

4. DESCRIPTION OF A NEW CONCHIFEROUS MOLLUSC OF THE
GENUS PANDORA. BY ARTHUR ADAMS.

PANDORA WARDIANA, A. Adams.

P. testa maxima, solida, transversim ovata, valde inæquilaterali, postice rotundata, antice subangulata : valvula dextra concava, lineis concentricis regularibus interruptis et sulcis fuscis radiantibus subdistantibus decussata : valvula sinistra convexa, sordide alba, lineis concentricis irregularibus instructa, et sulco obliquo ab umbone usque ad sinum in marginem ventralem producto.

Hab. In littoribus Mantchuriæ.

Shell large, solid, transversely oval, very inequilateral, rounded posteriorly, somewhat angulated anteriorly. Right flat valve with regular concentric fine interrupted lines, and marked with brown, radiated, rather distant grooves. Left convex valve chalky white, with irregular concentric lines of growth, and with an oblique furrow proceeding from the beak and ending in the sinuosity at the fore part of the ventral margin.

Hab. Coast of Mantchuria, 20 fathoms ; Sunday Island.

I have dedicated this fine species to Commander J. Ward, of H.M.S. 'Actæon,' to whose assistance and encouragement science will be indebted for any results that may be obtained during our cruises along the coasts of Korea, Mantchuria, and Japan.

5. SYSTEMATIC LIST OF THE SPECIES OF DOLIUM RESTRICTED.
BY SYLVANUS HANLEY.

The magnitude to which the *Dolia* attain has discouraged private collectors from their acquisition, so that the amount of variation permitted to each species, and the differences of aspect between young, mature, and aged individuals, have not been so satisfactorily determined as the writer could have wished. Judging, however, from *D. variegatum*, of which fine series are present in the National and Cumingian Museums, shape would seem of less importance than colouring ; yet in *D. cepa*, the colouring appears diversified, and the shape comparatively invariable. It is hoped that the following list of species may clear up the somewhat confused synonymy, and attract attention to a genus which has scarcely experienced the ordinary amount of critical investigation. *D. pomum* and *D. ringens*, which constitute the subgenus *Malea*, have not been included in our list.

✓ DOLIUM GALEA (Linnæus).

Buccinum galea, Linn. Syst. Nat. ; Gmelin, Syst. Nat. p. 3469 ; Bruguière, Hist. Vers. p. 244 (? vars.) ; Bosc, Coquilles ; Dillw. Desc. Cat. p. 582, probably.

Dolium costatum magnum, Martini, iii. f. 1070.

Dolium galea, Lamarek, Anim. s. Vert. ; Blainv. Dict. Sc. Nat. ; Kiener, Coq. Viv. Dol. pl. 2. f. 2 ; Phil. Mol. Sic. i. (not var.) ; Hanley, Young, Conch. ; Reeve, Conc. Icon. Dol. f. 1. Not of Montfort.

Dolium tenue, Menke, Synopsis, p. 143 (Young).

The typical *galea* (that indicated by the synonymy) is thin in proportion to its magnitude, of a pale russet colour, with indistinct lighter and darker zones, a whitish posterior margin to its whorls, a tawny nucleus, a pale aperture, and rounded ribs, which, although alternately larger and smaller, are not, at least in the almost mature stage, so very disproportionate.

Two other forms (perchance species) require to be noticed. The one which I designate var. *tenebrosa* is stronger, and peculiarly globose, has a dark chocolate-coloured nucleus, the smaller turns of a brownish chocolate hue, and the body-whorl livid brown ; the throat dark chestnut, and the internal thickened edge of its outer lip pure white. Its ribs, moreover, are more abruptly elevated ; their intervals rather broader, more square-cut, and not intersected by an interstitial costella (or raised stria) upon the lower or anterior half of the body. Mr. Cuming possesses a small but exquisite example of this shell : I have elsewhere seen an adult specimen stated to have been found in the Red Sea.

The other form alluded to (possibly the *D. tenue* of Menke) is of a smaller size (that now before me is only $3\frac{1}{8}$ inches long), has the body more elongated, and combines the broad sulci and the abruptly prominent ribs and costellæ of the last variety (?) with the pale tints of the typical *galea* ; its nucleus is chestnut or fulvous, its aperture whitish, its expanded outer lip thickened internally, and toothed as in an adult *galea*. Mr. Cuming has received it as from China ! It reminds one much of Martini's 'Braune geribte Tonne' (iii. f. 1071), said to come from Guinea ; its colouring, however, is less intense.

✓ **DOLIUM MELANOSTOMA, Jay.**

Dolium melanostoma, Jay, Catalogue, p. 124. pls. 8, 9 ; Philippi, Neue Conch. iii. p. 11 ; Reeve, Conch. Icon. Dol. f. 2.

The shell figured in Reeve's beautiful work was not perfect, but is essentially the same species as that delineated by Jay. Mr. Cuming possesses a superb example, and two specimens are said to be preserved in the Guernsey Museum.

DOLIUM ZONATUM, Green.

Buccinum olearium, Linn. Syst. Nat. probably ; Wood, Index Testac. pl. 22. f. 1, possibly.

Dolium olearium, Crouch, Illust. Lam. pl. 19. f. 2 (1827).

Dolium zonatum, Green, Albany Instit. i. p. 131. pl. 4 (June 1830) ; Reeve, Conch. Icon. Dol. f. 12.

Dolium crenulatum, Philippi, Zeitschr. Malak. 1845. p. 148 ; Neue Conch. iii. Dol. pl. 1. f. 1.

Although Crouch may have rightly divined the Linnean species, the Linnean definition was too obscure to ensure certainty.

DOLIUM FASCIATUM, Martini.

Dolium fasciatum, Martini, iii. p. 406. f. 1081 ; Lamarek, An. s. Vert. ; Blainv. Dict. Sc. Nat. liv. ; Kiener, Coq. Viv. Dol. pl. 3. f. 5 ; Reeve, Conch. Icon. Dol. f. 11.

Buccinum fasciatum, Bruguière, Hist. Vers, p. 247 ; Bosc., Coquilles. *Buccinum sulcosum*, Dillwyn (not Born), Desc. Cat. ii. p. 584 ; Wood, Ind. Testac. pl. 22. f. 5.

DOLIUM LATESULCATUM, Martini.

Dolium latesulcatum, Martini, Conch. Cab. iii. p. 396. f. 1072, 1082.

Dolium lactescens, Schröter, Index to Martini (1788), abridged from *D. lactescens latesulcatum*, Mart. iii. p. 390.

Buccinum dolium, in part, Bruguière, Hist. Vers, p. 246.

Buccinum dolium, var. B (as *B. allium* of Solander), Dillw. Desc. Cat. ii. p. 585.

Dolium galea, Montfort, probably.

Dolium fasciatum, var., Kiener, Coq. Viv. Dol. pl. 4. f. 6.

Dolium costatum, Menke, Synopsis ; Deshayes ed. Lam. ; Reeve, Conch. Icon. Dol. f. 8.

The more characteristic examples (Martini, f. 1072) are oval and of a pearly white ; the ribs in the young are, for the most part, obsoletely tessellated ; in a rare variety (Mus. Cuming) the shape is more round than usual, the ribs subarticulately painted with fulvous brown, and their intervals, which are adorned with a single spiral tawny line, concentrically and broadly streaked with greyish purple. The suture in this variety, which I designate *picta*, is more canalculated, and between the first two or three of the thirteen ribs which encircle the body-whorl is (as occasionally in the form *lactescens*) an additional costella.

DOLIUM CEPA, Martini.

Bulla canaliculata, Linn. Syst. Nat. ed. 10, from types ; Mus. Ulric. (Young).

Dolium cepa, Martini, Conch. Cab. iii. p. 401. pl. 117. f. 1076, 1077.

Dolium marmoreum, Schröter, Index to Mart. and Chemn.

Cadus cepa, Bolten, for Martini, f. 1076.

Buccinum olearium, Bruguière (not Linn.), Hist. Vers, p. 243 ; Bosc, Coquilles.

Dolium olearium, Lamarek, Anim. s. Vert. ; Blainv. Dict. Sc. Nat. liv. ; Hanley, Young, Conch. ; Reeve, Conch. Icon. Dol. f. 14. Not of Crouch, Sowerby's Gen. or Reeve's Conch. Syst.

Buccinum galea, Wood, Index Testac. pl. 22. f. 2, probably.

Dolium plumatum, Green, Albany Instit. i. p. 132, probably.

The fry of this well-known species proves to be the long-lost *Bulla canaliculata* of Linnæus, but, as the identity could not possibly have been discovered without an examination of the author's cabinet, the next earliest binomial appellation has been adopted. The epithet

canaliculata would, however, have been peculiarly appropriate, as it specifies an essential and distinctive feature of the species. Although generally accepted, of late, as the *olearium* of Linnæus, it was deficient, as Bruguière remarked, in the very important character of an interstitial costella between the belts. The *Buccinum olearium* of Dillwyn seems an attempt to unite the delineated features of this shell with the Linnean definition. Kiener's figures, if designed for this species, are by no means characteristic. The engraving of *D. olearium* in the 'Encyclopédie Méthodique' (pl. 403, f. 1) does not sufficiently exhibit the canaliculated sutures; yet can scarcely be intended for the allied *deshayesii*.

Reeve has figured in his 'Iconica' a very beautiful, but unusual variety, which I take to be the *D. plumatum* of Green,—a species which has indeed been referred to *perdix*, but whose described suture harmonises far better with that of the present *Dolium*; his reference to Seba (pl. 63. f. 18, instead of pl. 68. f. 16) was clearly a misprint. Green's description of *D. olearium* reminds us more of *galea* than of *cepa*.

DOLIUM DESHAYESII, Reeve.

Dolium perdix, in part, Martini, Conch. Cab. iii. f. 1080, probably.

Dolium olearium, Sowerby, Genera Shells; Reeve, Conch. System. pl. 264. f. 1.

Dolium Deshayesii, Reeve, Conch. Icon. Dol. f. 15.

There is a painting in Knorr (Del. pt. 5. pl. 12. f. 1) which may perhaps have been intended for this scarce shell. A rather irregular malleation aids us in distinguishing it from *D. cepa*.

DOLIUM FAVANNEI, Hanley, Proc. Zool. Soc. 1859.

DOLIUM DUNKERI, Hanley, Proc. Zool. Soc. 1859.

√ **DOLIUM VARIEGATUM, Lamarck.**

Dolium variegatum, Lamarck, Anim. s. Vert.; Kiener, Coq. Viv. Dol. pl. 2. f. 3 (not 3 *a*); Reeve, Conch. Icon. Dol. f. 7 *a*. Not of Philippi.

Dolium Kieneri, Philippi, Neue Conch. iii. p. 36, for Kiener, as cited.

Lamarck appears to have described the species from a young or dwarf example of the short-spined form. In fine characteristic specimens the shape is subglobose, and the basal or anterior declination abrupt; the suture is channelled; the spire not much raised, and the throat orange. A spiral riblet runs between the ribs upon the spire, and between the posterior ones of the eighteen or twenty which encircle the body.

In the younger specimens the suture is not so deeply channelled, the belts are rounder and narrower in proportion, and more of them are spotted.

In the variety *tankervillii* (the *D. variegatum* of the Tankerville collection, now in my own possession) the spire is peculiarly depressed,

the suture deeply channelled, and the peculiarly narrow intervals of the seventeen very prominent body ribs (almost every alternate one of which is spotted) are alike devoid of costellæ; the throat is rather pale. The variety *angusta* (Reeve, Conch. Icon. Dol. f. 7 *b*) is more oval, its spire is more produced, and its suture less conspicuously channelled.

DOLIUM CHINENSE, Chemnitz.

Dolium Australe, seu Chinense, Chemn. Conch. Cab. xi. f. 1804, 1805.

Buccinum Chinense, Dillw. Desc. Cat. ii. p. 585; Wood, Index Testac. pl. 22. f. 7.

Dolium variegatum, Philippi (not Lam.), Neuer Conch. iii. p. 36.

Dol. pl. 3. f. 1, 2.

Dolium Chinense, Deshayes, ed. Lam. x. p. 146; Reeve, Conch. Icon. Dol. f. 10.

Dolium Australe, Mörch, Cat. Yoldi, for the species of Chemnitz.

Dillwyn appears to have preferred the second appellation of Chemnitz, to prevent confusion with the *Buccinum australe* of Gmelin.

DOLIUM CUMINGII, Hanley.

Dolium Cumingii, Hanley, in Reeve, Conch. Icon. Dol. f. 13.

DOLIUM AMPULLACEUM, Philippi.

Dolium ampullaceum, Philippi, Zeitschr. Malak. 1845, p. 147; Neue Conch. iii. p. 11. pl. 2.

The only specimen known to me of this rare shell in England is the one I acquired from the late M. Vernède's collection.

✓ **DOLIUM MACULATUM**, Lamarck.

Buccinum dolium, Linn. Syst. Nat. ed. 10, chiefly (not Mus. Ulric). Not of Bruguière or Mawe.

Dolium in costis maculatum, Martini, Conch. Cab. iii. p. 397. f. 1073, 1074.

Buccinum dolium, var. B, Born, Index Mus. Cæs.

Buccinum dolium, var. A in part, Dillw. Desc. Cat. ii. p. 584.

Cadus dolium, Bolten.

Dolium maculatum, Lamarck, Anim. s. Vert.; Blainv. Dict. Sc. Nat.; Kiener, Coq. Viv. Dol. pl. 3. f. 4; Hanley, Young, Conch.; Reeve, Conch. Icon. Dol. f. 4.

The *D. maculatum* (an abbreviation of the *D. m. papyraceum* of Martini, f. 1075), indicated in Schröter's index to Martini and Chemnitz, is the fry of some other species.

From the especial notice in the 'Systema' of the remoteness of the ribs in *B. dolium*, I regard the present shell as more peculiarly the one intended by Linnæus in his earlier publication.

✓ **DOLIUM FIMBRIATUM**, Sowerby.

Buccinum dolium, Linn. Mus. Ulric. (not Syst.); Mawe, Conch. pl. 24. f. 3.

Cadus cassis, Bolten, teste Mörch (wholly undefined).

Buccinum tessellatum, Bory St. Vincent (as = *maculatum*) in Encycl. Méthod. Vers, pl. 403. f. 3.

Dolium fimbriatum, Sowerby, Genera Shells; Reeve, Conch. Syst. pl. 264. f. 2; Conch. Icon. Dol. f. 3 b (not 3 a).

Dolium Minjac, Deshayes, ed. Lam. (possibly).

Although the *Minjac* of Adanson (Seneg. pl. 7. f. 6) has been usually identified with this easily distinguished species, the account (p. 109) of its colouring, suture, &c., scarcely harmonizes with its peculiarities. The *D. Minjac* of Deshayes is said to be at least five inches long, to have a channelled suture, and fifteen ribs upon its body-whorl.

DOLIUM PERDIX, Linnæus.

Tesan, Adanson, Seneg. p. 107. pl. 7. f. 5, probably.

Buccinum perdix, Linn. Syst. Nat. chiefly; Gmel. Brug. and Dillw. in part; Mont. Test. Brit. p. 244. pl. 8. f. 5; Wood, Ind. Test. pl. 22. f. 3.

Dolium perdix, Martini, Conch. iii. f. 1079 (not 1080); Green, Alb. Instit. p. 132, probably; Kiener, Coq. Viv. Dol. pl. 5. f. 9.

Perdix reticulatus, Montfort, ii. p. 447 (execrably).

Variety. *Dolium rufum*, Blainv. Dict. Sc. Nat. liv. p. 503.

Fry. *Helix sulphurea*, Adams, Contrib. Conch.

The variety *rufa* is rufous within and without, is of a peaked oblong shape, with the turns of the spire, which is more than half the length of the aperture, more than half as high as their breadth; the suture is very oblique.

The more solid American examples, in which the ribs are narrow (Knorr, Vergn. iii. pl. 8, f. 1), pale, prominent, and irregularly tessellated by small concave-fronted brown spots (the sulci being decidedly broad), are easily distinguished from the oriental specimens which alike bear the name of *Partridge Tuns*.

Cochlea pennata, Rumphius, Thes. Cochl. pl. 27. f. C.

Buccinum perdix, Linn. Syst. Nat. in part only: Mus. Ulric.; Brug. and Dillw. in part.

Dolium perdix, Hanley, Young, Conch.; Reeve, Conch. Icon. Dol. f. 9.

I am not prepared to assert the specific distinctness of the Indian shell, however much the idea may be favoured by the surmised laws of geographical distribution; nevertheless matured individuals of the two forms can, for the most part, be easily distinguished. The latter seems more intensely rufous, with more sharply defined (and usually lunate) linear white markings, the ribs always flattened, and generally fewer, their intervals pallid, extremely shallow, and never half so broad as the ribs; the spire, which is rarely, if ever, even one third the length of the aperture, occupies a much smaller proportional area; its volutions, which are less rounded, are rarely encircled by more than six belts. The shape, moreover, is more produced than in the variegated West Indian specimens, and the body is more contracted posteriorly. The outer lip more conspicuously ascends the penult whorl; and the pillar enamel is, apparently, more copious.

Besides the *Dolia* which I have been enabled to determine, I find the following indicated in our catalogues :—

DOLIUM AMPHORA, Philippi, Neue Conch. iii. *Dolium*, p. 12 (no figure).

DOLIUM PENNATUM, Mörch, fr. Martini, Conch. f. 1078 (as a young *W. Indian perdis*).

This may prove one of the many forms of the typical *perdis*.

DOLIUM MARGINATUM, Philippi, Zeitschr. Mal. 1845, p. 147.

Dolium variegatum, var., Kiener, Viv. Dol. pl. 2. f. 3a, teste Philippi.

I know not whether to regard as the matured state of this shell (said to be only 27 lines long, and to have twelve ribs upon the body), some very beautiful specimens, which I shall proceed to describe, and for which, if not identical, as I much doubt, I would suggest the name of *D. reevii*, in honour of an indefatigable conchologist, who has delineated as an adult *D. fimbriatum* (Conch. Icon. Dol. f. 3, not 3a) a shell which reminds one greatly of my examples; his type, unfortunately, is no longer to be described in Mr. Cuming's collection.

Testa subglobosa, antice satis abrupte declivis, vix crassiuscula, vix umbilicata (potius rimata) purpurascenti-alba, costis castaneo albidoque tessellatim pictis circumcincta. Anfractus 7 seu 8 (quorum 4 superiores superne sunt pallidi et inferne lividi) ad suturam vix minime canaliculatam subscalariformes. Costæ angustæ, distantes (quarum circiter 15 satis elevatæ et superne remotiores ultimum anfractum, et 3 seu 4 gyras duas præcedentes, cingunt), costella divisæ quum latitudinem earum interstitiæ prope duplicant. Cingulum siphonale latum neque caudatum, nec rotundatum, sed subangulatum, remotius porcatum, inferne album. Apertura haud unice lata, longitudinem spiræ acutæ exsertæ bis certe superans. Faux livido-castanea. Labii exterioris margo intus incrassatus (simplex?). Lamella columellaris eminens nulla. Exitus umbilici angustus.

Long. $4\frac{1}{2}$, lat. $3\frac{1}{2}$ poll.

Hab.—?

Mus. Cuming.

The painting of *D. maculatum* is here combined with the general sculpture of *D. latesulcatum*; the spots appear to be rather numerous on the body-whorl. There are as many as nine or ten raised striæ on the turns which immediately succeed the smooth nucleus.

6. ON TWO NEW SPECIES OF CINCLUS.

BY JOHN GOULD, F.R.S., ETC.

I have the pleasure of bringing before the notice of the meeting two new species of *Cinclus*, for the knowledge of which science is indebted to the researches of Dr. A. Leith Adams, who collected