A REVISION OF THE TEXTILE CONES, WITH DESCRIPTION OF C. CHOLMONDELEYI, N. SP.

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It is now nearly fifteen years ago since I essayed a tentative grouping and revision[1] of that somewhat isolated and peculiar section of *Conus*, called *Cylinder* by Denis de Montfort, 1810; *Textilia* by Swainson, 1840; and exactly corresponding to the seventeenth section *Texti* of the genus, proposed by Weinkauff.

This paper being now out of print, and several modifications and alterations being considered essential, I deem no apology necessary for again traversing the subject, albeit the whole matter lies at first sight in so small a compass. For indeed, since 1885, no new form of Textile Cone has been described until now, *C. cholmondeleyi* sp. nov. being figured in this article.

So recently as a fortnight ago Mr. Robert Standen and I described a new Textile Cone,[2] allied in form to *C. gloria maris* Chem., and in disposition of marking to *C. episcopus* Hwass, or *C. aulicus* L. It is a fine new form dredged at 45 fathoms by Mr. F. W. Townsend, during the repairing of the Eastern Telegraph Co.'s submarine cable, about 125 miles W.S.W. of Bombay. But I am inclined now to place this beautiful species (*C. clytospira* M. & S.) in the section *Leptoconus*, as allied perhaps most nearly to *C. acuminatus* Brug. It is noteworthy that Paetel places this last in the Textile group. Indeed the disposition of marking in several of this section is very similar to the true *Cylindri*, but the channelled upper whorls, light build, and very deep sutural excavation of the last whorl, all which distinctive features are present in *C. clytospira*, prompt me to change an opinion which was at first based on the reticulate pattern and form alone. *C. amadis* Chem. may be taken as a good type of the *Leptoconi*; its light substance, deep sutural excavation, channelled upper whorls, are all typical, and I fancy the general verdict will be that the *C. clytospira* is best placed here, although in form there is much similarity between it and *C. gloria maris* Chem.

To revert to the *Textilia* proper; forty-five forms (species or varieties) are here enumerated, and of these all, excepting four, are

1 *Mem. and Proc. Manchester Soc.* (3), vol. 10, p. 49, 1885 (1887).

2 *Ann. and Mag. Nat. Hist.* (7), vol. 4, pp. 461-463, 1899.

exhibited to the Society to illustrate these remarks—the four absentees being *C. dalli* Stearns, *C. convolutus* Sowb., *C. prevosti* Sowb., and *C. telatus* Reeve. The last three of these are in our National Collection, *C. dalli* being therefore the only form I have not been able personally to examine.

The border line between specific, sub-specific, and varietal forms must necessarily be somewhat hazily defined, and may be considered in certain cases somewhat arbitrary, but a long study of the several forms convinces me :—

Firstly.—That there is a finality in the variability.

Secondly.—That the majority of the forms are, when once learnt, comprehended without very severe difficulty, though, doubtless, intermediates do occur, especially amongst the *Textilia Vera* and *Abbates.*

Thirdly.—That of the five characteristic and salient points, viz., *form*, *colour*, *size*, *texture*, and *disposition of marking*, the variation in one of these particulars alone does not count for much—one needs a combination of two or three of them at least to produce a deviation from the type sufficient to justify the creation of a species.

But few of this group were known to or, at all events, differentiated by Linnæus, *C. textile*, the 'field of the cloth of gold' of old authors, and *C. aulicus*, being the only two on which he imposed specific names. The majority of the others have been described by Hwass, Kiener, Mawe, Menke, the Sowerbys, and Reeve.

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The sub-genus *Cylinder* Montfort, 1810, may be thus briefly characterised :—

Shell subconic, smooth, or very lightly striated, often somewhat solid, spire more or less elevated, whorls never coronated, mostly numerous; body whorl nearly always ventricose, excavate mostly at the suture, aperture effuse, but rarely narrowed ; coloration white, with a more or less complicated orange, brown, or grey reticulation, producing a great variety of patterns in the several forms and species.

Feeling it unnecessary to recapitulate the prefatory matter given in my former paper, referred to above, as to geographical distribution, affinities, etc., of *Cylinder*, and brief particulars as to the anatomy of the genus *Conus*, I venture to propose the following arrangement of the species and varietal forms of this section. It is a slight modification only of that originally given, but tending, I believe, to a more natural concatenation :—

CONUS L.

Subgenus *CYLINDER* Montfort.

I. LUCIDI.

C. lucidus Mawe.

II. RETIFERI.

C. retifer Menke.

III. TEXTILIA.

(*a*) Vera.

C. textile L.

1 *tigrinus* Sowb.
2 *vicarius* Lamk.
3 *verriculum* Reeve.
4 *concatenatus* Kien.
5 *scriptus* Sowb.
6 *canonicus* Hwass.
7 *condensus* Sowb.
8 *dalli* Stearns.

(*b*) Abbates.

C. abbas Brug.

C. panniculus Lam.
1 *textilinus* Kien.

C. corbula Sowb.
1 *euetrios* Sowb.

C. archiepiscopus Hwass.

C. victoriæ Reeve.
1 *complanatus* Sowb.

C. cholmondeleyi Melv.

C. prevosti Sowb.

(*c*) Pyramidalia.

C. pyramidalis Lam.
1 *convolutus* Sowb.

C. gloria maris Chem.

C. legatus Lam.

C. paulucciæ Sowb.

C. telatus Reeve.

IV. AULICI.

(*a*) Episcopi.

C. episcopus Hwass.

C. omaria Hwass.
1 *pennaceus* Born.
2 *rubiginosus* Hwass.
3 *magoides* Melv.
4 *marmoricolor* Melv.
5 *madagascariensis* Sowb.

C. prælatus Hwass.

C. elisæ Reeve.

C. aulicus L.
1 *propenudus* Melv.

C. auratus Lam.

C. magnificus Reeve.

(*b*) Crocati.

C. colubrinus Lam.

C. racemosus Sowb.

C. crocatus Lam.

V. AUREI.

C. aureus Hwass.

C. clavus L.

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I. LUCIDI.

C. lucidus Mawe (= *reticulatus* Sowb.).—The only species of the section. Form squarely conical, encircled with spiral chestnut lineations, joined longitudinally in an irregularly areolate or lateritious manner, and here and there blotched with chestnut suffusion. Interior of the aperture purplish. Long. 44mm.; lat. 51 mm. *Hab.*: Isle of La Plata, Central America.

II. Retiferi.

C. retifer Menke (= *solidus* Sowb.).—Amply characterised by its pyriform outline, spiral striation, great solidity, and coarse wide-spread reticulation. *Hab.* Philippines and other eastern islands.

III. Textilia.

(*a*) Vera.

C. textile L. and eight varieties.—The type may be characterised thus :—Shell white, banded twice or thrice spirally with interrupted yellow-brown or chestnut blotches, longitudinally lineated with zigzag or undulating blackish-brown pencillings, nearly enclosing triangular or crescent-shaped white spaces of larger and smaller dimensions.

The forms and limitations of this very widely-spread and common eastern species are difficult to define; certain, still undescribed, are evident when a series of what is still called typical *C. textile* is examined, but many of these undoubtedly run into each other. However, the following seem fairly distinct and recognizable when once learnt, with the exception perhaps of the aptly-named *C. concatenatus* Kiener :—

1. *tigrinus* Sowb.—To a great extent destitute of the brown bands, the pattern, therefore, seeming less involved.
2. *vicarius* Lam.—Form more pyramidal, pattern coarser and larger in detail, with greater preponderance of the white triangular patches.
3. *verriculum* Reeve.—Shorter and thicker than the other varieties, markings as in *vicarius*, but with a greater amount of yellow blotching.
4. *concatenatus* Kien.—Hardly distinguishable from *vicarius*, in my examples, exhibiting a much more open reticulated net-work, with the orange blotches smaller in proportion. It can scarcely be doubted, however, that intermediate forms occur, and I do not consider it a very satisfactory variety.
5. *scriptus* Sowb.—A beautiful species, closely reticulated with pale-brown lines. The finest example I have seen of this was shown me some years ago by Mr. F. P. Marrat, and was about 63 mm. in length ; it is undoubtedly nearly akin to the next form.
6. *canonicus* Hwass.—Differing in its mostly darker reticulations, with but little orange blotching, the form being conically pyramidal, rather solid ; in some examples a pale-pink suffusion overspreads the whole surface. My largest specimen is 78 mm. long.
7. *condensus* Sowb.—Pink tinge always constant ; a dwarf form, with pale markings, as in *scriptus*.
8. *dalli* Stearns.—Of lighter build ; spire convex, mouth roseate. From California. I have never seen this species.

Tryon says: "Closely allied to *C. textile*, but the spire has a convex outline"; "bodywhorl obscurely spirally ribbed below; yellowish-brown, with reddish-brown longitudinal stripes, interrupted by four revolving bands of white spots, and occasional white spots on the darker surface."[1]

(*b*) Abbates.

The texture and markings fine, form pyramidal, spire as a rule more depressed than in the first group.

C. abbas Brug.—Very beautifully and intricately marked with smaller reticulations; a remarkably constant form, though variable in size. My largest specimen is 63 mm. in length, smallest 25 mm. It is not an uncommon Philippine species.

C. panniculus Lam.—Slightly more ventricose than *C. abbas*, of which many authors consider it a variety. The markings are, however, darker, and cover the surface more uniformly, almost obliterating the spiral ochreous or chestnut bands. From the Sandwich Isles and Philippines.

1. *textilinus* Kien.—Conically pyramidal, but otherwise as in *C. panniculus*. The original type of Kiener's, which I possess, shews the markings more chestnut-coloured and brown.

C. corbula Sowb.—Of particularly effuse growth, ventricose, very closely longitudinally lineated, the lines interwoven.

1. *euetrios* Sowb.—Slightly more roundly tapering than the last, to which it closely approaches. Markings even, more interwoven and regular, lowest whorl twice banded with purplish tinge of reticulations. The type of this is unique in my collection. Locality unknown.

C. archiepiscopus Hwass.—Somewhat curt, solid, with longitudinal lines, most closely and beautifully interwoven, the spaces forming almost circular small white contiguous spaces. A particularly richly ornamented species; it cannot be denied that intermediates exist between this and *C. panniculus*, the form, however, is not nearly so ventricose. A rare inhabitant of the eastern archipelago.

C. victoriæ Reeve.—Very distinct, being of light growth when compared with any of its congeners; the three spiral bands on the last whorl are ochreous, inlaid with much blackish or cinereous suffusion; the network is peculiarly thin and delicate.

1. *complanatus* Sowb.—A colour variety only, with much lighter bands and less fine reticulations. Both this species and its variety are from Australia, and are extra-tropical.

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1 Man. Conch., *Conus*, vol. 6, p. 91, 1884.

C. cholmondeleyi sp. n.—*C. testa oblongo-cylindrica, attenuata, solida, perlævi, pallidè fuscescente; anfractibus* 7, *quorum duo apicales fuscocarnei, læves, immaculati, cæteris delicatissimè et intricatè longitudinaliter brunneo-lineatis et reticulatis, simul ac castaneo et brunneo pulchrè suffusis; ultimo anfractu ferè recto, nequaquam ventricoso; apertura angusta, apud basim latiore, intus cærulescente; labro recto, apud basim paullulum producto, ad suturam leniter excavato.*

Long. 45, *lat.* 12 *mm. Hab.* ?

Conus cholmondeleyi.

A peculiarly distinct form, in marking resembling *C. corbula* or *C. euetrios*, while in its narrow cylindrical shape it has no near ally, excepting perhaps *C. legatus* Lam., from which, however, it is in every other way abundantly distinct. It has till now been confused with *C. pyramidalis* Lam., but the elevated spire of this latter would alone differentiate it. Unique in the Manchester Museum, formerly in the possession of the late Reginald Cholmondeley, Esq., of Condover Hall, Salop, to whose memory I would dedicate it. I must thank Mr. Edgar A. Smith for kindly comparing this shell with the 'Textile' series in the British Museum (Nat. Hist.), and giving me his opinion thereupon.

C. prevosti Sowb.—Shell somewhat constricted, furrowed below, bright chestnut, obscurely banded with darker brown, on a white ground, very finely reticulate. Length 40 mm. From New Caledonia.

There are two examples of this distinct and rare species in our National Collection, South Kensington. The type was formerly in that of M. Prevost, of Alençon, who possessed an especially fine series of Cones. I cannot connect it very closely with any other form.

(*c*) PYRAMIDALIA.

C. pyramidalis Lam.—A species with simple reticulated network, and usually no ochreous blotching. Its lengthened form and smooth elevated spire distinguish it.

1. *convolutus* Sowb.—Slightly more conical, and of lighter colouring. In the National Collection it is considered a variety of *C. pennaceus* Born. This I have seen in the British Museum Collection, but do not consider it a very satisfactory form. Reported from Madagascar.

C. gloria maris Chem.—Upon this renowned shell, as rare as it is beautiful, I expatiated fully in my former paper already alluded to. A fine specimen measures between 12 and 15 cm. in length, the last

whorl tapers very gradually, spire twelve to fourteen whorled, smoothly gradate, reticulations exceedingly fine, regular, and minute; orange blotching somewhat modified. From Jacna Island, Philippines; not found since 1837. Only twelve to fourteen examples occur in collections.

C. legatus Lam. — Compressedly conical with spire somewhat elevated. Of moderate size only, peculiar in its coloration, being suffused with pink, and with the longitudinal chocolate maculations very prominently shown. From Ceylon, Mauritius, and Polynesia.

C. paulucciæ Sowb.—Allied on the one hand to *C. aureus*, and on the other to *C. gloria maris*; of very straight pyramidal growth, very richly and handsomely marked with warm chestnut and orange. For further remarks about this uncommon form I refer to my previous paper. From Mauritius.

C. telatus Reeve.—Very conical, much like *C.* (*Leptoconus*) *ammiralis* L. in form, and in marking approaching *C. archithalassus* Dillwyn, which is a doubtful species, pronounced by most authors a mere form of the beautiful and protean *C. ammiralis*. Notwithstanding these attributes, I maintain it is more naturally placed here, though arranged in our National Collection amongst the *Leptoconi*; the marking after all is that of a Textile Cone, if analysed well.

[*C. clytospira* Melv. & Stand., already referred to in this paper, may still by some conchologists, who prefer to group certain *Leptoconi* with the *Cylindri*, be elected to fill a place in this subdivision].

IV. Aulici.

Shells as a rule narrow in proportion to their length, spire rounded emerging into the body-whorl, elevated, marking on most of the species very bold and distinct dark chestnut or chocolate-brown blotches, alternating with lines of somewhat triangular large white spots interlined with smaller and boldly reticulated.

(*a*) Episcopi.

C. episcopus Hwass.—As said above, in marking much allied to *C. clytospira*. Body-whorl shouldered above, ponderous, spire blunt, few whorled, running in some of its varieties close to the next species.

C. omaria Hwass.—The type presents an oblong slightly ventricose shell, with simple brown reticulations on white ground, but the chief varieties are:—

1. *pennaceus* Born.—A shouldered, ponderous variety, more conical in shape, often with pinkish tinge, and blotched and reticulated in more uniform fashion.
2. *rubiginosus* Hwass.—Like *pennaceus* in form, but in marking like typical *C. omaria*.

3. *magoides* Melv.—Slightly flexuous in form, much like *C. magus* L., pinkish, with pink-brown blotching, suffusing most of the surface.
4. *marmoricolor* Melv.—A not uncommon form, in which the colour is black or dark-brown, and the white spaces arranged much as in *C. marmoreus* L. or *C. nocturnus* L.; spire, however, never coronated.
5. *madagascariensis* Sowb.—Conical, very finely reticulated. I hardly think this is a true species, though described as such by its author.

C. prælatus Hwass.—Always suffused and clouded with grey, but distinct, I think, from all forms of *C. omaria.*

C. elisæ Kien.—Very closely reticulated with chocolate-brown, so as to appear like a uniform brown surface with innumerable white specks. Near *C. racemosus* Sowb. of the section Crocati. From Madagascar.

C. aulicus L.—The largest and boldest-marked species of the genus, sometimes attaining a length of 15 to 17 cm. It is distinguished by its roundly oblong form, and spiral revolving striæ; marking very bold, with scarce reticulations enclosing triangular spaces. Colour deep chestnut-brown.

1. *propenudus* Melv.—The marking becomes more scanty, leaving a large tract of surface bare and white.

C. auratus Lam.—Very near the last, but constant in somewhat greater compression of whorl, and difference of pattern, the reticulations being all much smaller and dispersed in a zigzag manner.

C. magnificus Reeve.—A very fine species, very constant in elongate form, with somewhat conical, exceedingly obtuse spire and apex, marked as in the body of the shell with extremely small irregular reticulation; the colour is pinkish, suffused with dark chestnut-brown. From Luzon Island, Philippines.

(*b*) CROCATI.

C. colubrinus Lam.—Yellow, with oblong white spots, or simple reticulations. From Mauritius.

C. crocatus Lam. — A very handsome orange-yellow conical species, with white spots and markings, very few and far between, and broader than long. Some examples are almost uniform yellow. This species at first sight has almost less similitude to a Textile Cone than any other. Native of Ceylon.

C. racemosus Sowb. — Shell brownish-orange, solid, smooth; spire convex, with obscure reticulated brown and white marking lines, and clusters of triangular white spots sparingly agglomerated. Unique in my collection. Dredged in the Sandwich Islands.

V. Aurei.

Shells sub-cylindrical, merging into the next sub-genus *Hermes*, ribbed spirally, spire elevated, very obtuse, convex.

C. aureus Hwass.—Much like *C. pauluccia* Sowb. in marking, but not of such conical, regular shape, and spirally ribbed, not smooth. Not infrequent in the Moluccas and Philippines.

C. clavus L.—A very beautiful and delicate species, marked with orange and brown reticulations on a white ground. Very elongate, with rounded obtuse spire which is often spotted. By some authors this is considered a *Hermes*, near *C. nussatella* L., which it much resembles in form, but in marking it is eminently a Textile Cone. It is of wide distribution in the eastern tropics, from Java to New Caledonia, and also Polynesia.

It will thus be seen that, in the new arrangement proposed, the principal changes proposed from the first list are as follows:—

(*a*). The sections *Lucidi* and *Retiferi*, preceding (not following) the *Textilia*.

(*b*). Among the *Textilia*, *C. corbula* Sowb. and *C. euetrios* Sowb., the latter now treated as a variety only, are removed from the *Vera* to a place among the *Abbates*, where also the new species, *C. cholmondeleyi* Melv. is for the present lodged.

(*c*). The sequence in the section *Pyramidalia* is altered, while the species remain the same.

(*d*). In the section *Aulici*, the group *Episcopi* precedes *Crocati*, the sequence in this section being likewise altered. A colour variety *propenudus* is proposed of *C. aulicus*, *C. auratus* Hwass being still, though with some hesitation, kept distinct specifically, while *C. madagascariensis* Sowb. is considered but a variety of *C. omaria* Hwass.

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I may just add that in our National Collection the two nearly allied species *C. neptunus* Reeve and *C. neptunoides* E. A. Sm. are arranged between *C. gloria maris* Ch. and *C. telatus* Reeve, this latter being, as already said, in close proximity to *C. ammiralis* L. and other *Leptoconi*. *C. neptunus* has a certain reticulate pattern, somewhat resembling the Textile Cones, but I think it more likely to belong to the section *Rhizoconus* or *Chelyconus* Mörch. Paetel, however, classes both *C. neptunus* and *C. neptunoides* as *Cylindri*. It may be, indeed, that there is a closer connection between these species and *C. prevesti* Sowb. than is at present suspected, and I would invite students of the genus to essay a closer analysis of the various groups of the genus as now constituted, with a view to a future critical monograph of the five to six hundred species of *Conus* already described, when I prophesy it will be found that certain of the *Leptoconi*, and even of the *Marmorei*, have more than a superficial affinity with the *Cylindri*.