

A MONOGRAPH

OF

THE EOCENE MOLLUSCA,

OR

DESCRIPTIONS OF SHELLS FROM THE OLDER TERTIARIES
OF ENGLAND.

BY

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PART III, No. II.

PROSOBRANCHIATA

(CONTINUED).

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No. 124. CONUS DIADEMA, *F. E. Edwards*. Tab. XXIV, fig. 8 *a—d*.

CONUS DIVERSIFORMIS, *Sow.* (non *Desh.*) 1841. *Min. Con.*, vol. vii, p. 26, t. 623, figs. 3, 4, 6.

— — *Morris.* 1843. *Cat. Brit. Foss.*, p. 143.

— — *Sow.* 1850. *Dixon's Geol., &c., of Suss.*, p. 108, t. 8, fig. 10.

— — *Morris.* 1854. *Cat. Brit. Foss.*, 2d edit., p. 244.

C. testá conicá, oblongá, sub-turritá, cormatá, lævi, ad basin transversim obscure sulcatá; spirá elevatá, sed trientem totius testæ longitudine nequaquam æquanti; anfractibus numerosis, angulatis, marginibus posticis depressis, sub-cavatis, concentricè lineatis: aperturá angustá; labro mediocriter arcuato, postice late emarginato.

Var. PYRIFORMIS (fig. 8 *d*). *Testá spirá depressá.*

CONUS PYRIFORMIS, *Sow.* 1850. *Dixon's Geol., &c., of Suss.*, pp. 108 and 189, t. 8, fig. 18.

— — *Morris.* 1854. *Cat. Brit. Foss.*, 2d edit., p. 244.

A smooth, oblong, conical shell, with a turreted spire, formed of numerous (10—12) volutions, and moderately elevated, varying to some extent in different individuals, but never attaining a height equal to a third part of the length of the shell. The whorls are nearly straight on the sides, with the posterior margins much depressed, somewhat concave, and ornamented with four or five thickish, concentric, raised lines, separated by shallow, rounded furrows; the angles of the whorls present a series of oblong, regular tubercles, which are continued almost to the last whorl, when they are replaced by a rounded, cord-like thickening of the shoulder; the front part of the whorls is traversed by shallow, irregular furrows, which are effaced towards the middle part of the shell. The aperture is narrow, with parallel margins; the outer lip moderately arched, and presenting a wide, shallow curvature between the angle and the suture.

The specimens separated by Mr. Sowerby, under the specific name *pyriformis*, have a much depressed spire associated with the tuberculation, and other characters which distinguish the present species, of which, therefore, I regard them as a variety only.

The shells for which I propose the specific name, *C. diadema*, were referred by Mr. Sowerby, in part to *C. deperditus* (Brug.), and in part to *C. diversiformis* (Desh.). In the former species, however, the shell is narrower and more turbate, with a more curved outer lip, and the tuberculation on the spire, where it occurs, is feeble and lost on the very early whorls; and in the latter species, M. Deshayes, in his description, states expressly that the angles of the whorls are somewhat sharp, and always simple;*

* It is somewhat difficult to appreciate the distinct specific value of the shells constituting the species *C. diversiformis*, without an examination of a series of specimens equal to that upon the study of which M. Deshayes proposed the separation. To the unschooled eye they appear to be only broader forms of *C. deperditus*, with more variable spires.

while in the English shells, the angles of the whorls are blunt and strongly tuberculated, resembling in that character *C. sulciferos* (Desh.), to which, indeed, I should be inclined to refer them, notwithstanding the transverse sulcation from which the name is taken, but on which much stress is not to be placed, as it does not appear to be a strongly marked character; the shell of *C. sulciferos*, however, is thick and ponderous, with a narrower aperture, and a deeper curvature in the outer lip. In *C. Lamarckii* (a name which I propose to give to the eocene species still miscalled *C. antediluvianus*), the tubercles are also found, but they are not so prominent nor so persistent as in the present species; the shell, also, is narrower, with a sub-conical and more elevated spire, and it never attains the size of *C. diadema*. The only other eocene tuberculated species at all resembling the present one, is *C. crenulatus* (Desh.); but in that species the shell is perspicuously furrowed, even in its mature state, and the spire is shorter and more conical.

Size.—Axis, 2 inches and 10-12ths (72 millim.); diameter, 1 inch and 8-12ths (42 millim.).

Locality.—Bracklesham Bay, where it is common.

No. 125. CONUS DEPERDITUS. *Bruguière*. Tab. XXV, fig. 2 *a—c*.

- D'Argenv.* 1742. Conchyl. Append., 2d edit., p. 349, t. 29, fig. 8.
 ? *Walch.* 1768. Traité des Petrifact., vol. ii, p. 102, t. 43, fig. 4.
Favanne. 1780. D'Argenv., Conchyl., 3d edit., t. 66, fig. c 1.
 CONUS DEPERDITUS, *Brug.* 1789. Encycl. méth., vol. i, p. 691, No. 80, t. 337, fig. 7.
 — — — *Lamk.* 1802. Ann. et Mus., vol. i, p. 386; vol. xv, p. 441, No. 6.
 — — — *Def.* 1818. Dict. des Sci. nat., vol. x, p. 261.
 — — — *Lamk.* 1822. Hist. Nat., vol. vii, p. 528, No. 6.
 — — — *Desh.* 1823. Dict. class. d'Hist. nat., vol. iv, p. 388.
 — — — *Ib.* 1824—37. Descr. des coq. foss.; &c., vol. ii, p. 745, t. 98, figs. 1, 2.
 — — — *Galeotti.* 1837. Corst. géog., &c., de Brabant, p. 148, No. 63.
 — — — *Bronn.* 1838. Lethæa geog., vol. ii, p. 1118, t. 42, fig. 14. (ex plur. syn.)
 — — — *Sow.* 1841. Min. Con., vol. vii, p. 25, t. 623, fig 5 (non figs. 1, 2).
 — — — ? *Nyst.* 1843. Coq., &c., de Belg., p. 583, No. 501.
 — — — *Morris.* 1843. Cat. Brit. Foss., p. 143.
 — — — *D'Orb.* 1850. Prod. de Paléont., vol. ii, p. 355, No. 336.
 — — — ? *Bell.* 1851. (Foss. nummul. du Comté de Nice), Mém. de la Soc. Géol. de France, 2d ser., vol. iv, p. 219, No. 65.
 — ALLIONI? *Beyr.* (non *Michel.*) 1853. Die Conchyl. des Norddeut. tertiär., p. 24, t. 1, figs. 4—6.
 — DEPERDITUS, *Roissy.* 1804. Buff. Moll., vol. xlv, p. 409, No. 10.
 CONILITHES CINGULATUS, *Schlot.*? 1820. Die Petrif., vol. i, p. 125, No. 3.

Nec	CONUS	DEPERDITUS,	<i>Brocc.</i> 1814. <i>Conch. Foss. Sub-app.</i> , vol. ii. p. 592, No. 10, t. 3, fig. 2.
nec	—	—	<i>Bors.</i> 1821. <i>Oritt. Piem.</i> , p. 14, No. 13.
nec	—	—	<i>Brongn.</i> 1823. <i>Tert. tert.</i> , &c., du Vicentin, p. 32.
nec	—	—	<i>Bast.</i> 1825. <i>Desc. les coq. foss.</i> , &c., de Bord., p. 39.
nec	—	—	<i>Bronn</i> 1831. <i>Italiens tertiärgeb.</i> , p. 12, No. 5.
nec	—	—	<i>Pusch.</i> 1837. <i>Polens Palæont.</i> , p. 115, No. 2.
nec	—	—	<i>Grat.</i> 1838. <i>Cat. zool.</i> , &c., de la Gironde, p. 47, No. 422.
nec	—	—	<i>Ib.</i> 1838. <i>Tabl. statist. &c.</i> , de l'Adour, t. 19, No. 22.
nec	—	—	<i>Ib.</i> 1840. <i>Conchyl. foss.</i> , &c., de l'Adour, t. 2, figs. 18, 19.
nec	—	—	<i>Sismon.</i> 1847. <i>Synop. method.</i> , &c., <i>Pedem. Foss.</i> , p. 44.
nec	—	—	<i>Sow.</i> 1850. <i>Dixon's Geol.</i> , &c., of Sussex, p. 108, t. 8, fig. 9.

C. testá turbinatá, elongatá. lævi, ad basin transversim obsolete sulcatá; spirá promi-nulá, acutiusculá: anfractibus numerosis, angustis, angulatis, marginibus posticis depressis, strias tenues concentricas gerentibus; ultimo anfractu regulariter conoideo, sursum dilatato: aperturá angustá; labro tenui, simplici, valde arcuato, postice profunde emarginato.

Shell oblong, turbinate, with a moderately elevated mucronate spire, variable in height, but rarely exceeding a fourth part of the whole length of the shell, and terminating in a smooth, conical pullus, formed of three volutions; whorls numerous (10—12, exclusive of the pullus), bluntly angulated at the shoulders, nearly straight on the sides, with the posterior margins depressed, narrow, somewhat concave, and concentrically lined; the concentric lines are usually four or five in number, sharp, irregular, unequal, separated by moderately deep, rounded furrows, and frequently decussated by the lines of growth. In some specimens the early whorls are very finely tuberculated on the shoulders, and concentrically sulcated; the tubercles, however, disappear after the third or fourth volution, and the shoulders are afterwards smooth and simple: the concentric furrows also become gradually effaced on the posterior portion of the whorls as the shell approaches maturity, and ultimately are altogether lost, leaving only a few very obscure waved furrows traversing the base of the shell. The last whorl is conical, much attenuated in front, with nearly straight sides; the aperture is linear and narrow; the outer lip, which is thin, sharp-edged and much arched, presents a shallow but wide curvature at the posterior extremity.

M. Deshayes states that traces of the natural colouring are sometimes found in the French shells, consisting of narrow, transverse bands, occasionally interrupted by irregular, zigzag patches, following the direction of the lines of growth. Similar traces appear, though very rarely, in the English specimens.

This species appears to be confined to the middle eocene strata; for the shells from Ronca (Vicent.), described by Brongniart as *C. deperditus*, D'Orbigny regards as belonging to a distinct species, which he has named *C. Brongniartii*, and to this species the shells described by Bellardi from the nummulitic beds at Nice, probably are also referrible. Subsequent comparison has shown that specific differences also exist in the various shells from the more recent deposits which have been referred to the

present species. Thus the Sub-apennine shells described by Brocchi, and those from Perpignan and Cassel, recorded by Sismonda, have been separated by Bronn under the name *C. Brocchii*; while to those from Dax and Gaas, described by Grateloup, M. D'Orbigny has given the name *C. Grateloupi*; and he has referred to the same species certain shells described by Pusch, to which Eichwald had given the name *C. argillæcola*. The cones described by Mr. Sowerby as belonging to the present species are young shells of *C. diadema*.

Dr. Beyrich ('Die Conchylien des Norddeutschen tertiärgebirges,' vol. i, p. 24) has described some shells from the North German tertiaries, which he has referred to *C. Allioni* (Michel.), but which agree so well with the present species, that it is difficult to separate them. That author states that, in *C. deperditus* of the Paris basin, the shells are comparatively wider, the concentric lines on the margins of the whorls more strongly marked, and the angles at the shoulders sharper than in the German specimens. These differences do not appear to be greater than may be fairly attributed to variations of local conditions, and I have therefore cited Dr. Beyrich's shell, but with a query. The English shells are wider, and appear to have attained a greater size, than the French shells; and the edges of the shoulders, instead of being somewhat sharp and elevated, as in the latter, are rounded or flattened obliquely; in all other respects our shells agree so well, that I have no doubt of their specific identity.

Size.—Axis, $2\frac{1}{2}$ inches, nearly (63 millim.); diameter, 1 inch and 5-12ths (36 millim.).

Localities.—Bracklesham Bay, Bramshaw (New Forest), at which places they are not uncommon. *French*—Grignon, Parnes, Mouchy, Courtagnon, &c. (fide *Desh.*) *Belgian*—Afflighem (fide *Galeotti*), Rouge-Cloître, Saint Josse-ten-Noode and Groenedael (fide *Nys!*). *German*—Westeregeln in Magdeburgh, Hermsdorf, Freinwalde and Buckow, and Freden, near Alfeld (fide *Beyrich*). *Italian*—La Palarca (fide *Bellardi*)?

No. 126. CONUS VELATUS, Sowerby. Tab. XXIV, fig. 12.

CONUS VELATUS, *Sow.* 1841. *Min. Con.*, vol. vii, p. 27, t. 623, fig. 7.

— — *Morris.* 1843. *Cat. Brit. Foss.*, p. 143.

— — *Sow.* 1850. *Dixon's Geol., &c., of Sussex*, pp. 108 and 189, t. 8, fig. 17.

— — *Morris.* 1854. *Cat. Brit. Foss.*, p. 244.

C. testæ lævi, oblongæ, turbinatæ, antice sub-productæ; transversim obsolete sulcatæ; spiræ conicæ, prominulæ, trientem totius testæ longitudine paulo superanti: anfractibus angulatis, inermibus; marginibus posticis declivis, sub-concavis, lineas concentricas et rugas

curvas obliquas sese decussantes gerentibus, ad suturam incrassatis, plicatis: aperturá angustá; labro valde arcuato, postice late emarginato.

Shell smooth, oblong, turbinate, somewhat produced at the base, where it presents traces of transverse sulcation: spire conical, slightly elevated, barely exceeding in height a third part of the whole length of the shell: whorls narrow, angulated, and smooth round the shoulders; the posterior margins much depressed, very slightly concave, and presenting four or five rather coarse, raised, concentric lines, which are crossed and decussated by prominent, curved, wrinkle-like elevations, corresponding with the curvature in the outer lip; the edge is thickened, and presents a raised border round the suture, plicated by the extension of the marginal wrinkles over the surface. The aperture is narrow; the outer lip much arched, and separated from the suture by a wide, moderately deep curvature. The surface of the shell is much eroded, and the lines of growth are consequently more conspicuous than is usually the case; these, with the decussated lines on the spire, "give the shell," Mr. Sowerby says, "the appearance of having been enclosed in a net or net-veil; whence the name."

The specimen from which the figure is taken, and on which the species was founded, forms part of Mr. Bowerbank's collection, and is, I believe, unique. In the general character the shell resembles *C. deperditus*; but the more elevated posterior margins, the thickened and plicated edges of the whorls in the present species, apparently justify the separation.

Size.—Axis, 1 inch and 4-12ths; diameter, 5-12ths of an inch.

Locality.—Bracklesham Bay.

No. 127. CONUS LAMARCKII, *F. E. Edwards*. Tab. XXV, fig. 3 a—c.

CONUS ANTEDILUVIANUS, *Desh.* (nec *Brug.*, nec *Lam.*) 1824—37. *Descr. des coq. foss.*, &c., vol. ii, p. 749, t. 98, figs. 13, 14.

— — — *Bronn.* 1838. *Lethæa Geog.*, p. 1118.

— DEPERDITUS, *Sow.* (nec *Brug.*), 1850. *Dixon's Geol.*, &c., of Sussex, p. 108, t. 8, fig. 9.

— ANTEDILUVIANUS, *D'Orb.* 1850. *Prod. de Paléont.*, vol. ii, p. 355, No. 335.

— CONCINNUS, *Phil.* (non *Sow.*) 1846. *Tert. foss. Magdeb.* (*Paleont.*, vol. i, p. 80, No. 183).

— — — *Beyr.* (non *Sow.*) 1853. *Die Conchyl. des Norddeutsc. tertiärg.*, vol. i, p. 21, t. 1, fig. 2.

C. testá oblongo-turbinatá, lævi, ad basin transversim sulcatá; spirá elevatá, acuminatá, tridentem totius testæ longitudine superanti; anfractibus angustis, nodulosis, marginibus posticis oblique depressis, sub-concavis, ad suturam tenuiter plicatis; anfractu ultimo conico: aperturá linearí, angustá; labro tenui, arcuato, postice emarginato.

Var. FILIFER. *Testá latiori; marginibus posticis anfractuum concentricè lineatis; lineis irregularibus, aliquando granulatis.*

Shell oblong, inversely conical, smooth, with an elevated, nearly conical spire, in height a little exceeding a third part of the whole length of the shell, and terminating in a small pointed pullus of three volutions. The whorls, 8—10 in number, exclusive of the pullus, are narrow, angulated at the shoulders, the posterior margins slanting backwards towards the preceding whorl, and concave; the sutural edge finely plicated by the strongly marked lines of growth. The early whorls present on the shoulders a row of small rounded tubercles, which are continued, more or less, on the later whorls, in different individuals. The aperture is straight and narrow; the outer lip thin, sharp-edged, not much arched, and separated from the suture by a wide, shallow curvature.

In the specimens from Bracklesham Bay, forming the variety *filifer*, the shells are wider than in the type, the posterior margins of the whorls present concentric lines, variable in number, and occasionally finely granulated where they are decussated by the lines of growth, and a single row of very small, bead-like knobs runs round the sutural edge, instead of the plication usually found there, in this respect somewhat resembling *C. concinnus*. The specimens from Bramshaw agree better with the French shells than do those from Bracklesham Bay; in the latter the shells generally are somewhat wider, the tubercles on the angles of the whorls disappear more early, and the shoulders are blunter than in the typical form. I regard these differences, however, rather as merely local variations than as sufficient to justify the separation of the shells from the present species, with which they agree in the elevated spire, the slanting concave margin and crenulated edge of the whorls, and the size of the shell itself.

With regard to the nomenclature of the French shell, much confusion has arisen, the origin of which is explained by M. Deshayes in a note in the 2d edition of Lamarck's 'Histoire Naturelle' (vol. xi, p. 155). From this it appears that the shell described by Bruguière as having been found at Courtaillon, and to which he gave the name *C. antediluvianus*, was, in fact, a Sub-apennine shell, and that Lamarck, misled by this, quoted *C. antediluvianus* as a Paris-basin species in his Mémoire, published in the 'Annales du Musée.' In 1814, Brocchi, in his work, applied the name given by Bruguière to the Sub-apennine shells, to which it strictly and properly belongs; but Lamarck, in 1822, in the first edition of his 'Histoire Naturelle,' again recorded Bruguière's species as occurring in the environs of Paris. Subsequently, M. Deshayes, in his 'Description des coquilles fossiles,' &c., pointed out the fact that Bruguière's description referred to an Italian species not found in the Paris basin; but unfortunately, in describing the French Eocene shells, he applied Bruguière's name to them. Bronn also, in the 'Lethæa Geognostica,' retained the name *C. antediluvianus* for the Paris-basin species, erroneously associating it with *C. concinnus* (Sow.), a species perfectly distinct; and he proposed the specific name *C. Apenninicus* for the Sub-apennine shells. The same author subsequently, in his 'Index Palæontologicus,' again united

the so-called *C. antediluvianus* of the Paris basin with the English *C. concinnus*, retaining for them the name of the latter. It is obvious that the name *antediluvianus* belongs to the Sub-apennine shell, and cannot be applied correctly to the French eocene species; and the attempts of MM. Bronn, Nyst, and others to remove the difficulty by giving a new name to the Italian species, can but increase the confusion. Dr. Beyrich, who fully appreciated the specific distinctness of the forms, has observed ('Die Conchyl.,' &c., p. 20), that "there will not be any necessity for a new name for the older eocene species of the Calcaire Grossier if the union proposed by Bronn be adopted." In the description of *C. concinnus*, I have stated the characters in which I consider that species to be perfectly distinct; and it is a cone which, although recorded by Mr. Sowerby as occurring at Barton, is, I believe, peculiar to the older eocene strata, and cannot be associated with the present species. It becomes necessary, therefore, to give a new name to the middle eocene species, and I propose to distinguish it as *C. Lamarckii*.

Size.—Axis, 1 inch and 7-12ths (40 millim.); diameter, 9-12ths of an inch, nearly (18 millim.).

Localities.—Bracklesham Bay, Bramshaw. *French*—Parnes, Mouchy, Courtagnon (fide *Desh.*); Vaudancourt, Hermes (fide *D'Orb.*).

No. 128. *CONUS CONCINNUS*, *Sowerby*. Tab. XXIV, fig. 13 *a—c*.

CONUS CONCINNUS, *Sow.* 1821. *Min. Con.*, vol. iii, p. 180, t. 302, fig. 2.

— — *Morr.* 1843. *Cat. Bri. Foss.*, p. 142.

— — *D'Orb.* 1850. *Prod. de Paléont.*, vol. ii, p. 356, No. 337.

Nec — — *Phil.* 1846. *Tert. Foss. Magdeb.* (*Palæont.*, vol. i, p. 80, No. 183).

nec — — *Beur.* 1853. *Die Conchyl. des Norddeutsc. tertiärg.*, vol. i, p. 21, t. 1, fig. 2.

C. testá elongato-turbinatá, leví, ad basin concentricè sulcatá; spirá elevatá, sub-conica: anfractibus angustis, sub-planis, angulatis, ad angulos nodulosis; marginibus posticis declivis, duas vel tres lineas elevatas granulatas gerentibus, ad suturas marginatis, plicatis vel moniliferis: aperturá angustissimá; labro valde arcuato, postice late emarginato.

Var. β. Testá spatiiis inter suturas et angulos anfractuum tres vel quatuor lineas elevatas simplices gerentibus.

Shell elongate, turbinate, concentrically furrowed at the base; spire elevated, but variable in height, sometimes nearly equalling a half, sometimes not much exceeding a third part, of the whole length of the shell: whorls seven or eight, exclusive of the pullus, very narrow, nearly straight on the sides, angulated at the shoulders, with the posterior margins slanting backwards; the edges round the suture thickened, and either plicated or furnished with a single row of rather small bead-like nobs; the space

between the edge and the shoulder is straight, and ornamented with two or three concentric raised lines, very finely granulated. The shoulders bear a single row of prominent, round tubercles, placed at regular and not distant intervals, and continued throughout. The aperture is straight, and very narrow; the outer lip much arched, and presenting a wide, shallow curvature at the posterior extremity. The concentric furrows cover the whole surface of the young shell, but become more or less effaced as the shell is enlarged, and on the last whorl they are confined to the anterior portion of the shell: through all stages of growth the basal furrows are deep and sharp-edged.

A variety occurs at Lee, near Southend, in which the sutural edge and margin of the whorl present four thick, prominent lines, rounded and smooth on the upper surface, and devoid of the granulations which characterise the type.

I have already noticed the fact, that Bronn has regarded the present species, apparently confined to the lower eocene strata as identical with the so-called *C. antediluvianus* of Lamarck; and Dr. Beyrich, adopting that opinion, has applied the name *concinuus* to a shell from the German Tertiaries which belongs to *C. Lamarckii*. The narrower form, the smaller number of the volutions, the large rounded tubercles on the shoulders, the more depressed margins of the whorls, with their thickened edges and concentric rows of granulations, or strong elevated lines, and the deep, sharp-edged furrows, barely effaced on the posterior part by the outer coating of the shell,—appear to me sufficiently to distinguish the present shells from those of the middle eocene epoch. I do not agree, therefore, with M. Bronn and Dr. Beyrich, in referring both to the same species; and in this view, apparently both M. Deshayes and M. D'Orbigny concur.

Size.—Axis, 1 inch and 3-12ths (32 millim.); diameter, rather more than 6-12ths of an inch (between 13 and 14 millim.).

Localities.—Highgate; Fortess Green, near Kentish Town; Lee, near Southend. Mr. Sowerby cites Barton, but I have never met with any specimen from that locality; and the specimen on the authority of which Barton is cited ('Min. Con.,' t. 302, lowest fig.) does not present the characteristic form of *C. concinnus*; it is much mutilated, but it has rather the appearance of a worn specimen of *C. scabriculus*. M. Deshayes (2d edit. of 'Lam. Hist. Nat.')

states that this species occurs in the environs of Paris; it is not mentioned, however, in his 'Description des Coquilles Fossiles,' and M. D'Orbigny has not given any French locality for it. At present this cone appears to belong exclusively to the earlier eocene fauna.

No. 129. CONUS SCABRICULUS, *Solander*. Tab. XXIV, fig. 9 a—c.

	CONUS SCABRICULUS, <i>Sol.</i> 1766. Brand., Foss. Hanton., p. 15, t. 1, fig. 21.
—	— <i>Sow.</i> 1821. Min. Con., vol. iii, p. 180, t. 303, figs. 1, 2.
—	— <i>Desh.</i> 1824-37. Descr. des coq. foss., &c., vol. ii, p. 751, t. 98, figs. 17, 18
—	— <i>Ib.</i> 1845. Lam., Hist. Nat., 2d edit., vol. ii, p. 158, No. 11.
—	— <i>D'Orb.</i> 1850. Prod. de Paléont., vol. ii, p. 416, No. 1472.
non	— <i>Sism.</i> 1847. Syn. Meth., &c., Piedmont. foss., p. 44.

C. testá utrinque conicá, antice sub-productá, lineis concentricis, elevatis, ornatá; spirá elevatá, acuminatá; lineis concentricis acutis, lenticulatis, aliquando confertis, aliquando distantibus; alternis sæpissime minoribus, sæpe inermibus: anfractibus planis, postice obtuse angulatis; marginibus sub-concavis, ad suturam granulosis: aperturá lineari, angustá, bessem totius testæ paullum superanti; labro tenuissimo, leviter arcuato, postice sinuoso.

Shell oblong, doubly conical, slightly produced at the base, and ornamented with concentric raised lines; spire elevated, pointed, terminating in a very small conical pullus, formed of three smooth volutions. The concentric lines are sharp, and very variable in their character; sometimes numerous, sometimes distant, and very frequently the alternate lines are smaller than the others. Most generally the concentric lines rise, at regular intervals, into short, tooth-like tubercles, having their bases prolonged, both in front and behind, into short, rounded ribs, more or less prominent according to the size of the tubercles, and separated by deep, pit-like hollows. The whorls, exclusive of the pullus, are six or seven in number, flat at the sides, slightly contracted towards the base, obtusely angulated at the shoulder, longitudinally ridged by regular conspicuous lines of growth, and bordered at the suture by a row of small granulations; the space between the shoulder and the suture is traversed by two or three smooth, prominent lines. The aperture is straight, narrow, slightly emarginate in front, and in length, rather more than two thirds of the whole shell; the outer lip is smooth within, thin, sharp on the edge, of a flattened elliptical form, and separated from the preceding whorl by a moderately wide, but not deep, sinus. The columella is slightly curved inwards.

Not infrequently, the alternate smaller lines, where they do occur, are smooth and simple; and the same character sometimes, although very rarely, distinguishes the whole transverse lineation. In the latter instances the surface of the shell between the raised lines is flat and smooth, except where it is ridged by the lines of growth.

This pretty and well-marked species is, apparently, confined to the middle eocene strata; and the shells referred to it by Sismonda, from Piedmont and Turin, are considered by M. D'Orbigny to belong, in fact, to Michelotte's *C. ornatus*.

Size.—Axis, 4-5ths of an inch; diameter, rather more than 3-10ths of an inch.

Localities.—Barton. *French*—Monneville (fide *Desh.*), Chavançon (fide *D'Orb.*).

No. 130. CONUS LINEATUS, *Solander*. Tab. XXIV, fig. 10 a—c.

- CONUS LINEATUS, *Sol.* 1766. *Brand.*, *Foss. Hanton.*, p. 15, t. 1, fig. 22.
 — CORCULUM, *Sow.* 1841. *Min. Conchol.*, vol. vii, p. 27, t. 623, figs. 8, 9.
 — LINEATUS, *Morris.* 1843. *Cat. Brit. Foss.*, p. 143.
 — CORCULUM, *Morris.* 1843. *Cat. Brit. Foss.*, p. 142.
 — — *Sow.* 1850. *Dixon's Geol., &c., of Suss.*, p. 109.
 — LINEATUS, *D'Orb.* 1850. *Prod. de Paléont.*, vol. ii, p. 355, No. 334.
 — — *Morris.* 1854. *Cat. Brit. Foss.*, 2d edit., p. 244.
 — CORCULUM. *Ib.* 1854. *Cat. Brit. Foss.*, 2d edit., p. 243.
 non — LINEATUS, *Chemn.* 1795. *Conchyl. Cab.*, vol. x, p. 27, t. 138, fig. 1285.

C. testá utrinque sub-conicá, lineis concentricis ornatá, antice sub-productá; lineis concentricis æqualibus, lævibus, confertis; spirá elevatá, acuminatá, sub-nodulosá: anfractibus planis, postice obtuse angulatis, marginibus sub-concavis, concentricè lineatis, ad suturam depressis, granulatis: aperturá linearí, angustá, longitudine bessem totius testæ fere æquanti; labro tenuissimo, leviter arcuato, postice sinuato.

Shell oblong, doubly conical, ornamented with transverse raised lines; spire elevated, coronated, terminating in a small pointed pullus, consisting of two or three smooth volutions; the transverse lines are smooth, regular, numerous, and separated by rather deep, rounded furrows; the whorls, which are five or six in number without the pullus, are flat at the sides, slightly contracted and produced in front, angulated at the shoulders, and depressed at the sutural margins, forming a narrow ledge running round the spire, the outer edge of which is finely granulated; the space between the margin and the shoulder is slightly concave, and presents two or three faint, concentric, unequal, raised lines. The early whorls bear on the shoulders a row of transverse, oblong tubercles, imparting a somewhat nodulous character to the spire, but lost on the last whorl, the shoulder of which is smooth. The aperture is straight, narrow, and about two thirds of the whole shell in length; the outer lip, which is but slightly curved, presents a shallow sinus at the posterior extremity: the columella is nearly straight.

Brander's shell, deposited in the British Museum, is unfortunately mislaid, and I have not been able to compare with it the shells now described. They agree, however, with Solander's description and figure in all respects except in the striation. Brander's shell, which was apparently a larger and an older specimen than any I possess, and was probably somewhat worn, is described as *obsolete striata*; while the transverse lines on my specimen are generally bold and clearly defined.

The Bracklesham Bay shell, described by Mr. Sowerby as *C. corculum*, is a little shorter in the spire; but, in all other respects, it agrees exactly with the present species, to which, therefore, I have referred it.

Lamarck, and, since his time, MM. Deshayes and D'Orbigny, have considered *C. lineatus* as identical with *C. stromboides* (Lamk.), from the Paris basin. These two shells do not appear to me, however, to be referable to the same species, for in the French species the shell is narrower, the spire more elevated, and formed of more numerous volutions; the whorls, also, are more rounded at the shoulders, the transverse lineation is feebler and more irregular, and the outer lip is more strongly arched than in the English shells. I have, therefore, not cited *C. stromboides* as a synonym of the present species.

So closely does *C. lineatus* resemble *C. scabriculus*, from which, in fact, it is only distinguished by its smooth, crowded, concentric lines, separated by rounded furrows, that it ought, perhaps, to be regarded as merely a variety into which the smooth lined specimens of the latter species would lead; but, without an examination of Brander's shell, I do not venture to question Solander's species.

Size.—The dimensions of my largest specimen are—axis, 7-12ths of an inch; diameter, rather more than 3-12ths of an inch: those of Brander's shell were, according to the figure—axis, 10-12ths of an inch; diameter, rather more than 5-12ths of an inch.

Localities.—Barton, Bracklesham Bay. Very rare.

Section—CONORBIS.

No. 131. CONUS DORMITOR, *Solander*. TAB. XXIV, fig. 11 a—c.

CONUS DORMITOR, *Sol.* 1766. *Brand.*, *Foss. Hanton.*, p. 16, t. 1, fig. 24.

— — *Sow.* 1821. *Min. Con.*, vol. iii, p. 179, t. 301.

— — *Morris.* 1843. *Cat. Brit. Foss.*, p. 143.

— — *D'Orb.* 1850. *Prod. de Paléont.*, vol. ii, p. 356, No. 338.

— — *G. Sow.* . *Gen. of Shells*, *Conus*, fig. 8.

C. testá crassiusculá, fusiformi; utrinque conicá, concentricè lineatá, antice sub-productá, vix emarginatá, paulo retroflexá; lineis concentricis elevatis, æqualibus, irregularibus, sub-distantibus; interstitiis concavis, lineis incrementi tenuissime crenulatis: aperturá lineari, angustá; labro acuto, rotundato-elliptico, intús incrassato, postice late sinuato; labii margine anteriori elevatá, productá.

Var. SEMINUDA. Testá ad basin transversim sulcatá; anfractibus postice unico sulco exaratis, cæterum lævibus.

Shell rather thick, fusiform, resembling two nearly equal cones, placed base to base, and ornamented with concentric raised lines; the spire, forming the shorter cone, is elevated, pointed, and terminates in a very small conical pullus of three volutions; whorls

seven or eight, exclusive of the pullus, rounded at the shoulders, nearly straight on the sides, somewhat produced in front, and very slightly bent backwards. The concentric lines are equal, not very distant over the middle of the whorls, but varying in that respect in different individuals; more crowded at the base and on the shoulders, distant on the posterior margins, which are much elevated, and pressed against the preceding whorls; occasionally on the last whorl of mature specimens additional faint lines appear. The spaces between the lines are very slightly concave, and finely crenulated by the lines of growth, which are very perspicuous over the whole surface of the shell. The aperture is narrow, straight, except at the base, where it is a little deflected, and scarcely emarginate; the outer lip thin and sharp on the edge, very much thickened within, faintly crenulated on the inner margin by the concentric lines, of a roundedly elliptical shape, and detached from the suture by a wide but very shallow curvature. The anterior margin of the columellar lip is elevated and prolonged in front, where it serves as the wall of the rudimentary anterior canal formed by the produced base of the shell.

In specimens from Brockenhurst and Lyndhurst, the middle and upper parts of the whorls are perfectly smooth, with the exception of a single furrow which traverses the posterior margins; and the base of the shell presents numerous shallow furrows, which extend almost up to the middle of the whorl, instead of the sharp elevated lines which characterise the typical form.

This well-known species, peculiar, I believe, to the Hampshire basin, forms the type of Mr. Swainson's genus *Conorbis*. In the elevated conical spire, the almost semicircular form of the outer lip, and the produced base of the whorls, it presents the closest analogies with that section of the *Pleurotomæ* formed of *P. prisca*, *P. amphiconus*, *P. linearis*, and similar species. Indeed, so closely does it approach to some of these, that, judging from external characters only, it is difficult to decide to which genus it should be referred. The straight, narrow aperture, however, is certainly that of a cone, and indicates a necessity that the animal, in order that it might withdraw into the inner whorls, should be enabled to enlarge the space within the shell; a necessity which, as I have already stated, was met by the power of absorption possessed by the animal. The curvature in the outer lip, also, is quite distinct in its character from the sinus in the outer lip of the *Pleurotomæ*.

Size.—Type—Axis, 1 inch and 1-12; diameter, 5-12ths of an inch. Var.—Axis, 1 inch and 3-12ths; diameter, 6-12ths of an inch.

Localities.—Barton, Alum Bay (No. 29, *Prestwich*), Lyndhurst, and Brockenhurst (New Forest).

No. 132. CONUS ALATUS, *F. E. Edwards*. Tab. XXV, fig. 1 *a, b*.

C. testá sub-fusiformi, utrinque conicá, concentricè sulcatá, antice sub-productá, retro-flexá, emarginatá; spirá acuminatá, in longitudine tridentem totius testæ superanti: anfractibus convexiusculis, sub-angulatis; marginibus posticis angustis, concavis, concentricè sulcatis; sulcis concentricis irregularibus, posticè evanescentibus: aperturá angustá; labro aliformi, fere semicirculari, acuto, intús incrassato, antice crenulato, posticè perparum breviterque emarginato; labio antice reflexo, producto.

Var. HEMILISSA. Testá breviori, latiori, posticè lævi; marginibus anfractuum valde cavatis, unico sulco concentrico exaratis.

Shell nearly fusiform, doubly conical, concentrically furrowed, rather produced and bent backwards at the base, and deeply notched; the concentric furrows are irregular, crowded, and sharp-edged over the base, more distant and obscure as they ascend the shell; the spire is pointed, elevated, rather more than a third part of the whole shell in height, and terminates in a very small, conical pullus. The whorls are rather convex, slightly angulated at the shoulder, and a little thickened on the edge round the suture; the posterior margin is narrow, rather concave, and traversed by two or three deepish furrows. The aperture is narrow and nearly straight, with the anterior extremity slightly curved outwards and backwards; the outer lip is remarkably large, almost semicircular, thickened within, thin and sharp on the edge, and separated from the suture by a very small but rather deep curvature; the inner lip produced, reflexed, and curved backwards; the columella presents a broad, elevated ridge or "crest" in front.

A variety occurs at Brockenhurst, in which the shell is shorter and wider; the posterior portion of the whorl is smooth; the angle on the shoulder sharper and more clearly defined, and the posterior margin more concave, and traversed by a single obscure furrow.

The presence, in this species, of concentric furrows instead of the sharp, elevated lines which characterise *C. dormitor*, is not a character to which much specific value can be attached, as these ornaments interchange by insensible degrees; but the depressed, concave posterior margin of the whorls, the very large wing-like, outer lip, the small, narrow, but deep curvature which separates the outer lip from the suture, and the deep anterior notch, with its usual accompaniment, the elevated crest on the columella, appear to me to justify the separation of the present species. Even the variety which, with its half-smooth half-sulcated surface, so much resembles the *var. seminuda* of *C. dormitor*, is easily distinguishable by these characters.

Size.—Type—Axis, 1 inch and 5-12ths, nearly; diameter, rather more than 6-12ths of an inch. Variety—Axis, 1 inch; diameter, $\frac{1}{2}$ inch.

Localities.—Type: Bramshaw. Variety: Brockenhurst, Lyndhurst.

TAB. XXIV.

Fig.

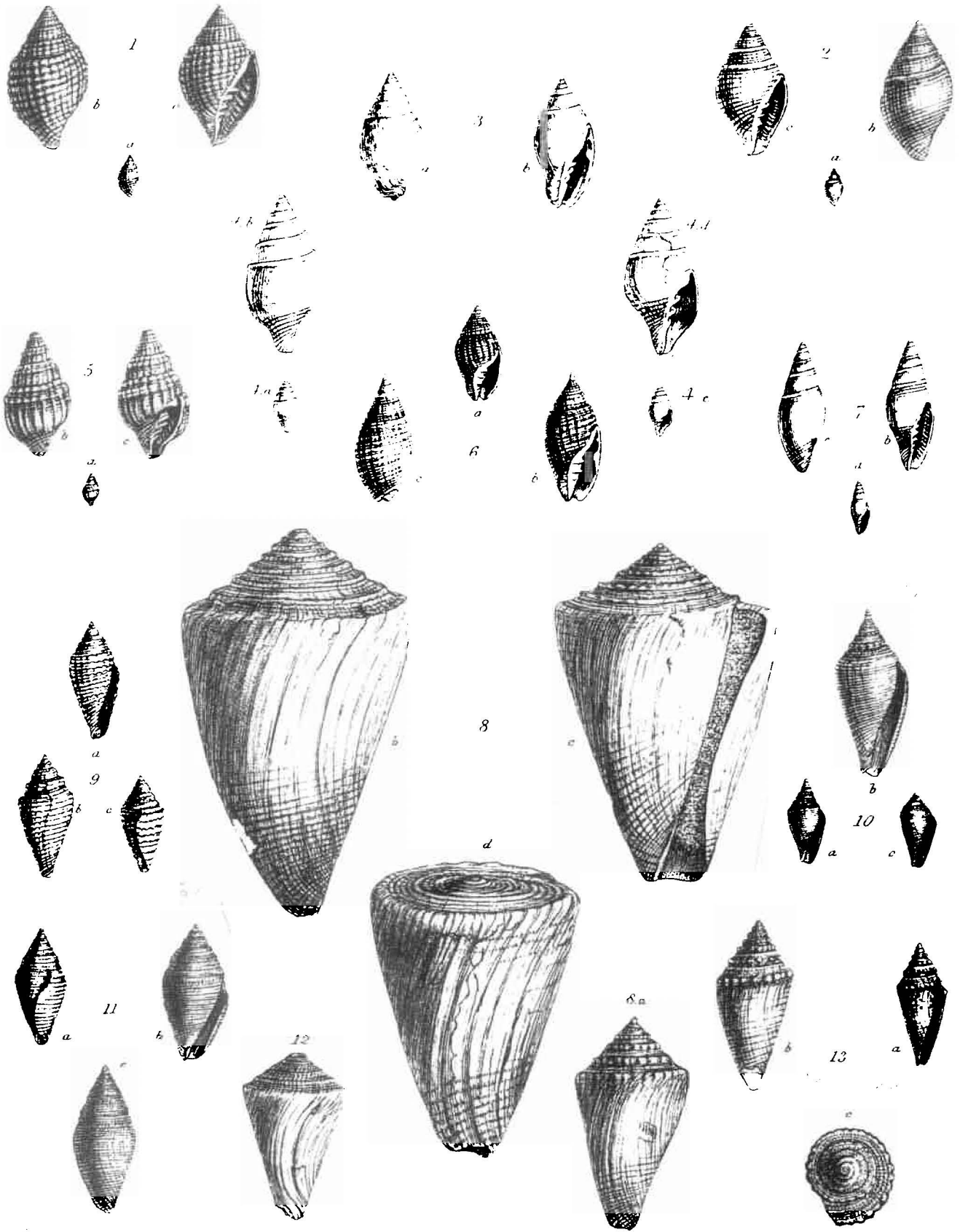
1. *Mitra parva*, No. 120, *p.* 183.
 - a.* Back view, natural size.
 - b.* Back view, magnified.
 - c.* Front view, ditto.
2. *Mitra parva* (var. *pumila*). No. 120, *p.* 183.
 - a.* Back view, natural size.
 - b.* Back view, magnified.
 - c.* Front view, ditto.
3. *Mitra labratula*. No. 119, *p.* 182.
 - a.* Back view.
 - b.* Front view.
4. *Mitra obesa*. No. 122, *p.* 185.
 - a.* Back view, natural size.
 - b.* Back view, magnified.
 - c.* Front view, natural size.
 - d.* Front view, magnified.
5. *Mitra volutiformis*. No. 123, *p.* 186.
 - a.* Back view, natural size.
 - b.* Back view, magnified.
 - c.* Front view, ditto.
6. *Mitra scabra*, No. 118, *p.* 181.
 - a.* Front view, shell of mid-growth.
 - b.* Front view, adult shell.
 - c.* Back view, ditto.
7. *Mitra porrecta*. No. 121, *p.* 185.
 - a.* Front view, natural size.
 - b.* Front view, magnified.
 - c.* Back view, ditto.
8. *Conus diadema*. No. 124, *p.* 190.
 - a.* Back view, shell of mid-growth.
 - b.* Back view, adult shell.
 - c.* Front view, ditto.
 - d.* Back view, ditto. (Var. *pyriformis*.)
9. *Conus scabriculus*. No. 129, *p.* 198.
 - a.* Front view.
 - b.* Back view.
 - c.* Side view.

TAB. XXIV (*continued*).

Fig.

10. *Conus lineatus*. No. 130, *p.* 199.
 - a.* Front view, natural size.
 - b.* Front view, magnified.
 - c.* Front view, (specimen described as *C. corculum*, Sow.)
11. *Conus dormitor*. No. 131, *p.* 200.
 - a.* Side view.
 - b.* Front view.
 - c.* Back view.
12. *Conus velatus*. No. 126, *p.* 193.

Back view.
13. *Conus concinnus*. No. 128, *p.* 196.
 - a.* Front view, shell of mid-growth.
 - b.* Back view, adult shell.
 - c.* View from above, showing the posterior margins of the whorls forming the spire.



TAB. XXV.

Fig.

1. *Conus alatus*. No. 132, *p.* 202.
 - a.* Back view.
 - b.* Side view.
2. *Conus deperditus*. No. 125, *p.* 191.
 - a.* Back view, young shell.
 - b.* Front view, shell of mid-growth.
 - c.* Side view, adult shell.
3. *Conus Lamarckii*. No. 127, *p.* 194.
 - a.* Side view, young shell, from Bracklesham Bay.
 - a.** Back view, adult shell, from ditto.
 - b.* Front view, adult shell, from ditto.
 - b.** Front view, adult shell, from Bramshaw.
 - c.* Back view, adult shell, from ditto.
4. *Pleurotoma stena*. No. 133, *p.* 207.
 - a.* Back view, young shell, from Southampton.
 - b.* Back view, adult shell, from Highgate.
5. *Pleurotoma symmetrica*. No. 136, *p.* 209.
 - a.* Front view, young shell, from Highgate.
 - b.* Back view, adult shell, from Southampton.
6. *Pleurotoma inarata*. No. 134, *p.* 208.
 - Side view, adult shell.
7. *Pleurotoma helix*. No. 135, *p.* 209.
 - a.* Side view, adult shell.
 - b.* Side view, shell of mid-growth.
8. *Pleurotoma teretrium*. No. 137, *p.* 210.
 - a.* Back view, adult shell, from Highgate.
 - b.* Back view, adult shell, from ditto. (Var. *nanodis*.)
 - c.* Back view, young shell, from Southampton. (Var. *tuberculata*.)
 - d.* Back view, young shell, from ditto. ditto.
 - e.* Back view, shell of mid-growth, from ditto.
 - f.* Back view, adult shell, from Highgate. (Var. *crebrilinea*.)
 - g.* Back view, Highgate specimen. (Var. *latimarginata*.)
 - h.* Back view, ditto. ditto.
9. *Pleurotoma transversaria*. No. 141, *p.* 214.
 - a.* Back view, Brockenhurst specimen.
 - b.* Back view, Lyndhurst specimen. (Var. *cypha*.)
10. *Pleurotoma goniea*. No. 140, *p.* 213.
 - Back view.

