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PTERYNOPSIS, NEW GENUS OF TROPHONINAE (GASTROPODA)

BY

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(With 2 plates)

ABSTRACT

A new gastropod genus, *Pterynopsis*, is proposed for those trophonine species characterized by having a macro-laminated shell structure, a flattened aperture, and varices numerous on the early whorls but usually reduced to three in the adult. The type species is *P. prosopeion*, new name for *Murex nysti* VON KOENEN, A., 1867, *non M. nysti* ROUAULT, A., 1850. The group first occurs in the Oligocene of Germany, and continued through the Pleistocene Red Crag of England, but is apparently now extinct.

RESUME

Un genre nouveau de Gastéropodes, *Pterynopsis*, est proposé pour inclure les espèces de la sous-famille des Trophoninae caractérisées par une structure macrolaminée de la coquille, un labre aplati et de très nombreuses varices sur les premiers tours se réduisant généralement à trois chez l'adulte. L'espèce-type est *P. prosopeion*, nom nouveau pour *Murex nysti* VON KOENEN, A., 1867, *non M. nysti* ROUAULT, A., 1850. Ce groupe apparaît dans l'Oligocène d'Allemagne, se maintient dans le Pleistocène d'Angleterre (Red Crag), et est apparemment éteint à l'heure actuelle.

ACKNOWLEDGMENTS

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INTRODUCTION

When the members of a group of species are placed in first one genus and then another for a period of over a hundred years, the chances are good that they actually belong in none of the presently available genera and eventually the species will be placed in a new genus erected for them. Such is the case with the well-known species « *Murex* » *tristichus* BEYRICH, E., 1854, « *Murex* » *nysti* VON KOENEN, A., 1867, « *Murex* » *tortuosus* SOWERBY, J. DE C., 1823, and their congeners. All named in the broad genus *Murex* s.l., these species have been placed variously in the genera *Pterynotus*, *Pterochelus*, *Pteropurpura* and « *Ocinebra* » [= *Ocenebra*]. This latter assignment by F. W. HARMER (1914), at first glance seemed the most unlikely of all, but upon closer examination provided the key to the true placement of the group for the calcitic shell composition, which is characteristic of the Trophoninae as well as the Ocenebrinae, is not found in the subfamily Muricinae, to which *Pterynotus* and *Pterochelus* belong. It is found in *Pteropurpura*, a member of the Ocenebrinae, but this latter group is characterized by a closed siphonal canal and an aperture unlike that present in these « problem » species.

Superficially the resemblance to the trivaricate genera of the Muricinae is striking but study reveals that this is convergence and the group is more closely allied with the trophons. The trophonine characters are the dilated and flattened aperture, the laminated calcitic shell structure, and the irregular formation of the varices, which are numerous in the early stages but in the adult become reduced in number, usually to three. The species here referred to *Pterynopsis* n. gen., are most closely related to the genus *Boreotrophon* (type species : *Murex clathratus* LINNÉ, C., 1758), but differ in the lesser number of varices, for *Boreotrophon* has about twelve thin varices per whorl and *Pterynopsis* has but three thickened varices in the adult, although it has about twelve on the early whorls. The flattened aperture of *Pterynopsis* is comparable to the aperture in the Recent *Boreotrophon orpheus* (GOULD, A. A., 1849), *B. multicostatus* (ESCHSCHOLTZ, 1833), *B. beringi* (DALL, 1902), *B. elegantulus* (DALL, 1907), and others of this kind.

Both *Pterynopsis* and *Boreotrophon* have a thin chalky, external layer of shell, which bears the fine ornamentation, both axial and spiral. This layer is retained on most Recent specimens but it is almost invariably lost in fossil examples. As a result of this spalling of the outer surface, the fossils are usually in a rather poor state of preservation and one with perfect early whorls is exceedingly rare. All of the specimens examined

of « *Murex* » *nysti* from Edegem, Antwerp, Belgium, the type locality, have the early whorls more-or-less eroded and the nature of the nucleus cannot be ascertained. But the earliest post-nuclear whorls suggest a strong similarity of those of the *Boreotrophon* line. The same difficulty occurs with « *Murex* » *tristichus*, the oldest member of the group and, therefore, of special interest. In our collections there are nine specimens from Neustadt-Magdeburg, the type locality, and all have an extremely worn appearance. Specimens figured by M. L. TEMBROCK (1963, Pl. 1, Fig. 5; Pl. 4, Fig. 1, 2) do give some idea of the nature of the early whorls. This same author has figured another specimen (Pl. 1, Fig. 6; Pl. 3, Fig. 14) from Söllingen, Germany, also referred to « *Murex* » *tristichus* that appears to the present writer to be a juvenile specimen of « *Murex* » *bispinosus* SOWERBY, J. DE C., 1823, a true *Pterochelus*, which occurs in the same beds.

SYSTEMATIC PALEONTOLOGY

Superfamily MURICACEA RAFINESQUE, C. S., 1815

Family MURICIDAE RAFINESQUE, C. S., 1815

Subfamily T R O P H O N I N A E COSSMANN, M., 1903

Pterynopsis n. gen.

T y p e s p e c i e s . — *Pterynopsis prosopeion*, new name for *Murex nysti* VON KOENEN, A., 1867, *non M. nysti* ROUAULT, A., 1850; also « *M. tortuosus* SOWERBY » NYST, P. H., 1843, *non* SOWERBY, J. DE C., 1823 (Pl. I, Fig. 1 a-c).

D e r i v a t i o n o m i n i s . — Combination of *Pterynotus*, a trivaricate muricine genus, and οψις (Greek) = having the appearance of.

D i a g n o s i s . — Muricoid gastropod, characterized by having a calcareous shell structure, tending to exfoliate; a dilated, flattened, subcircular aperture; and irregular number of varices, usually about twelve on early whorls diminishing to about three on later whorls.

S t r a t i g r a p h i c r a n g e . — The genus first appears in the Oligocene of Germany, with the species « *Murex* » *tristichus*. The line continues only through the Red Crag of England; there are no known living members of the genus.

S p e c i e s a t t r i b u t e d t o t h e g e n u s . — The following eleven species are considered to warrant placement in the new genus.

Oligocene of Germany

Murex tristichus BEYRICH, E., 1854, Zeitsch. Deutsch. Geol. Gesell., v. 6, p. 746, pl. 13, fig. 1 (Pl. II, Fig. 1 a, b). *M. soellingensis* SPEYER, O., 1860, Zeitsch. Deutsch. Geol. Gesell., v. 12, p. 478, pl. 11, fig. 1 (orig. as *söllingensis*). *M. triquetrus* GIEBEL, C., 1861, Zeitsch. Gesammten Naturw. Jahrg., v. 17, p. 38.

Miocene of Europe

Murex badensis NYST, P. H., 1881, Ann. Mus. Roy. Hist. Nat. Belg., Ser. Paléont., v. 3, p. 4; new name for « *M. tortuosus* Sowerby » HÖRNES, M., 1856, pl. 25, fig. 5, *non* SOWERBY. *M. affinis* VON EICHWALD, E., 1830, Naturhist. Lithauen, p. 244; 1855, Lethaea Rossica, p. 189, pl. 8, fig. 10 (*non M. affinis* GMELIN, J. F., 1791). Not « *M. affinis* von Eichwald. » MICHELOTTI, G., 1847, Natur. Verhand. Hollandsche Maat. Wetensch. Haarlem, (Ser. 2) v. 3, pt. 2, p. 240, pl. 11, fig. 9 [= *M. swainsoni* MICHELOTTI, G., 1847]. « *M. tortuosus* Sowerby » FRIEDBERG, W., 1912, Mieczaki Miocenskie *in* Muz. Dzieduszyckich, v. 14, no. 2, p. 164, pl. 10, figs. 1, 2 [p. 162 of 1951 reprint] *non* SOWERBY. *Pteropurpura angustifolia* KAUTSKY, F., 1925, Abh. Preuss. Geol. Landesanst. Berlin, (N. F.) v. 97, p. 97, pl. 7, figs. 23 a, b.

Pteropurpura parvifolia KAUTSKY, F., 1925, Abh. Preuss. Geol. Landesanst. Berlin, (N. F.) v. 97, p. 96, pl. 7, figs. 22 a, b.

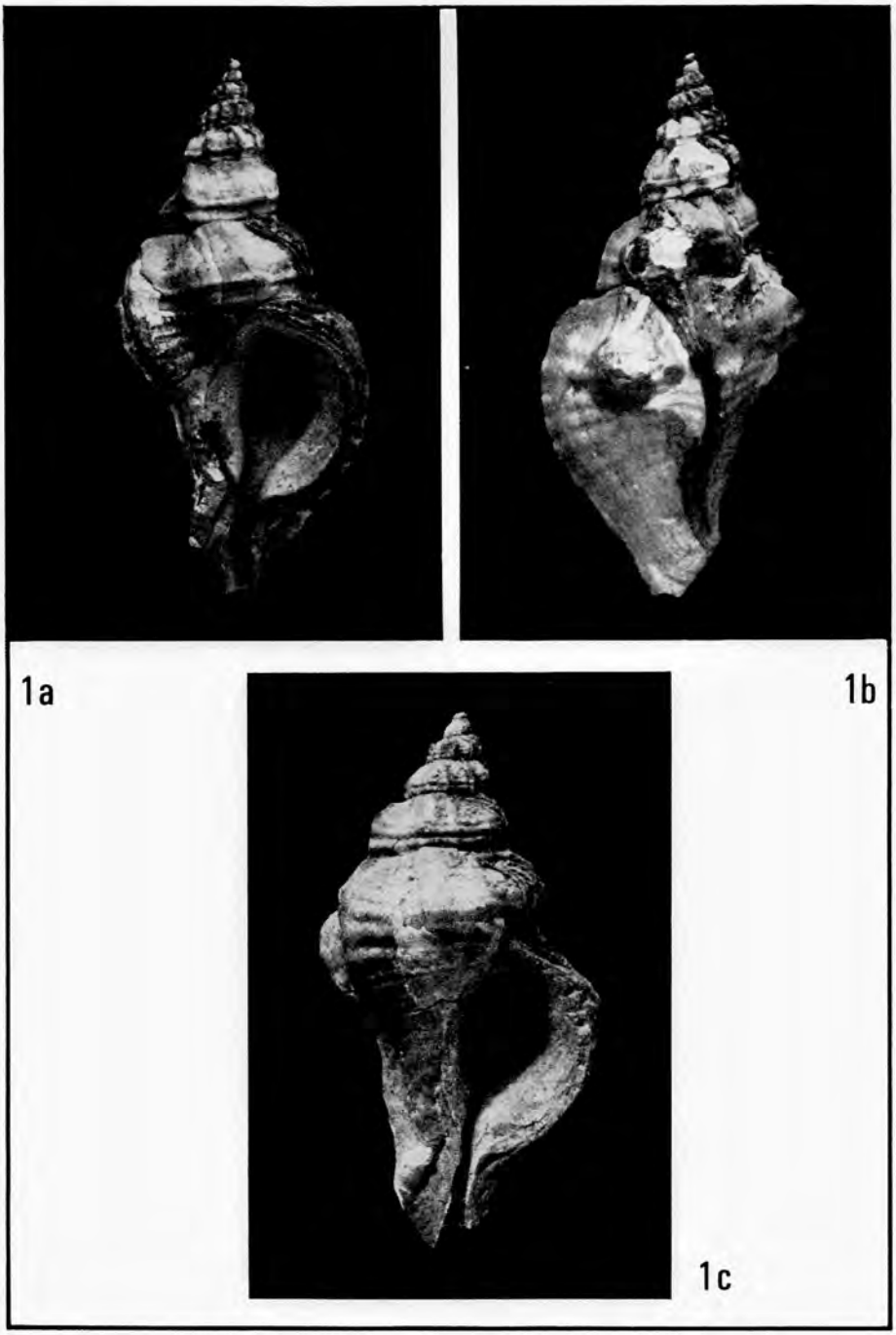
Pterynopsis prosopeion VOKES, E. H., n. nom. (Pl. I, Fig. 1 a-c). *Murex nysti* VON KOENEN, A., 1867, Palaeontographica, v. 16, pt. 2, p. 67; *ibid.*, pt. 3, pl. 12, fig. 2; new name for « *M. tortuosus* Sowerby » NYST, P. H., 1843, p. 545, pl. 41, fig. 14, *non* SOWERBY, J. DE C. [*non M. nysti* ROUAULT, A., 1850, Mém. Soc. Géol. France, (Ser. 2) v. 2, p. 494].

Miocene (?) of Southwest Africa

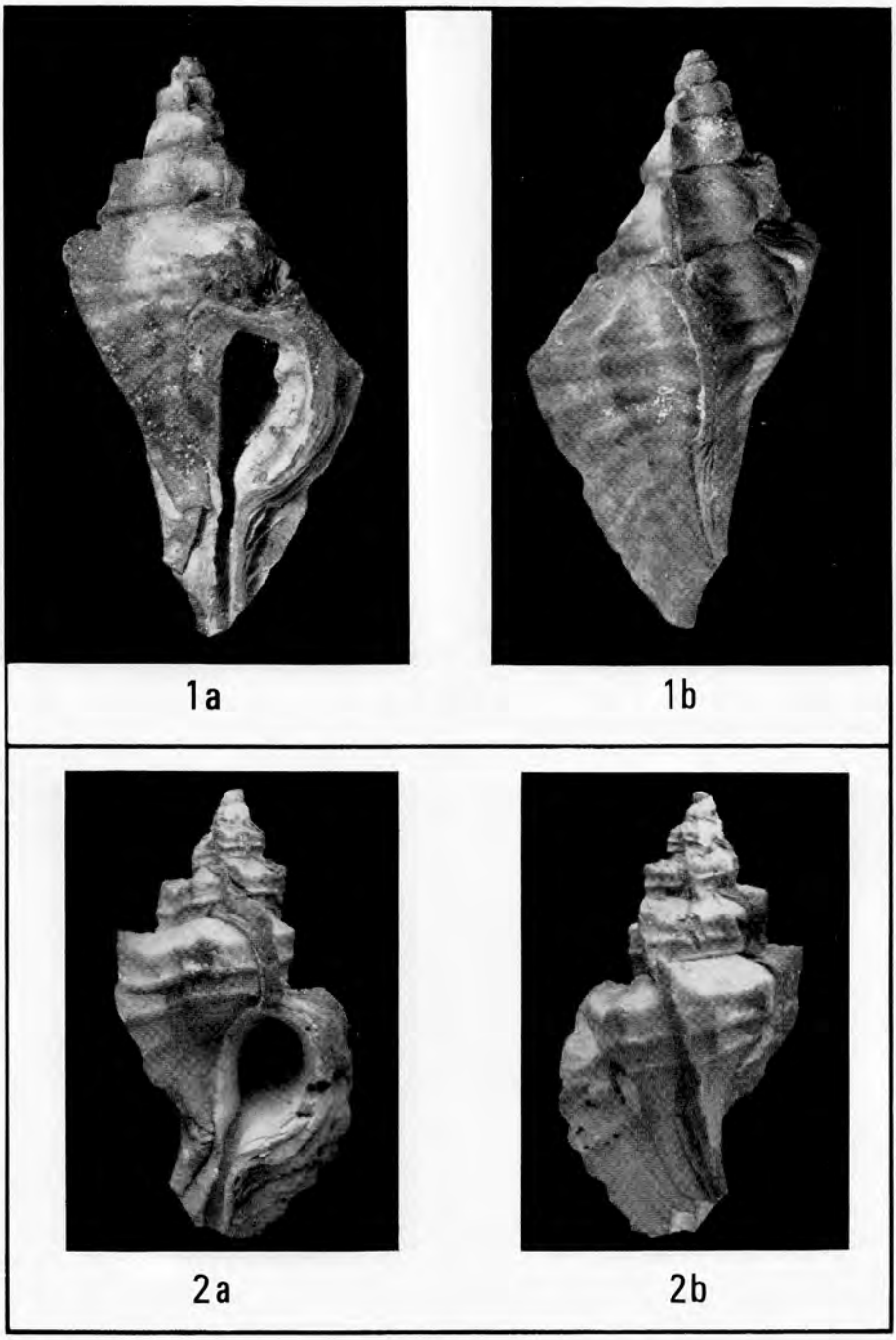
Ocinebra dietrichi BÖHM, A., *in* KAISER, E., 1926, Die Diamantenwüste Südwest-Afrik., v. 2, pt. 19, p. 68, pl. 34, figs. 5, 5a.

Plio-Pleistocene of England

Murex binominatus STAADT, L., *in* COSSMANN, R., 1909, Revue Crit. Paléozool., v. 13, p. 68; new name for *M. tortuosus* SOWERBY, *non* BORSON, S., 1821 [Red Crag]. *M. tortuosus* SOWERBY, J. DE C., 1823, Mineral Conch., v. 5, p. 48, pl. 434, fig. 2 [*non M. tortuosus* BORSON, S., 1821].



E. H. VOKES. — *Pterynopsis*, new genus of Trophoninae (Gastropoda)



E. H. VOKES. — *Pterynopsis*, new genus of Trophoninae (Gastropoda)

Ocinebra boytonensis HARMER, F. W., 1914, Pliocene Moll. Gt. Brit., v. 1, pt. 1, *in* Palaeont. Soc., v. 67, p. 125, pl. 12, fig. 8, as *tortuosus* var. [Coralline Crag]. (Pl. II, Fig. 2 a, b).

Ocinebra minor HARMER, F. W., 1914, Pliocene Moll. Gt. Brit., v. 1, pt. 1, *in* Palaeont. Soc., v. 67, p. 125, pl. 12, figs. 9-11, as *tortuosus* var. [Red Crag].

Murex mona BELL, A., 1915, Geol. Mag., (Decade 6) v. 2, no. 610, p. 167, as *tortuosus* var. [nude name, list only].

Ocinebra clathrata HARMER, F. W., 1918, Pliocene Moll. Gt. Brit., v. 1, pt. 3, *in* Palaeont. Soc., v. 70, p. 343, pl. 35, figs. 10, 14, as *tortuosus* var. [Red Crag].

Ocinebra similis HARMER, F. W., 1918, Pliocene Moll. Gt. Brit., v. 1, pt. 3, *in* Palaeont. Soc., v. 70, p. 344, pl. 35, fig. 13, as *pseudonysti* var. [Red Crag].

Discussion

The species originally figured by P. H. NYST (1843, Pl. 41, Fig. 14) as « *Murex tortuosus* SOWERBY », from the late Miocene Antwerpian beds of Edegem, Belgium, is not the same as J. DE C. SOWERBY's species, consequently it was renamed « *M.* » *nysti* by A. VON KOENEN, 1867. Unfortunately the name *M. nysti* had been previously used by A. ROUAULT, 1850, for a species of *Murex* from the Eocene of Pau, France. It has been suggested by M. GLIBERT (1952, p. 91), and others, that P. H. NYST's *M. tortuosus* is a synonym of « *Pteropurpura* » *parvifolia* KAUTSKY, F., 1925, but the two forms are distinct. « *Pteropurpura* » *parvifolia* is from the middle Miocene Hemmoor Stage of Germany and has a marked spine-like process at the shoulder on each varix. This trait is more akin to the Oligocene « *Murex* » *tristichus* than to the Antwerpian shell. It would seem that F. KAUTSKY's *parvifolia* is intermediate between the younger and older species. F. KAUTSKY's other species of « *Pteropurpura* » named at the same time, « *P.* » *angustifolia*, is identical to the shell figured by M. HÖRNES (1856, Pl. 25, Fig. 5) that was subsequently named « *Murex* » *badensis* by P. H. NYST.

It is possible that this group arose from a trivaricate *Pterynotus* ancestor. The first *Pterynopsis* has three varices on each of the later whorls, which are neatly aligned up the spire in the same manner as a *Pterynotus*. Only the shell structure seems markedly different and if « *Murex* » *tristichus* were the only species known with this shell type it would probably have gone unnoticed among the *Pterynotus*. But as *P. tristichus* seems unequivocially ancestral to the more divergent forms such as *P. prosopeion* and *P. binominatus*, it is more logical to associate it with its descendants. As we move through time the nature of the varices changes from three varices per whorl, which are each aligned with their counterpart on the previous turn, to a shell with three varices that are completely random in position with respect to those of the previous turn. *P. prosopeion* is in

an intermediate position and the varices on some specimens are aligned, on others not.

In the English Crag, we find in addition to the species listed above, four species named by S. V. WOOD (1872, 1879) in the genus « *Murex* » and subsequently transferred to « *Ocinebra* » by F. W. HARMER (1918). These are : *pseudonysti*, *recticanalis*, *reedi* (all from the Coralline Crag), and *canhami* (Red Crag). These four all have a great similarity to the species here placed in *Pterynopsis*, but have more numerous varices, about 6 to 8 on each adult whorl. They seem to be intermediate between *Pterynopsis* and *Boreotrophon*. They could perhaps be placed in either genus equally well and are here relegated somewhat arbitrarily to the latter. As far as *canhami* is concerned, it should be noted that the specimen figured by M. GLIBERT (1959, Pl. 3, Fig. 2) under the name « *Purpura (Tritonalia) canhami* (S. V. WOOD) », is not that species but is *Pterynopsis boytonensis* (HARMER), here refigured in Plate II, Figures 2 a, b. It has been suggested by C. O. VAN REGTEREN-ALTENA *et al.* (1956, p. 88) that « *Murex* » *canhami* is the same species as « *M.* » *tortuosus*, and hence the correct name. However, I cannot agree with this evaluation. All specimens of « *Murex* » *canhami* in the collections of the British Museum of Natural History have six varices, as indicated by S. V. WOOD, and this does not seem to be within the range of variation for members of *Pterynopsis*. Whether or not *P. boytonensis* is actually the same species as *P. binominatus (i.e., tortuosus)* is uncertain, but the nature of the aperture seems to be consistantly different in the two forms.

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EXPLANATION OF PLATES

Specimens in the type Collection of Cenozoic Invertebrates (T. C. C. I.) of the Section of Mesozoic and Cenozoic Invertebrates, Department of Paleontology, « Institut royal des Sciences naturelles » of Belgium.

PLATE I

Fig. 1a-c. — *Pterynopsis prosopeion* nom. nov., from the Sands of Edegem (Antwerpian), near Antwerp, Belgium. Size : × 3. 1a, b = T. C. C. I. no 2332; 1c = T. C. C. I. no 2335.

PLATE II

Fig. 1a, b. — *Pterynopsis tristichus* (BEYRICH, 1854) from the Lattorfian of Lattorf, Germany. Size : × 3. T. C. C. I. no 5606.

Fig. 2a, b. — *Pterynopsis boytonensis* (HARMER, 1914) from the Austruweel Sands (Scaldisian) of Antwerp, Belgium. Size : × 3/2. T. C. C. I. no 9474.