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The Neritopsidae and the Neritidae of the Bracklesham Group (Early and Middle Eocene) of the Hampshire Basin

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Gastropods of the families Neritopsidae and Neritidae in the Bracklesham Group (Early and Middle Eocene) of the Hampshire Basin, southern England, are reviewed and three previously undescribed taxa are introduced. The new species are: *Pseudodostia selseyensis* sp. nov., *Pseudodostia traceyi* sp. nov. and *Clithon (Pictoneritina) stintoni* sp. nov. A lectotype is designated for *Nerita namnetica* Vasseur, 1882. A neotype is designated for *Neritopsis parisiensis* Deshayes, 1864. New combinations introduced are: *Pseudodostia namnetica* (Vasseur, 1882), *Clithon (Pictoneritina) passyanus* (Deshayes, 1864) and *Clithon (Pictoneritina) waltoni* (Symonds, 2002).

KEY WORDS: Neritopsidae, Neritidae, new species, Eocene, Bracklesham Group, England.

Introduction

The Bracklesham Group of the Hampshire Basin in southern England extends from the Wittering Formation (Ypresian) to the Selsey Formation (Middle to Late Lutetian) (King, 1996: 21). Although various species of Neritopsidae and Neritidae occur in the Bracklesham Group, they are rare at all horizons except S4iii and S10 of Curry *et al.*, 1977. Examination of the relevant material in the Department of Palaeontology, The Natural History Museum, London (hereinafter "BMNH") led to the current revision that includes three previously unidentified species and three new species, which are herein described.

Systematic Palaeontology

Family Neritopsidae Gray, 1847
Genus *Neritopsis* Grateloup, 1832

Type-species — by original designation: *Neritopsis moniliformis* Grateloup, 1832.

Diagnosis (Keen, *in*: Moore, 1960: 1278) — Of medium size, with moderately protruding, obtuse spire; last whorl globose, evenly convex; ornament of spiral cords and in some species collabral ribs; aperture orbicular, inner lip moderately thickened, strongly concave; operculum very solid, trapeziform.

Neritopsis parisiensis Deshayes, 1864

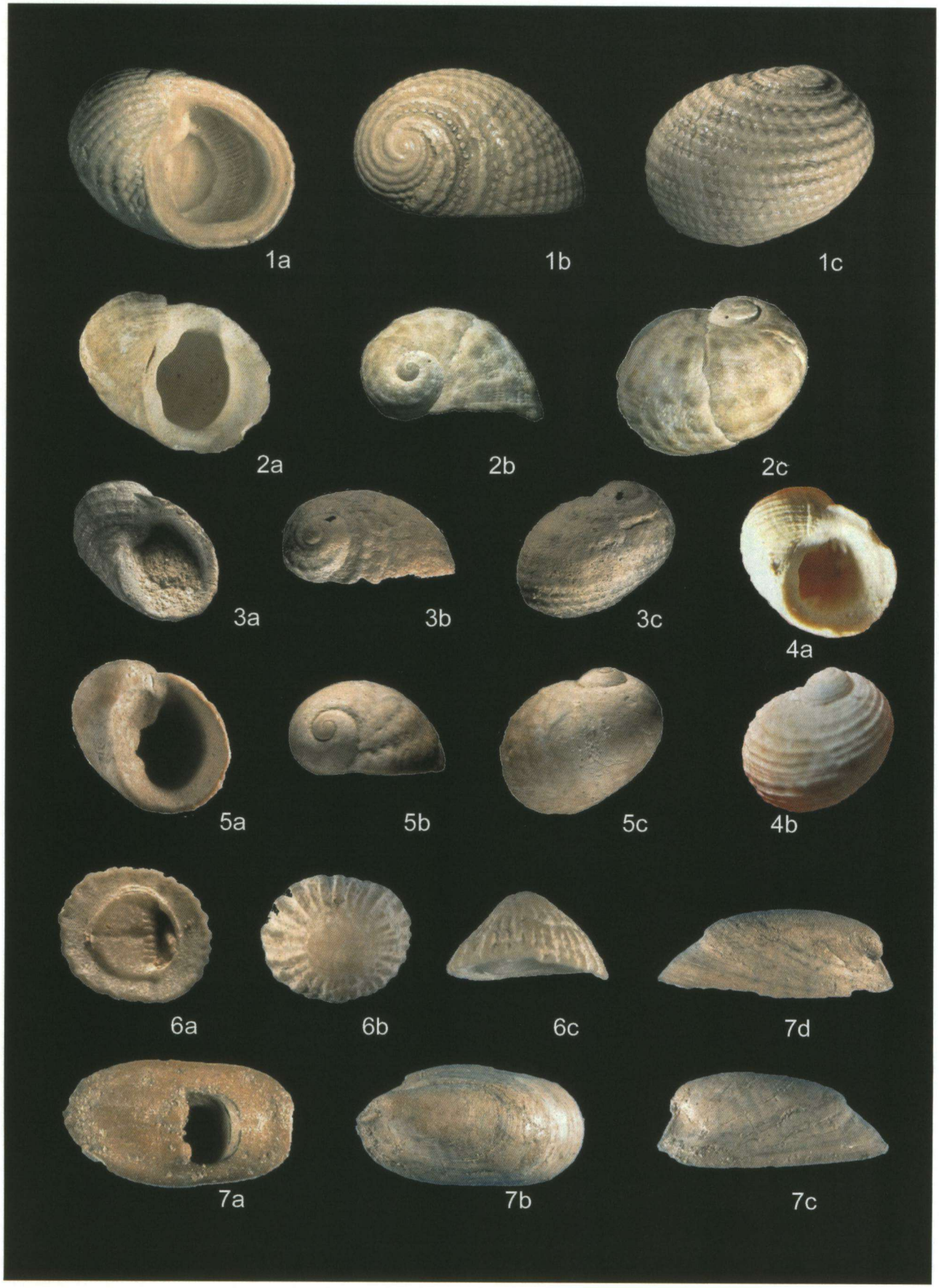
Figures 1-3

1864 *Neritopsis parisiensis* Deshayes: 8, pl. 66, figs 1-3.

Type material — The holotype (by monotypy) was illustrated by Deshayes (1864: 8-9, pl. 66, figs 1-3). A search of the Deshayes collection at the Université de Lyon has failed to uncover the holotype which must be presumed lost (Jean-Michel Pacaud: pers. comm., 2007). The specimens in the extensive collections of the Muséum National d'Histoire Naturelle, Paris (hereinafter "MNHN") show considerable variation in size and also in ornamentation, most being substantially smaller than the holotype (pers. obs.). To support further work on the taxonomy of the Eocene fossil Neritopsidae, I consider it important to designate a neotype, for which I designate the specimen MNHN A26479 (Schtrock coll.: Figure 1). The neotype, like the lost holotype, is a large specimen and the ornamentation and general appearance of the shell corresponds closely to Deshayes' illustration of the holotype.

Stratum typicum and locus typicus — "Auversian" (= Bartonian), Baron, Oise, France.

Diagnosis — A *Neritopsis* with a short, obtuse spire; numerous spiral ribs which bear prominent, evenly spaced granulations; fine, transverse ridges in the furrows between the spiral ribs; fine lirae within the outer lip.



Figures 1-7.

Figure 1. *Neritopsis parisiensis* Deshayes, 1864, neotype: a. apertural, b. apical, c. abapertural views. Height 33.2 mm, width 32 mm. Auversian, Baron, Oise, France. MNHN A26479 (Schtrock coll.).

Figure 2. *Neritopsis parisiensis* Deshayes, 1864: a. apertural, b. apical, c. abapertural views. Height 8.5 mm, width 8.5 mm. Lutetian, Parnes, France. MNHN P50892 (J-M. Pacaud coll.).

Figure 3. *Neritopsis parisiensis* Deshayes, 1864: a. apertural, b. apical, c. abapertural views. Height 8.5 mm, width 8.2 mm. Middle Lutetian, Selsey Formation, Fisher Bed X1V, Whitecliff Bay, Isle of Wight, UK. BMNH GG22905 (D. Curry coll.).

Figure 4. *Neritopsis acutispira* Cossmann, 1886, holotype: a. apertural, b. abapertural views. Height 5.2 mm, width 5.2 mm. Lutetian, environs of d'Ully-Saint-Georges, Oise, France. Université de Lyon (Chevallier coll.).

Figure 5. *Neritopsis acutispira* Cossmann, 1886: a. apertural, b. apical, c. abapertural views. Height 5.2 mm, width 5.2 mm. Late Lutetian, Selsey Formation, Bed S10, Selsey, West Sussex, UK. BMNH GG22916 (D. Curry coll.).

Figure 6. *Pileolus plicatus* G. B. Sowerby, 1823: a. apertural, b. apical, c. lateral views. Length 4.3 mm, height 2.5 mm, width 3.9 mm. Bathonian, Great Oolite, Ancliff, UK. BMNH 24528 (W. Cunnington coll.).

Figure 7. *Tomostoma altavillensis* (Defrance, 1818): a. apertural, b. abapertural, c-d. lateral views. Length 7.5 mm, height 2.5 mm, width 4 mm. Late Lutetian, Selsey Formation, Bed S10, Selsey, West Sussex, UK. BMNH GG22917 (D. Curry coll.).

Description — The protoconch is prominent, approximately 0.3 mm wide, smooth and obovate. The teleoconch consists of about three whorls, which increase rapidly in size. The spire is short and obtuse. The outer surface is covered with regular, evenly spaced, spiral ribs up to about 15 in number, some of which bifurcate towards the aperture in large specimens. Each rib bears a row of large, evenly spaced granulations. In well preserved specimens the furrows between the ribs contain fine, regularly spaced, collabral ridges which do not cross the spiral ribs or the granulations but continue from one furrow to the next. The aperture is large and orbicular. The columella has a fairly broad, flat or slightly concave surface; the edge is rather obtuse with a deep subtriangular indentation in the centre. The outer lip is thick with a flattened edge; within is a series of fine lirae, which do not extend to the peristome.

Measurements — The holotype illustrated by Deshayes (1864: pl. 66, figs 1-3) was large and measured 45 mm in length, 30 mm in width and 24 mm in thickness. The neotype is somewhat smaller: 33.2 mm in height, 32 mm in width. As noted above, most specimens in the MNHN collections are substantially smaller.

Remarks — The English specimens, although rather worn and much smaller than the holotype, correspond in other respects to *N. parisiensis* (Figure 3).

Range and distribution — In England the species occurs in the Selsey Formation of the Bracklesham Group at Whitecliff Bay, Isle of Wight, Bed X1V of Fisher (1862: 71) and at Selsey, West Sussex, Unit S10 of Curry *et al.* (1977), where it is uncommon and in Unit F11 where it is rare (Tracey *et al.*, 1996: 112-113). In France in Lutetian deposits of the Cotentin (Glibert, 1962: 97) and the Bartonian deposits of the Paris Basin.

Neritopsis acutispira Cossmann, 1886
Figures 4-5

1886 *Neritopsis acutispira* Cossmann, p. 229, pl. 10, fig. 5.

Type material — The holotype (by monotypy) illustrated by Cossmann (1886: 229-230, pl. 10, fig. 5) is held in the Chevallier Collection, Université de Lyon (Abel Prieur: pers. comm., 1970: Figure 4).

Stratum typicum and locus typicus — Lutetian. Environs of d'Ully-Saint-Georges, Oise, France.

Diagnosis — A small *Neritopsis* with a prominent spire; numerous spiral ribs, which are narrower than the grooves between them and fine spiral ridges in the grooves; the indentation on the columellar edge deep and bilobed.

Description — A small ovate shell, semiglobose with a prominent spire, somewhat obtuse and rounded at the apex. The protoconch is small, smooth and obovate. The teleoconch consists of about three whorls, which increase rapidly in size. The outer surface is covered with about 15 evenly spaced, spiral ribs each bearing a row of irregular granulations which become further apart towards the aperture. The grooves are wider than the ribs and usually contain one or two fine spiral ridges.
The aperture is large and semi-circular. The columella has a fairly broad, flat or slightly concave, surface; the edge is rather obtuse with a deep, bilobed indentation in the centre. On the adapical side of the indentation the columellar edge forms a slight protuberance with a clear gutter between it and the outer lip. The outer lip itself is thickened within but thin at the edge.

Measurements — The holotype is small and measures 5.5 mm in width and 5 mm in height.

Remarks — As pointed out by Cossmann (1886: 230), this species is distinguished from *N. parisiensis* by its more prominent spire, by the differences in the spiral ribs and by the deep, bilobed indentation on the columella. A single specimen from Selsey, Hampshire, in the Selsey Formation of the Bracklesham Group, Unit S10 of Curry *et al.*, 1977 (BMNH GG22916, D. Curry collection, Figure 5), although badly worn, clearly shows the bilobed indentation on the columella and can be attributed with confidence to this species.

Figures 8-13.

Figure 8. *Tomostoma altavillensis* (Defrance, 1818): a. apertural, b. abapertural, c. lateral views. Length 7.2 mm, height 2.5 mm, width 4.2 mm. Late Lutetian, Selsey Formation, Bed S10, Selsey, West Sussex, UK. BMNH GG22918 (D. Curry coll.).

Figure 9. *Pseudodostia tricarinata* (Lamarck, 1804): a. apertural, b. apical, c. abapertural views. Height 7.6 mm, width 7.9 mm. Ypresian, Sables de Cuise, Cuise-La-Motte, Marne, France. BMNH GG23002 (A. G. Davis coll.).

Figure 10. *Pseudodostia tricarinata* (Lamarck, 1804): a. apertural, b. apical, c. abapertural views. Height 8.2 mm, width 8 mm. Ypresian, Sables de Cuise, Cuise-La-Motte, Marne, France. BMNH GG23003 (A. G. Davis coll.).

Figure 11. *Pseudodostia tricarinata* (Lamarck, 1804): a. apertural, b. apical, c. abapertural views. Height 5.2 mm, width 5 mm. Lutetian, precise locality unknown, Paris Basin, France. BMNH G60654 (Sowerby coll.).

Figure 12. *Pseudodostia tricarinata pentastoma* (Deshayes, 1864): a. apertural, b. apical, c. abapertural views. Height 7 mm, width 6.5 mm. Lutetian, Parnes, Oise, France. MNHN J02363.

Figure 13. *Pseudodostia tricarinata* (Lamarck, 1804): a. apertural, b. apical, c. abapertural views. Height 6.2 mm, width 6 mm. Middle Lutetian, Selsey Formation, Unit S4iii, Bracklesham Bay, West Sussex, UK. BMNH PITG23201 (D. Curry coll.).

Range and distribution — In England, only known from the single specimen referred to above. In France it occurs in Lutetian deposits at various locations in the Paris Basin.

Family Neritidae Rafinesque, 1815
Genus *Tomostoma* Deshayes, 1824

Type species — by subsequent designation (Fischer, 1885): *Pileolus neritoides* Deshayes, 1824. Eocene, Europe.

Diagnosis — (Keen, *in*: Moore, 1960: 1280): capuliform, smooth, apex not terminal; aperture trapezoidal, inner lip with sinus.

Remarks — Deshayes intended to propose *Tomostoma* as a new genus in which to include three undescribed taxa. However, *Pileolus* G.B. Sowerby, 1823 had just been published with two of the three taxa. Deshayes (1824) considered *Pileolus* to be congeneric with *Tomostoma* and he accordingly listed two of the three taxa: *Pileolus laevis* G.B. Sowerby, 1823, *Pileolus plicatus* G.B. Sowerby, 1823 and described the third, *Pileolus neritoides*, a new taxon from the Lutetian of France. Sowerby in erecting *Pileolus* had only included *P. laevis* and *P. plicatus*, both being Jurassic fossils from the Bathonian Great Oolite and both being patelliform, the former smooth and the latter covered with radial ribs (G.B. Sowerby, 1823: 443-444).
Subsequently, Fischer (1885: 803) distinguished *Tomostoma* from *Pileolus* and designated *Pileolus neritoides* Deshayes, 1824 as the type species of *Tomostoma*. He commented that *Pileolus* was not present in the Tertiary and he regarded *Tomostoma* as a subgenus of *Neritina* Lamarck, 1816. Cossmann & Pissaro (1902: 248-249), when describing several new taxa within *Tomostoma*, treated it as a separate genus. However, subsequently Cossmann (1925: 234-235) placed *Tomostoma* as a subgenus of *Pileolus*. Also Keen (*in*: Moore, 1960: 1280) treated *Tomostoma* as one of several subgenera of *Pileolus* and this was followed by Glibert (1962: 97). *Pileolus* has now been placed in the family Pileolidae Bandel *et al.*, 2000, a family based on this genus (Bandel *et al.*, 2000: 85). In describing *Pileolus convexus* Bandel *et al.*, 2000, from the Jurassic of New Zealand, the authors referred to the internal walls of the protoconch as apparently being totally resorbed (Bandel *et al.*, 2000: 86), in common with the superfamily Neritoidea Rafinesque, 1815. Furthermore Bandel & Kiel (2003: 54) affirmed that in the Pileolidae the internal walls of the adult shell are also dissolved. However, G.B. Sowerby (1823: 443) stated that *Pileolus* has a short internal spire. This is clearly shown by Pană (1998: pl. 2, fig. 13), in a section through the teleoconch of *Pileolus*.
I have difficulty in seeing a close relationship between *Pileolus* and *Tomostoma*. The protoconch of the type species of *Pileolus* is spherical and rather large in relation to the rest of the shell; the protoconch of *Tomostoma*, on the other hand, is obovate and typical of those genera within the Neritidae which have a planktotrophic larval stage. The teleoconch of the former is distinctly patelliform while that of the latter is capuliform. The aperture of *Pileolus* is also quite different being rather narrow and semilunar with a straight or slightly convex septum edge, which is smooth or regularly crenulated. In *Tomostoma* the aperture is much broader, the septum edge is concave and the dentition distinct but very irregular. Finally, in *Pileolus* the septum is thickened to form a prominent basal plate (Figure 6a), a feature not present in *Tomostoma*. Since the internal walls of *Tomostoma* are entirely resorbed and the morphology of both the protoconch and the teleoconch corresponds to the Neritidae, I regard the genus *Tomostoma* as being within the Neritidae rather than the Pileolidae.

Tomostoma altavillensis (Defrance, 1818)
Figures 7-8

1818 *Crepidula altavillensis* Defrance, p. 11: 397.
1825 *Nerita (Pileolus) altavillensis* de Blainville, p. 445.
1826 *Pileolus altavillensis* de Blainville, p. 40, 461.
1850 *Neritina (Pileolus) altavillensis* Récluz, p. 143.
1902 *Tomostoma rostratum* var. *terminalis* Cossmann, p. 51-52, pl. 5, figs 19-21.
1902 *Tomostoma altavillense* Cossmann & Pissarro, p. 134-135, pl. 26, figs 20-22.
1925 *Pileolus (Tomostoma) altavillensis* Cossmann, p. 235.

Type material — The Defrance collection was held at the Musée d'Histoire Naturelle, Caen and totally destroyed in June 1944 (Cleevely, 1983: 101). A neotype was designated from the Pissarro collection (Cossmann & Pissarro, 1902: 135, pl. 26, figs 20-22), but presumably the holotype was still in existence at the time and accordingly the desig-

nation of the neotype invalid. In any event the Pissarro collection is now lost (Jean-Michel Pacaud: pers. com., 2006). Accordingly the type is presumed lost or destroyed.

Stratum typicum and locus typicus — "Le falun de Hauteville près de Valognes", "Biarritzian" (= Lutetian), Hauteville, Cotentin, Manche, France.

Diagnosis — A typical capuliform *Tomostoma* with the posterior margin of the teleoconch pointed, not ovate, sometimes rostrate but not elongate; septum edge with prominent irregular teeth.

Description — The protoconch is prominent, approximately 0.4 mm wide, smooth and obovate. The teleoconch is capuliform with the apex close to the posterior end. The anterior end is ovate, the posterior end narrower, pointed and sometimes somewhat rostrate. The dorsal surface is strongly convex and covered with fine growth lines. A faint colour pattern is preserved in some specimens, consisting of alternating lighter and darker lines (Figure 7c) or rows of elongate spots radiating from the apex to the margin of the shell (BMNH, GG22919, D. Curry coll.). The aperture is relatively large and semicircular. The septum is very broad and covers approximately half of the base of the shell, the surface is smooth and concave. The septum edge is strongly concave in the centre with up to 6 small but clearly defined teeth. These are bordered on the adapical side of the central concavity by a larger tooth, often with a small tooth situated adapically to it, followed by a further concavity, short but quite deep. On the abapical side the central concavity is bordered by a broad, rather rounded tooth. The outer lip is broad and generally smooth within, but occasional specimens have fine, rather faint plications within.

Measurements — The specimen illustrated in Figure 7 is of typical size and measures approximately 7.5 mm in length, 4 mm in width and 2.5 mm in height. The largest specimen in the BMNH (GG22980, D. Curry coll.), somewhat crushed, is 16 mm in length.

Remarks — Two similar taxa occur in the Eocene of the Paris Basin: *Tomostoma neritoides* (Deshayes, 1824), which is also found (with *T. altavillensis* s.s.) in the Cotentin, and *T. rostratum* Cossmann, 1888. Both are now regarded as subspecies of *T. altavillensis* (*Pileolus (Tomostoma) altavillensis neritoides* and *Pileolus (Tomostoma) altavillensis rostratus* Le Renard & Pacaud, 1995: 90). *Tomostoma altavillensis neritoides* differs from *T. altavillensis* s.s. mainly in its more regular oval shape, with the ovate posterior margin not pointed. In *T. altavillensis rostratus* the posterior end of the shell terminates in an elongate rostrum. The specimens from the Bracklesham Group correspond closely to those of *T. altavillensis* s.s. although they usually have fewer teeth, about three, in the central concavity of the septum edge, and the posterior end is more sharply pointed, occasionally with a rostrum extending from the apex to the margin but not projecting beyond it. These differences are comparatively minor and I see no reason to regard the Bracklesham specimens as belonging to a separate subspecies. Cossmann (1902: 51-52, pl. 10, figs 19-21) described specimens of *Tomostoma* from Le Bois-Gouët ranging from forms with a reduced rostrum to those completely lacking one as *Tomostoma rostratum* var. *terminalis* Specimens from the Bracklesham Group with a rostrum are very close to specimens from Le Bois-Gouët with a similarly reduced rostrum such as that shown in Cossmann (1902, fig. 21). However, in my view, they should be considered, at most, as a form of *T. altavillensis* rather than a variety of *T. altavillensis rostratum*. Indeed, whether *rostratum* itself merits subspecific rank is a moot point in view of the complete range of forms, from a clearly protruding rostrum through degrees of a reduced rostrum to specimens without any rostrum, which occurs at Le Bois-Gouët.

Range and distribution — In England at Selsey, West Sussex, in the Selsey Formation of the Bracklesham Group, Unit S10 of Curry *et al.*, 1977, where it is not uncommon. Two damaged specimens of *Tomostoma* from the Selsey Formation, Bed W1, Shepherd's Gutter, Bramshaw, New Forest, Hampshire (BMNH GG23000, GG23001, F. Stinton collection) probably belong to this species. In France in the Upper Lutetian ("Biarritzian") deposits at Hauteville in the Cotentin and Le Bois-Gouët.

Genus *Pseudodostia* Symonds, 2006

Type species — by original designation, *Nerita aperta* J. de C. Sowerby, 1823. Eocene, Headon Hill Formation, probably from Colwell Bay, Isle of Wight, UK. (see Symonds, 2006: 28).

Diagnosis — Spire depressed; outer surface of teleoconch almost smooth or with spiral ridges; septum edge with a prominent tooth at about one quarter of the distance from the apical end and smaller denticles situated abapically and, in some cases, adapically to it, outer lip somewhat thickened, usually with fine lirae within; operculum semicircular with a ridge on the inner surface running from the nucleus to a prominent medial tooth on the columellar side; a double apophysis, the ventral being a thickened, arcuate ridge, the dorsal an elongate peg.

***Pseudodostia tricarinata* (Lamarck, 1804)**
Figures 9 –11, 13, 25

1804 *Nerita tricarinata* Lamarck: 94, pl. 47, fig. 7.
1962 *Nerita (Theliostyla) tricarinata* Glibert: 100.

Type material — The bulk of the Lamarck invertebrate collection is held in the Muséum d'Histoire Naturelle, Geneva, but Lamarck's types described in Annales du Muséum d'Histoire Naturelle were held at the Musée d'Histoire Naturelle, Caen, according to Sherborn (1940: 81), where the holotype would accordingly have been de-

stroyed in June 1944 (Cleevely, 1983: 178). Lionel Cavin (pers. comm., 2007) has confirmed that the holotype is not in the Lamarck collection in Geneva.

Locus typicus and stratum typicum — Houdan, Paris Basin. The stratum is not specified but Houdan is in Lutetian deposits.

Diagnosis — A *Pseudodostia* with a depressed spire and three prominent spiral carinae on the teleoconch with or without smaller ridges between them; septum edge with one denticle adapical to the main tooth and several denticles abapical to it; outer lip with distinctive lirae within.

Description — The protoconch, normally missing or worn, appears to be rather small, about 0.3 mm wide and obovate. The teleoconch consists of about two and a half whorls; it is semiglobular, broadly ovate in adapertural view, sometimes becoming elongate ovate with age. The spire is depressed. The external surface bears three sharp, prominent, spiral carinae. Sometimes the shell is smooth between the carinae, except for numerous, transverse growth lines, but more often it has two to three more or less prominent spiral ridges between the carinae, up to six between the upper carina and the suture and a further four or five below the lowest carina. The colour pattern, when preserved, usually consists of prominent, dark brown, zigzag lines on a pale background (Figure 9). In some specimens the dark lines merge to create a wholly or partially brown teleoconch (Figure 10). Occasional specimens have a pattern of narrow, transverse, brown lines between the carinae and brown rectangles on the carinae and ridges (Figure 11). The aperture is broad and semicircular. The septum is broad, sometimes smooth but usually with clearly defined pustules and ridges, the edge is slightly concave. The dentition consists of a large, prominent tooth towards the apical end of the septum, one denticle adapical to it and a series of small, irregular denticles, usually 4 in number, sometimes up to 8, abapical to it. The two denticles on opposite sides of the main tooth tend to be larger than the others. The apertural tooth, if present at all, consists only of a faint ridge below the abapical end of the septum. The outer lip is thickened within, with up to 15 clearly defined lirae.
The operculum (Figure 25) is semicircular. On the outer side are faint growth lines and a shallow groove running from the nucleus in an arc to the columellar side. On the inner side a prominent ridge runs from the nucleus in an arc culminating in a prominent medial tooth on the columellar edge. There is a distinctive, double apophysis, the ventral being the culmination of a thickened, arcuate ridge, the dorsal consisting of a rounded peg.

Measurements — Lamarck (1804) gave a size of 5-6 mm in width for this species but some specimens are larger; for example that shown in Figure 10 has a width of 8 mm.

Remarks — The operculum shown in Figure 25 is one of several in the S. Tracey collection from the Ypresian, Sables de Cuise, Cuise-la-Motte, France. These opercula are clearly those of a *Pseudodostia* and as *P. tricarinata* is the only *Pseudodostia* known to occur there it is assumed that they are the opercula of this species. The above description is based on these opercula.
Pseudodostia tricarinata is a very variable species with considerable differences in the prominence of the carinae and spiral ridges and a range of colour patterns sometimes occurring within the same population. *Nerita pentastoma* Deshayes, 1864 (Figure 12), which has particularly well developed carinae, was originally described as a separate species (Deshayes, 1864: 17-18, pl. 66, figs 7-9), but is now considered to be a subspecies of *P. tricarinata* (Le Renard & Pacaud, 1995: 89). *Nerita internuda* Cossmann, 1902, which lacks spiral ridges between the carinae, may also be a subspecies or form of *P. tricarinata*. However, the specimens from Unit S4iii of the Selsey Formation, Bracklesham Bay, West Sussex, England (Curry *et al.*, 1977: 249) are less variable with the three carinae prominent and the intervening ridges few and inconspicuous (Figure 13). The colour pattern has not been preserved in the English specimens.

Range and distribution — In the Bracklesham Group only in Unit S4iii, where it is frequent and Unit F11 where it is rare (Tracey *et al.*, 1996: 112-113). In France it has a wide distribution, occurring in the Ypresian, Lutetian and Bartonian of the Paris Basin (Cossmann & Pissarro, 1907: pl. 5, fig. 38.4), as well as the Cotentin and the Loire Valley.

Pseudodostia namnetica (Vasseur, 1882)
Figures 14-16

1881 *Nerita namnetica* Vasseur, p. 250 *nomen nudum.*
1882 *Nerita namnetica* Vasseur, pl. 8, figs 42-45.
1888 *Nerita (sensu stricto) tricarinata* var. *namnetica* Cossmann, p. 87.
1902 *Nerita namnetensis* Vasseur *emend.*; Cossmann, p. 45, pl. 5, figs 1, 2.
1962 *Nerita (Theliostyla) namnetica* Vasseur, 1881; Glibert, p. 100.

Type material — The four syntypes illustrated by Vasseur are held in the MNHN. In view of the similarity of this species to *Pseudodostia tricarinata* and, indeed, disagreement as to whether *P. namnetica* is actually a separate species, a subspecies or even a variety of *P. tricarinata*, I consider it important to designate a lectotype. The syntype illustrated in Figure 14 (MNHN J04036) is hereby designated the lectotype of *P. namnetica*. There are ten paralectotypes (MNHN J08906).

Locus typicus and stratum typicum — Le Bois-Gouët, Loire-Atlantique, France. Faluns de Bois-Gouët, Lutetian.

Diagnosis — A *Pseudodostia* with a depressed spire and three prominent spiral carinae on the teleoconch with intervening ridges which are only slightly less prominent; sep-

tum edge with one denticle adapical to the main tooth and several denticles abapical to it; outer lip with distinctive lirae within.

Description — The protoconch is rather small, 0.2 to 0.3 mm wide and obovate. The teleoconch consists of about two whorls; it is semiglobular, ovate to elongate ovate in adapertural view. The spire is depressed. The external surface bears, in addition to transverse growth lines, three sharp, prominent, spiral carinae with two to four prominent spiral ridges between the carinae, six or seven between the upper carina and the suture and a further four or five below the lowest carina. The colour pattern consists of pale elongate spots on a purplish brown background (Figure 14). The aperture is broad and semicircular. The septum is broad, sometimes smooth (Figure 15), but usually with a series of parallel ridges at right angles to the septum edge (Figure 14). The dentition consists of a large, prominent tooth towards the apical end of the septum, one denticle adapical to it and a series of small, irregular denticles, about 6 in number, abapical to it. The apertural tooth consists, at most, of a faint ridge below the abapical end of the septum. The outer lip is flared and thickened within, with about 12 clearly defined lirae.

Measurements — The lectotype measures approximately 10.2 mm in height and 10 mm in width.

Remarks — Cossmann (1888: 87) commented that Vasseur was wrong in his opinion to separate specimens from *N. tricarinata*, under the names *N. namnetica* and *N. oceania*, that were merely varieties of such a variable species. However, Cossmann (1902: 44-45), whilst still considering *N. oceania* to be a variety of *N. tricarinata*, took the view that Vasseur was justified in describing *N. namnetica* as a separate species in view of the various differences from *N. tricarinata*. As enumerated by Cossmann these differences are: the larger size of *N. namnetica*, the number and regularity of the spiral ridges between the carinae, the more convex lower surface, the more elongate shape, the more pronounced ridges on the septum and the different colour pattern, all of which make this species readily separable from *N. tricarinata*.
Pseudodostia namnetica is certainly similar to *P. tricarinata* and the two taxa appear to be closely related. Whether *P. namnetica* should be regarded as a separate species or merely a form of *P. tricarinata* is a moot point. In view of the various differences, in particular the regular spiral ridges, I prefer to follow Cossmann (1902: 45) and Glibert (1962: 100) in treating *P. namnetica* as a valid species.
There is a unique specimen from the Middle Lutetian, Selsey Formation at Brook, New Forest, Hampshire, UK (BMNH 72311, F.E. Edwards collection) which, unfortunately, is missing the protoconch and the first whorl of the teleoconch (Figure 16). The folds on the septum are reduced to faint ridges but in all other respects it corresponds to the type material of *P. namnetica* and, in the absence of additional material, I consider it to be this species.

Range and distribution — In England the single specimen from the Selsey Formation, referred to above, is the only known example of this species. In France it occurs in Lutetian deposits of Le Bois-Gouët, Loire-Atlantique and of Fresville and Orglandes, Manche.

***Pseudodostia baylei* (Vasseur, 1882)**
Figures 17-18, 26

1881 *Nerita baylei* Vasseur, p. 250 *nomen nudum.*
1882 *Nerita baylei* Vasseur, pl. 8, figs 46-51.
1962 *Nerita (Amphinerita) baylei* Vasseur, 1881; Glibert, p. 101.

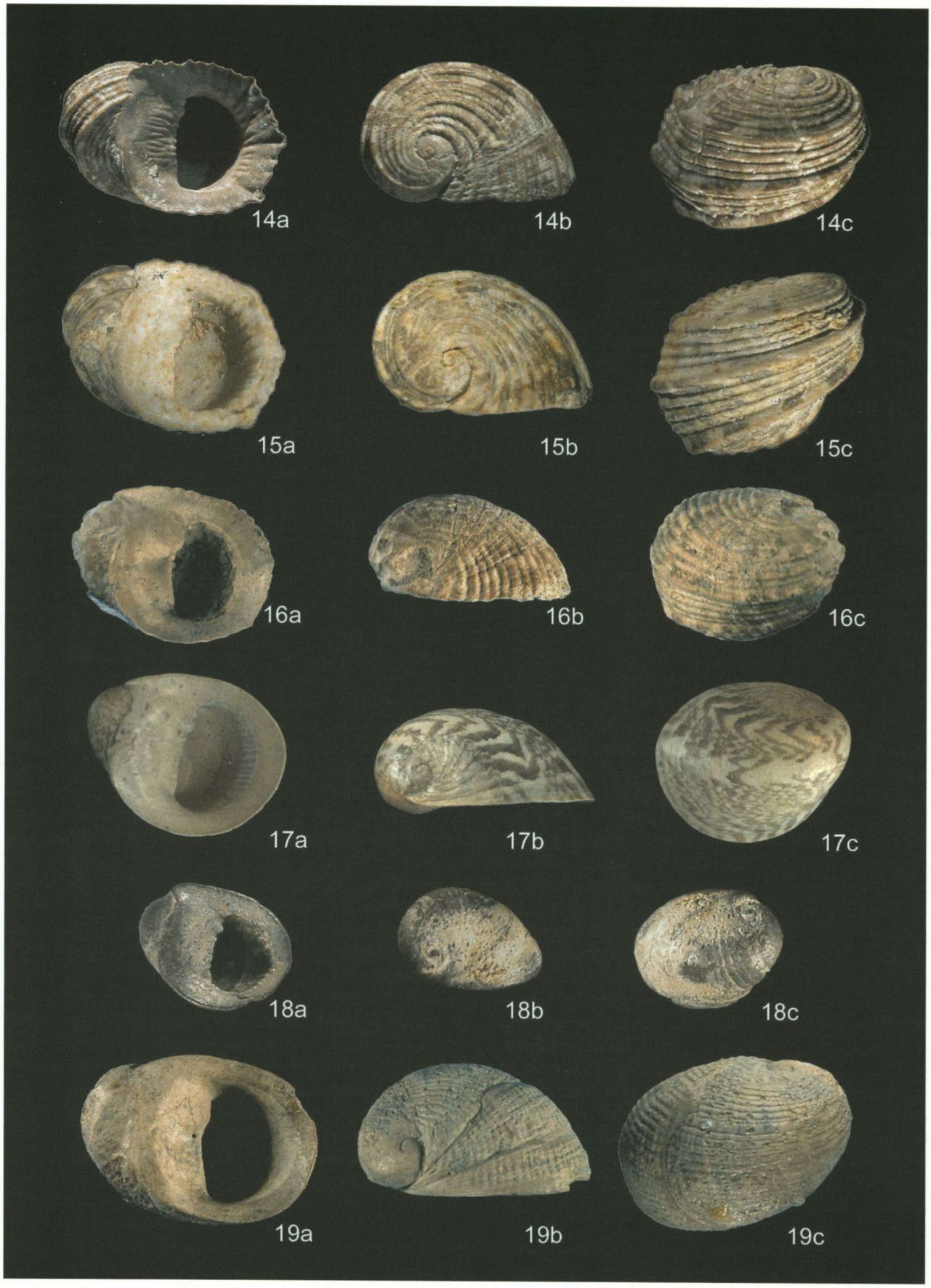
Type material — The syntypes illustrated by Vasseur are held in the MNHN (J04033, J04034). The syntype illustrated in Figure 17 (MNHN J04033) is the specimen from pl. 8, fig. 46 of Vasseur (1882). The neotype designated by Cossmann (1902: 47) is invalid as the syntypes are still in existence.

Locus typicus and stratum typicum — Le Bois-Gouët, Loire-Atlantique, France. Faluns de Bois-Gouët, Lutetian.

Diagnosis — A medium sized *Pseudodostia* with a smooth, glossy shell; septum edge with one denticle adapical to the main tooth and about 6 denticles abapical to it; outer lip with distinctive lirae within.

Description — The protoconch is rather small, about 0.3 mm wide, smooth and obovate. The teleoconch consists of about two and a half whorls. It is broadly obovate in adapertural view, the posterior being somewhat subangular. The spire is depressed. The external surface is glossy and entirely smooth apart from numerous, fine, collabral growth lines. The colour pattern usually consists of pale, flame or zigzag lines on a dark brown background (Figure 17). The aperture is broad and semicircular; the septum is broad, smooth or with clearly defined pustules and ridges, the edge is slightly concave. The dentition consists of a large, prominent tooth towards the apical end of the septum, one denticle adapical to it and a series of small denticles, about 6 in number, abapical to it. The apertural tooth consists of a low ridge below the abapical end of the septum. The outer lip is thickened within, with about 12 faint or clearly defined lirae. The operculum (Figure 26) is semicircular, on the outer side there are faint growth lines and a very shallow groove running from the nucleus in an arc to the columellar side. On the inner side a low ridge runs from the nucleus in an arc culminating in a prominent medial tooth on the columellar edge. There is a distinctive, double apophysis, the ventral being the culmination of an arcuate, ridge, the dorsal consisting of a rounded peg.

Measurements — The syntype illustrated in Figure 17 is approximately 9.8 mm in height and 11.6 mm in width, which is probably about average size for adults from Le Bois-Gouët.



Figures 14-19.

Figure 14. *Pseudodostia namnetica* (Vasseur, 1882), lectotype: a. apertural, b. apical, c. abapertural views. Height 10.2 mm, width 10 mm. Auversian, Le Bois-Gouët, Loire-Atlantique, France. MNHN J04036.

Figure 15. *Pseudodostia namnetica* (Vasseur, 1882): a. apertural, b. apical, c. abapertural views. Height 10.2 mm, width 10 mm. "Biarritzian" (= Lutetian), Fresville, Cotentin, France. MNHN 107453 (Cossmann coll.).

Figure 16. *Pseudodostia namnetica* (Vasseur, 1882): a. apertural, b. apical, c. abapertural views. Height 8.8 mm, width 8 mm. Selsey Formation, Brook, Hampshire, UK. BMNH 72311 (Edwards coll.).

Figure 17. *Pseudodostia baylei* (Vasseur, 1882), syntype: a. apertural, b. apical, c. abapertural views. Height 11.8 mm, width 13.4 mm. Auversian, Le Bois-Gouët, Loire-Atlantique, France. MNHN J04033.

Figure 18. *Pseudodostia baylei* (Vasseur, 1882): a. apertural, b. apical, c. abapertural views. Height 4 mm, width 4.2 mm. Late Lutetian, Selsey Formation, Unit S10, Selsey, West Sussex, UK. BMNH GG23011 (Tracey coll.).

Figure 19. *Pseudodostia selseyensis* sp. nov., holotype: a. apertural, b. apical, c. abapertural views. Height 20.1 mm, width 18 mm. Middle Lutetian, Selsey Formation, Brook, Hampshire, UK. BMNH 72312 (Edwards coll.).

Remarks — *Pseudodostia baylei* and *P. tricarinata* are the only *Pseudodostia* species which are at all common at Le Bois-Gouët. The operculum shown in Figure 26 is readily separable from opercula of *P. tricarinata* and it matches the shape of the aperture of shells of *P. baylei*. It is accordingly considered that the operculum illustrated here is probably that of *P. baylei* and the above description is on this basis.

A single specimen from Selsey, Hampshire, in the Selsey Formation of the Bracklesham Group, Unit S10 of Curry *et al.*, 1997 (BMNH GG23011, S. Tracey collection, Figure 18), although worn on the outer surface, appears to be this species. In particular the shape of the shell, the denticles on the septum edge and the lirae within the outer lip all correspond precisely with *P. baylei* from France.

Range and distribution — In England the single specimen from the Late Lutetian, Selsey Formation, referred to above, is the only known example of this species. In France it is common in the Lutetian of Le Bois-Gouët, Loire-Atlantique.

Pseudodostia selseyensis n. sp.
Figures 19-20

Derivatio nominis — Named after the Selsey Formation from which the three known specimens have come.

Holotype — BMNH 72312 (F.E. Edwards collection) (Figure 19).

Stratum typicum — Middle Lutetian, Bracklesham Group, Selsey Formation.

Locus typicus — Brook, New Forest, Hampshire, United Kingdom.

Paratypes — Two specimens: BMNH GG23013 (F.E. Edwards collection) (Figure 20), from the Selsey Formation at Stubbington, Hampshire, UK, and BMNH GG24014 (F.E. Edwards collection), from the Selsey Formation at Bracklesham Bay, West Sussex, UK.

Diagnosis — A large *Pseudodostia* with a depressed spire and numerous, low, rounded spiral ridges on the teleoconch; septum concave in the centre with curved ridges and pustules, teeth on the septum edge rather poorly defined; outer lip smooth or with distinctive lirae within.

Description — The protoconch is not preserved in the three known specimens. The teleoconch is elongate ovate in adapertural view and consists of about two and a half whorls. The spire is depressed, the suture deep. The outer surface is covered by 25 to 40 low, rounded, spiral ridges, fairly even sized, except that three are more pronounced on the earliest visible part of the last whorl, and evenly spaced. The furrows between the ridges are slightly narrower than the ridges themselves. Numerous fine, collabral lines cross the furrows and the ridges. The aperture is wide and semicircular. The columella is broad, concave in the centre with curved ridges and pustules in the central area. The columellar edge has a broad tooth near the adapical end, a small, sometimes hardly defined tooth adapical to it and 4 to 6 small, poorly defined teeth below it . There is no apparent apertural tooth below the abapical end of the septum, but a comma shaped ridge below the adapical end. The outer lip is thickened, smooth within or with about 12 clearly defined lirae. No colour pattern is visible.

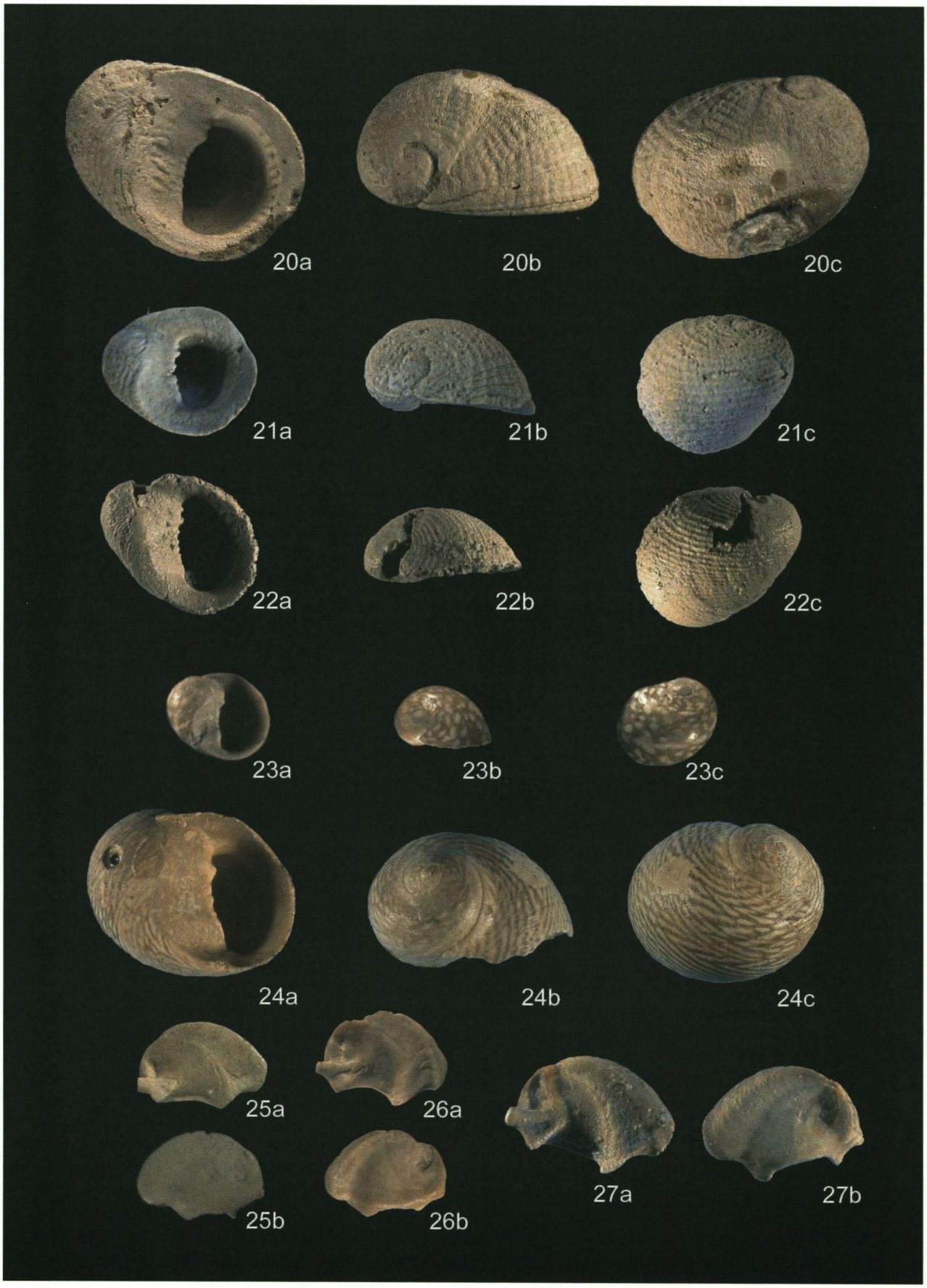
Measurements — Holotype: height 20 mm, width 18 mm. The paratypes are both smaller, the one illustrated in Figure 20 being 13.8 mm in height and 14 mm in width.

Remarks — The three prominent ridges on the early part of the body whorl indicate a probable relationship with *P. tricarinata* and *P. namnetica*. However, *P. selseyensis* is readily distinguished from both by the number and regularity of the ridges on the main part of the body whorl and by the poorly defined teeth on the septum edge.

Range and distribution — In the Middle Lutetian to Late Lutetian, Selsey Formation at Brook in the New Forest, Hampshire, Stubbington, Hampshire and Bracklesham Bay, West Sussex, UK.

Pseudodostia traceyi n. sp.
Figures 21-22, 27

Derivatio nominis — Named after Steve Tracey of BMNH, London, UK, a prominent worker on Tertiary molluscs, who collected one of the paratypes.



Figures 20-27.

Figure 20. *Pseudodostia selseyensis* sp. nov., paratype: a. apertural, b. apical, c. abapertural views. Height 13.8 mm, width 14 mm. Middle or Late Lutetian, Selsey Formation, Stubbington, Hampshire, UK. BMNH GG23013 (Edwards coll.).

Figure 21. *Pseudodostia traceyi* sp. nov., holotype: a. apertural, b. apical, c. abapertural views. Height 3.1 mm, width 3.2 mm. Ypresian, Wittering Formation, Unit W12-13, East Wittering, West Sussex, UK. BMNH GG23022 (Curry coll.).

Figure 22. *Pseudodostia traceyi* sp. nov., paratype: a. apertural, b. apical, c. abapertural views. Height 6 mm, width 5.5 mm. Early Lutetian, Earnley Formation, Unit E3, Bracklesham Bay, West Sussex, UK. BMNH GG23023 (Tracey coll.).

Figure 23. *Clithon (Pictoneritina) passyanus* (Deshayes, 1864): a. apertural, b. apical, c. abapertural views. Height 2.2 mm, width 2.2 mm. Late Lutetian, Studley Wood Member, Unit SW1, Studley Wood, New Forest, Hampshire, UK. BMNH GG23030 (Todd coll.).

Figure 24. *Clithon (Pictoneritina) stintoni* sp. nov., holotype: a. apertural, b. apical, c. abapertural views. Height 8.2 mm, width 8 mm. Middle Lutetian, Selsey Formation, Brook, New Forest, Hampshire, UK. BMNH GG23031 (Stinton coll.).

Figure 25. *Pseudodostia tricarinata* (Lamarck, 1804), operculum: a. inner face, b. outer face. Approximate width 2.9 mm. Ypresian, Sables de Cuise, Cuise-La-Motte, Marne, France. BMNH GG22780 (Tracey coll.).

Figure 26. *Pseudodostia baylei* (Vasseur, 1882), operculum: a. inner face, b. outer face. Approximate width 6 mm. Lutetian, Le Bois-Gouët, Loire-Atlantique, France. BMNH GG23012 (Tracey coll.).

Figure 27. *Pseudodostia traceyi* sp. nov., operculum: a. inner face, b. outer face. Approximate width 5.9 mm. Ypresian, Wittering Formation, Unit W14iii, East Wittering, West Sussex. BMNH GG23024 (Fowler coll.).

Holotype — BMNH GG23022 (D. Curry collection: Figure 21).

Stratum typicum — Ypresian, Bracklesham Group, Wittering Formation.

Locus typicus — East Wittering, Bracklesham Bay, West Sussex, UK.

Paratypes — Two specimens: BMNH GG23023 (S. Tracey collection: Figure 22), from the Bracklesham Group, Earnley Formation, Unit E3 of Curry *et al.*, (1977), at Bracklesham Bay, West Sussex, UK, and BMNH PITG 6939 (D. Curry collection), from the Bracklesham Group, Wittering Formation, at East Wittering, West Sussex, UK.

Diagnosis — A *Pseudodostia* with a depressed spire and numerous, sharp, spiral ridges on the teleoconch; septum edge with clearly defined teeth; outer lip with distinctive lirae within.

Description — The protoconch (slightly worn) appears to be smooth and ovate, about 0.4 mm in diameter. The teleoconch is ovate and consists of about one and a half whorls. The spire is depressed, the suture sharp. The outer surface is covered by 20 to 30 sharp, spiral ridges, all of similar size, even on the earliest visible part of the body whorl. They are evenly spaced and the furrows between the ridges are wider than the ridges themselves. Numerous fine, collabral lines cross the furrows and the ridges, giving a decussate appearance towards the outer lip where the lines are most pronounced. The aperture is wide and semicircular. The columella is broad, smooth and slightly concave in the centre. The columellar edge has a prominent tooth near the adapical end, a small sharply defined tooth adapical to it and four smaller but clearly defined teeth below it. There is no apparent apertural tooth below the abapical end of the septum but there is a comma shaped ridge below the adapical end. The outer lip is thickened, with 10 to 12 clearly defined lirae. No colour pattern remains on the specimens. The operculum (Figure 27) is semicircular, the outer side is covered with small pustules except within the shallow groove, which runs from the nucleus in an arc to the columellar side. The inner surface is smooth; a prominent ridge runs from the nucleus in an arc culminating in a prominent medial tooth on the columellar edge. There is a distinctive, double apophysis, the ventral being the culmination of a thickened, arcuate, ridge, the dorsal consisting of an elongate, rounded peg.

Measurements — Holotype height 3.1 mm, width 3.2 mm. Paratypes: height 6 mm, width 5.5 mm (BMNH GG23023: S. Tracey collection), and height 5.2 mm, width 4.6 mm (BMNH PITG 6939: D. Curry collection).

Remarks — Although shells of this species are rare, opercula are less so in the Wittering Formation in bed W14iii of Curry *et al.* (1977). Since *P. traceyi* is the only representative of the Neritidae known from this bed and since the opercula are clearly those of a *Pseudodostia*, it is reasonable to assume that they belong to the same species and the above description of the operculum is on this basis. The size of some of the opercula (BMNH GG23024, R. Fowler collection: 5.9 mm in width, Figure 27) indicate that the shells grow to a substantially larger size than those so far found and it is likely that the holotype and paratypes are immature. *Pseudodostia traceyi* is readily distinguished from *P. selseyensis* by the lack of the three prominent spiral ribs on the early part of the body whorl and by the prominent teeth on the septum edge.

Range and distribution — Bracklesham Bay, West Sussex, UK. Ypresian, Wittering Formation, Units W12 to W14iii and Early Lutetian, Earnley Formation, Unit E3 of Curry *et al.* (1977).

Genus *Clithon* Montfort, 1810

Type species — by original designation: *Nerita corona* Linné, 1758. Recent, fresh to brackish water, Eastern Indian Ocean to the Southwestern Pacific.

Diagnosis — Small spire and large body whorl, some species with a subsutural row of spines; labial area smooth with one or more teeth on the margin; operculum smooth or

bearing minute granules on the exterior surface, inner side with two apophyses connected by a calcareous callus.

Subgenus *Pictoneritina* Iredale, 1936

Type species — by original designation, *Neritina oualaniensis* Lesson, 1831. Recent, in estuaries and brackish lagoons, Indo-Pacific.

Diagnosis — Shell small and smooth; septum weekly arched with one large and several small teeth.

***Clithon (Pictoneritina) passyanus* (Deshayes, 1864)**
Figure 23

1823 *Neritina concava* J. de C. Sowerby, p. 118 (in part), pl. 385, fig. 2 (not figs 1, 3-8).
1864 *Neritina passyana* Deshayes, 3, p. 24, pl. 65, figs 11-13.
1888 *Neritina passyi* Deshayes; Cossmann, p. 92.
1907 *Neritina passyi* Deshayes; Cossmann & Pissarro, 2(1), pl. 6, fig. 39-12.
1925 *Neritina passyana* Deshayes; Cossmann: p. 218, pl. 5, figs 32, 33, pl. 7, figs 20, 24.
1960 *Theodoxus* cf. *passyanus* (Deshayes); Curry, p. 269.
1995 *Theodoxus (Vittoclithon) passyanus* Deshayes; Le Renard & Pacaud, p. 90.

Holotype — Location unknown.

Stratum typicum — "Sables moyens" ("Marinesian"), Eocene.

Locus typicus — Not precisely specified, either Montagny near Gisors, Le Fayel or Auvers, France.

Diagnosis — Medium to large *Pictoneritina* with a large tooth on the septum edge and several smaller denticulations situated abapically to it; colour pattern very variable.

Description — Shell medium sized to large for the genus, globular with a low spire. Whorls up to four in number, rapidly increasing in size, convex but slightly concave just below the suture in most specimens. Surface rather glossy in unworn individuals, smooth in appearance but with an ornament of numerous, fine, closely spaced, transverse lines. Suture sharp, well defined but shallow. The colour pattern in specimens from France is very variable but it is less so in those found in England which generally have whitish or light brown splashes on a darker background, the splashes sometimes almost coalescing to form two whitish, spiral, bands. The aperture is oblique and semilunar. The columellar septum is flat or slightly convex, smooth or with a few faint folds perpendicular to the septum edge, which is slightly convex in the centre with a prominent tooth at approximately one quarter of the distance from the posterior end and up to four small denticles situated abapically to it. The dentition is variable with the prominent tooth sometimes much reduced and the small denticles may be faint or even completely absent. However, the position of the prominent tooth is always constant and there are never any denticles on the adapical side of it. The outer lip is evenly rounded, rather thin and smooth within. The apertural tooth consists of a narrow ridge at right angles to the septum edge, situated below the abapical end of the septum.

Measurements — Deshayes (1864:24) stated that this small shell was extremely rare and the largest specimen was only 6 mm "long", 5 mm "wide" and 3.5 mm "deep". Since then the species has been found in greater numbers in the "Marinesian" of the Paris Basin and a few specimens are considerably larger. Some of the specimens from the Barton Group (Eocene) in England are still larger, measuring up to 15 mm high and 12 mm wide (Symonds, 2002: 4).

Remarks — A single, small (2.2 mm wide) juvenile specimen of *T. passyanus* was found by Jon Todd at Studley Wood, New Forest, Hampshire, in unit SW1 of the Studley Wood Member of the Selsey Formation (BMNH GG23030, Figure 23). Shell fragments found by Steve Tracey in the Shepherds Gutter Beds of the Selsey Formation at Coalmeer Gutter, Brook, New Forest, Hampshire and in the Shepherds Gutter Beds at Shepherds Gutter, Bramshaw, New Forest, appear, from their colour pattern, to belong to this species, but it is impossible to be certain as the fragments do not include any significant morphological features.

Range and distribution — The Barton Group, Hampshire, UK, mostly from the lower beds at Highcliff (Symonds, 2002: 6). The specimen referred to above from the Studley Wood Member is the only example known from the Selsey Formation. In France it is found in the Bartonian and Lutetian deposits of the Paris Basin.

***Clithon (Pictoneritina) stintoni* n. sp.**
Figure 24

Derivatio nominis — Named after the late Fred Stinton, formerly of Bournemouth, Dorset, U.K., who was an expert on fossil fish otoliths and who collected the holotype.

Holotype — BMNH GG23031 (F. Stinton coll.: Figure 24).

Stratum typicum — Middle Lutetian, Bracklesham Group, Selsey Formation, Brook Bed.

Locus typicus — Brook, New Forest, Hampshire, UK.

Diagnosis — A medium-sized *Pictoneritina* with a prominent spire; whorls concave below the suture; well-defined dentition on the septum edge consisting of one large tooth with smaller dentitions abapically to it; colour pattern a network of narrow, zigzag brown lines on a lighter background.

Description — Shell medium-sized for the subgenus, consisting of about three whorls, semiglobular with a prominent spire. The protoconch is prominent, smooth and obovate, approximately 0.3 mm wide. The teleoconch is glossy and smooth. The whorls are evenly convex, becoming distinctly concave below the suture, which is sharp and well defined but not deep. The colour pattern consists of narrow, dark brown zigzag lines, on a lighter background, a paler spiral band occupies about one third of the whorl on the abapical side.
The aperture is oblique and semicircular. The septum is smooth and slightly convex. The septum edge is slightly concave in the centre; there is one large, prominent tooth on the septum edge and four smaller denticulations situated abapically to it, which are of uneven size and distribution. The outer lip is evenly rounded, thin and smooth within. The apertural tooth consists of a sharp, comma shaped ridge below the abapical end of the septum.

Measurements — Holotype: height 8.2 mm, width 8 mm.

Remarks — The shape of the shell is similar to *Clithon (Pictoneritina) planulatus* (Edwards, 1866) from the Hatherwood Limestone Member of the Headon Hill Formation at Headon Hill, Isle of Wight, UK, but the dentition on the septum edge of that species is quite different, as is the colour pattern. Some specimens of *Clithon (Pictoneritina) cranmorensis* Symonds, 2006 from the Cranmore Member of the Bouldnor Formation at Bouldnor Cliff, Isle of Wight, UK have a zigzag pattern, although the lines are broader and further apart, but the dentition on the septum edge is poorly defined and quite unlike that of *C. stintoni*. *Clithon (Pictoneritina) waltoni* (Symonds, 2002) has a pattern of fine, wavy lines which form zigzags in places and it also has well-defined teeth. However, *C. stintoni* lacks the parietal folds and the teeth situated adapically to the main tooth on the septum edge which are a feature of *C. waltoni*. Although known only from a unique specimen, the holotype is complete, unworn and very well-preserved. Its distinctive colour pattern and prominent teeth on the septum edge readily separate it from all other known Tertiary species of *Pictoneritina* and, in the circumstances, I have no hesitation in introducing it as a new species.

Range and distribution — Known only from the holotype from the Middle Lutetian, Selsey Formation in the New Forest, Hampshire, United Kingdom.

Concluding remarks

Representatives of the Neritopsidae and Neritidae are generally rare throughout the Bracklesham Group in the Hampshire Basin of southern England even though some species are common in deposits of a similar age in France. Nevertheless ten species from these families are present, in most cases known only from a few specimens or even a unique specimen. The exceptions are: *T. altavillensis*, which is not uncommon in the Selsey Formation, Unit S10 of Curry *et al.* (1977), at Selsey, West Sussex, and *P. tricarinata*, which is frequent in the Selsey Formation, Unit S4iii of Curry *et al.* (1977), also at Selsey. Most of the ten species also occur and are more common in deposits in France but the three new species described above are, as yet, known only from England.

Acknowledgments

I am grateful to The Natural History Museum, London for access to the collections of Neritidae, both fossil and Recent, and for the provision of facilities to study them. Thanks are due to Jon Todd and Caroline Hensley for help and advice throughout the preparation of this paper. Thanks are also due to Abel Prieur of Université de Lyon for locating and photographing the holotype of *N. acutispira*. I am grateful to Steve Tracey, both for advice and helpful comments and for presenting important specimens from his collection to BMNH. I am also grateful to the Muséum National d'Histoire Naturelle, Paris, for allowing me to examine and photograph the Neritidae collections and for providing photographs of a syntype of *P. baylei* and especially to Jean-Michel Pacaud and Didier Merle for their advice and assistance.

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