

**Description of some new species of Cuvier's family of Brachiopoda / [William John Broderip].**

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XVII. Descriptions of some new Species of Cuvier's Family of Brachiopoda. By  
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AMONG the great additions to our zoological information contributed by Mr. Cuming, some of the species about to be described will hold a distinguished place, in consequence of the opportunity which their preservation in spirit has afforded to my friend Mr. Owen for giving the details of the anatomy of Cuvier's family of *Brachiopoda*, with that acuteness and accuracy which mark his researches.

This family is, moreover, very interesting from its geological relations. The different species of *Terebratula* assist in the identification of strata from the supracretaceous group to some of the lowest formations in the grauwacke series, both inclusive; *Orbicula* is said to have been found in the lower green-sand of Sussex, in the Speeton clay of Yorkshire, in both the great and the inferior oolite, in the carboniferous limestone, and in the Ludlow rock below the old red sandstone; and *Lingula* in the inferior oolite of Yorkshire, in the old red sandstone formation, and in other old fossiliferous beds. That the organization of the recent animals is the same with that of those species which lived and died thousands of years ago, there can be no doubt; and we may thus form some conclusion as to the nature of those most ancient seas wherein the fossils existed.

GENUS. TEREBRATULA, Brug.

1. TEREBRATULA CHILENSIS.

Tab. XXII. Fig. 1.

*Ter. testá suborbiculari, gibbá, albente, radiatim striatá, striis latioribus, margine subcrenulado, subflexuoso.*

Long.  $1\frac{2}{3}$  poll., lat.  $1\frac{2}{7}$ , crass.  $\frac{2}{3}$ .

*Hab.* in sinu Valparaiso.

*Mus.* Cuming.

This species varies much in size and appearance. In the older shells the radiated *striæ* almost disappear; and very young individuals are nearly smooth and oblong; while those of intermediate growth have the *striæ* strongly marked. The specimen of which the anatomy is given is a very young one, and the dimensions above recorded are those of the largest which I have seen. The length is taken from the extreme end of the perforation to the opposite rim, the breadth from an imaginary line



bisecting it, and the thickness from another imaginary line, supposed to be drawn through the middle of the two valves and the included space.

Mr. Cuming found this *Terebratula* in the Bay of Valparaiso, at a depth ranging from sixty to ninety fathoms. The older shells were attached to rocks, and the younger to *Corallines* and *Fuci*.

## 2. TEREBRATULA UVA.

Tab. XXII. Fig. 2.

*Ter. testá ovato-oblongá, ventricosá, subglabrá, subdiaphaná, lineis concentricis substriatá; valvá perforatá subelongatá.*

Long. 1 poll., lat.  $\frac{1}{3}$ , diam.  $\frac{7}{12}$ .

*Hab.* in sinu Tehuantepec.

*Mus.* Cuming.

This *Terebratula* was found by Captain Dare, while dredging for *Meleagrinae margaritiferae*, attached to a dead sea-worn bivalve, at a depth of from ten to twelve fathoms, and on a bottom of sandy mud.

## Genus. ORBICULA, Cuv.

### 1. ORBICULA LAMELLOSA.

Tab. XXIII. Fig. 2.

*Orb. testá cornedá, fuscá, suborbiculari, subdepressá, lamellis concentricis elevatis rugosá.*

Long.  $1\frac{1}{10}$  poll., lat. 1.

*Hab.* ad Peruviae oras. (Iquiqui.—Bay of Ancon.)

*Mus.* Cuming.

This species was found by Mr. Cuming in groups, the individuals being in many instances piled in layers one over the other on a sandy bottom, at a depth ranging from five to nine fathoms. At Ancon they were found attached to dead shells, and also clinging to the wreck of a Spanish vessel of about 300 tons, which went down in the Bay about twelve years ago. The sunken timbers (for the sheathing was gone to decay,) were covered with these shells, much in the same way that beams on land are sometimes invested with flat parasitic *Fungi*. At Iquiqui they were taken adhering to a living *Mytilus*.

It is to be observed, that the bearded appearance round the border of many of the specimens is produced by the dried remains of the *cilia* of the mantle. The lower valve varies very much according to circumstances, being thinnest and smoothest when it is least exposed: in those instances where the adhesion is co-extensive with the surface, it is very thin. Generally it is convex where it rises from the depressed area of the perforated part; but this convexity depends so much on position and other accidental circumstances, that it cannot be relied on with any safety as a character.

The measurement merely relates to the extent of surface of the upper valve, the

length being taken from the extreme edge of the border above the perforation to the opposite rim; and the breadth following an imaginary line, bisecting the former at right angles.

## 2. ORBICULA CUMINGII.

Tab. XXIII. Fig. 1.

*Orb. testá subconicá, suborbiculari, crassiusculá, striis ab apice radiantibus numerosis; epidermide fuscá.*

Long.  $\frac{7}{8}$  poll., lat.  $\frac{5}{8}$ .

*Hab.* ad Paytam Peruvix, ad Sanctam Elenam, et ad Panamam.

Mus. Cuming.

The concentric lines of growth in this species are crossed by the numerous *striæ* which radiate from the *apex* of the upper valve. The under valve, which varies from convexity to flatness, is much the thinnest, and is only marked by the concentric lines.

Found by Mr. Cuming at the localities above given, attached to the lower sides of stones in sandy mud at low water, and in some instances at a depth of six fathoms. The remains of the *cilia* give a bearded appearance to the border of the shell in many of the dried specimens, as in *Orb. lamellosa*.

*Orb. Cumingii* approaches nearest to *Orb. striata*, described by Mr. G. B. Sowerby in the 'Transactions of the Linnean Society'.

## 3. ORBICULA STRIGATA.

Tab. XXIII. Fig. 1\*.

*Orb. testá crassiusculá, subrotundá, substriatá, radiatim castaneo strigatá; epidermide tenui, fuscá.*

Long.  $\frac{7}{8}$ , lat. vix  $\frac{7}{8}$ , crass.  $\frac{9}{16}$  poll.

*Hab.* ad Guatemalæ oras. (Isle of Caña.)

Mr. Cuming dredged two individuals of this species at the depth of eighteen fathoms. They were attached to rocks. The dimensions are taken from the largest specimen; but the smallest is figured on account of the superior brilliancy of the stripes.

## Genus. LINGULA, Brug.

### 1. LINGULA AUDEBARDII.

Tab. XXIII. Fig. 14.

*Ling. testá oblongá, glabrá, corned, pallidè flavá, viridi transversim pictá, limbo anteriore rotundato, viridi.*

Long.  $1\frac{3}{8}$  poll., lat.  $\frac{5}{8}$ .

*Hab.* ad Insulam Punam. (Bay of Guayaquil.)

Mus. Cuming.

The rounded anterior edge of this shell is green, and the transverse lines of that colour are produced by the progressive increase of the shell, which is smooth and parchment-like. In all the dried specimens the thin anterior edge is contracted into a square form, so as to produce a resemblance to a very square-toed shoe; but in its natural state this edge is rounded. A general contraction, moreover, gives the dried shells a narrower and more ventricose character than they really possess; and the remains of the *cilia* of the *branchiæ* give to their anterior edges a bearded appearance. The dimensions above given were taken from the largest specimen which I have seen: the individual dissected by Mr. Owen is comparatively small.

Mr. Cuming found this species, which bears the name of the Baron de Férussac, at about half-tide, in an extensive bottom of hard coarse sand, from four to six inches below its surface. The extent of the sand was about twelve miles long, and two miles wide.

## 2. LINGULA SEMEN.

Tab. XXIII. Fig. 17.

*Ling. testá ovato-oblongá, crassiusculá, planá, albidá, lævissimá, politá, limbo anteriore rotundato.*

Long.  $\frac{9}{16}$  poll., lat.  $\frac{4}{16}$ .

*Hab.* ad Insulam Platam.

*Mus.* Cuming.

This shell, the only one I have seen, was dredged by Mr. Cuming in fine coral sand from a depth of seventeen fathoms. It may be a young individual; but the shell is so much firmer than it usually is in *Lingula* (so firm, indeed, as not to have contracted at all in drying), that I cannot but look on it as an undescribed species. In size and appearance it bears a near resemblance to a melon seed.

Mr. Cuming informs me that he found another specimen, about a line longer, at the same time and in the same place, but that he has unfortunately mislaid it.

## PLATE XXII.

Fig. 1. TEREBRATULA CHILENSIS.

2. TEREBRATULA UVA.

## PLATE XXIII.

Fig. 1. ORBICULA CUMINGII.

1\*. ORBICULA STRIGATA.

2. ORBICULA LAMELLOSA.

14. LINGULA AUDEBARDII.

17. LINGULA SEMEN.