

The neural arch is of the same form as those of the other cervical vertebræ, but much smaller, and not so high; it is separate from the large conical mass which they constitute, forming a pointed, rather projecting arch at the hinder side of the mass. The upper lateral process is similar in form to the upper lateral processes of the two or three cervical vertebræ that precede it; but it is much larger than these, and bent forwards at the end to unite with the ends of them.

The lower lateral process is very thick and large, forming a large short tuberosity on the lower part of the mass, but quite separate from it. The articulating surface of this vertebra is oblong, erect, rather higher than wide, with a deep suture from the centre to the middle of the upper margin.

The front of the canal of the spinal marrow is triangular, with the angle rounded, the upper side being transverse and the lower ones converging, and about as high as wide. The hinder part of the canal, on the contrary, is trigonal, with the upper sides converging—the lower side being rather wider than the height of the canal, and about two-fifths of the width of the body of the seventh cervical vertebra.

In the British Museum there is the mass of the cervical vertebræ of a young *Hyperodon butzkopf*. It is, unfortunately, not in a good condition, the edge being worn, and the upper lateral processes of the hinder cervical vertebræ being broken off. It agrees in general shape with the cervical vertebræ of *Lagenocetus* above described; but the upper cone formed by the united neural arches is not so high, nor keeled in front. The greatest difference is in the seventh cervical vertebra, its lateral processes and neural arch being as completely united to the other vertebræ as any of the rest, the whole seven forming a single bony mass.

The canal of the spinal marrow is very large, but otherwise like that of *Lagenocetus*; but the hinder part of the canal is higher, being as high as wide above, and its width rather greater than half the width of the body of the seventh cervical vertebra.

## 2. DESCRIPTIONS OF FOUR NEW SPECIES OF AUSTRALIAN LAND SHELLS. BY JAMES C. COX, M.D., F.R.C.S. EDINB.

### 1. *HELIX* *MARIÆ*. = *Leucochelis*, Cox.

*H. testa subample et profunde umbilicata, lenticulari, depressa, crassiuscula, pellucida, parum nitente, obsolete radiato-striata, sub lente utrinque minute granulata, colore variante inter sordide luteum et pallide castaneum, fascia spirali rufescente aut castanea supra carinam, alteraque secus suturam, annuloque lato castaneo circa umbilicum, intus pallidum; spira convexiuscula; anfractibus quinque planulatis, ultimo obtuse carinato; apertura subquadrato-ovata; peristomate expanso, reflexo, albo; margine externo recto, columellari leviter bisinuato, basi expansiusculo.*



Var.  $\beta$ . *Rufo-castanea, sine fasciis.*

Diam. maj. 0·65, min. 0·57, alt. 0·30 unc.

*Hab.* Clarence River, under bark of stumps on stony forest-ridges; apparently rare (*Macgillivray*).

Animal bluish grey, with darker interstices; tentacles reddish brown.

## 2. HELIX ASSIMILANS.

*H. testa aperte et perspective umbilicata, depresso-globosa, tenui, nitidissima, pellucida, supra (et intus umbilicum) oblique creberrime costulata et epidermide rufo-flavescente induta, infra lævi, pallide viridi-cornea; spira angusta, convexa; anfractibus quatuor et dimidio, convexiusculis, ultimo rotundato, ad os leviter, plano antice vix descendente; apertura obliqua, fere rotundata; peristomate simplici, superne et antice recto; margine columellari subreflexo.*

Diam. maj. 0·75, min. 0·60, alt. 0·40 unc.

*Hab.* Clarence River, under logs in forest-land (*Macgillivray*).

Very closely allied to *H. strangei*, from which, however, it may readily be distinguished by being smaller, less brightly coloured, and much more prominently ribbed, with fewer striæ, also by the absence of the numerous faint decussating lines of the upper surface of its near ally, which, moreover, is confined strictly to the brushes, where *H. assimilans* is never found.

## 3. HELIX WILCOXI.

*H. testa minute umbilicata, globoso-conica, tenuissima, nitida, hyalina, fulvo-cornea, sub lente obsolete radiato-striata; spira conica, acutiuscula; anfractibus sex, convexiusculis, ultimo rotundato ceteros altitudine æquante; apertura paulo obliqua, lunari; peristomate recto, simplici, tenui; margine columellari basi breviter expanso, reflexo, umbilicum semitegente.*

Diam. maj. 0·18, min. 0·16, alt. 0·20 unc.

*Hab.* Clarence River, on leaves of trees in the brushes (*Macgillivray*).

Animal (as seen through the shell) yellowish green; exposed part of body pale bluish white; upper tentacles and a line behind each dusky bluish.

## 4. HELIX CLARENCENSIS.

*H. testa modice umbilicata, lenticulari, depressa, carinata, tenuissima, pallide succineo-cornea, superne sub epidermide irregulariter radiatim curvato-striata, nitente, inferne convexa, lævissima, nitidissima, vitrea; spira late conoidea, convexiuscula; anfractibus quinque et dimidio, planatis, ultimo obtuse carinato; apertura obliqua; margine externo angulato, inferiore arcuato, columellari basi breviter expanso umbilicum leviter obtegente.*

Diam. maj. 0·48, min. 0·42, alt. 0·28 unc.

*Hab.* Clarence River, on the ground, also on leaves of plants and trunks of trees in the brushes (*Macgillivray*).



Animal (as seen through the shell) olive-grey, usually with a reddish tinge about the spire, mottled with dull stone-colour and a few black streaky blotches, and about the keel a black marking bordered above with silvery grey; exposed part of body pale greenish white, with silvery markings; upper tentacles, and a line extending backwards from each, black; lower tentacles dusky.

### 3. CONTRIBUTIONS TOWARDS A MONOGRAPH OF THE PANDORIDÆ. BY PHILIP P. CARPENTER, B.A., PH.D.

It is remarkable that, notwithstanding the zeal with which most of the old genera have been divided, to meet the wants of modern malacology, the genus *Pandora*, Lam., has been left untouched by Dr. Gray, Messrs. Adams, and their follower, Chenu. Yet the species known to the elder Sowerby present three distinct types of hinge, which were well figured by him in his 'Conchological Illustrations.' Specimens and even species of *Pandora* (except of the well-known N. Atlantic forms) being very rarely seen in collections, it is presumed that naturalists have had but few opportunities of studying them. Mr. Cuming having most kindly allowed me to examine the hinge of all the species in his collection, it has appeared desirable to propose two new genera, and also to group part of the typical species under a subgenus.

It was at one time thought that the presence of an ossicle in the cartilage was a family mark of *Anatinidæ*, to which *Myadora* from *Pandoridæ*, and *Tellimya* from *Kelliadæ*, were consequently removed. One of the new genera of Pandorids, however, possesses a well-developed ossicle; and a small one is seen even in some species of the normal genus.

The most highly organized structure in the family is found in the North American genus *Clidiophora*, which has both clavicle\* and ossicle; the next is the East-Indian group *Cælodon*, which wants both clavicle and ossicle, but possesses a tent-shaped dentition in the left valve. The simplest form is the well-known *Pandora*, which has neither clavicle, tent, nor ossicle; but in the subgenus *Kennerlia* the ossicle is present. The genus *Myadora* is quite distinct, but connected with *Pandora* through *Kennerlia*.

#### Genus CLIDIOPHORA†.

*Testa Pandoriformis, ventraliter expansa; valva dextra tridentata, dente postico elongato; valva sinistra sæpius bidentata, dente antico simplici; cartilagine ossiculo firmata; sinu pallii nullo.*

1. *Type*, CLIDIOPHORA CLAVICULATA, Cpr. (*Pandora cl.*) P.Z.S. 1855, p. 228.

\* The word "clavicle" is used (in default of a better) to denote a linear dental process running into the body of the shell, often serving as a support to the cardinal plate, as in *Anatina* and some species of *Placunomia*.

† Th. κλειδίον, a clavicle; φέρω.



Cox, James Charles. 1865. "Descriptions of four new species of Australian land shells." *Proceedings of the Zoological Society of London* 1864, 594–596.

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