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Description of a new species of *Typhinellus* (Gastropoda: Muricidae: Typhinae) from the Western Atlantic

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There are seven known living species of *Typhinellus*. Five species occur in the Indo-West Pacific: *T. amoenus* Houart, 1994 ranges from Natal, South Africa to Somalia with other records off Quissico, southern Mozambique (MNHN); *T. androyensis* Bozzetti, 2007, described from south Madagascar and also present in the Gulf of Aden (RH coll.); *T. bicolor* Bozzetti, 2007 described from and presently restricted to southern Madagascar; *T. insolitus* Houart, 1991 from the Loyalty Ridge and *T. occlusus* (Garrard, 1963) described from Queensland, Australia and also recorded from southern Philippine Islands. A single species, *Typhinellus labiatus* (Cristofori & Jan, 1832), occurs throughout the Mediterranean and off the Atlantic coasts of Morocco and southern Spain (Houart, 2001). This species was also recorded from the Canary Islands (Nordsieck & Garcia Talavera, 1979) and off Dakar, Senegal (MNHN and Marche Marchad, 1958). The specimen recorded from the Gulf of Oman in Houart (2001: 114) turned out to be *T. androyensis* (see above) while the one from Somalia, also in Houart (2001: 114) probably also refers to this species. Another species, *Typhinellus lamyi* Garrigues & Merle, 2014, was recently described from Guadeloupe. It seems that only one fossil species, *T. chipolanus* (Gertman, 1969) from late lower Miocene (Burdigalian) of Florida occurs in the Western Atlantic. Two additional species will be described from south Madagascar (Houart & Héros, in press).

The species previously identified as *Typhinellus labiatus* (as *T. sowerbyi* or *Typhis sowerbii* Broderip, 1833) from the east coast of Panama and a few other localities in the Caribbean (Gertman, 1969: 155–158 and in litt.) is here described as *T. jacolombi* **n. sp.** and compared with other similar species.

Abbreviations used in the text are: MNHN: Muséum national d'Histoire naturelle, Paris, France; JC: collection of Jacques Colomb; RH: collection of the author.

The terminology used to describe the spiral cords (after Merle 2001, 2005) (Fig. 1a–e) are: P: primary cord, s: secondary cord, ad: adapical (or adapertural), ab: abapical (or abapertural), IP: infrasutural primary cord (primary cord on subsutural ramp), P1: shoulder cord, P2–P6: primary cords of the convex part of the teleoconch whorl, s1–s6: secondary cords of the convex part of the teleoconch whorl (example: s1 = secondary cord between P1 and P2; s2 = secondary cord between P2 and P3, etc.), ADP: adapertural primary cord on the siphonal canal, MP: median primary cord on the siphonal canal, ABP: abapertural primary cord on the siphonal canal, abs: abapertural secondary cord on the siphonal canal (terminology in parentheses: variable feature).

Muricidae Rafinesque, 1815

Typhinae Cossmann, 1903

Typhinellus Jousseaume, 1880

Type species. *Typhis sowerbyi* Broderip, 1833 = *Murex labiatus* Cristofori & Jan, 1832, Mediterranean, East Atlantic (original designation)

Diagnosis. Four flange-like, frilled varices; broad, expanded variceal flange; anal tube not originating from varix. Varices constricted above the aperture and flaring at abapical end; Presence of a laminar buttress (partition) between the shoulder spine of each varix and the previous whorl; variceal flange of last teleoconch whorl extending to almost the tip of siphonal canal; anal tubes situated near preceding varix, adpressed to preceding laminar buttress.

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***Typhinellus jacolombi* n. sp.**
(Figs 1 a–c; 2 a–k)

Type material. Holotype (MNHN IM-2000-30465: Figs 1a; 2a–c), Caribbean Sea, Panama, Portobelo Bay, 37–74 m.

Paratypes: Caribbean Sea, Panama, Portobelo Bay, east of Canal Zone, 60 m, on muddy sand substrate, 1989, 2 RH; Caribbean Sea, Panama, Portobelo, 19–37 m, 1 JC; Caribbean Sea, Panama (no other data), 1 JC.

Other material examined. Caribbean Sea, Panama (no other data) 25 m, on coralline algae, 1 JC; Caribbean Sea, Panama, off San Blas Islands, dredged at 120 m, Nov. 2000, 1 JC.

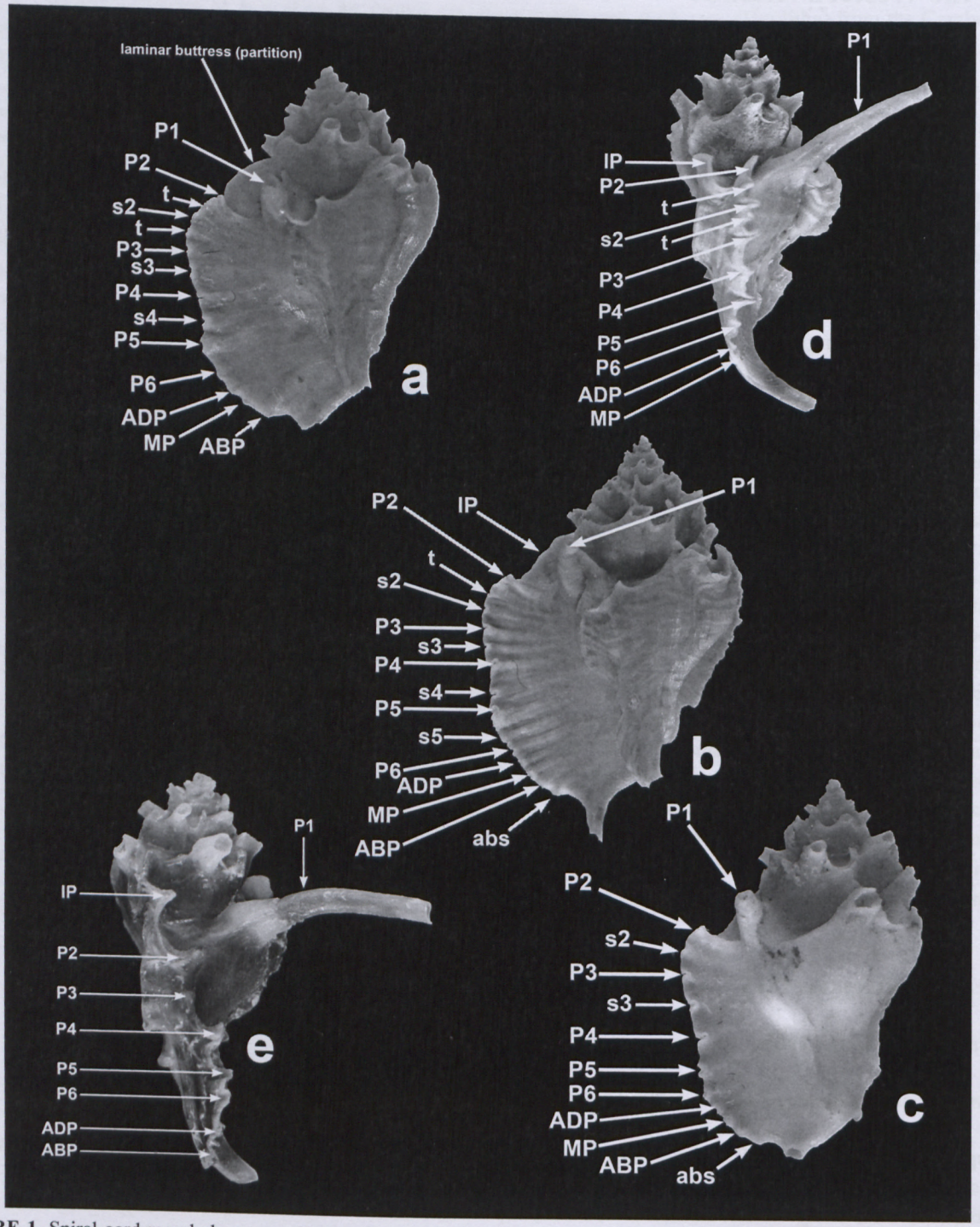

FIGURE 1. Spiral cord morphology. a–c. *Typhinellus jacolombi* **n. sp.** a. Panama, Portobelo Bay, 37–74 m, holotype MNHN IM-2000-30465, length: 19.2 mm; b. Panama, Portobelo Bay, 60 m, muddy substrate, coll. 1989, paratype RH, length: 28.7 mm; c. Panama, Portobelo, 19–37 m, paratype JC, length: 19.3 mm; d. *Typhinellus labiatus* (Cristofori & Jan, 1832), Kerkennah, Tunisia, 0.5 m, RH, length: 20.1 mm; e. *Typhinellus lamyi* Garrigues & Merle, 2014, Guadeloupe, Port Louis, 66 m, holotype MNHN-IM-2013-7776, length: 13.1 mm.

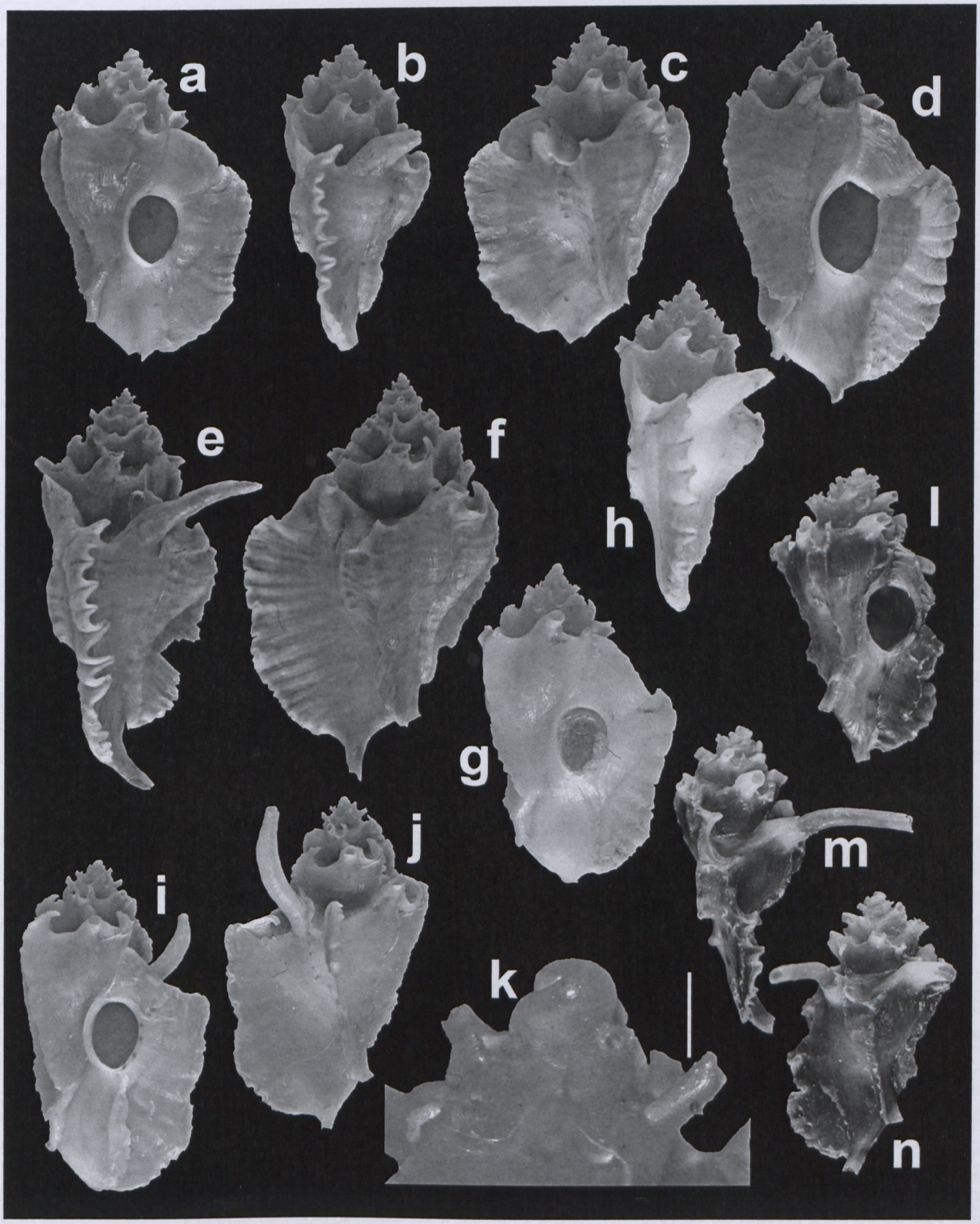

FIGURE 2. a–k. *Typhinellus jacolombi* **n. sp.** a–c. Panama, Portobelo Bay, 37–74 m, holotype MNHN IM-2000-30465, length: 19.2 mm; d–f. Panama, Portobelo Bay, 60 m, muddy substrate, coll. 1989, paratype RH, length: 28.7 mm; g–h. Panama, Portobelo, 19–37 m, paratype JC, length: 19.3 mm; i–j. Panama, Caribbean (no other data), paratype JC, length: 21.7 mm; k. Protoconch of specimen figured in i–j (scale bar 500 µm). l–n. *Typhinellus lamyi* Garrigues & Merle, 2014, Guadeloupe, Port Louis, 66 m, holotype MNHN-IM-2013-7776, length: 13.1 mm.

Type locality. Portobelo Bay, Caribbean Sea, Panama, 37–74 m.

Etymology. The species is named for Jacques Colomb (Marseille, France), who kindly donated the holotype and loaned material from his collection.

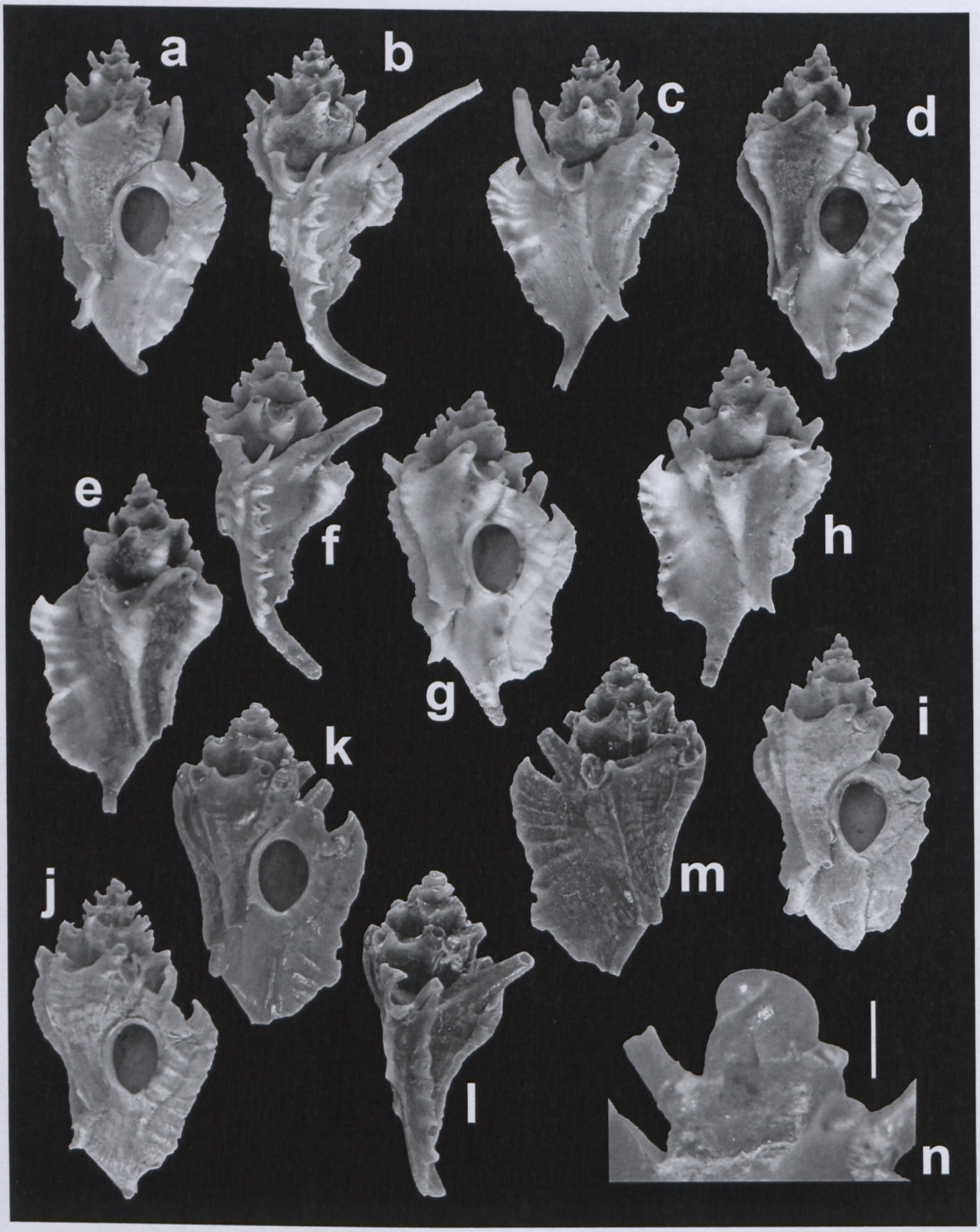

FIGURE 3. *Typhinellus labiatus* (Cristofori & Jan, 1832). a–c. Kerkennah, Tunisia, 0.5 m, RH, length: 20.1 mm; d–f. Kerkennah, Tunisia, 0.5 m, RH, length: 19.7 mm; g–h. Kerkennah, Tunisia, 0.5 m, RH, length: 18.1 mm; i. Mallorca, Porto Colom, 1978, RH, length: 16.6 mm; j. Italy, Livorno, 26 m, 1978, RH, length: 13.6 mm; k–m. Sardinia, RH, 14.4 mm; n. Protoconch, Sicily, Brucoli, 1990, RH (scale bar 500 μm).

Description of the holotype. Shell large for the genus, 19.2 mm in length at maturity. Length/width ratio 1.75, broad, nearly smooth, lightly built. Subsutural ramp broad, gently sloping, weakly concave. Light tan with lighter colored siphonal canal, dark brown subsutural area and 3 or 4 light brown spots on abapical part of outer apertural lip. Aperture white within. Spire high with 5 broad, convex, angulate, strongly shouldered, weakly spinose teleoconch whorls. Suture of whorls impressed. Protoconch eroded in the holotype. Axial sculpture of teleoconch whorls consisting of 4 high, thin, sharp lamellate varices per whorl, each with a short, open, inwardly curved shoulder spine. Apertural varix very broad, flange-like, lightly reflected dorsally, with broadly open, short spinelets at outer edge. Variceal flange

extended to nearly the tip of siphonal canal. Shoulder spine of apertural lamellae strongly dorsally curved dorsally, connected to last teleoconch whorl by a broad, high laminar buttress (partition). Spiral sculpture of low, rounded, broad, smooth primary and secondary cords, and narrow tertiary cords: P1 (anal tube), P2 (shoulder spine), t, s2, t, P3, s3, P4, s4, P5, P6, ADP, MP and ABP. P1 with long, tapering, broad, ventrally sealed anal tube, forming an angle of approximately 85° with axis of shell. Only last tube completely hollow and functional, older tubes broken off and closed. Other spiral cords, from P2 to P6 corresponding to short, broadly open, blunt spinelets at apertural varix.

Aperture moderately large, roundly ovate, forming a continuous peristome. Columellar lip narrow, smooth within. Siphonal canal short, broad, tip partly broken in holotype, ventrally sealed. Left side of canal weakly overlapping right side.

Operculum light brown, thin, ovate, with subapical nucleus.

Radula unknown.

Distribution. Caribbean Sea, off the coast of northern Panama, from the San Blas Islands to the Gulf of Portobelo, in 25–120 m.

Gertman (1969: 156) also mentioned Portobelo for the species he identified as *Typhis* (*Typhinellus*) *sowerbii* but he also added Egmont Key, Florida, at 41 fms (75 m), the Texas coast at 28 fms (51 m) and the Leeward Islands (near Nevis) at 50–60 fms (91–110 m). The specimen illustrated by Gertman (1969: 157, pl. 1, figs 5a–5c) from the Leeward Islands is close to *T. lamyi* and is here considered conspecific with that species. Having not seen the other specimens, I will at this time not enlarge the geographical range to the other two localities.

Remarks. The presence of Indo-West Pacific species in the Caribbean is highly improbable and their shell morphology differs in many ways from *Typhinellus jacolombi* **n. sp.** *Typhinellus occlusus* (Garrard, 1963) and *T. insolitus* (Houart, 1991) have a narrower shell with fewer spiral cords and a more strongly constricted last teleoconch whorl. *Typhinellus bicolor* and *T. androyensis* also have less spiral cords and a comparatively smaller shell and *T. amoenus* differs in having a narrower shell with a more strongly constricted last teleoconch whorl and less expanded variceal wings.

Of the two species reported from the western Atlantic, one, *Typhinellus chipolanus* (Gertman, 1969) is a fossil species from the late lower Miocene (Burdigalian) of the Chipola Formation in Florida. It is different from the Recent species in having a smaller and slenderer shell, reaching 12.5 mm in the holotype, and in having fewer and shallower spiral cords. The other species, *T. lamyi* (Fig. 2 l–n) (Merle & Garrigues, 2014: 844) from Guadeloupe differs in having a smaller shell relative to the number of teleoconch whorls, in having a less expanded variceal flange and in lacking any secondary spiral cords.

The Mediterranean *T. labiatus* (Fig. 3 a–n) (Cristofori & Jan 1832: 11) also occurs in a small area in the eastern Atlantic and has been confused with the new Panamanian species (see above) but it consistently differs in having a generally smaller shell, although one of the syntypes of *Typhis sowerbyi*, a synonym, in NHMUK measures 24.5 mm in length (Houart, 2001: 122, fig. 129). However, that species also differs in having a narrower shell compared to its length, with a length/width ratio of 1.68–1.77 compared to 1.50–1.72 in *T. jacolombi* **n. sp.** and in having a different spiral sculpture morphology (Fig. 1 d), *T. labiatus* has the primary cords IP to MP with s2 in all the examined shells and an occasional s4. I never observed any other secondary cords in *T. labiatus* contrary to *T. jacolombi* **n. sp.**, which always has a s2 spiral cord, often s3, less often s4 and rarely s5 and abs (Fig. 1 a–c). *T. jacolombi* occasionally has a smoother shell than observed in the holotype (Fig. 2 g–j) but *T. labiatus* has a less broad and less expanded apertural wing abapically and a more constricted last teleoconch whorl.

Typhinellus jacolombi varies in shell colour, ranging from completely white with darker brown subsutural area (paratype RH) to completely light brown (paratype RH) (Fig. 2 d–f). The protoconch (paratype JC) is small and rounded (Fig. 2 k) and the total shell length may attain 28.7 mm (Fig. 2 d–f).

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