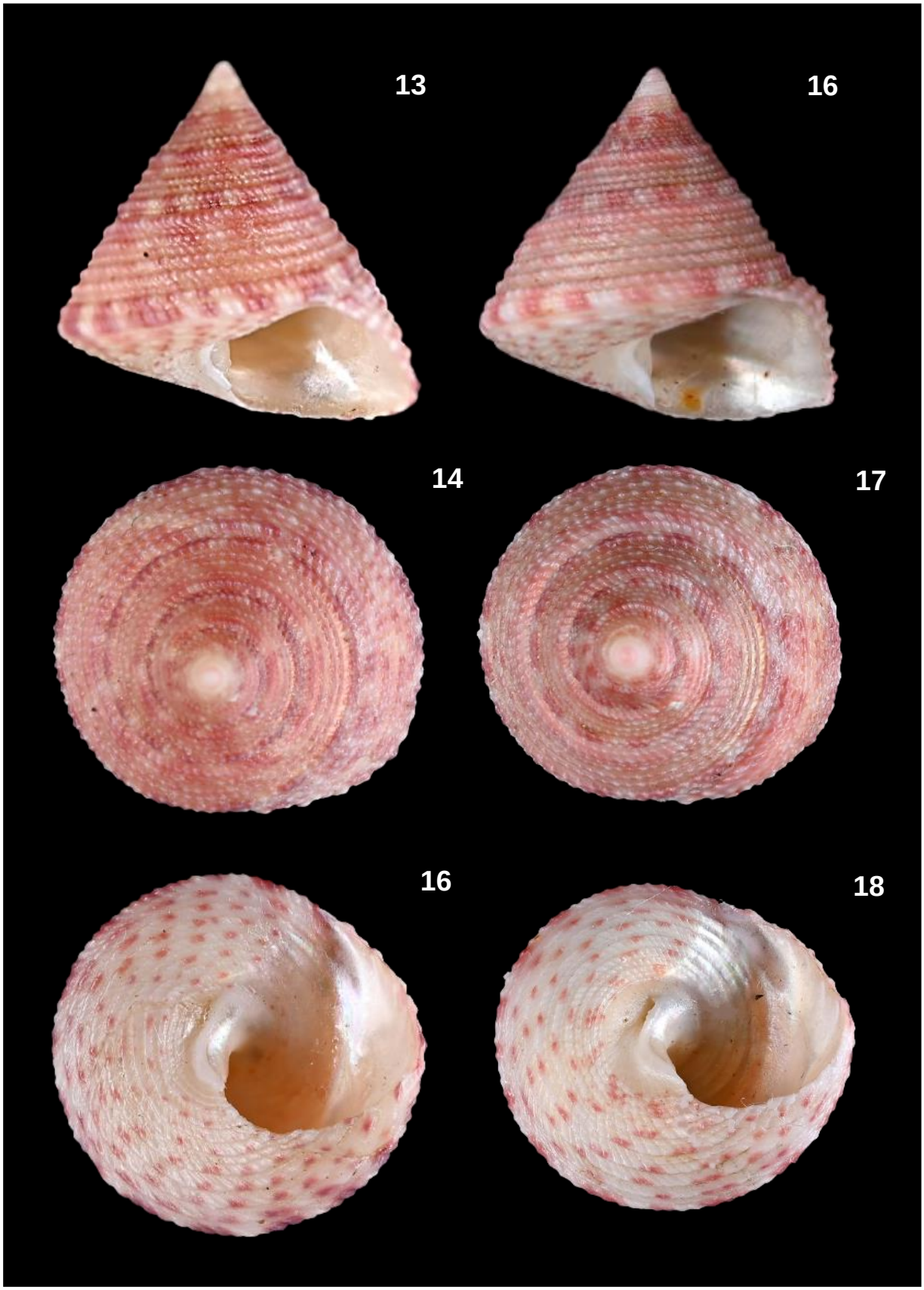
Winckworth, R., 1932. The British marine Mollusca. *Journal of Conchology*, **19**: 211-252.



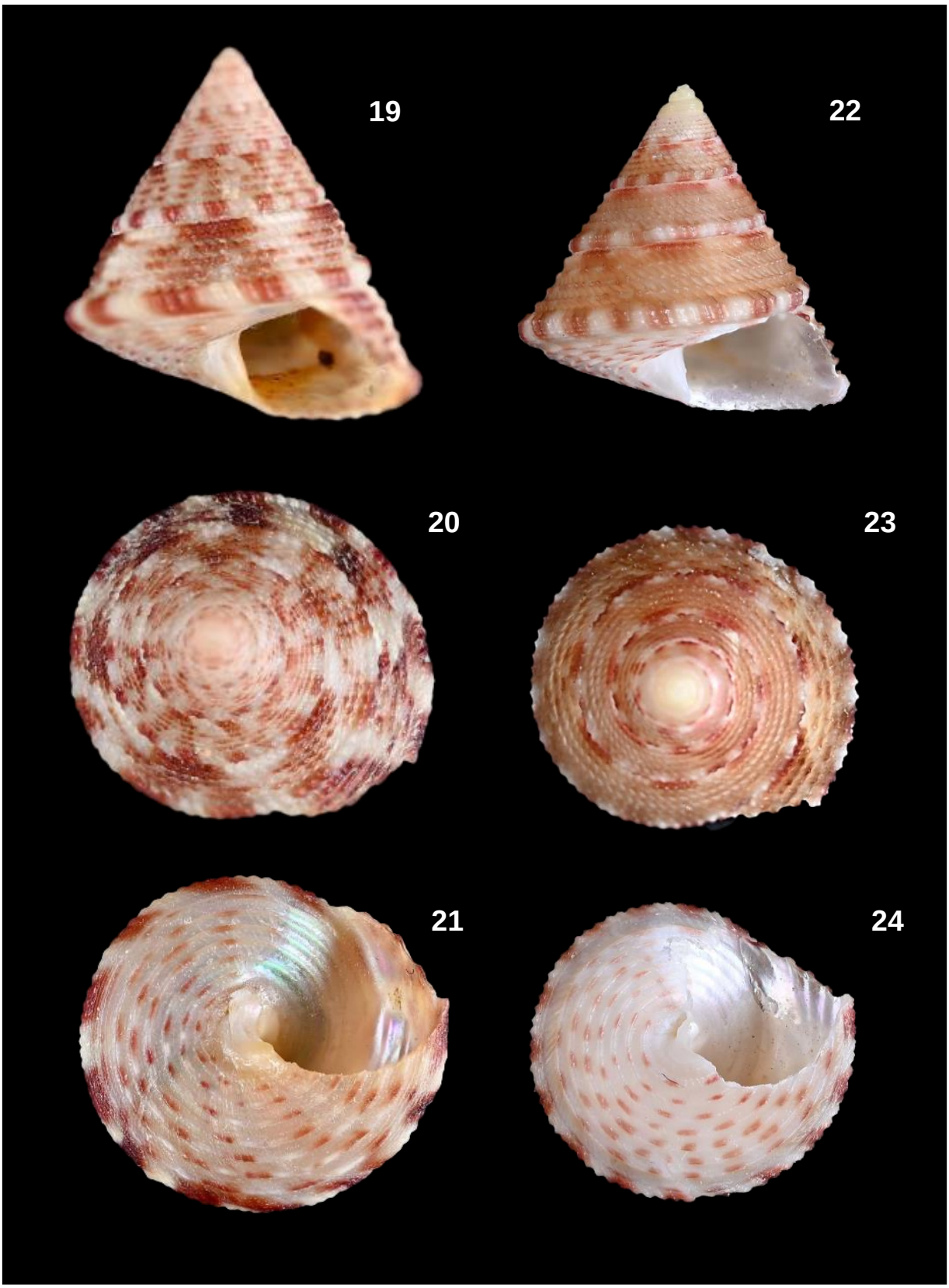
Pl. I. Figs 1-6. *Clelandella namibiensis* sp. nov. Between the Cunene river mouth and Cape Fria, Namibia, SW Africa. 18°26' S/ 12°00' E. Trawled by Belgian fishermen (PEMARCO) at a depth of 275 m. 1973. CFN; 1-3: H. 12.11 mm D. 10.90 mm. Paratype 1; 4-6: H. 10.14 mm D. 9.58 mm. Paratype 2.



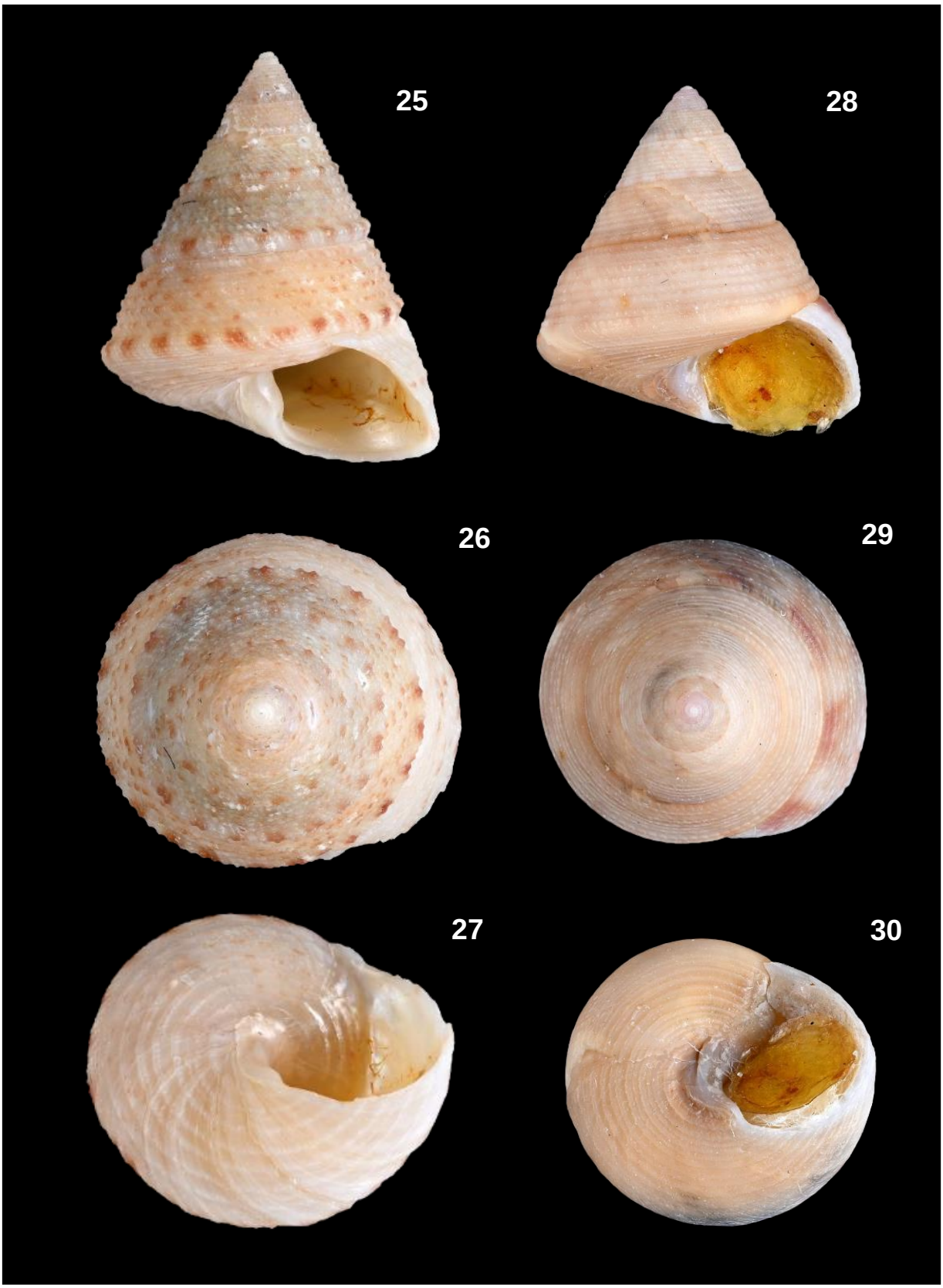
Pl. II. Figs 7-12. *Clelandella namibiensis* sp. nov. Between the Cunene river mouth and Cape Fria, Namibia, SW Africa. 18°26' S/ 12°00' E. Trawled by Belgian fishermen (PEMARCO) at a depth of 275 m 1973. CFN; 7-9: H. 11.56 mm D. 11.21 mm. Paratype 3; 10-12: H. 10.82 mm D. 9.77 mm. Paratype 4.



Pl. III. Figs 13-18. *Clelandella namibiensis* sp. nov. Between the Cunene river mouth and Cape Fria, Namibia, SW Africa. 18°26' S/ 12°00' E. Trawled by Belgian fishermen (PEMARCO) at a depth of 275 m. 1973. CFN; 13-15: H. 10.95 mm D. 9.41 mm. **Holotype**; 16-18: H. 9.78 mm D. 10.31 mm. Paratype 5.



Pl. IV. Figs 19-24. *Clelandella miliaris* (Brocchi, 1814); 19-21: Gullmarsfjorden, Sweden. Trawled by fishermen at a depth of 85 m. H. 10.53 mm D. 10.24 mm. CFN; 22-24: Off Lompoul-sur-Mer, Senegal. Trawled by fishermen at a depth of 150 m. 1993. H. 6.72 mm D. 6.60 mm. CSH.



Pl. V. Figs 25-27. *Clelandella* cf. *miliaris* (Brocchi, 1814). Cap Barbas, Western Sahara, Morocco. Trawled by fishermen at a depth of 50-60 m. September 1991. H. 12.97 mm D. 10.23 mm. CSH;
28-30: *Clelandella myriamae* Gofas, 2005. Gioia Tauro, Aeolian Islands, Tyrrhenian Sea, Calabria, Italy. H. 10.52 mm D. 9.51 mm. CSH.

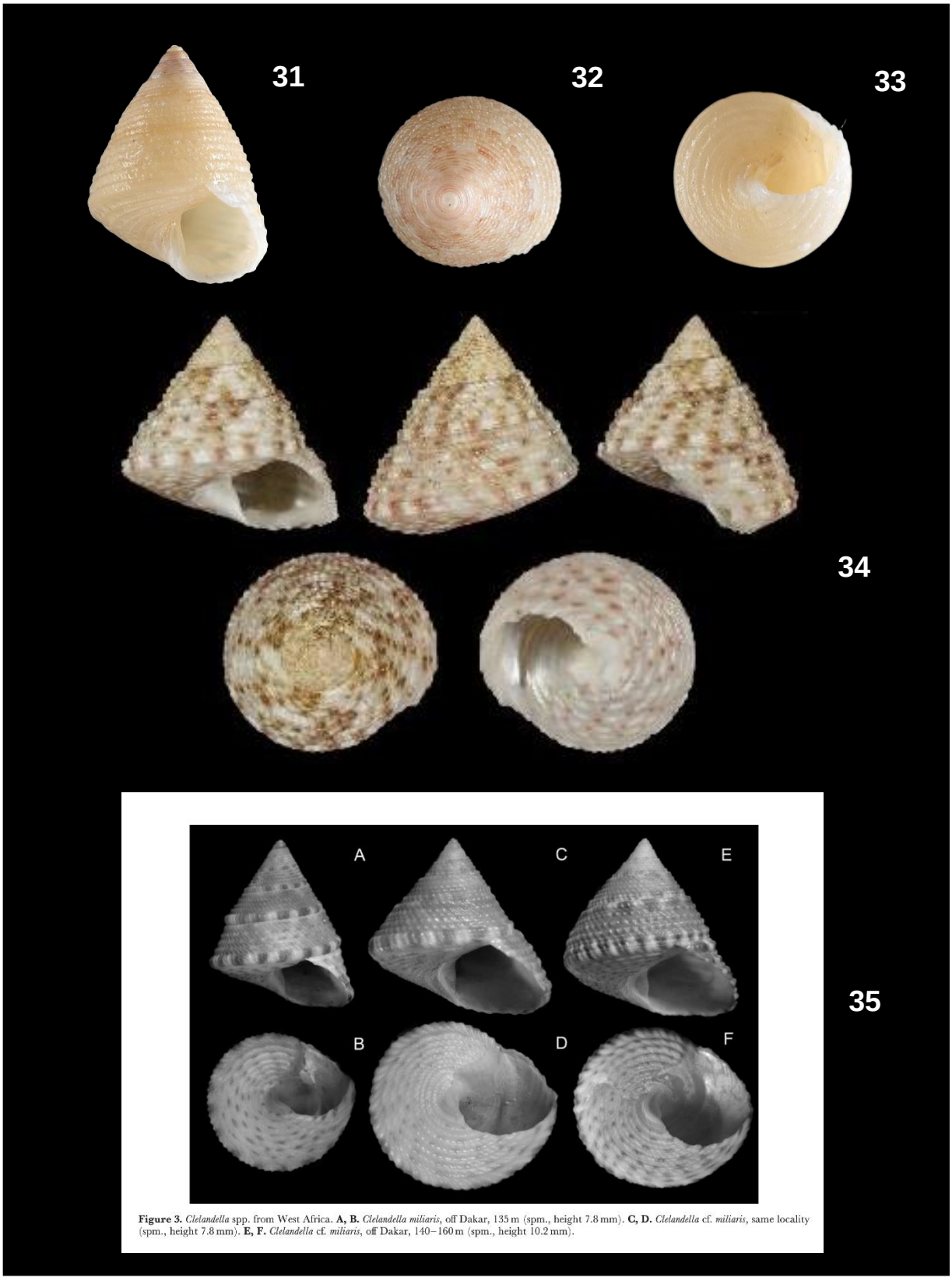
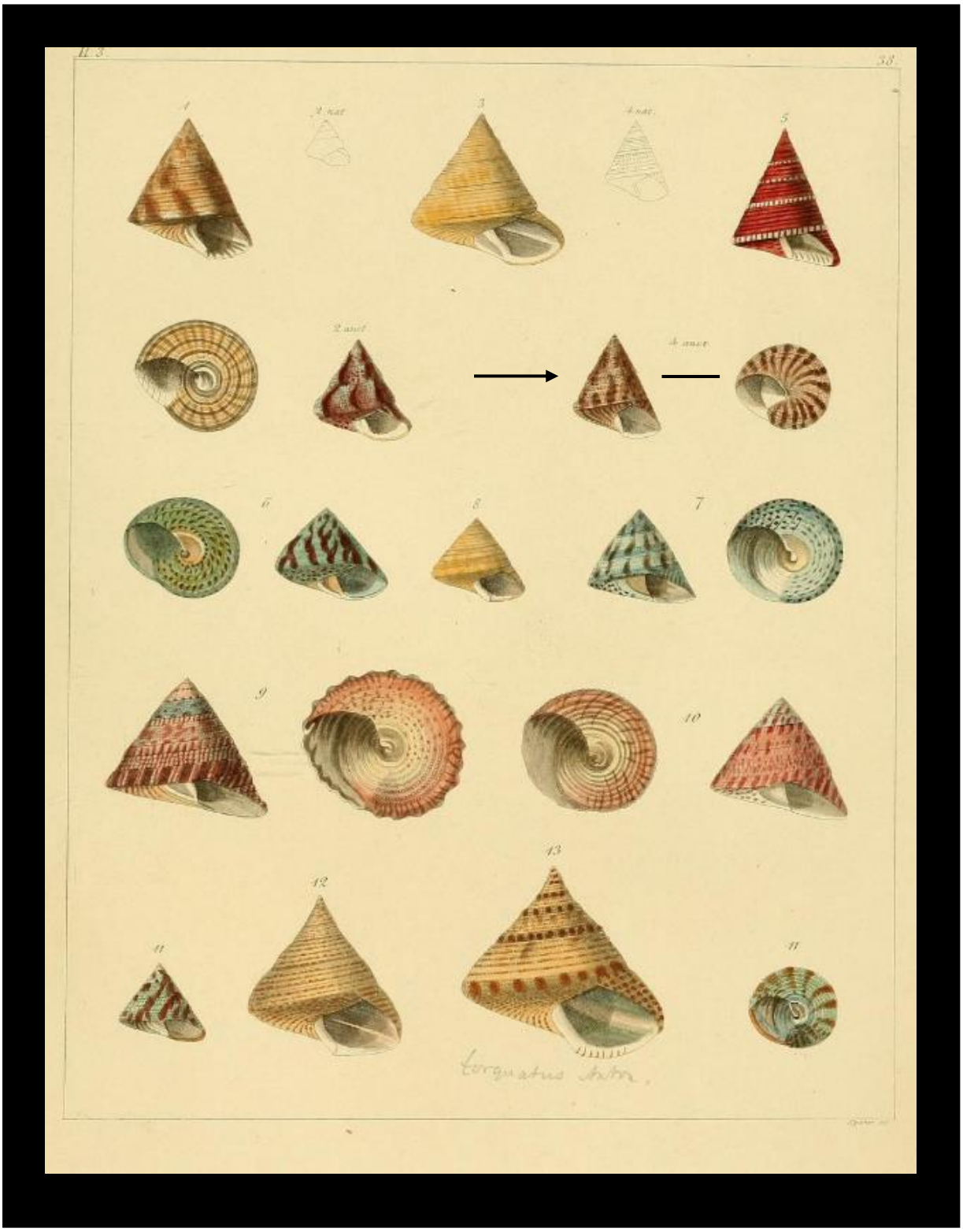


Figure 3. *Clelandella* spp. from West Africa. **A, B.** *Clelandella miliaris*, off Dakar, 135 m (spm., height 7.8 mm). **C, D.** *Clelandella* cf. *miliaris*, same locality (spm., height 7.8 mm). **E, F.** *Clelandella* cf. *miliaris*, off Dakar, 140–160 m (spm., height 10.2 mm).

Pl. VI. Figs 31-33. *Clelandella artilesi* Vilvens, Swinnen & Guerra, 2011. Off Western Sahara, Morocco. Dredged at a depth of 50-60 m. H. 5.58 mm D. 4.43 mm. CFN; 34: *Clelandella dautzenbergi* Gofas, 2005. Josephine Seamount, off South Portugal. 36°40' N/ 14°17' W. Dredged at a depth of 235-245 m. Holotype; 35: *Clelandella* sp. In: Gofas, S., 2005. Geographical differentiation in *Clelandella* (Gastropoda: Trochidae) in the Northeastern Atlantic. *Journal of Molluscan Studies*, **71**: fig. 3.



Pl. VII. Küster, H.C. 1837. *Systematisches Conchylien-Cabinet von Martini und Chemnitz*. Vol. II, part 3 (*Trochus*), PL. XXXVIII, fig. 4 (*Calliostoma fragum*).

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Taxonomic papers must be in agreement with the recommendations of the International Code of Zoological Nomenclature (4th edition). Papers describing new species (subspecies) will be accepted only if primary types are deposited in a recognized public Museum or scientific Institution.

Manuscripts can be submitted in Dutch, French or English, either by e-mail, CD-ROM/DVD (as *.doc documents in Arial 10pt., preferably in Word – PC or Macintosh) or even in readable handwritten or typed form on plain paper. Text must be typed in one column. The sequence of sections will respect the following order: **title**, **name of author(s)**, **address(es) of author(s)**, **a list of key words** (no more than ten) under which the article should be indexed and a brief **summary (abstract)** in **English**, not exceeding 200 words. Generic and (sub)specific names should be typed in *italics*. Names of levels higher than genus-rank should not be typed in upper case letters. The first mention in the text of any taxon must be followed by its author including the year.
The following pages should be divided into sections under short headings. Whenever possible the text should be arranged as follows: **Abbreviations** (grouped in alphabetical sequence), **Introduction, Type material, Type locality**, **Measurements, Materials and Methods**, **Description, Derivation of name, Habitat, Geographic range, Results**, **Discussion**, **Conclusions**, **Acknowledgements** and **References**. Please, refer to a recent issue of '*Neptunea*' for the lay out. All articles should be aimed at a general audience and authors should include definitions for technical terms or abbreviations.

Illustrations: We prefer colour plates or figures, black and white figures are accepted too. Photographs must be of a high quality, printed on glossy paper and submitted in the final version (max. A4: 210 x 297 mm). However, we prefer illustrations as digital files in jpg- or png-format taken by a high resolution digital camera (at least 8 M pixels) and submitted by e-mail or CD/DVD. Please make sure that photographs are in sharp focus throughout. Avoid making cutouts. Layout suggestions from authors are welcomed. It is recommended to print figures with their legend below, so authors are asked to take this into account when preparing full page figures.
Plates are numbered with consecutive Roman numbers (I, II, III, …) and figures with separate consecutive Arabic numbers (1,2, 3, …), for instance: Plate I. Figs 1, 2, 3 & 4; Plate II. Figs 5, 6 & 7 or Plate IV. Figs 1-10 if more than five illustrations. Tables must be numbered with Roman characters. Measurements of shells should be in metric units (0.1 mm or 0.01 mm).

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References, in alphabetical order, should be given in the following form (please note the punctuations):

Aartsen, J.J. van, 2002. Indo-Pacific migrants into the Mediterranean. 1. *Gibborissoa virgata* (Philippi, 1849). *La Conchiglia*, **34**(303): 56-58.

Alf, A. & Kreipl, K., 2004. A new *Bolma* from Madagascar (Mollusca, Gastropoda, Turbinidae). *Spixiana*, **27**(2): 183-184.

CLEMAM, 2003. Check List of European Marine Mollusca, http://www.somali.asso.fr/clemam/index.clemam.html.

Dautzenberg, P. & Fischer, H., 1906. Mollusques provenant des dragages effectués à l'ouest de l'Afrique pendant les campagnes de S.A.S. le Prince de Monaco. In: Richard, M.J. (Ed.): *Résultats des Campagnes Scientifiques accomplies sur son yacht par Albert 1er Prince Souverain de Monaco*. Imprimerie de Monaco, Monaco, **32**: 1-125, pls 1-5.

Okutani, T., 2000. *Marine Mollusks in Japan*. Tokai University Press. Tokyo. 1173 pp.

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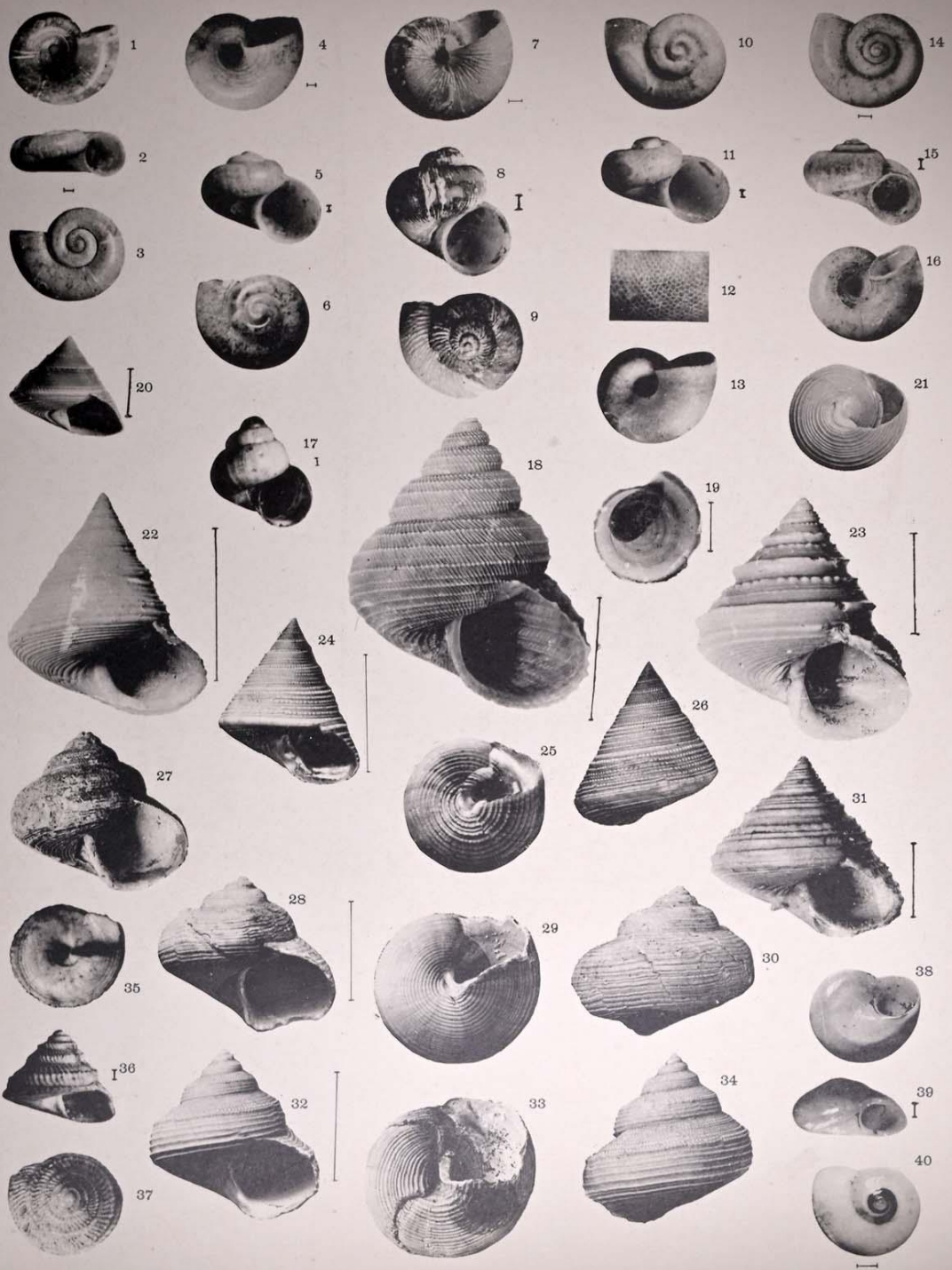

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