

CATALOGUE
OF
TERTIARY MOLLUSCA
IN THE
DEPARTMENT OF GEOLOGY
BRITISH MUSEUM
(NATURAL HISTORY).

PART I.
THE AUSTRALASIAN TERTIARY MOLLUSCA.

BY
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INTRODUCTION.

THE Tertiary Mollusca of Australasia present many features of special interest, both to geologists and zoologists. The remarkable abundance and perfect state of preservation of the GASTEROPODA, especially of Victoria, enable us to shed much light on certain questions relating to phylogeny, which cannot fail to assist the zoologist as indicating the origin of many of the principal groups of that division of the MOLLUSCA, and as imparting some idea of the past history of the modern molluscan fauna of Australasia generally. The larval shells, especially, have proved to be of great interest, and I venture to think that many of the details concerning them as recorded in this Catalogue will prove serviceable, not only from the phylogenetic standpoint, and in regard to the early history of the individual, but as a contribution to the systematic classification of the GASTEROPODA. The phenomena of growth in this division of the mollusca have never been studied, except in regard to restricted groups; and I have occasionally criticized modern methods that give undue importance (as it would seem) to the number and disposition of plications on the columella, the absence or presence of liræ within the outer margin of the aperture, the relative length of the anterior canal when present, and modifications in detail of external sculpture. These and kindred phenomena are frequently utilized by the systematist for purposes of specific and even of generic classification, whereas in many instances a careful study of ontogeny would show that they were mere peculiarities either of the individual or as characterizing a distinct stage of growth. I do not intend to imply that the features of growth just mentioned are never of importance for purposes of classification; but until each case is studied on its own merits, in other words until the ontogeny of each has been carefully worked out, it is impossible to say

The specimen in the Museum is too mutilated for minute description. The posterior portion of the later whorls have a narrow ante-sutural band; the plications are narrow, slightly bent, and subnodose, and between them are very fine and close reticulations.

Dimensions.—Length about 9 mm.; breadth 3 mm.

Form. and Loc.—Eocene: Table Cape, Tasmania.

83991. One specimen.

Purchased.

Terebra ustulata, Deshayes.

1857. *Terebra ustulata*, Deshayes, Journ. Conchyl. p. 97, pl. iii. fig. 12.

1859. *Terebra ustulata*, Deshayes, Proc. Zool. Soc. p. 294.

The sutural band is not so deeply impressed as in typical specimens in the Museum from Tasmania, as found living, whilst the body-whorl is more convex; these differences may constitute a variety from which the living forms may have descended, but they are not worthy of specific rank.

Dimensions.—Length 33 mm.; breadth 9 mm.

Form. and Loc.—Post-Pliocene: Limestone Creek, Glenelg river, Victoria.

G. 5555. Three specimens.

Purchased.

Terebra geniculata, Tate.

1886. *Terebra geniculata*, Tate, Southern Science Record, January, p. 6.

1889. *Terebra geniculata*, Tate, Trans. Roy. Soc. South Aust. vol xi. p. 161, pl. ix. fig. 8.

The protoconch (Plate II. Figs. 1a-b) of this species is subacute and composed of three convex turns. The whorls of the shell are much constricted posteriorly, and between the constriction and the suture there is a row of tubercles; the remainder of the surface of the whorls has distant rugose ribs which are angulate, and the whole presents rather the aspect of certain forms of *Drillia* than of *Terebra*. That it ought not to be classified with the PLEUROTOMIDÆ, however, is clear from the general phenomena of the aperture.

It differs from *T. mutica*, Tate, from the same locality but of

Eocene age, in the whorls being more angulate, the anterior canal being more excavated, and in other minor features.

Dimensions.—Length 9 mm. ; breadth 3 mm.

Form. and Loc.—Miocene: Muddy Creek, Victoria.

G. 9309. Two specimens.

Purchased.

Family CONIDÆ.

Genus CONUS, Linnæus.

[Syst. Nat. ed. 10, 1758, p. 712.]

Shell convolute, turbinate; aperture narrow and long, edentulous; columella smooth.

An attempt to divide the Eocene fossils of this genus into subgeneric groups based on observations made on living examples of *Conus*, must always, the writer believes, be attended with great uncertainty: for the genus itself had only just been established; and although in a very unstable condition, it had not yet had full opportunity of modifying, with development in different directions. No doubt, to a large extent, certain features of modern groups of *Cones* were conceived in Eocene times, but they were not sufficiently well differentiated to enable the species to be allocated clearly to the subgenera as established on living species. *Conus* was pregnant with evolutionary possibilities in the early Eocene. Nevertheless, the writer has essayed a subdivision in spite of the difficulties and uncertainties existing.

Type.—*Conus marmoratus*, Linnæus.

Subgenus LEPTOCONUS, Swainson.

[Malacology, 1840, p. 312.]

The author describes *Leptoconus* as follows:—"Shell light, conic, sometimes striated; spire elevated, acute, concave; the basal whorl carinated, detached, and sinuated above, and contracted near the suture." Other characters which seem to be fairly persistent in this group are the deeply-cut canal bordering the suture and the more or less staged convolutions.

Type.—*Conus grandis*, G. B. Sowerby.

Conus (Leptoconus) ligatus, Tate.

1890. *Conus ligatus*, Tate, Trans. Roy. Soc. South Aust. vol. xiii. pt. 2, p. 196, pl. vii. figs. 4, 4a-b; pl. viii. fig. 9.
 1893. *Conus ligatus*, Tate and Dennant, *id.* vol. xvii. pt. 1, p. 221.

Protoconch (Plate II. Figs. 2a-b) composed of two smooth volutions, the earlier of which is somewhat oblique and inflated. The spire of the shell proper is of variable height, in some specimens being comparatively depressed and in others so elongated as to be one-third the length of the shell. Spire-whorls with an obtuse, thick shoulder and ornamented with closely-set, spiral striae, which persist over the whole surface of the body-whorl also, being especially accentuated on the anterior half. The body-whorl varies in shape from pyriform to elongate ovate, the peripheral keel defined anteriorly by a linear constriction, posterior to which there are one or two threads on the peripheral band. The aperture is narrow, with a comparatively shallow anal sinus.

The range of variation in this species is so great that innumerable "varieties" could be established. One of them, as pointed out by Professor Tate, closely resembles *C. desperditus*, Bruguière, of the Eocene of North-western Europe.

This species partakes of the characters of both *Leptoconus* and *Lithoconus*; it has been assigned to the former subgenus on account of its elevated and staged spire and striated surface.

Dimensions.—Length 40 mm.; breadth 21·5 mm.

Form. and Loc.—Eocene: Victoria.

48052. Several specimens, in various stages of growth; from Schnapper Point. *Purchased.*
 70424. Four specimens; from Meribee Plains. *Purchased.*
 G. 4242. Two specimens; from Muddy Creek.
Presented by John Dennant, Esq.
 G. 5490. One specimen; from Muddy Creek. *Purchased.*

Conus (Leptoconus) heterospira, Tate.

1890. *Conus heterospira*, Tate, Trans. Roy. Soc. South Aust. vol. xiii. pt. 2, p. 197, pl. vii. figs. 5, 5a.
 1893. *Conus heterospira*, Tate and Dennant, *id.* vol. xvii. pt. 1, p. 221.

This species differs from *C. ligatus* in being more elongate, whilst it is minus the rim-like keel of that species, and the lineations on the whorls of the spire are not conspicuous. The staging of the whorls is a peculiar feature; when in the brepheic and neanic periods of growth there is little or no attempt at staging, but in the adult, and especially in senile forms, the anterior whorls drop very sharply. It is highly probable that this catabatic phenomenon is the precursor of the establishment of an elevated spire in its descendants; but that is a point which cannot be definitely settled until the phylogeny of the GASTEROPODA has been worked out.

Dimensions.—Length 31 mm.; breadth 15 mm.

Form. and Loc.—Eocene: Victoria.

48052. A series of ten specimens ranging from the neanic to the catabatic stages; from Schnapper Point. *Purchased.*

70423. Four specimens; from Meribee Plains. *Purchased.*

Conus (Leptoconus) newtoni, sp. nov.

[Plate II. Figs. 3a-d.]

Protoconch small, composed of two and a half smooth turns, indistinctly striated with growth-lines anteriorly; posterior portion slightly oblique with reference to the axis of the shell.

Spire elevated, acute, convex, about one-sixth the total length of the shell; spire-whorls seven in number, staged, excavated, spiral lineations bold and continuous, growth-lines prominent, sinuated. Keel sharp and plain, not being crenulated even in the brepheic stage. Body-whorl elongate, ornamented throughout its length by distant spiral sulcations which are punctated where crossed by the lines of growth. Aperture long and narrow; outer margin thin and arched; posterior sinus very deep; anteriorly the aperture is somewhat dilated and the columella is slightly twisted.

The elongation and narrowness of the body-whorl are distinctive features. Its nearest ally in the Australian Tertiaries is *C. extenuatus*, Tate, which, however, is broader, whilst its body-whorl is not so long, its periphery is not so sharply keeled, the earlier whorls are crenulated, and the ornamentation of the spire differs. *C. newtoni* closely resembles *C. sieboldi*, Reeve,

living in the seas round the coasts of China and Japan, but in the modern form the whorls are not so much staged and the spiral lineations are not so well marked; the principal point of difference, however, is the shape and shallowness of the posterior sinus.

Dimensions.—Length 62 mm.; breadth 26 mm.; length of aperture 52 mm.

Form. and Loc.—Eocene (?): Muddy Creek, Victoria.

G. 4239. One example. *Presented by John Dennant, Esq.*

G. 5494. One example. *Purchased.*

Conus (*Leptoconus*) *murravianus*, Tate.

1890. *Conus murravianus*, Tate, Trans. Roy. Soc. South Aust. vol. xiii. pt. 2, p. 200, pl. vii. fig. 2.

Protoconch (Plate II. Figs. 4a-b) composed of three smooth turns implanted obliquely with reference to the axis of succeeding whorls; the initial portion is exceedingly small in comparison with the anterior turns. These latter are depressed and deeply canaliculated. The shell proper has an elevated spire with six whorls, which are somewhat staged, slightly excavated; and spiral lineations are not prominent, except towards the anterior half of the body-whorl. It is noteworthy that in the bryonic stage the periphery of the body-whorl was obscurely crenulated, a character which disappeared, however, as the neanic period was reached. Aperture narrow, slightly expanded in front; outer margin thin; with a shallow posterior sinus.

This species presents characters of no less than three subgenera: by its very elevated spire and the obscure crenulations it recalls *Conospirus*, which does not appear to stand on a very firm basis; its protoconch presents the features of *Lithoconus* as represented in the Australian Tertiary by *C. dennanti* and *C. pullulescens*; but the general contour of the shell and the staged whorls reflect *Leptoconus*, to which subgenus the species is here referred. Specifically it has a near ally in *C. brocchii*, Bronn, of the Italian Pliocene.

Dimensions.—Length 41 mm.; breadth 16 mm. Professor Tate records a length of 61 mm.

Form. and Loc.—Eocene: River Murray cliffs.

G. 9136. One specimen. *Presented by William Evans, Esq.*

Conus (Leptoconus) convexus, sp. nov.

[Plate II. Figs. 5a-d.]

Protoconch composed of two smooth turns, the initial portion of which is lateral and immersed; much elevated above the remainder of the shell. The whorls of the spire, five in number, are slightly convex, and are thus not excavated as in other species mentioned; they are ornamented by five or six deeply-cut sulci, somewhat irregular in places owing to the intersection of growth marks; these latter, however, do not approach tessellation. The whorls are not staged, but the suture is distinctly canaliculated, especially as the growth approaches the ephebic stage. The body-whorl has an elevated band at its periphery, which is rugosely lined; its whole surface is covered by small, undulating, irregular sulci, which broaden anteriorly and are interrupted by sinuous growth-lines. Aperture long, narrow, its two margins parallel with each other; outer margin thin, curved, and distinctly crenulated within; anal sinus broad and comparatively shallow, inner margin straight.

Its protoconch is very different to that of *C. pullulescens*; and the convexity of the whorls, deep sulci, canaliculate suture, and crenulated margin of the aperture, are highly distinctive. On comparison with *C. complicatus*, Tate, in addition to the characters just mentioned, it will be observed that *C. convexus* is broader, and the spire less elevated, whilst the ornament is peculiar to it; moreover, the whorls are not staged, neither is the sinus deeply, arcuately notched.

Dimensions (of the type specimen).—Length 17 mm.; breadth 9 mm.

Form. and Loc.—Eocene: Meribee Plains, Victoria.

70424. Two specimens.

Purchased.

Subgenus **LITHOCONUS**, Mörch.

[Cat. Yoldi, Fasc. i. 1852, p. 66.]

Shell conical, spire more or less elevated, but often depressed, not coronate nor staged; body-whorl sharply carinate; aperture dilated in front, with a rather deep posterior sinus.

Type.—*Conus millepunctatus*, Linnæus.

Conus (Lithoconus) cuspidatus, Tate.

1890. *Conus cuspidatus*, Tate, Trans. Roy. Soc. South Aust. vol. xiii. pt. 2, p. 194, pl. vii. fig. 1.
 1893. *Conus cuspidatus*, Tate and Dennant, *id.* vol. xvii. pt. 1, p. 221.

Protoconch (Plate II. Figs. 6a-b) conspicuously elevated, rising to a sharp point, composed of four to five slowly and regularly increasing turns, forming a very distinctive feature. Spire of the shell proper with seven to eight volutions, slightly concave and deeply lineated spirally.

In the brythic stage the spire is much elevated in all the specimens examined, and this character may be perpetuated to the gerontic stage, or the whorls may become flatter and less elevated during the neapic, and absolutely depressed during the later stages of growth. Such a wide range in elevation of the spire is not often observable in *Conus*; the amount of elevation is merely an individual peculiarity. This may be noted by those who seize upon this unstable property as a subgeneric character and often allow it to influence them in defining a species.

Body-whorl either obtusely or acutely angulate at the periphery, depending on the elevation of the spire; lines of growth well marked, spiral striae plainly developed anteriorly. Aperture narrow, dilated in front, channelled behind; columella twisted, bordered by an elevated ridge in young specimens, and very pronounced in the catabatic stage where the anterior portion is usually much fractured, owing apparently to difficulties of growth. The columellar twist leads to a slight constriction of the body-whorl.

Dimensions.—Length 49 mm.; breadth 25 mm.

Form. and Loc.—Eocene: Muddy Creek, Victoria.

G. 5489. Three specimens.

Purchased.

Conus (Lithoconus) pullulescens, Tenison-Woods.

1880. *Conus pullulescens*, Tenison-Woods, Proc. Linn. Soc. N.S.W. vol. iv. p. 3, pl. i. fig. 4 (*non* fig. 3).
 1890. *Conus pullulescens*, Tate, Trans. Roy. Soc. South Aust. vol. xiii. pt. 2, p. 196, pl. xi. fig. 9.
 1893. *Conus pullulescens*, Tate and Dennant, *id.* vol. xvii. pt. 1, p. 221.

This species may be distinguished from *C. cuspidatus*, amongst other things by its extremely characteristic and prominent protoconch (Plate II. Figs. 7a-b). This is very large, composed of

three turns, somewhat turbinate, with deeply canaliculate sutures. The protoconch is oblique with reference to the axis of the shell. The spire of the shell proper is not much elevated, its whorls are narrow, separated by a linear suture, ornamented with a few spiral threads and closely-set sinuous lines of growth. Body-whorl sharply keeled at the periphery, and covered with flat spiral threads which become obsolete with age, except anteriorly.

The figure accompanying Mr. Tenison-Wood's memoir above cited refers to a young shell, and is practically unrecognizable. The interpretation placed upon it by Professor Tate is here adopted.

Dimensions.—Length 39 mm.; breadth 21 mm.

Form. and Loc.—Eocene: Victoria.

70423. Two specimens; from Meribee Plains. *Purchased.*

73220. Three specimens; from Schnapper Point. *Purchased.*

G. 4240. One specimen; from Muddy Creek.

Presented by John Dennant, Esq.

G. 5491. One specimen; from Muddy Creek. *Purchased.*

G. 4745. Two specimens; from Muddy Creek.

Presented by Prof. T. Rupert Jones, F.R.S.

Conus (Lithoconus) dennanti, Tate.

1890. *Conus dennanti*, Tate, Trans. Roy. Soc. South Aust. vol. xiii. pt. 2, pl. xi. fig. 7 (plate issued July, 1892).

1893. *Conus dennanti*, Tate and Dennant, *id.* vol. xvii. pt. 1, p. 221 (list name).

This species does not appear to be described, except in the explanation of the plate above cited, where the following words occur: "*Conus dennanti*, sp. nov. (*C. pulluloseps*, var., Tate)."

The protoconch (Plate II. Figs. 8a-b) differs from that of *C. pulluloseps* in not being angulate, or turbinate; it is composed of three smooth, convex turns, imbedded in the crown of the shell, being in fact the only part which stands above the flat surface produced by the convolution of the shell-whorls proper. This upper surface is much depressed, has linear sutures, and is boldly, spirally striated. The periphery of the body-whorl is more sharply keeled than any other Australian Tertiary *Conus*; the surface of the whorl is covered by rather closely-set spiral lineations and sinuous growth-lines. Aperture very narrow, outer

border parallel with the inner, but slightly dilated anteriorly; columella twisted in front.

Dimensions.—Length 33 mm.; breadth 20 mm.

Form. and Loc.—Eocene: Victoria.

70423. One specimen; from Meribee Plains. *Purchased.*

G. 5493. Two specimens; from Muddy Creek. *Purchased.*

Conus (*Lithoconus*) *ptychodermis*, Tate.

1890. *Conus ptychodermis*, Tate, Trans. Roy. Soc. South Aust. vol. xiii. pt. 2, p. 195, pl. vii. fig. 3.

This species may be readily distinguished from all other Australian Tertiary *Conus*, by the peculiar, rugged aspect of the body-whorl caused by the inter-crossing of growth folds and the irregular character of the distant spiral lineations and ridges. The spire is much depressed, with canalculated sutures; the periphery of the body-whorl is sharply keeled; the anterior portion of the columella is twisted and prominently lineated. The protoconch is not well preserved in the Museum specimen, but it evidently had the general features of that of *C. pullulescens*, though more depressed.

Dimensions.—Length 20 mm.; breadth 9 mm.; length of aperture 17 mm.

Form. and Loc.—Eocene: Muddy Creek, Victoria.

G. 5489. One specimen. *Purchased.*

Subgenus *CHELYCONUS*, Mörch.

[Cat. Yoldi, Fasc. i. 1852, p. 69.]

Spire elevated, last whorl convex near suture, rounded at the shoulder, posterior sinus not very deep.

Type.—*Conus testudinarius*, Gmelin (*ex* Martini).

Conus (*Chelyconus*) *ralphi*, Tenison-Woods.

1879. *Conus ralphi*, Tenison-Woods, Proc. Linn. Soc. N.S.W. vol. iii. p. 228, pl. xxi. fig. 14.

1890. *Conus ralphi*, Tate, Trans. Roy. Soc. South Aust. vol. xiii. pt. 2, p. 198, pl. vii. fig. 6.

Protoconch (Plate II. Figs. 9a-b) conical, moderately elevated and composed of two smooth turns, somewhat similar to that of *C. heterospira*. In the brephic stage, and, possibly, to the commencement of the neanic, the whorls of the spire are coronate, but as the adult form is reached these disappear and the shoulders become rounded. Mr. Tenison-Woods was only acquainted, apparently, with young forms of the species, and the figure in his memoir cited above does not convey a correct idea of the shell, as each whorl is represented as being carinate and nodosely crenulated. Professor Tate has traced the young forms to the adult and firmly established the species. The spire is elevated, composed of eight whorls striated spirally above. The body-whorl is also spirally striated, the striæ being most conspicuous on the anterior half. Aperture narrow, posterior sinus shallow and following growth-lines; columella slightly twisted anteriorly.

Dimensions —Length 43 mm.; breadth 23 mm.

Form. and Loc.—Eocene: Muddy Creek, Victoria.

G. 5492. One specimen.

Purchased.

G. 4241. One specimen.

Presented by John Dennant, Esq.

Conus (Chelyconus) catus, Hwass.

1792. *Conus catus*, Hwass, Ency. Meth. (Vers) t. i. pt. 2, p. 707.

Shell bulbous, spire convex, striated above; body-whorl finely striated on the posterior half, and having deep spiral sulcations anteriorly. Aperture narrow, but widening in front and somewhat dilated; posterior sinus conspicuous; columella twisted anteriorly where a well-marked ridge or fold is produced.

The species differs from the earlier *C. valphi*, with which it is closely related, in being much broader anteriorly and by the prominent columellar fold. The specimens in the Museum are not well enough preserved to show the protoconch or the condition of the shell in the brephic stage.

This species has living representatives over a large geographical area, including the Red Sea, Mauritius, Java, China, New Caledonia, and Polynesia generally, and it is interesting to find it as a fossil.

Dimensions.—Length 44 mm.; breadth 24 mm.

Form. and Loc.—Pliocene: obtained from a well-digging 10 feet in depth, Chatham Islands.

G. 9502. Two specimens.

Transferred from the Museum of Practical Geology.

Conus, sp.

The following specimens, for the most part casts, are indeterminate specifically, but are interesting to record as establishing the marine character of Tertiary deposits in certain parts of Australia, and are worthy of notice also on other grounds:—

G. 9499. Five casts of a species allied to *C. pullulescens*, but larger, the body-whorl being more convex; the columella is distinctly twisted. From Nullarbor Plains, South Australia.

H. Y. L. Brown Coll.

G. 9500. Cast of a species which may be specifically identical with the preceding. From Fowler's Bay District, South Australia.

H. Y. L. Brown Coll.

G. 9152. Cast imbedded in a mass of fragments of Bryozoa. From near Border Town, South Australia.

Presented by R. Littow, Esq., F.G.S.

G. 353. Cast of a species allied to *C. murravianus* in having an elongated spire; but it is relatively broad, and the inner border of the aperture is curved. From Bairnsdale, Victoria.

Presented by W. H. Grigson, Esq.

G. 9501. Cast imbedded in ferruginous sandstone. From Flemington, near Melbourne.

Transferred from the Museum of Practical Geology.

G. 9493. Two casts, from the Miocene "Conus-beds" of Mokihinui river, New Zealand.

Sir James Hector Coll.

G. 9494. Fragment of a species composed of six elevated whorls, having a protoconch composed of three smooth turns implanted obliquely on the spire. It is closely allied to and may be specifically identical with *C. trailli*, Hutton. From Awamoa, New Zealand.

Sir James Hector Coll.

G. 4237. A new species of *Conus*, too imperfect for detailed description. It is 60 mm. in length, with a rather elevated spire and elongate body-whorl; anterior of the columella twisted;

aperture dilated in front. It may doubtless be referred to the subgenus *Leptoconus*. From the Tertiary of Muddy Creek, Victoria.

Presented by John Derrant, Esq.

Family PLEUROTOMIDÆ.

In assigning the species here described to their systematic positions in the PLEUROTOMIDÆ, it may be remarked that in view of the present unsatisfactory condition of the classification of many of the so-called genera and subgenera in the family, some of the conclusions arrived at must, of necessity, be of a tentative character. The group has been divided into subfamilies according to the presence or absence of an operculum, and the nature of that when present. The systematic position of many of the species is dependent on the situation of the sinus, its depth, and so forth. The length of the anterior canal, details of ornament, peculiarities of the radula, and the like, have also been permitted to rank high—even as generic characters.

The family as a whole is not of very great antiquity, its main features having been carved out in the Eocene; whilst many of its broad characteristics were not evolved until the Miocene, or early Pliocene. Possibly, no group of the mollusca has been so prolific in yielding so many diversified forms in such a short space of geological time. The variation of individuals in the living as well as in the fossil state is often so wide as to render it impossible to satisfactorily define the limits of range permissible in species. That difficulty, combined with the latitude of the personal equation, has led to the establishment of innumerable so-called species of the PLEUROTOMIDÆ, which appear to the writer to be founded merely on ontogenetic characters. The problem, already difficult with the living forms, is intensified when the fossils are considered. Here we have no operculum to assist, and many other points utilized in the classification of modern PLEUROTOMIDÆ are missing. Shorn of the characters of their opercula, the chief difference between *Pleurotoma* and *Surcula*, for example, lies in the form and position of the sinus; in the former genus it is deeper, and is placed farther away from the suture than in the latter. If these characters were in any way constant they might be rendered useful; but, as it is, we are



3a



3b



1a



1b



3c



3d



2a



2b



4a



4b



7a



7b



6a



6b



5a



5b



8b



8a



8c

10a



10c



10d



10b



9a



9c



11a



11b

PLATE II.

FIG.	PAGE
1. <i>Terebra gemiculata</i> , Tate. Miocene : Muddy Creek. Protoconch ($\times 10$ diam.) : <i>a</i> , side view ; <i>b</i> , view from above. [G. 9309.]	26
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