

New data on the Trophoninae (Gastropoda : Muricidae) in southern Africa with the description of two new species.

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SUMMARY. Additional records and new data on southern African Trophoninae add some information to the "Revision of the subfamily Trophoninae in southern Africa" (Houart, 1987). The known geographical distribution of *Afritrophon agulhasensis* (Thiele, 1925) and *Trophon acceptans* Barnard, 1959, is revised and *Trophon* sp. cf. *T. droueti* (sensu Barnard, 1963) is described as *Trophon similidroueti* n. sp., and included in the fauna of this region. *Trophon melvillsmithi* n. sp. is described from northern Namibia.

RESUME. L'étude de matériel supplémentaire en provenance d'Afrique du Sud, permet d'apporter quelques renseignements complémentaires à l'article "Revision of the subfamily Trophoninae in southern Africa" (Houart, 1987). La distribution géographique de *Afritrophon agulhasensis* (Thiele, 1925) et de *Trophon acceptans* Barnard, 1959 est revue. *Trophon* sp. cf. *T. droueti* (sensu Barnard, 1963) est décrit comme *Trophon similidroueti* n. sp. et inclus dans la faune sud-africaine. *Trophon melvillsmithi* n. sp. est décrit du Nord de la Namibie.

ABBREVIATIONS.

IRSNB : Institut Royal des Sciences Naturelles de Belgique.

NM : Natal Museum, Pietermaritzburg, South Africa.

SAM : South African Museum, Cape Town, South Africa.

sp(s) : live taken material.

sh(s) : empty shells only.

SYSTEMATICS.

Genus : *Afritrophon* Tomlin, 1947.

Type-species by original designation : *Trophon kowieensis* Sowerby, 1921

Afritrophon agulhasensis (Thiele, 1925).

Trophon agulhasensis Thiele, 1925 : 169, pl. 18, fig. 12 ; BARNARD, 1959 : 208, fig. 45(c) ; KENSLEY, 1973 : 136, fig. 457 ; HOUART, 1987 : 30, figs. 2, 25, 42.

ADDITIONAL MATERIAL EXAMINED.

Lüderitz, Diaz Point, Namibia, low tide, rock pools, NME6057, 2 sps ; Atlantic Cape : Paternoster, intertidal rocks and stones, NM E6268, 3 sps.

DISCUSSION.

The material, collected alive at both localities, permits to extend the geographical distribution of this species up to south of Namibia. *A. agulhasensis* was previously known from Cape Town to Port Elizabeth (Houart, 1987).

Genus : *Trophon* Montfort, 1810.

Type-species by original designation: *Murex magellanicus* Gmelin, 1791 (= *Buccinum geversianum* Pallas, 1774).

Trophon acceptans Barnard, 1959.

Figs. 5, 6, 11, 14.

Trophon acceptans Barnard, 1959 : 202, figs 40 (d), 43 (b) -in part- ; BARNARD, 1963a, 435, fig. 7 (a) ; BARNARD, 1963b : 8 ; BARNARD, 1969 : 638 ; KENSLEY, 1973 : fig. 486 ; HOUART, 1987 : 33, figs. 8, 9, 45.

ADDITIONAL MATERIAL EXAMINED.

SAM A9734, 33°36' S, 16°15' E, 1520-1570 fms (2780-2871 m), 2 sps ; SAM A9701, 33°50' S, 17°21' E, 600 fms (1100 m), 3 sps ; R. Houart coll., 33°50' S, 16°30' E, 1480-1660 fms (2700-3030 m), 2 sps.

DISCUSSION.

T. acceptans is not only known from the type locality as stated by HOUART (1987 : 33), but also from adjacent regions (BARNARD, 1963a). The geographical range is situated between 33°36' S, 16°15' E and 34°42' S, 16°54' E, while the bathymetrical records vary from 1097 to 3255 mm depth. The maximum length of the shell is 46 mm.

A single dead specimen was reported by BARNARD (1963b : 8) from station A1254, situated approximately 33°01' S, 34°49' E, at 1300 m depth.

In the light of the newly examined material, it is now possible to compare *T. acceptans* with the previously illustrated *Trophon* sp. in HOUART (1987 : 34, fig. 30), then tentatively identified as a juvenile of *T. acceptans*. It seems now that the latter material would be better considered as a juvenile of an unknown species, since the protoconch of *T. acceptans* is more angulate and broader with a more irregular form, and also because it is now almost certain that *T. acceptans* never, or very rarely, occurs at less than 1000 m depth, while the *Trophon* sp. was reported from only 400-420 m.

T. acceptans was also compared by HOUART (1987 : 33) with *Trophon guineensis* Thiele, 1925, which he synonymised with *T. cossmanni* Locard,

1987. In fact, in doing so, he was overlooking the conclusions of BOUCHET & WARÉN (1985). First, *T. cossmanni* Locard, 1897 was considered by these authors as a form of *T. echinatus* (Kiener, 1840) (= *T. carinatus* and *T. vaginatus* of authors), a conclusion which may be accepted, regarding the great number of specimens examined by the authors and knowing the great variability of form of some *Trophon* species. Secondly, although the shell of *T. guineensis* is indeed quite indistinguishable from the *T. echinatus cossmanni* form, BOUCHET & WARÉN (1985 : 139) observed differences in the pigmentation of the eyes of a female specimen dredged off Angola (10°30' S, 11°55' E, 1756 m). This specimen had unpigmented eyes, while the *T. echinatus cossmanni* form has black eyes. The protoconch of *T. guineensis* has not been observed so far, but one female was found to brood an egg capsule in the pallial cavity ; the small eggs indicate planktonic larval development (BOUCHET & WARÉN, 1985), thus presumably giving rise to a shell with multi-spiral protoconch. The *T. echinatus cossmanni* form has a paucispiral protoconch and *T. echinatus* has never been observed to brood egg capsules. According to the observations made by these authors *T. guineensis* Thiele, 1925 can be separated from the *T. echinatus cossmanni* form although the teleoconchs are extremely similar.

Trophon similidroueti n. sp.

Figs, 3, 9, 10 ; table 1.

Trophon sp. cf. *T. droueti* Barnard, 1963a : 438, fig. 7 (b).

MATERIAL EXAMINED.

SAM A9866, 34°36' S, 17°00' E, 1500-1760 fms (2743-3218 m), 3 sps.

TYPE MATERIAL.

Holotype SAM A9866a, 11 mm ; paratype SAM A9866b, 11 mm ; paratype SAM A9866c, 10 mm.

TYPE LOCALITY.

South Atlantic Ocean, off Cape Town, South Africa, 34°36' S, 17°00' E, 2743-3218 m.

DESCRIPTION.

Shell medium-sized for the genus, fusiform and fragile. Spire high with 1.5 protoconch whorls and

4 elongate teleoconch whorls. Protoconch large and roundly elongate. Suture impressed.

Last whorl convex and elongate, bearing 20 to 22 low axial lamellae, partially obscuring suture of whorls, and 4 or 5 low, shallow spiral cords crossing the axial lamellae. No spiral sculpture on shoulder. Spire whorls with numerous axial lamellae and 2 or 3 spiral cords.

Aperture ovate. Columellar lip smooth and adherent; outer apertural lip thin and smooth. No apparent anal notch. Siphonal canal medium-sized, straight and broadly open, bearing termination of axial lamellae.

Dimensions : from 10 to 11 mm.

Colour of the shell greyish-white, covered by a thick and whitish intritacalx, with microscopical axial striae. Operculum and radula not examined.

DISCUSSION.

Although BARNARD (1963a) believed that the three specimens were dead when collected, the dried animal is present inside, proving that they were collected alive.

The shell morphology is similar to typical *T. droueti* from the Azores (figs. 4, 12) : e.g. the medium-

sized to rather long siphonal canal; the number of axial lamellae on the last whorl (from 15 to 21 for *T. droueti* and from 20 to 22 for *T. similidroueti*); the 4 to 5 shallow spiral cords and the size of both shells, but with one teleoconch whorl less for *T. similidroueti*, which probably has 1 or 2 teleoconch whorls more in adult specimens.

Nevertheless, both species are clearly separated by the differences in the protoconch (see table and figs 3 and 4), by the larger teleoconch whorls, by the absence of finely striated intritacalx in *T. droueti*, by the fact that the South African specimens attain a larger size with the same number of teleoconch whorls, and by the different bathymetrical distribution, *T. droueti* living at about 450 to 1300 m depth. Several specimens of *T. droueti* were examined from the IRSNB and one from the authors collection. All having protoconch whorls of approximately the same dimensions, one shell was selected to be compared with the holotype of *T. similidroueti*, the only specimen with preserved protoconch (see table 1).

ETYMOLOGY.

The name refers to its resemblance with *Trophon droueti* Dautzenberg, 1889.

TABLE 1.

	Length	Number of Teleoconch whorls	Height of protoconch (*)	Diameter of first whorl of protoconch (*)	Diameter of last whorl of protoconch (*)
<i>T. droueti</i>	8 mm	5	0.8 mm	0.8 mm	1.1 mm
<i>T. similidroueti</i>	11 mm	4	1.3 mm	1.2 mm	1.6 mm

Table 1 : comparisons of the protoconch of *T. droueti* Dautzenberg, 1889 and *T. similidroueti* n. sp.

(*) measurements taken from the terminal varix of the protoconch.

Trophon melvillsmithi n. sp.

Figs. 1, 2, 7, 8, 13.

TYPE MATERIAL.

Holotype NM E525/T71 (7.3 x 3.5 mm), 4 paratypes NM E524/T72, respectively 7.3 x 3.6 mm ; 5.8 x 2.9 mm ; 5.7 x 3.05 mm (operculum and radula illustrated) ; 1.7 mm (protoconch and part of first whorl), 1 paratype R, Houart coll., ex NM E525 (6.8 x 3.3 mm).

TYPE LOCALITY.

Northern Namibia : south of Kunene River, 18°00' S, 11°23.2' E, 400 m, particulate black mud. Dredged Sea Fisheries (Swates), St. n 10-06 (dredge 1), 18 Aug. 1987.

DESCRIPTION.

Shell small and elongate. Spire high with 1 3/5 protoconch whorls and 5 slightly shouldered teleoconch whorls. Protoconch rounded and smooth, with obsolete terminal varix. Suture impressed.

Last whorl convex, elongate and shouldered, bearing 12 to 14 slightly laminate or rounded axial ribs ; lamellae more apparent on the shoulder. Spiral sculpture of 4 very shallow cords, mostly visible between the axial ribs. No spiral sculpture on the shoulder. No evident spiral sculpture on the spire whorls.

Aperture ovate. Columellar lip smooth, entirely adherent ; outer apertural lip smooth. Anal notch obsolete. Siphonal canal short to medium-sized, broad and broadly open, straight or slightly bent to the left and smooth.

Dimensions : from 5.8 to 7.3 mm in length (protoconch eroded).

Colour milky white, aperture glossy white. Operculum very small, elongate and narrow, with apical nucleus. Radula with a rachidian tooth bearing a long and slender central cusp, long marginal cusps, medium-sized lateral cusps, and some small marginal denticles ; lateral tooth broad and curved.

DISCUSSION.

This species, lives in particulate black mud, the acidity of which has eroded the apex of the shell of all mature specimens. It may be compared only with *Trophon acceptans* Barnard, 1959 and *Trophon echinatus* Kiener, 1840, form *cossmanni* Locard, 1897.

Trophon melvillsmithi may be separated from *T. acceptans* by its smaller shell, a specimen of *T. acceptans* with 5 teleoconch whorls attaining 18 or 19 mm in length. The shell of *Trophon melvillsmithi* has more rounded axial ribs and a shorter, but comparatively broader siphonal canal. The protoconch is rounded, that of *T. acceptans* being more angulate, larger and irregular. The operculum is comparatively much smaller and narrower (figs. 2 and 5). Lastly, *T. acceptans* is a bathyal species, occurring at depths of about 1097 to 3255 m, while *T. melvillsmithi* occurs at about 400 m depth. *T. melvillsmithi* differs from the *T. echinatus cossmanni* form in the same points except for the protoconch, which is similarly rounded. The radula is typical trophonine although the lateral denticles are fairly long.

ETYMOLOGY.

Named after Mr. Melvill-Smith (Sea Fisheries Research Institute, Cape Town, South Africa).

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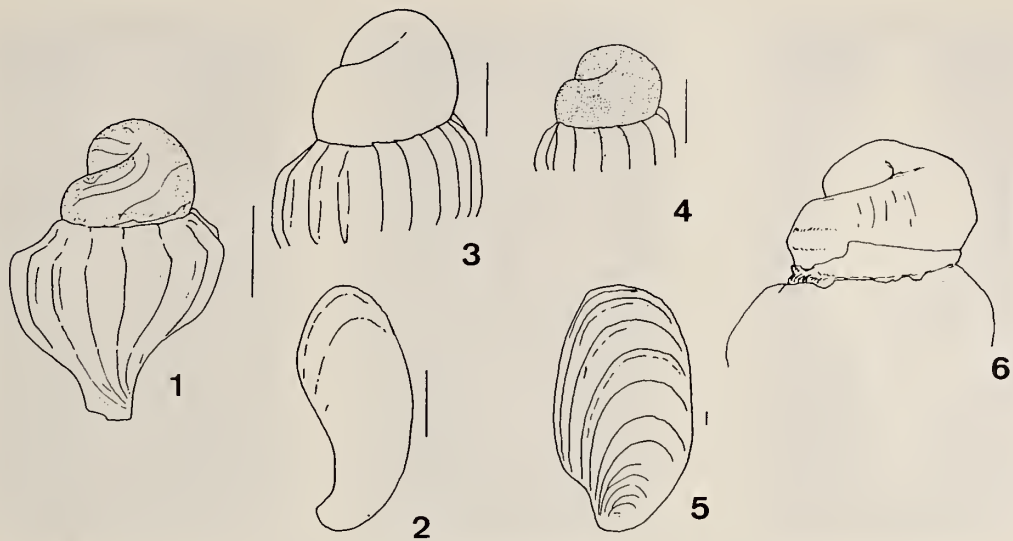


Fig. 1. Protoconch of *Trophon melvillsmithi* n. sp. : paratype NM E524/T72, 1.7 mm (scale bar : 0.5 mm)

Fig. 2. Operculum of *Trophon melvillsmithi* n. sp. : paratype NM E524/T 72, 5.7 mm (scale bar : 0.5 mm).

Fig. 3. Protoconch of *Trophon similidroueti* n. sp. : holotype SAM A9866a (scale bar : 0.5 mm).

Fig. 4. Protoconch of *Trophon droueti* Dautzenberg, 1889, IRSNB IG 10591 (scale bar : 0.5 mm).

Fig. 5. Operculum of *Trophon acceptans* Barnard, 1959, R. Houart coll., (ex SAM A9811) : 35.5 mm (scale bar : 0.5 mm).

Fig. 6. Protoconch of *Trophon acceptans* Barnard, 1959, SAM A9701, here illustrated fig. 11 (scale bar : 0.5 mm).

REFERENCES.

BARNARD, K.H., 1959. Contributions to the knowledge of South African marine Mollusca, Part II, Gastropoda : Prosobranchiata : Rachiglossa. *Ann. S. Afr. Museum* 45 : 1-237.

BARNARD, K.H., 1963a. Deep-sea Mollusca from West of Cape Point, South Africa. *Ann. S. Afr. Museum* 46 : 407-452.

BARNARD, K.H., 1963b. Deep-sea Mollusca from the region South of Madagascar. *Commerce & Industry Invest. Rep.* 44 : 3-17.

BARNARD, K.H., 1969. Contributions to the knowledge of South African marine Mollusca. Part VI. *Supplement. Ann. S. Afr. Museum* 47 : 595-661.

BOUCHET, P. and A. WARÉN, 1985. Revision of the Northeast Atlantic bathyal and abyssal Neogastropoda excluding Turridae (Mollusca, Gastropoda). *Boll. Malac. suppl.* 1 : 123-296.

HOUART, R., 1987. Revision of the subfamily Trophoninae (Mollusca : Gastropoda : Muricidae) in southern Africa, with description of four new species. *Apex. Inf. Sc. Soc. Belge Malac.* Vol. 2 (2) : 25-52.

KENSLEY, B., 1973. Sea-Shells of southern Africa - Gastropoda : 1-255, index, 910 text figs, Cape Town.

THIELE, J., 1925. Gastropoda der Deutschen Tiefsee-Expedition II. Teil. *Wissens. Ergebn. Dt. Tiefsee-Exped. "Valdivia" 1898-1899*, 17 (2) : 38-182, pls. 13-46.

Opposite page :

Fig. 7. *Trophon melvillsmithi* n. sp., holotype NM E525/T71, 7.3 mm.

Fig. 8. *Trophon melvillsmithi* n. sp., paratype NM E524/T72, 7.3 mm.

Figs. 9-10. *Trophon similidroueti* n. sp., holotype SAM A9866a, 11 mm.

Fig. 11. *Trophon acceptans* Barnard, 1959, SAM A9701, 10.6 mm.

12. *Trophon droueti* Dautzenberg, 1889, INRSB IG 10591, The Azores, 1153 m, 16 mm (photo IRSNB).

Fig. 13. Radula of *Trophon melvillsmithi* n. sp., paratype NM E524/T72 : 5.7 mm, (scale bar : 10 μ m).

Fig. 14. Radula of *Trophon acceptans* Barnard, 1959, R. Houart coll. (ex SAM A9811 : 35.5 mm) (scale bar : 10 μ m).

