

169322

THE
JOURNAL
OF
THE LINNEAN SOCIETY.

ZOOLOGY.

VOL. VIII.



LONDON:
SOLD AT THE SOCIETY'S APARTMENTS, BURLINGTON HOUSE;
AND BY
LONGMAN, GREEN, LONGMAN, ROBERTS & GREEN,
AND
WILLIAMS AND NORGATE.
1865.

PRINTED BY TAYLOR AND FRANCIS,
RED LION COURT, FLEET STREET.

LIST OF PAPERS.

	Page
ALLIS, THOMAS, F.L.S.	
Notice of a nearly complete Skeleton of a <i>Dinornis</i> , presented by Dr. Gibson to the Museum of the Yorkshire Philosophical Society	50
Further Note on a Skeleton of <i>Dinornis robustus</i> , Owen, in the York Museum	140
BAIRD, W., M.D., F.L.S.	
Description of a new British Annelide, belonging to the Tribe RAPACEA of Grube = <i>Annelida errantia</i> of Milne-Edwards. (Plate I.)	8
Description of several new Species and Varieties of Tubicolous Annelides = Tribe LIMIVORA of Grube, in the Collection of the British Museum. (Plates I. & II.)	10
On new Tubicolous Annelides, in the Collection of the British Museum. Part 2	157
Description of a New Variety of <i>Lepidonotus cirratus</i> parasitic in the Tube of <i>Chaetopterus insignis</i>	161
Contributions towards a Monograph of the Species of <i>Annelides</i> belonging to the <i>Aphroditacea</i> , containing a List of the known Species, and a Description of some new Species contained in the National Collection of the British Museum	172
BLACKWALL, JOHN, F.L.S.	
Facts relative to the Movements of Insects on Dry, Polished, Vertical Surfaces	136
COBBOLD, T. SPENCER, M.D., F.R.S., F.L.S.	
Note on <i>Cænurus</i>	22
Brief Notice of results obtained by Experiments with Entozoa ..	141
On Animal Individuality from an Entozoological point of view	163
Remarks on the best Methods of displaying <i>Entozoa</i> in Museums	170
HALIDAY, A. H., A.M., F.L.S.	
On <i>Dicellura</i> , a new genus of Insects belonging to the Stirps <i>Thysanura</i> , in the order <i>Neuroptera</i>	162
HEWITSON, W. C., Esq., F.L.S.	
List of Diurnal Lepidoptera collected by Mr. Wallace in the Eastern Archipelago	143
HINCKS, Rev. W., F.L.S.	
On <i>Cygnus Passmori</i> , a supposed new American Swan	1

	Page
KIRK, JOHN, M.D., F.L.S.	
On the "Tsetse" Fly of Tropical Africa (<i>Glossina morsitans</i> , Westwood)	149
MARSHALL, Rev. T. A.	
<i>Corynодinorum Recensio</i>	24
OWEN, Captain SAMUEL R. J., F.L.S.	
On the Surface-fauna of mid-Ocean	202
RUTHERFORD, WILLIAM, M.D.	
The Oesophagus of the Ruminantia. (Plate III.)	53
SHORTT, JOHN, M.D., F.L.S.	
Account of a Heronry, and Breeding-place of other Water- birds, in Southern India.....	94
A brief Account of the <i>Myrmica Kirbii</i> as found in Southern India	100
SMITH, FREDERICK, Esq.	
Descriptions of New Species of Hymenopterous Insects from the Islands of Sumatra, Sula, Gilolo, Salwatty, and New Guinea, collected by Mr. A. R. Wallace. (Plate IV.).....	61
WALKER, FRANCIS, F.L.S.	
Descriptions of New Species of the Dipterous Insects of New Guinea	102
Descriptions of some New Species of Dipterous Insects from the Island of Salwatty, near New Guinea	130

the lobe, while the ventral cirrus is shorter than its corresponding lobe. The bristles are of two kinds,—those of the setiferous tubercles being numerous, compound, and consisting of a flattened lancet-shaped blade, smooth and rather sharp-pointed, let into a somewhat cylindrical shaft which is striated half across (*setæ ultratae*) (fig. 1 c). Mixed with these are a few (about four or five) long and stout setæ of the falcate kind, but much longer and stronger than those of the anterior feet.

The species which approaches nearest to this is the *Heteronereis renalis* of Johnston= *H. arctica* of Oersted. It differs, however, in many respects. The relative size of the first and four succeeding segments, the colour and peculiar markings of the body, the canal running down the centre dorsally and ventrally, the number of anterior segments (in *renalis* or *arctica* being only twenty, while in this species there are twenty-one), the posterior portion of the body being more slender, and the tail destitute of cirri, the structure of the feet and cirri, &c.,—all separate it from that species.

The only specimen which I have seen was found by Mr. Laughrin at Polperro, Cornwall, in a muddy bottom, and is now in the national collection, British Museum.

Description of several new Species and Varieties of Tubicolous Annelides=Tribe LIMIVORA of Grube, in the Collection of the British Museum. By W. BAIRD, M.D., F.L.S.—PART I.

(Plate I.)

[Read April 21, 1864.]

In the extensive collection of Annelides belonging to the British Museum, now in course of arrangement, there is a considerable number which appear to me to be undescribed. In many cases these are difficult to determine, from the fact that soft animals preserved in spirits do not always retain their form and consistency, or may be so hardened by the spirits as to offer great difficulties in making out the different parts. In the case of the Tubicolous Annelides, again, perhaps only the tubes or cases in which the animals dwell have been preserved, and thus it is almost impossible to refer them to their proper genera. As, however, notwithstanding these difficulties, we possess many

species which can be determined, it is my intention, from time to time, to offer to the Linnean Society, if approved of, descriptions of such species as appear to me new or worthy of particular attention.

Family SERPULIDÆ.

The genus *Serpula* of Linnaeus, as established by the illustrious Swede, contained several species now known to belong to the genus *Vermetus*, a genus of mollusks. After these were withdrawn, there still remained many forms of shelly tubes which, though bearing a general resemblance to each other, were difficult to be arranged under one single genus. The animals, however, the architects of these tubes, after a time began to be a little more studied; and thus Lamarck, Blainville, Savigny, and some other naturalists were enabled to construct, upon good grounds, several genera to contain what might otherwise have been considered similar forms. The last author who has paid particular attention to this Linnean genus is Dr. A. Philippi. His subdivisions of *Serpula* are founded upon a character which has been discovered by malacologists to be of great value in the class Mollusca. The animals of the greater number of the species of *Serpula* which have been described possess a similar organ to that which characterizes so many of the Gasteropodous Mollusca. This is the operculum, which varies considerably in structure in the different species, and which thus forms an excellent character for dividing them into genera. As Philippi justly observes, "this character has, moreover, the advantage that it may still be frequently observed in dried specimens preserved in museums."

Little dependence can be placed on the *shelly tube* alone in distinguishing the species or even the genera: thus we find a similar shell possessed by two or three different Annelides belonging to two or three distinct genera; for, as Philippi remarks in his paper*, "the shells of *Serpula triquetra*, *Vermilia triquetra*, and *Pomatoceros tricuspis* are difficult to distinguish without the animals."

The structure of the operculum is far more varied, indeed, than it had been hitherto supposed to be; and I think Dr. Philippi has done good service to the students of this group of Annelides by so carefully distinguishing the structure of this appendage. It is owing to the fact mentioned above (that the operculum frequently

* Wiegmann's Archiv for 1844, Band i. p. 186. Translated into English by Dr. Francis, in Ann. & Mag. of Nat. Hist. 1844, vol. xiv. p. 153-162.

remains behind in dried specimens), that I have been enabled to add some new species, belonging to the national collection, not hitherto described. The number of genera characterized by Philippi belonging to the Serpulidæ is ten, and the species enumerated by him as occurring in the Mediterranean alone are twenty-five. Various other exotic species have been described at different times, and to these I now propose adding several more.

Genus *EUPOMATUS*, *Philippi* *.

1. *EUPOMATUS BOLTONI*, Baird. (Pl. I. figs. 2, 2a, b.)

Char. Animal (operculo excepto) ignotum. Operculum corneum, infundibuliforme, margine externo dense crenato, interne cuspidibus calcareis viginti dentatis instructum. Testa rubra, triquetra, adhaerens, transversim rugosa, dorso canaliculata.

Hab. Nova Zelandia. (Mus. Brit.)

This is a fine species of the family Serpulidæ, of which, however, we have as yet only received the shelly tube and the operculum of the animal. In our national collection we possess three good specimens of the shell and three specimens of the operculum. This portion of the animal is large, and by means of it we can distinctly refer the species to the genus *Eupomatus* of Philippi. It is rounded, slightly funnel-shaped, and of a horny texture (Pl. I. fig. 2a). Externally the margin is densely crenated—the crenations being about eighty-eight or ninety in number, and tooth-like. Internally it is provided with a considerable number (about twenty) of hard, flattened, calcareous spikes (or, as Philippi elsewhere calls them, horns, *cornua*), rising up from the centre and strongly dentate—these teeth being four or five in number, stout, rather blunt, and arranged on one side only (fig. 2 b). The spike itself terminates in a claw-shaped sharp point, slightly curved at the extremity. These spikes bear altogether an exact resemblance to the toothed extremity of the large claw of a lobster. The tube, in all the specimens which I have seen, is found attached to, and creeping on, dead shells (fig. 2). In one specimen, which, however, is not quite perfect at the posterior extremity, it is about three inches in length. It is of a red colour, triquetrous where attached, but round at the anterior ex-

* The genus *Eupomatus* was constituted by Philippi to receive those species of *Serpula* that had the operculum furnished on the upper side, in the centre, with a certain number of moveable spikes. The operculum, he says, is horny, and in the Mediterranean species these spikes are horny also; but this latter character does not hold good in all the other species which have been described.

tremity or mouth when the tube raises itself up from the shell upon which it creeps, is corrugated transversely (the striae of growth?), and is marked with a large, distinct canal or furrow, running along the dorsal surface throughout its whole length.

Of the three specimens we possess, one, the largest, is attached to part of the shell of *Haliotis australis*, another to a fragment of a species of *Mactra*, and the third is coiled round a species of *Elenchus*.

They were all collected in New Zealand by Lieut.-Col. Bolton, R.E., to whom I have dedicated the species.

Genus *PLACOSTEGUS* *, *Philippi*.

2. *PLACOSTEGUS CARINIFERUS*, *Gray* (sp.), *Baird*.

Numerous specimens of this species of Annelide were brought at different times from New Zealand, and deposited in the national collection, by the late lamented Dr. Andrew Sinclair, R.N., Lieut.-Col. Bolton, R.E., the late Captain Sir Everard Home, Bart., and His Excellency Governor Sir George Grey.

The tube or shell was briefly described by Dr. Gray in 1843, in the 'Fauna of New Zealand' appended to Dr. Dieffenbach's 'Travels in New Zealand.' As only the operculum was known at that time to Dr. Gray, and as that resembles very much in form the operculum of the molluscous genus of shells " *Vermetus*," he described it under the name of *Vermetus cariniferus*. A similar, and, I believe, the identical species has since that time been described and the animal figured by Schmarda, in his 'Neue wirbellose Thiere,' 1861, under the name of *Placostegus cæruleus*. My chief object in this brief notice is to give a few more particulars with regard to this species, to correct the synonymy, and to restore the specific name attached to it originally by Dr. Gray. I wish also particularly to bring before the notice of the Society the fact that the animal gives out a beautiful dye or colour. The specimens which were the subjects of my examination had been for a number of years in the British Museum, some having been placed there in 1845, and others in 1847. Notwithstanding their having been so long dry, when softened in water, taken out of the tubes, and placed in spirits of wine, they imparted to the

* The genus *Placostegus* was constituted by Philippi to contain those species of *Serpula* which have a calcareous operculum (approaching very nearly in form to that of some of the Gasteropodous Mollusca) in the shape of a shallow disk, entire at the margin.

liquid a beautiful and delicate red tint. The whole animal is of a fine blue colour, and the elegant tuft of branchial filaments intensely azure banded with white. In describing the tube of this species of Annelide in 1843, Dr. Gray had only one or two specimens to describe from, as the other specimens, which are now in the Collection of the British Museum, arrived long after that description was drawn up. He says, "the shell is thick, irregularly twisted, opaque white, with a high compressed wavy keel along the upper edge; mouth orbicular, with a tooth above it, formed by the keel. Operculum orbicular, horny." In the collection there are two or three specimens which occur single, and were found creeping on dead shells. To these this description applies very well; but, in addition to those, we have various specimens collected together into large masses nearly the size of a small human head, and consisting of several thousands of tubes twisted and twined together. In the generality of these we see the keel, mentioned by Dr. Gray as "high," "compressed," and forming "a tooth" at its extremity, becoming double as it were at a certain distance from the mouth of the tube, diverging a little from each other, the surface of the tube between the two keels being raised to the same height as the tube, and thus forming a rather broad flat tooth or strap which projects considerably beyond the circular rim of the mouth. In many specimens this tooth is sharp-pointed, but in others it is blunt and rounded at the point.

Schmarda asserts that the species described by him is also a native of the Cape of Good Hope. His description applies better to the New Zealand specimens than to those from the Cape, and I was led at first to separate the two as distinct species. A more careful examination, however, of all the specimens we possess from both these habitats, has now induced me to consider those from the Cape of Good Hope to be only a variety of the other. Several specimens of this variety, occurring in large masses of some thousands of tubes clustered together, were collected by Dr. Krauss many years ago at the Cape of Good Hope, and are now in the Collection of the British Museum.

This variety I have named

PLACOSTEGUS CARINIFERUS, var. *Kraussii*;
and I here append a more detailed description of it.

Char. Animal *Placostego carinifero* valde simile, sed minus intense cæruleum. Branchiæ pallide cæruleæ, albo-fasciatæ, filamentis circiter viginti et sex, uno latere plumosis. Setæ pedum longæ, numerosæ,

simplices, ad finem curvatae. Tubuli repentes, in massam magnam glomerati, dorso plane carinati, ligula plana, os supra extensa terminati.

Hab. Promontorio Bonæ Spei. (Mus. Brit.)

The animal differs from that of the specimens from New Zealand in being less deeply coloured, and perhaps being longer in proportion to the size of the tube. This is smaller, and the dorsal keel is perhaps rather flatter and less sharp-pointed at its extremity. The two sets of specimens, however, agree in this particular, that the animals, when softened in water and then immersed in spirits of wine, impart to the liquid the same beautiful red colour, though, as may be supposed from the animal being less deeply coloured, those from the Cape of Good Hope give out a slightly fainter hue.

3. PLACOSTEGUS LATILIGULATUS, *Baird.* (Pl. I. figs. 3, 3a, b.)

Char. Animal *Placostego carinifero* simile. Color corporis fuscus.

Branchiae albæ, cœruleo fasciatæ. Operculum calcareum, circulare, concavum, cœruleum. Tubuli repentes, flexuosi, dorso late carinati, carina in latam ligulam, supra os extensam desinens. Os interne cœruleum.

Hab. —? (Mus. Brit.)

Only one mass, consisting of about 100 or more tubes, is in the possession of the Museum, and no history is attached to the specimen. The animal, softened in water and taken out of the tube, as far as can be ascertained from the imperfect state of the specimens, is very similar in appearance to the animal of the *Placostegus cariniferus*. It is about the same size as those taken from the var. *Kraussii*, from the Cape of Good Hope, but differs a good deal in colour. The body of the animal is of a fuscous-brown colour, the branchial filaments white, banded with blue, and the operculum is of an azure hue. The tubes are broad, clustered together, and creeping in a very flexuous manner; they are of a bluish colour, the mouth of the tube deeply so, and the flat dorsal keel is somewhat of the same hue. The tube itself and the keel which runs along the back are broad, the latter part especially so at its extremity, where it terminates in a flat, strap-like tooth or sort of hood which extends some way beyond the rounded mouth (fig. 3 b). The surface throughout is much wrinkled, and the whole tube presents an irregular form of growth.

We have no history attached to this specimen; and were it not that the animals in some of the tubes still exist, the mass might be taken for a group of fossil tubes.

4. *PLACOSTEGUS GRAYI*, *Baird*. (Pl. I. figs. 4, 4a, b.)

Char. Animal, operculo excepto, ignotum. Operculum corneum ?, circulare, concavum. Tubuli flexuose repentes, depresso, valde rugosi, dorso late carinati, carina haud in ligulam os supra extensam desinens.

Hab. —? (*Mus. Brit.*)

The only specimens we possess in the collection of the British Museum are a few tubes creeping on a stone. The operculum was found in two or three of the tubes, and, unlike the others belonging to the genus *Placostegus*, appears to be horny, of a circular form, and hollow or concave on its upper surface. The tubes are flexuose, very rugose, and possess, like the last-described species (*P. latiligulatus*), a rather broad flat keel along the back of the shell. This keel is very rugose or wrinkled, and does not extend beyond the mouth of the tube, which is quite circular (fig. 4 b). The form of the tube is very irregular, and in several specimens at the larger extremity it is cemented as it were by a smooth, hard calcareous secretion to the stone to which it is attached. The specimens were presented many years ago to the Museum by Dr. Gray, whose name I have attached to the species.

EXPLANATION OF PLATE I.

Fig. 1. *Heteronereis signata*, natural size; 1 a, one of anterior feet; 1 b, one of posterior feet; 1 c, seta of ditto; 1 d, head and 8 first segments of body: all magnified.

Fig. 2. *Eupomatus Boltoni*, natural size, on *Haliotis*; 2 a, operculum of ditto; 2 b, one of the spikes of ditto: both magnified.

Fig. 3. *Placostegus latiligulatus*, nat. size; 3 a, operculum of ditto: magnified; 3 b, extremity of tube, nat. size.

Fig. 4. *Placostegus Grayi*, nat. size; 4 a, operculum of ditto: magnified; 4 b, extremity of tube, nat. size.

PART II.

(Plate II.)

[Read June 2, 1864.]

Genus *CYMOPIRA*, *Savigny*.

Amongst the tubicolous Annelides belonging to the family Serpulidae, the genus *Cymospira* of Savigny is remarkable. The branchiæ are described by Pallas and others as being very beautiful when seen in the living animal, and are rolled into spires of several turns. The operculum consists of a somewhat horny, elliptical, shallow plate, which supports two or more dentated horns or processes, generally near its hinder margin. The tubes of all the known species, of which only three or four have been described, burrow into or are attached to masses of Madrepore

in the seas of the West Indies. In the collection of Annelides belonging to the British Museum we possess several additional species, found inhabiting coral in other parts of the world. One of these was found on a coral reef in the Arabian Gulf, and, in the structure of the operculum, &c., materially differs from all that have been previously described. The following is its description:—

5. *CYMOPIRA TRICORNIS*, *Baird.* (Pl. II. fig. 1, operculum.)
Branchiæ in spiras quinque convolutæ. Operculum magnum, cornibus tribus dentatis armatum.

The branchiæ are disposed in five whorls. The filaments are densely plumose on one side and are of moderate length. The operculigerous filament is thick and fleshy. The operculum is large, nearly flat on the upper surface, and is armed with three stout, irregularly-toothed horns. The collar is large and fleshy. The spines of the thoracic segments are stout, rather short, and yellowish-coloured. The abdominal portion of the body is about 2 inches long, smooth on the ventral surface with the exception of a few longitudinal strong striæ, and strongly and densely striated across on the dorsal surface. The tube in which this annelide dwells is large, nearly as thick as a man's little finger, but so covered with coral deposit that it is very difficult to ascertain its form. We possess in the British Museum only two specimens of this animal, one of them being partly contained in a fragment of its tube. The mouth of this tube seems to be nearly round; but the rest of it is so covered with madreporæ, in a mass of which it had apparently burrowed, that nothing more can be seen of its structure.

The whole animal is fully 3 inches long, tapered somewhat towards the tail, and about the centre of the body is nearly 4 lines in diameter.

Hab. Djedda, in coral reef. From the Collection of Mr. Metcalf. (Brit. Mus.)

6. *CYMOPIRA BRACHYCERA*, *Baird.* (Pl. II. fig. 2, operculum.)
Branchiæ in spiras quinque convolutæ. Operculum magnum, cornibus duobus brevissimis irregulariter dentatis armatum.

Amongst the numerous objects of natural history collected during the surveying-voyage of H. M. S. 'Fly' by Mr. Jukes, Naturalist to the Expedition, and transmitted by him to the British Museum, are two specimens from Swain's Reefs, on the east coast of Australia, of the "animals of tubes that bore into

coral." Neither the tubes themselves, nor fragments of the coral containing them, were secured; but as no doubt the former, like the other known species, would be completely immersed in and incrusted by the latter, little information could be obtained from them.

The branchiæ are coiled round in five spires. The filaments are of moderate length, and plumose on one side. The collar is rather thin and membranous. The operculigerous filament is thick and fleshy, and the operculum itself is large, of an oval form, and armed on its slightly concave surface with two very short and irregularly-toothed horns. The thoracic portion of the body is short and rather square-shaped, with a free margin on each side and on the lower edge; and the setæ of the feet are rather short and bright yellow. The abdominal portion is strongly and densely striated across. The entire length of the animal is about 3 inches (in spirits).

Hab. East coast of Australia. (Brit. Mus.)

The way in which these animals were seen and collected is thus described by Mr. Jukes in his Narrative of the voyage:— "A block of coral rock that was brought up by a fish-hook from the bottom at one of our anchorages was interesting from the vast variety and abundance of animal life there was about it. It was a mere worn, dead fragment; but its surface was covered with brown, crimson, and yellow nulliporæ, many small actiniæ and soft branching corallines, sheets of flustra and eschara, and delicate reteporæ, looking like beautiful lace-work carved in ivory. There were several small sponges and alcyonia, sea-weeds of two or three species, two species of comatula and one of ophiura of the most delicate colours and markings, and many small, flat, round corals, something like nummulites in external appearance. On breaking into the block, boring shells of several species were found buried in it; *tubes formed by Annelida* pierced it in all directions, many still containing their inhabitants, while two or three worms, or nereis, lay twisted in and out among its hollows and recesses, in which, likewise, were three small species of crabs. This block was not above a foot in diameter, and was a perfect museum in itself, while its outside glared with beauty from the many brightly and variously coloured animals and plants. It was by no means a solitary instance; every block that could be procured from the bottom, in from 10 to 20 fathoms, was like it. What an inconceivable amount of animal life must be here scattered over the bottom of the sea, to say nothing of that moving

through its waters, and this through spaces of hundreds of miles ! Every corner and crevice, every point occupied by living beings, which, as they become more minute, increase in tenfold abundance." (p. 17.)

In the same collection of Annelides we possess specimens of a tube imbedded in madrepore collected by Mr. John MacGillivray from the coral reef of the island of Totoga, one of the Fiji group. From its appearance and habitat I consider it to belong to the same genus as the last, and propose naming it.

7. CYMOSPIRA MACGILLIVRAYI. (Pl. II. fig. 3, mouth of tube.)

Only the mouth of the tube is distinctly seen, the remainder being imbedded in and completely incrusted by the substance of the madrepore. The mouth of the tube is round, smooth internally but of a dark colour tinged with red, and at the upper edge is strongly marked with the projecting point of a keel, which most probably runs along the dorsal surface of the tube. This projecting point is somewhat tongue-shaped, of a smooth surface and a reddish colour, and reflected a little upwards and backwards.

It is to be regretted that the specimens we possess are so few in number, and the fragments of the madrepore which contain the tubes so small that it is impossible to ascertain the length of the tube. The circumference of the mouth of the largest specimen is fully $\frac{6}{8}$ ths of an inch.

Hab. Coral reef of Totoga, Fiji Islands. (Brit. Mus.)

Genus POMATOSTEGUS, Schmarda.

When Philippi reconstructed the family Serpulidæ, taking the structure of the operculum as one of his chief generic characters, only two species of the genus *Cymospira* had then been described. One of these, the type of the genus, was the *Serpula gigantea* of Pallas, = the *Terebella bicornis* of Abildgaard, distinguished by its having an operculum consisting of an elliptical shallow plate armed with two ramified horns. The other was the *Terebella stellata* of Abildgaard, distinguished by the operculum being as it were multiplied, or raised up in three different floors or stories united to each other by a central column. Following up the subdivisions of Philippi founded on the operculum as a character, Schmarda has since founded a new genus for this latter annelide, which he has called *Pomatostegus*, and has described two new species from the coral reefs of Jamaica. The worm which I have now to describe belongs to this genus, but is a native of the seas

of Australia. A single specimen was added to our collection about eight or nine months ago by Dr. Bowerbank, but no tube was collected, nor have we any further information about it.

8. **POMATOSTEGUS BOWERBANKI**, *Baird.* (Pl. II. figs. 4 & 5, operculum.)

Branchiæ curtæ, in spiram unam et dimidiam convolutæ. Opercula quatuor, versus apicem decrescentia, inarmata.

The branchiæ are rather short, the filaments plumose on one side only. Operculigerous lobe thick and fleshy. Operculum consisting of four stories united by a common central column, and densely covered with a rough coat of short hairs or filaments of a fibrous substance. These opercula diminish in size as they ascend, the last being very small and not armed with any spines or horns. Collar small. Thoracic portion of body short, square-shaped. Bristles of feet rather long and of a yellowish colour. Abdominal portion of body gradually tapering to the extremity, and striated across, the striæ wide apart. It is of a reddish-brown colour. The total length is $2\frac{1}{2}$ inches.

Hab. Seas of Australia. (Brit. Mus.)

Genus **SERPULA**, *as restricted by Philippi.*

Taking the operculum as his principal character, Philippi restricts the old genus *Serpula* to those species which are distinguished by having the operculum of a horny substance, in the form of a rather shallow or funnel-shaped plate, the concave disk crenate on the margin, radiately grooved above, and supported on a subconical fleshy petiole. This organ is in many species of a beautiful shape, and, having in some instances a vitreous look, might, as Dr. Johnston well observes, "make an elegant pattern for a wineglass."

The species hitherto enumerated have been confined to the European fauna: I am not aware, at least, of any that have been described from any other part of the world; and Schmarda, who is amongst the latest authors that have paid attention to exotic Annelides, remarks that, however common they are in the Mediterranean, he has not found one exotic species. It is with much pleasure, therefore, that I dedicate the following, from Australia, to Mr. Jukes, to whom the British Museum is indebted for the specimen.

9. **SERPULA JUKESII**, *Baird.* (Pl. II. fig. 6, operculum.)

Branchiæ in spiram unam convolutæ, lacteæ, filamentis dorso canalicu-

latis. Operculum et filamentum operculigerum alba. Operculum pro-funde infundibulatum, multicrenatum. Tubus teres, solidus.

A single specimen of this species of the restricted genus *Serpula* was taken by Mr. Jukes, during the voyage of the 'Fly,' on the coast of Australia. The branchiae are rolled up in a single spire, and are of a dull milk-white colour; the filaments are about thirty-four in number on each side, and on the dorsal surface are pretty deeply grooved or channelled. The operculum is deeply infundibuliform, of a white colour, the edge indented with numerous close-set crenations, the grooves extending down along the whole length of the outer surface. The body of the animal tapers towards the extremity, and is of a dull reddish colour and strongly striated across. The total length of the animal is about $1\frac{1}{2}$ inch, the breadth about $1\frac{1}{2}$ line. Only a fragment of the tube in which the worm lives was preserved. It is perfectly cylindrical, without any keel or striae, is thick and solid, and of a white colour externally.

Hab. Seas of Australia. (Brit. Mus.)

10. *SERPULA NARCONENSIS*, *Baird.* (Pl. II. figs. 7 & 8, operculum.)

Branchiae in spiram unam convolutae. Operculum laeve, minime profundum, dense crenatum; petiolum operculigerum gracile, prope finem nodosum.

This is a small species collected at Narcon Island during Captain Sir J. Ross's Antarctic exploring expedition; and only one specimen, without the tube, was procured. The chief character which marks the species is the form of the operculum. This is a white, rather shallow disk, elegantly formed, beautifully multi-crenate on the margin, and radiately grooved on its upper surface internally as well as externally. The pedicle which supports it is slender, and terminates near the summit in a rounded knob, upon which the operculum is seated, being attached to it by a short stalk, which appears like a moveable joint. There is nothing particular in the form or characters of the body, except that it is short and stout, measuring in total length, including branchiae and operculum, about 10 lines.

Hab. Narcon Island. (Brit. Mus.)

11. *SERPULA ZELANDICA*, *Baird.* (Pl. II. fig. 9, operculum.)

Animal, operculo excepto, ignotum. Operculum album, parvum, minime profundum, margine crenis viginti ornatum. Tubus gracilis, albus, repens, fere rotundus, carina longitudinali parva in dorso signatus; transversim flexuose striatus.

Several specimens of this small species of *Serpula* are in the collection of the Museum, the slender tubes creeping on fragments of old oyster-shells. The operculum is the only part of the animal preserved, as the specimens were transmitted in a dry state. Like that of the other known species of true *Serpula*, it is finely crenated on the margin. The crenæ are twenty in number, but the grooves externally are confined to the surface of the disk itself, and are not extended to the pedicel or stalk. The tube is slender, nearly round, with only a slight keel running longitudinally along its dorsal surface. It is white, the mouth is nearly circular, and the shell itself is strongly marked along its whole length with transverse flexuous striæ which encircle it.

The specimens in the collection are grouped together on the old oyster-shell, and mixed up with numerous specimens of zoophytes, *Alcyonia* &c. Most of them are more or less incrusted with these substances. Length of the tube about 16 lines; circumference about 1 line.

Hab. New Zealand. (Brit. Mus.)

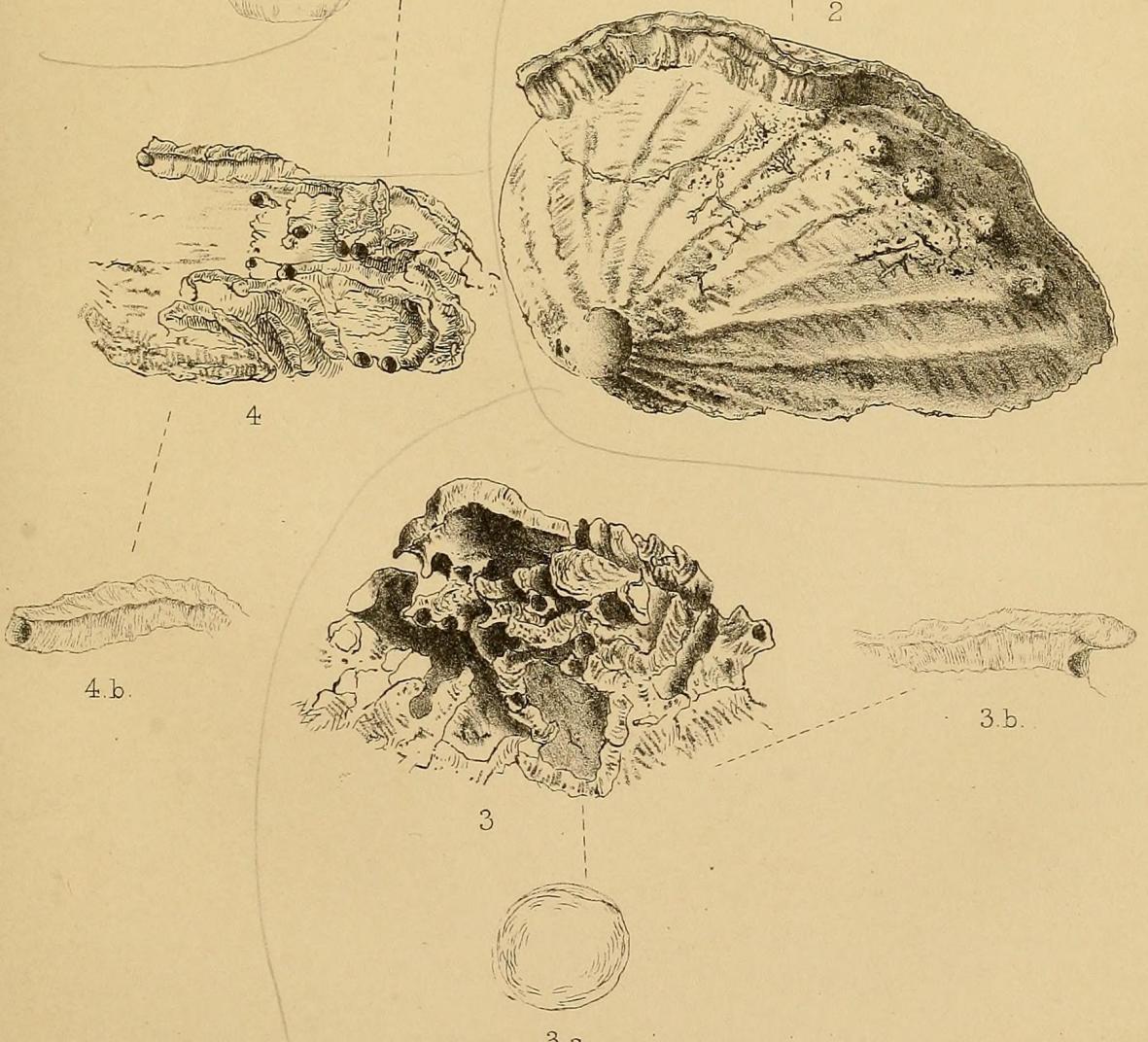
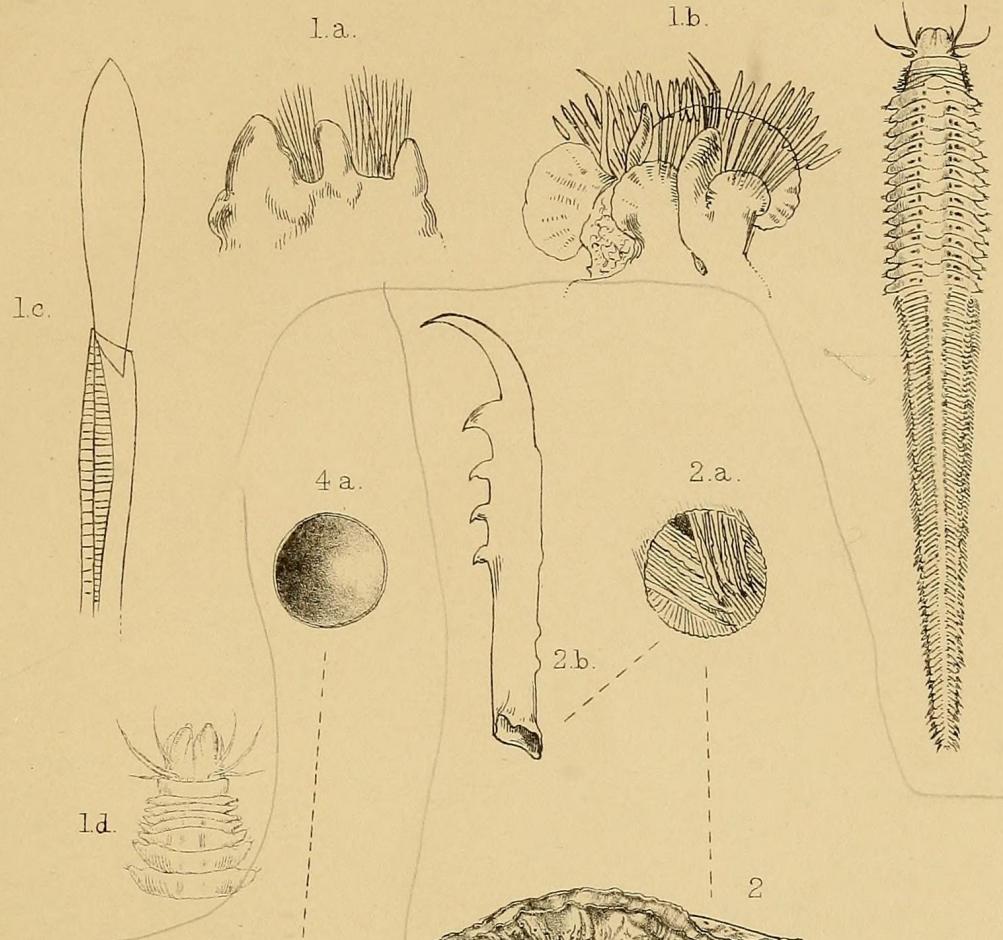
EXPLANATION OF PLATE II.

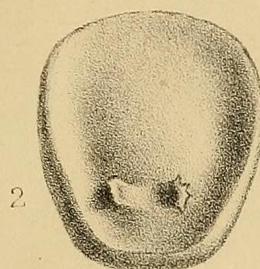
- Fig. 1. *Cymospira tricornis*, operculum.
- 2. *C. brachycera*, operculum.
- 3. *C. MacGillivrayi*, mouth of tube, in coral.
- 4, 5. *Pomatostegus Bowerbanki*, operculum.
- 6. *Serpula Jukesii*, operculum.
- 7, 8. *S. Narconensis*, operculum.
- 9. *S. Zelandica*, operculum.
- 10. *Eupomatus Boltoni*, operculum.
- 11. *Galeolaria decumbens*, operculum.

Note on *Cœnurus*. By T. SPENCER COBBOLD, M.D., F.R.S., F.L.S.,
Lecturer on Comparative Anatomy at the Middlesex Hospital.

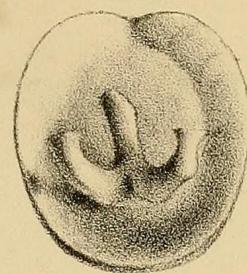
[Read May 5, 1864.]

I BEG to call the attention of the Society to a specimen of *Cœnurus* obtained from the viscera of an American Squirrel which died at the Zoological Gardens, Regent's Park, several years back. In doing so, my object is partly to correct the opinion, still very generally held, that there is only one kind of *Cœnurus*, and partly, also, to point out the time when the existence of a second kind of *Cœnurus* was first demonstrated, and by whom, likewise, the discovery was made. When, in January 1859, I described to the Society a large *Cœnurus* obtained from the viscera of a Madagascar Lemur, I carefully abstained from theorizing on the subject,

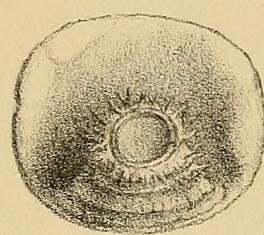




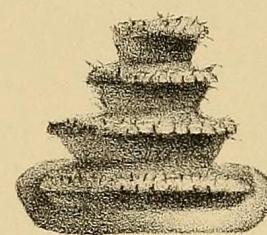
2



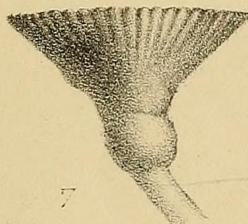
1



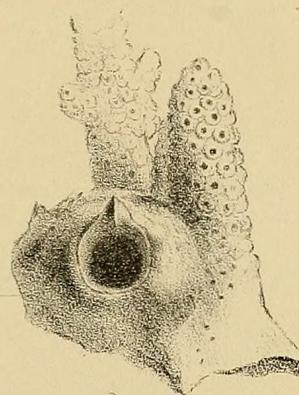
5



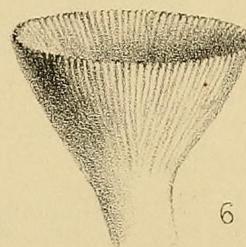
4₁



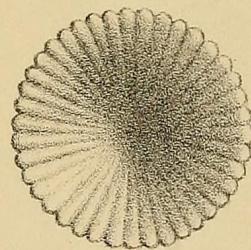
7



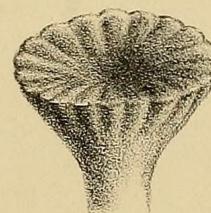
3



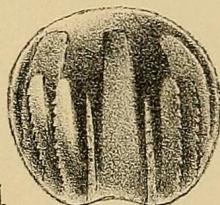
6



8



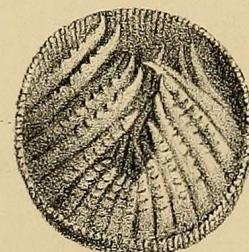
9



11



10



GENERAL INDEX

TO THE

FIRST TWENTY VOLUMES

OF THE

JOURNAL (ZOOLOGY),

AND THE

ZOOLOGICAL PORTION OF THE PROCEEDINGS,

NOVEMBER 1838 TO 1890,

OF THE

LINNEAN SOCIETY.

LONDON:

SOLD AT THE SOCIETY'S APARTMENTS, BURLINGTON HOUSE,
PICCADILLY, W.,

AND BY

LONGMANS, GREEN, AND CO.,

AND

WILLIAMS AND NORGATE.

1896.

Journal of the Proceedings—Zoology (continued).

VOL. V. (1861). Pp. iv, 320.

- No. 17. Pp. 1–56, issued June 5, 1860.
 17b. „ 57–168, „ July 18, „
 18. „ 169–216, „ Nov. 14, „
 19. „ 217–264, „ Mar. 27, 1861.
 20. „ 265–320, „ May 24, „

VOL. VI. (1862). Pp. iv, 206.

- No. 21. Pp. 1–48, issued Nov. 1, 1861.
 22. „ 49–96, „ Mar. 1, 1862.
 23. „ 97–152, „ May 15, „
 24. „ 153–206, „ Nov. 1, „

VOL. VII. (1864). Pp. iii, 249.

- No. 25. Pp. 1–48, issued Mar. 4, 1863.
 26. „ 49–108, „ May 13, „
 27. „ 109–180, „ Oct. 29, „
 28. „ 181–238, „ Apr. 5, 1864.
 Title, &c., „ 239–249, „ Sept. 3, „

VOL. VIII. (1865). Pp. iv, 215.

- No. 29. Pp. 1–52, Title and Contents
to Vol. VII., issued
Sept. 3, 1864.
 30. „ 53–108, issued Jan. 15, 1865.
 31. „ 109–215, { „ Dec. 5, „
 32. „ } Index, Title, &c.

From Vol. IX. onwards the Zoological and Botanical Journals were published independently, with the title slightly altered.

The Journal of the Linnean Society (Zoology).

VOL. IX. (1868). Pp. iv, 496.

- No. 33. Pp. 1–48, issued Apr. 30, 1866.
 34. „ 49–112, „ Oct. 11, „
 35. „ 113–180, „ Jan. 30, 1867.
 36. „ 181–244, „ Sept. 14, „
 37. „ 245–308, „ Nov. 14, „
 38. „ 309–372, „ Dec. 13, „
 39. „ 373–436, „ Feb. 18, 1868.
 40. „ 437–496, } „ Apr. 23, „
 Title & Contents. } „

VOL. X. (1870). Pp. iv, 514.

- No. 41. Pp. 1–68, issued May 30, 1868.
 42. „ 69–132, „ Aug. 7, „
 43. „ 133–196, „ Sept. 25, „
 44. „ 197–260, „ Nov. 26, „
 45. „ 261–330, „ Jan. 8, 1869.
 46. „ 331–394, „ Aug. 10, „
 47. „ 395–458, „ Jan. 17, 1870.
 48. „ 459–514, } „ May 20, „
 Title & Contents. } „

VOL. XI. (1873). Pp. iv, 556.

- No. 49. Pp. 1–89, issued Oct. 12, 1870.
 50. „ 90–153, „ Feb. 16, 1871.
 51. „ 154–218, „ June 8, „
 52. „ 219–284, „ Sept. 14, „
 53. „ 285–348, „ Oct. 16, „
 54. „ 349–425, „ Dec. 20, „
 55. „ 426–492, „ Oct. 29, 1872.
 56. „ 493–556, } „ July 18, 1873.
 Title & Contents, &c. } „

VOL. XII. (1876). Pp. v, 600.

- No. 57. Pp. 1–99, issued Feb. 11, 1874.
 58. „ 100–195, „ Nov. 3, „
 59. „ 196–251, „ May 22, 1875.

- No. 60. }
 61. „ 251–407, issued Feb. 25, 1876.
 62. „ 408–514, „ May 25, „
 64. „ 514–600, } „ Sept. 19, „
 Title & Contents. } „

VOL. XIII. (1878). Pp. viii, 530.

- No. 65. Pp. 1–46, issued Sept. 19, 1876.
 66. „ 47–109, „ Dec. 15, „
 67. „ 110–185, „ Feb. 28, 1877.
 68. „ 185–260, „ June 5, „
 69. „ 261–334, „ „ 20, „
 70. „ 335–384, „ „ Aug. 20, „
 71. „ 385–457, „ „ Sept. 25, „
 72. „ 457–530, } „ Feb. 27, 1878.
 Title & Contents, &c. } „

VOL. XIV. (1879). Pp. viii, 761.

- No. 73. Pp. 1–64, issued Oct. 24, 1877.
 74. „ 65–186, „ May 23, 1878.
 75. „ 187–311, „ Aug. 31, „
 76. „ 312–417, „ Oct. 31, „
 77. „ 418–505, „ Jan. 31, 1879.
 78. „ 506–606, „ „ Apr. 23, „
 79. „ 607–688, „ „ May 20, „
 80. „ 689–761, } „ Sept. 2, „
 Title & Contents, &c. } „

VOL. XV. (1881). Pp. viii, 509.

- No. 81. Pp. 1–73, issued Mar. 30, 1880.
 82. „ 73–137, „ July 31, „
 83. „ 138–187, „ Sept. 3, „
 84. „ 187–241, „ Nov. 20, „
 85. „ 241–290, „ Mar. 25, 1881.
 86. „ 291–332, „ Sept. 29, „
 87. „ 333–412, „ Oct. 4, „
 88. „ 413–509, } „ Nov. 3, „
 Title & Contents, &c. } „