

December 13th.

Dr. Gray, V.P., in the Chair.

The following papers were read :—

1. DESCRIPTION OF A NEW SPECIES OF SQUIRREL (*SCIURUS SIAMENSIS*) FROM SIAM, IN THE COLLECTION OF THE BRITISH MUSEUM. BY DR. J. E. GRAY, F.R.S., V.P.Z.S., PRES. ENT. SOC., ETC.

Among the animals lately sent by M. Mouhot from Siam are two small Squirrels, which differ from any that we have hitherto received from India or the neighbouring countries.

I am aware that the Indian Squirrels, and indeed Squirrels generally, are very apt to vary ; and probably many more species are described than exist in nature ; but I do not know any species of which the one now described can with reason be considered as a variety ; the two specimens in the Museum are very uniform in their general appearance.

It may be observed that some species, both of Mammalia and Birds, are so much alike in external appearance, that, judging from their skins alone, we might be inclined to doubt whether they were more than slight varieties ; yet when their habits, modes of life, food, and manners are known, they are far more distinct, as species, than animals which are very different in their external appearance, and marked with what might *a priori* be considered very striking characters.

*SCIURUS SIAMENSIS*, sp. nov.

Bright red-brown, grizzled with elongate black tips to the longer hairs, each of which is marked with a broad subterminal yellow band. These black hairs are more abundant, and have broad pale rings on the rump outside of the thighs, and especially on the lower part of the tail, where they nearly hide the general red colour. The terminal half of the tail bright chestnut-brown, without any black hairs or pale rings. The throat, breast, belly, lower part of sides, inner side and edge of the legs, uniform bright red-brown. Ears rounded. Whiskers black. Feet covered with short close-pressed hairs.

*Hab.* Siam (*M. Mouhot*).

2. DESCRIPTION OF A NEW SPECIES OF FRESHWATER TORTOISE FROM SIAM. BY DR. J. EDWARD GRAY, F.R.S., V.P.Z.S., PRES. ENT. SOC., ETC.

(Reptilia, Pl. XXI.)

The British Museum has received from M. Mouhot, with some other Reptiles, two specimens of a Freshwater Tortoise, which are





C. H. Ford

GEOCLEMMYS MACROCEPHALA

W. West. imp.

decidedly different from any I have before seen. They have somewhat the external appearance, both in shape and markings of the head, of some specimens of *Cistudo amboinensis*, but belong to the genus *Emys*, or rather *Geoclemys*, and not to *Cistudo*.

They are referable to the first division of genus which has the back of the shell three-keeled, and, like the other species of that section, come from Asia.

#### 1. *GEOCLEMYS MACROCEPHALA*.

The shell oblong, rather depressed, entire, three-keeled, olive-brown; the keels subcontinued, nearly parallel, the middle one higher and more distinct behind; the lateral ones, near the upper edge of the shields, continued, ending abruptly on the hinder edge of the third lateral discal shield; the hinder lateral and central shield only marked with a slight convexity; the margin entire, yellow-edged. The under side yellow, with black triangular spots; the sternum flat, very indistinctly keeled on the side.

Animal blackish-olive. Head large; crown flat, covered with single smooth plate, purplish-brown, with two streaks from middle of the nose, the upper edging the crown, the other the upper part of the beak, and with two streaks from the hinder edge of the orbit, the lower short and interrupted, extended on the temple, the upper broader and continued over the ear along the side of the neck; two close streaks under the nostrils to the middle of the upper jaw, and two broad streaks, dilated behind, down the front of the lower jaw, and continued on the edge of the lower jaw behind; the nape and hinder part of the side of the lower jaw covered with large flat scales; the rest of the neck and legs covered with minute granular scales; the front of the fore-legs covered with broad band-like scales; the toes of the fore- and hind-feet rather short and thick, covered above with broad band-like scales.

*Hab.* Siam.

The front vertebral plate is quadrangular, the front edge wider, rounded; second, third, and fourth ventral shields six-sided, the second longer than broad, the fourth broader than long; the three hinder sides are longest, the fifth vertebral shield subquadrangular, the front sides being very narrow, and the hinder side very broad and slightly truncated.

#### 3. DESCRIPTION OF SOME NEW GENERA OF LITHOPHYTES, OR STONY ZOOPHYTES. BY DR. JOHN EDWARD GRAY, F.R.S., F.L.S., V.P.Z.S., PRES. ENT. SOC., ETC.

The Corals were formerly divided into three genera, according to the nature of their axes; viz. *Corallium* with continuous stony, *Isis* with jointed stony, and *Gorgonia* with horny axes; but many of the corals which had stony axes were referred to the last genus.

Lamouroux, in his work on 'Flexible Corals,' divided the genus

*Gorgonia* into three, according to the form and disposition of the cells; and, in his edition of Solander and Ellis, added a fourth under the name of *Muricea*; but still the genus *Gorgonia* was a magazine of most heterogeneous species, some closely allied to the genera which Lamouroux had established; and it is to be observed that Lamarck did not adopt the Lamourouxian genera.

Ehrenberg added another genus to the group, under the name of *Pterogorgia*; but this is synonymous with *Gorgonia* of Lamouroux, when the other genera which he describes are separated from it; and Dana seems to have felt this to be the case when he referred so many additional species to that genus.

I have in various papers added several genera to the list; and in the 'Annals and Magazine' for this month I have given an arrangement of the various published genera in a connected series.

M. Valenciennes, in his outline of the arrangement of *Gorgoniæ* in the 'Comptes Rendus,' xli. p. 14. f. 18, proposed two genera:— 1. *Gorgonella* for *Gorgonia sarmentosa*, and *Verrucella* for *Gorgonia violacea*, *G. flexuosa* and *G. furcata* of Lamarck. The specimens which I have named as *G. sarmentosa* and *G. violacea* have a horny and not a calcareous axis, and in other respects do not agree with the characters that M. Valenciennes assigns to them.

Esper's figure of *G. violacea* (Gorg. t. 12) has flat, and not produced cells, which is the essential character of the genus *Verrucella*, of which it is regarded and quoted as the type. These genera must be left for further examination. M. M.-Edwards adopts them in his 'Coralliaires,' i. p. 184.

The *Lithophytes* which have a stony axis may be divided into four groups, according to the nature of the axis and the structure of the bark, these groups being subdivided into families:—

### I. *Axis continuous, not jointed; bark granular.*

#### Fam. 1. CORALLIADÆ.

The axis solid, calcareous, not jointed. Bark granular. Cells scattered on all sides.

##### 1. CORALLIUM.

###### 1. *C. RUBRUM*, Carolini.

*Hab.* Mediterranean.

###### 2. *C. SECUNDUM*, Dana.

*Hab.* Sandwich Islands.

##### 2. HELIANIA.

Coral fan-like, dichotomously branched; branchlets subacute, ascending, divaricate; lower branches sometimes inosculating. Bark granular, hard, even. Cells produced, subcylindrical, short, rather incurved, placed in two, three, or four alternating series on the sides of the branchlets. Axis hard, continued, calcareous, greyish-brown.

1. *HELIANIA SPINESCENS*.

Coral rather fan-like, more or less twisted; branches, especially the lower one, conical, acute, spine-like, sometimes inosculating; upper branchlet subsecund.

*Hab.* Philippines (*Cuming*).

Fam. 2. *ELLISELLADÆ*.

The axis solid, calcareous, not jointed. Bark granular. Cells on the sides of the stem and branches separated by a lateral grove.

a. *Cell more or less elongate.*1. *ELLISELLA*.

Coral tree-like, subcylindrical; branches free. Cells numerous, small, crowded.

1. *E. JUNCEA*.2. *E. ELONGATA*.3. *E. COCCINEA*.4. *E. PECTINATA*.2. *SCIRPEARIA*.

Coral simple or forked; cells subcylindrical, in two alternating series.

\* *Coral simple.**S. MIRABILIS.*

B.M.

*S. mirabilis*, Cuvier, Schweig. Beob. t. 2. f. 13.

*Polypus mirabilis*, Linn. Mus. Adolph. t. 19. f. 4.

*Funiculina cylindrica*, Lamk.

*Hab.* West Indies.

\*\* *Coral branched, forked.**S. DICHOTOMA.*

B.M.

Coral fan-like, in a single plane, irregularly dichotomous; cells cylindrical, elongate, truncated, in a row on each side of the branches, subalternate.

*Hab.* Mauritius.

b. *Cells convex or sunken.*3. *UMBRACELLA*.

Coral fan-shaped; branches and branchlets inosculating, netted. Cells numerous, small, lateral.

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1. *U. UMBRACULUM*, Solander, Zooph. t. 10.
2. *U. GRANULATA*, Esper, Pflanzenth. t. 4.

#### 4. PHENILIA.

Coral tree-like; branches short, subquadrangular, divaricating, sometimes coalescing, forming an irregular netted frond; branchlet subclavate. Bark granular; lateral groove distinct, scarcely sunken. Cells large, sunken, in two or three irregular rows on each side of the branches. Axis solid, hard, calcareous, horn-coloured.

##### 1. *PHENILIA SANGUINOLENTA*.

Coral yellowish; branches flexuose, intertwined; branchlets short, clavate, diverging; cells large, dark brick-red, making the coral look as if spotted with blood.

*Hab.* —?

#### Fam. 3. SUBERGORGIAE.

Coral branched; branches compressed, dichotomous. Cells on the sides of the branches, with a sunken groove on each side of the stem; bark granular. Axis continuous, cork-like, soft, calcareous.

##### 1. SUBERGORGIA.

*Subergorgia*, Gray, P. Z. S. 1857, pp. 159, 288.

1. *S. SUBEROSA*, Esper, t. 49. B.M.
  2. *S. COMPRESSA*, Gray, P. Z. S. 1857, p. 288. B.M.
- (See *Gorgonia Richardi*, Lamx. Pol. Flex. 407.)

##### 2. SOLANDERIA.

*Solanderia*, Duchassaing, Rev. Zool. 1846, p. 218.

"Axis continuous, of a suberose texture, resembling the non-calcified joints of *Melitella*."—M.-Edw.

*S. GRACILIS*, Duch. *loc. cit.*

Very much branched; branchlet rounded, irregular, striated; bark tomentose or granulose.

*Hab.* Guadeloupe.

I have not seen this coral. The *Gorgonia suberosa* of Ellis's 'Corallines,' t. 29. f. Q & R, which has been called *Plexaura suberosa* by Lamouroux, *Briareum suberosum* by Dana, and which Ellis described as having a pale red axis "of the substance of cork," striated externally and subcylindrical, "a fleshy spongy bark, with the cells on all sides disposed in a quincunx order," would appear to be allied to the family *Annelladae*: but I have not been able to discover this coral in any collection. It would indeed appear to be intermediate

between the two families, having the corky axis of *Subergorgia* and the regularly disposed cells of the *Annelladæ*. M. Milne-Edwards (*Coralliaires*, i. 190) thinks that it may perhaps be a *Solanderia*.

#### Fam. 4. ANNELLADÆ.

Coral branched; branches cylindrical, of equal diameter. Cells equally scattered on all sides of the branches; bark granular. Axis solid, calcareous, continuous.

##### 1. ANNELLA.

Coral netted; branchlet inosculating.

*Annella reticulata*, Gray, P. Z. S. 1857, p. 287.

#### Fam. 5. PRIMNOADÆ.

*Primnoadæ*, Gray, P. Z. S. 1857, p. 285.

\* *Cell campanulate; scales large.*

##### 1. PRIMNOA.

Coral tree-like, forked.

† *Coral tree-like, branched.*

##### 1. P. LEPADIFERA.

*Hab.* Mediterranean.

†† *Coral simple, with simple spreading branches.*

##### 2. P. ANTARCTICA, Valenc. Voy. Venus, t. 12. f. 2.

*Hab.* Falkland Islands.

\*\* *Cells tubular, incurved; scales small.*

##### 2. PRIMNOELLA.

*Primnoella*, Gray, P. Z. S. 1857, p. 286.

Coral simple. Cells numerous, in close whorls, closely pressed to the stem.

P. AUSTRALASIÆ, Gray, P. Z. S. 1849, p. 146. t. 2. f. 8, 9.

The calcareous axis, described as *Virgularia australis* by Lamarck, Hist. A. S. V. ii. 648, is, I believe, the axis of this coral, or of a very nearly allied species. Seba, Thes. iii. t. 111. f. 2, to whom Lamarck refers, properly represents these axes as attached.

*Hab.* Australasian Sea, Bass Strait: on oyster-shells and stones.



## 3. CALLOGORGIA.

Coral fan-like, pinnate. Cells in whorls.

B.M.

## C. VERTICILLATA.

*Gorgonia verticillata*, Pallas.

*Gorgonia verticillans*, Linn.

*Primnoa verticillans*, Ehrenb.

*Muricea verticillans*, Dana.

Cells in close whorls of three or six.

*Hab.* Mediterranean.

## CALLOGORGIA FLABELLA.

*Gorgonia verticillans*, Esper, Pflanzenth. t. 42. f. 1, 2, 3.

*Primnoa flabellum*, Ehrenb.

Cells in close whorls of eight or ten.

*Hab.* Red Sea.

## CALLOGORGIA PLUMATILIS, Edw. Coralliaires, 141.

Cells small, seldom more than two in a whorl.

*Hab.* Isle of Bourbon.

Is this *Gorgonia pluma*, Lamk.?

## CALLOGORGIA GRACILIS, Edw. Coralliaires, 141.

Cells very small; whorls far apart, and generally of four cells.

*Hab.* West Indies.

## 4. MYURA.

Coral elongate, simple. Cells elongate, incurved in two rows on each side of the stem; medial groove distinct.

## MYURA SIMPLEX.

Mus. Paris.

*Gorgonia myura*, Lamk.

*Muricea myura*, Dana.

*Primnoa myura*, Edw. Coralliaires, i. 142. t. 132, f. 3.

Coral elongate, simple, slender.

*Hab.* —?

II. *Axis jointed, joints swollen, porous.*

## Fam. 6. MELITEADÆ.

Branches from the swollen joints of the stem.

\* *Cells in a series on each side of the branchlets, elongate, sub-cylindrical, rather tapering.*

## 1. ACABARIA.

Coral fan-like, dichotomous; branches diverging. Axis solid, calcareous.

## A. DIVARICATA.

Coral fan-like; branches dichotomous, diverging, very slender; the lateral branches diverging at right angles from the stem and branches; bark thin, yellow, granular. Cells produced, subcylindrical on each side of the branches, in alternating series. Axis calcareous, red, solid, longitudinally grooved; internodes swollen, spongy.

*Hab.* — ?

\*\* Cells slightly prominent, in two or more series on the sides of the branches; branches and branchlets compressed, tapering.

## 2. MELITÆA.

Coral fan-like, forked; branches subparallel. Cells in two or three series on the sides of the branchlets. Axis calcareous, spongy, with numerous sinuous tubes.

MELITÆA OCHRACEA, Esper, Pflanzenth. t. 4 a. t. 11. f. 1, 2.

*Hab.* — ?

Var. 1. Bright yellow, with red cells on side of branchlets.

Var. 2. Red, with yellow cells on sides of branchlets.

The branches very rarely inosculate. The cells are small, not prominent, in two series on each side of the branchlets, leaving the inner and outer surface nearly bare and smooth. The axes of the branchlets are rather solid and calcareous, that of the stem is porous, pierced with numerous tortuous cylindrical tubes; the branchlets are moderately short.

## 3. MELITELLA.

Coral fan-like, forked; branches subparallel, more or less coalescing. Cells rather produced, numerous, crowded on the two sides and one surface of the branchlets. Axis solid, calcareous.

† Branches virgate, subparallel, rarely inosculating.

## 1. MELITELLA ELONGATA.

B.M.

Orange, branches virgate, subparallel, much divided; branchlets slender, elongated, compressed, sometimes inosculating; articulation of the branchlets very long, slender, compressed.

*Isis ochracea*, var., Esper, Pflanzenth. t. 4 a, f. 2, 4, 5 (not 3).

*Melitea ochracea*, var. *lutea*, Lamk.

*Hab.* — ?

This coral is very like *Melitæa ochracea*, and has most probably been hitherto confounded with it; but it is easily distinguished from it by the cells being much more numerous and crowded, and by the solidity of the axis.

Esper's figures somewhat represent the species, but the cells are not sufficiently crowded nor numerous in figs. 4 and 5; yet some of

them are represented in the middle of the branchlet, as well as on the side, where I have never observed them in *Melitæa ochracea*.

† *Branchlets divaricated, reticulating, inosculating.*

2. MELITELLA RETIFERA.

B.M.

*Melitæa retifera*, Lamk.

*Isis coccinea*, Esper, Pflantz. t. 10.

*Isis aurantia*, Esper, t. 9? Cells too prominent and conical; branches diverging.

Var. ? *Melitæa textiformis*, Lam. Pol. Flex. 465. t. 19. f. 1; Esper, t. 71. f. 5.

3. MELITELLA COCCINEA, Lamk.

B.M.

*Isis coccinea*, Ellis, Zooph. t. 12. f. 5.

*M. Rissoi*, Lamk.

4. MELITELLA ? TENELLA.

*Melitæa tenella*, Dana, Zooph. 683.

4. MOPSELLA.

Coral tree-like, forked; branches diverging. Cells on the sides and one surface of the branches; other surface smooth. Axis calcareous, solid, longitudinally grooved.

1. MOPSELLA DICHOTOMA.

B.M.

*Mopsea dichotoma*, Lamx.

*Isis dichotoma*, Esper, Pflantz. p. 5. t. 11. f. 4, 5.

Joint short, thick, striated.

2. MOPSELLA GRACILIS.

B.M.

Coral very slender, thread-like; joint elongate, slender, pale red; articulations only slightly swollen; branches divaricating, the first rather rounded at their base.

*Hab.* — ?

\*\*\* *Cells not prominent, scattered equally on all sides of the branches; branches cylindrical, of a nearly uniform thickness. Axis solid.*

5. CLATHRARIA.

Coral tree-like, erect; branches few, inosculating, tortuous; branchlets, some free, blunt; bark thin, granular. Cells numerous. Axis solid; joints elongate, white, longitudinal, striated; internode red, spongy.

1. CLATHRARIA RUBRINODIS.

B.M.

*Hab.* — ?

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*, Lamarck, 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 canaliculated, 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 Linnaeus, 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  $\delta$ ) 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. Cumings'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.* Cumings.

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 striae 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

them in Cashmere. The first of these, which is very nearly allied to our well-known *Cinclus aquaticus*, I propose to characterize as *C. cashmeriensis*; the other, which is more nearly allied to *C. pallasi*, as *C. sordidus*.

The following are descriptions of these two birds:—

#### CINCLUS CASHMERIENSIS.

Crown of the head, ear-coverts, and mantle brown, passing into deeper brown on the upper part of the back and wing-coverts; lower part of the back and tail-coverts grey, with a darker central mark on each feather; tail blackish grey; wings the same colour as the tail; throat and breast white; upper part of the abdomen brown, passing into dark greyish-brown on the flanks and vent; under tail-coverts uniform dark grey; tarsi brown, lighter on the front and on the upper part of the toes.

Total length 7 inches; bill  $\frac{7}{8}$ ; wing  $3\frac{7}{8}$ ; tail  $2\frac{1}{4}$ ; tarsi  $1\frac{1}{8}$ .

*Hab.* Cashmere.

*Remark.*—As compared with adult males of the *C. aquaticus*, this bird differs in being considerably larger in size, and in wanting the rich chestnut colouring of the upper part of the abdomen; the wings exceeding in length those of its European ally by more than half an inch.

#### CINCLUS SORDIDUS.

Crown of the head, back of the neck, throat, and chest chocolate-brown, the throat and breast being lighter than the back of the head; back, abdomen, and tail deep brownish-black, the abdomen somewhat the darkest; wings nearly the same colour as the back; tarsi brown, lighter on the front and on the upper part of the toes.

Total length  $6\frac{1}{4}$  inches; bill  $\frac{7}{8}$ ; wing  $3\frac{1}{4}$ ; tail 2; tarsi  $1\frac{1}{8}$ .

*Hab.* Cashmere.

*Remark.*—If it were possible to conceive a cross between *C. aquaticus*, or *C. cashmeriensis*, and *C. pallasi*, the produce would, I should say, be a bird like the one under consideration. I do not, however, believe that any such occurrence has taken place, but that the bird characterized as *C. sordidus* is a good species. In size it is smaller than *C. aquaticus*; at least the measurements of the only example I have seen induce me to believe so.

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Mr. Stewart exhibited specimens of *Corystes cassivelaunus*, and the young of *Comatula rosea*, from the Devonshire coast. The latter were attached to the cœnecium of *Salicornaria farciminoïdes*.

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A Letter was read from Dr. Cobbold concerning the causes of the death of a young Giraffe belonging to the Society.