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Transactions of the Linnean Society of London.

London :[The Society],1879-

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ser. 2 v. 9 (1903-1907):

<https://www.biodiversitylibrary.org/item/55323>

Article/Chapter Title: Littoral polychaeta from the Cape of Good Hope

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Subject(s): Annelida, taxonomy, South Africa

Page(s): Page 255, Page 256, Page 257, Page 258, Page 259, Page 260, Page 261, Page 262, Page 263, Page 264, Page 265, Page 266, Page 267, Page 268, Text, Text

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VI. *Littoral Polychæta from the Cape of Good Hope.* By ARTHUR WILLEY, D.Sc., F.R.S., Colombo Museum, Ceylon. (Communicated by Dr. W. G. RIDWOOD, F.L.S.)

(Plates 13 & 14.)

Read 3rd December, 1903.

THE Annelids here described were collected by Mr. W. F. Purcell in the years 1896 and 1900, with the co-operation of Messrs. G. H. Glasson and R. M. Lightfoot. The collection was sent, by arrangement, from the South African Museum to the British (Natural History) Museum, and intrusted to me for examination. Most of the specimens were preserved in an alcoholic solution of corrosive sublimate, and, in many cases, care had been taken to procure the extrusion of the proboscides, which is a matter of importance in the systematic study of errant Annelids.

There is a pronounced Mediterranean and Northern element in the Annelid fauna of the Cape, a feature which has already been noted by Dr. von Marenzeller*, and, indeed, it would appear that the geographical distribution of marine Annelids is primarily determined by thermal considerations. Many species are eurythermal, and hence cosmopolitan or pan-oceanic; where this is not the case, we frequently meet with instances of discontinuous distribution, the areas of distribution being separated by thermal barriers. The only terrestrial barriers of first importance are the Isthmus of Suez and the Isthmus of Panama, and that these have not always prevented the inter-oceanic exchange of types is clear from the fact that the Annelid fauna of the Indo-Pacific region may be said to be composed of an assemblage of endemic, Caribbean, and Mediterranean constituents.

The following are the species dealt with in this paper:—

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| 1. <i>Euphrosyne capensis</i> , Kinberg. | 15. <i>Eriphyle capensis</i> , Kinberg. |
| 2. <i>Lepidonotus clava semitectus</i> , Stimpson. | 16. <i>Marphysa sanguinea hæmasoma</i> (Montagu). |
| 3. <i>Polynoe scolopendrina</i> , Savigny. | 17. — <i>capensis</i> (Schmarda). |
| 4. <i>Hemilepidia erythrotænia</i> , Schmarda. | 18. — <i>Purcellana</i> , sp. n. |
| 5. <i>Parmenis capensis</i> , sp. n. | 19. <i>Lysidice capensis</i> , Grube. |
| 6. <i>Sthenelais fuliginosa capensis</i> , Claparède. | 20. <i>Maclovioia iricolor capensis</i> (Montagu). |
| 7. <i>Eulalia capensis</i> , Schmarda. | 21. <i>Lumbriconereis coccinea</i> , Renier. |
| 8. <i>Phyllodoce</i> sp. ? | 22. — <i>nardonis</i> , Grube. |
| 9. <i>Glycera convoluta africana</i> , Keferstein. | 23. — <i>capensis</i> , Grube. |
| 10. <i>Neanthes latipalpa</i> , Schmarda. | 24. <i>Cirratulus atrocollaris</i> , Grube. |
| 11. — <i>capensis</i> , sp. n. | 25. — <i>tentaculatus meridionalis</i> (Montagu). |
| 12. <i>Mastigonereis operta</i> (Stimpson). | 26. — <i>capensis</i> , Schmarda. |
| 13. <i>Perinereis mendax</i> (Stimpson). | 27. <i>Flabelligera luctator</i> , Stimpson. |
| 14. <i>Platynereis striata</i> (Schmarda). | 28. <i>Lipobranchus capensis</i> , sp. n. |

* Marenzeller, E. von, "Polychäten der Angra Pequena-Bucht," Zool. Jahrb. Syst. Bd. iii. pp. 1-24 (1888).

I am greatly indebted to Prof. F. Jeffrey Bell for his kindness in looking over the proofs of this paper.

1. *EUPHROSYNE CAPENSIS*, Kinberg. (Plate 13. figs. 1-3.)

Euphrosyne capensis, Kinberg, 1857, Öfv. Ak. Förh. Stockholm, 1858, p. 14; Grube, 1867, 'Novara' Exped., Anneliden, p. 6; McIntosh, 1885, 'Challenger' Polychæta, Reports, vol. xii. part 34, p. 1; Marenzeller, 1888, Polychäten der Angra Pequena-Bucht, p. 1.

Euphrosyne polybranchia, Schmarda, 1861, Neue wirbellose Thiere, ii. p. 136.

The identity of Schmarda's species with Kinberg's *E. capensis* was first established by Prof. McIntosh.

The collection contains seven examples taken "between tide-marks among rocks, St. James, False Bay," and "among roots of sea-bamboo off Woodstock and Salt River beaches." The colour of the living worms is stated to have been brick-red.

The largest specimen has 64 segments, a length of 64 mm., and width of 15 mm. Others with 54 segments measured 20-22 mm. in length, and one with 52 segments measured 46.5 mm. in length, showing that there is no fixed correlation between the total length and the number of segments.

The anterior pair of eyes is placed upon the ventral side of the head (fig. 1), and on either side of them there is a minute parophthalmic tentacle which has not hitherto been described. With strong reflected light they are easily seen under a low power, more clearly in some specimens than in others (fig. 2).

The cephalic caruncle occupies the median dorsal area of the first seven segments (fig. 3).

2. *LEPIDONOTUS CLAVA SEMITECTUS*, Stimpson. (Plate 13. fig. 4.)

Lepidonotus semitectus, Stimpson, "New Marine Invertebrates," Proc. Acad. Philad. vii. 1855, p. 393; Marenzeller, 1888, Polychäten der Angra Pequena-Bucht, p. 3.

The very numerous examples of this species contained in the collection present a varying aspect, differing in colour from mottled dark brown or black to mottled scarlet on the elytra. They represent the Cape community of the Mediterranean and British species, *Lepidonotus clava* (Montagu). The remaining synonymy is given by Marenzeller. The above trinomial designation of the species requires some explanation. It seems there is no real specific distinction between the Cape and the northern forms. The worms in this collection are topotypes of Stimpson's *L. semitectus*, and the word *semitectus* is merely employed here to denote this fact. Their colour-mean, average dimensions, and periodicity probably diverge more or less from those of the northern members of the species. If Stimpson had employed a geographical epithet for the trivial name of his specimens, it would have better suited our purpose, because the typical *L. clava* is also "semitectus" in respect of the elytra; but as he did not, I retain his term with the view of recognizing his rights and avoiding a controversy concerning priority.

The opposed scales sometimes touch in the middle line, leaving uncovered diamond-

shaped patches (presenting a white nucleus surrounded by reddish-brown pigment) along the middle of the back; successive scales also meet each other sometimes, but not always. The scales are orbicular, margin unfringed, often reddish in colour, with pale outer border.

The length of the *tentaculum impar* varies, and this may be due either to normal variation or to regeneration after injury. In one specimen the median cephalic tentacle was thick and white, and only half the length of the paired antennæ, though there was no sign of abnormality beyond the absence of pigment. In another the tentaculum was barely longer than the antennæ and rather stouter. In a third the tentaculum was half as long again as the antennæ, as long as the palps, and, like the latter, terminating in a flagelliform appendix (flagellum).

A moderately large specimen showed 26 segments, and measured about 22 mm. in length, with width of 10 mm. over the setæ, 8 mm. without the setæ.

One tube contained forty-one specimens taken between tide-marks amongst rocks, St. James, False Bay. In another there were six examples, taken amongst roots of sea-bamboo off Woodstock beach, Table Bay, in 8–10 feet of water.

The elytra are tuberculate on the surface, with plain margins. The papillæ of the palps are disposed in six longitudinal rows.

3. POLYNOE SCOLOPENDRINA, Savigny. (Plate 13. fig. 5 and fig. 25.)

Hemilepidia tuberculata, Schmarda, Neue wirbellose Thiere, Bd. i. 2, 1861, p. 149.

Polynoe attenuata, McIntosh, 1885, 'Challenger' Polychæta, Reports, vol. xii. part 34, p. 120; cf. Marenzeller, 1888, Polychäten der Angra Pequena-Bucht, p. 5.

Schmarda's *Hemilepidia tuberculata* cannot, in my experience, be specifically distinguished from *Polynoe scolopendrina* (Savigny) *.

Segments about 110; length 70 mm.; width without setæ 6.5 mm., with setæ 9 mm. The dorsal tubercles, of which there are a median row and a lateral row on each side of the dorsum, commence about the 20th segment. The ventral (nephridial) papillæ are large, visible without the use of a lens. Dorsal cirri alternate with the elytra in anterior region of body, becoming consecutive behind the last elytron. *Cirri anales* 2, stout, subulate, with filiform tip.

The elytral formula is the same as for *Hemilepidia erythrotænia*, namely, 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 26, 29, 32, always counting the segment which carries the tentacular cirri, *i. e.* the buccal segment, as the first segment of the trunk.

Locality. Amongst roots of sea-bamboo off Woodstock beach, Table Bay, ten specimens.

The elytra of the first pair are round and larger than the succeeding oval scales. The anterior eyes occupy the frontal peaks.

A specimen in another tube, from St. James, False Bay, presented a pale flaccid appearance.

* Cf. Baron de Saint-Joseph, "Les Annélides . . . de Dinard," Ann. Sci. Nat. (7) v. 1888, p. 183; and McIntosh, W. C., 'British Annelids,' Ray Society Mon. 1900, p. 390.

4. HEMILEPIDIA ERYTHROTÆNIA, Schmarda. (Plate 13. fig. 6 and fig. 26.)

Hemilepidia erythrotænia, Schmarda, 1861, Neue wirbellose Thiere, ii. p. 150; Marenzeller, 1888, Polychäten der Angra Pequena-Bucht, p. 4.

This polymeric Polynoid has, so far as I am aware, only been recorded from the Cape region, and constitutes one of the features of the South African Annelid fauna. *Euphrosyne capensis* is another characteristic component of this fauna.

The pigmentation of the elytra consists of a broad sharply defined black area at the mesial borders, which just meet in the middle line. The rest of the surface of the elytra is colourless, except for a small dark spot over the scars.

The principal character by which it differs from the type of *Polynoe scolopendrina* is in the curved tip of the ventral setæ, which is smooth in *H. erythrotænia* and bidentate in *P. scolopendrina*.

Locality. Amongst roots of sea-bamboo off Woodstock beach, Table Bay.

The tentaculum and antennæ, especially the latter, are beset with small squamiform papillæ. The dorsal surface of the body is devoid of tubercles.

5. PARMENIS CAPENSIS, sp. n. (Plate 13. figs. 7 & 8 and figs. 27-29.)

In the diagnosis of his genus *Parmenis*, Malmgren* includes the following characters:—"Elytra, paria 15, totum dorsum imbricatum tegentia. Setæ rami superioris seriatim transverse spinulosæ, breviores et crassiores quam setæ rami inferioris. Hæ infra apicem glabrum bifidum vel profunde bidentatum, dente superiore apice curvato."

In the definition of the species *P. Ijungmani* an error has crept into the text, the dorsal setæ being described as "paullum tenuiores quam setæ rami inferioris" instead of "paullum crassiores."

The Cape specimens which I refer to this group have 15 pairs of elytra and as many as 39 segments, the last 6 segments uncovered, as happens also in *Lagisca*. The elytra of the first pair are circular and very much smaller than the succeeding elytra, which have an ovate form with long diameter placed obliquely with reference to the longitudinal axis of the body. The outer and posterior borders of the elytra are fimbriated, apparently differing in this respect from the northern type, which is described as having elytra "margine glabro."

The anal cirri resemble the dorsal cirri in length and form, and, like these, are densely fringed † with elongate papillæ.

The pigment of the elytra is sparse, with an interrupted submarginal tract of neutral tint and a scar-patch.

The dorsal fascicle of setæ is cespitose; the setæ are numerous and much shorter, though only a little thicker, than the ventral.

The ventral setæ are strongly bidentate.

The posterior elytra, more especially the penultimate, are noticeable on account of their larger size.

Locality. Amongst roots of sea-bamboo off Woodstock beach, Table Bay.

* Malmgren, A. J., 'Annulata Polychæta,' 1867, p. 11.

† The term "ciliated" is commonly employed in a special sense to describe this condition.

6. *STHENELAIS FULIGINOSA CAPENSIS*.

I can find no distinctive character in what I take to be the Cape representative of the Mediterranean *Sthenelais fuliginosa*, Claparède*.

The length is 28 mm., width (including setæ) 4 mm., width of ventral surface without parapodia 1.5 mm. Segments between 70 and 80 in number.

Locality. One specimen found amongst roots of sea-bamboo (arborescent *Fucus*) off Woodstock beach, Table Bay, in 8-10 feet of water.

7. *EULALIA CAPENSIS*, Schmarda.

Eulalia capensis, Schmarda, 1861, Neue wirbellose Thiere, ii. p. 86; McIntosh, 1885, 'Challenger' Polychæta, Reports, vol. xii. part 34, p. 168; Marenzeller, op. cit. 1888, p. 5.

Tentaculum impar between, and slightly in advance of, the large eyes, longer than the frontal antennæ. Cirri tentaculares 8, arranged in the following manner on the first three segments:—I $\frac{2}{0}$, II $\frac{2}{2}$, III $\frac{2}{\text{cirri ventrales}}$. Proboscis crowned with 17-19 marginal papillæ and densely beset with papillæ over the surface, except in its posterior portion. Length 8 mm., width 3.5 mm. over all; length of papillose portion of proboscis 15 mm.

As indicated in the formula for the tentacular cirri, the third segment carries the fourth tentacular cirrus above and a *cirrus ventralis foliaceus* below, on each side.

Locality. Ten specimens from a depth of 8-10 feet off Woodstock beach, Table Bay. Colour during life, green.

8. *PHYLLODOCE* sp.

In the absence of information concerning the structure of the proboscis, I refrain from giving a definite name to three specimens of *Phyllodoce* dredged at a depth of 10 feet in Table Bay on a mud bottom. Like *Eulalia capensis*, the colour in the fresh condition was green. There are upwards of 172 segments; length 40.5 mm.; width without setæ 1.5 mm., with setæ 2 mm. The specimens had all lost the proboscis.

The head is rotund, not longer than broad, sometimes narrower in front; its posterior margin, near which the eyes are placed, is entire.

The tentacular cirri are disposed as in *Carobia*†; they are short and stout, their length not exceeding the width of the body.

The character of the proboscis is absolutely essential to the definition of species of *Phyllodoce* and its subgenera *Anaitis* and *Carobia*.

* Cf. Marenzeller, "Zur Kenntniss der adriatischen Anneliden," SB. Ak. Wien, i. Abth. Bd. lxxix. 1874, p. 421.

† Cf. Marenzeller, op. cit. (Adriat. Annel.) 1874, p. 426; and same author, 1879, "Süd-japanische Annel.," Denkschr. Ak. Wien, xli. (2nd Abth.) p. 127.

9. GLYCERA CONVOLUTA AFRICANA.

Glycera convoluta, Keferstein, 1862, Zeitschr. wiss. Zool. xii. p. 106; Grube, 1869, Jahresber. Schles. Ges. Breslau, 1870, pp. 59 & 63; Grube, 1877, Monatsber. Akad. Berlin, p. 510 (Table Bay, 50 fathoms); de Saint-Joseph, Ann. Sci. Nat. (sér. 7) xvii. 1894, p. 27.

Glycera africana, Arwidsson, 1898, Bergens Mus. Aarbog, no. xi. p. 21 (no locality).

From the description which Dr. Arwidsson gives of *G. africana* in his recent studies on the Glyceridæ and Goniadidæ, I am unable to recognize its distinctness from Keferstein's *G. convoluta*, and the author makes no mention of the fact that the latter species was recorded by Grube from Table Bay among the Annelids obtained during the cruise of S.M.S. 'Gazelle.' Keferstein pointed out that the species of the genus *Glycera* fall into two sections, according to the presence or absence of gills. The present species belongs to the gill-bearing section, and is distinguished by its biannulate body-segments and by the rounded truncated character of the ventral portion of the bifid posterior lip of the parapodium. The simple unbranched branchiæ, absent from about a score of segments in the anterior region, attain their greatest dimensions in the mid-region of the body. There are upwards of 140 segments; length 32 mm.

Locality. Two specimens found in the mud on the mud-banks in the lagoon at the mouth of the Knysna River; one example dredged on mud-bottom in Table Bay at a depth of 10 feet.

10. NEANTHES LATIPALPA TYPICA. (Plate 13. fig. 9 and Plate 14. figs. 1-2 a, b.)

Nereis latipalpa, Schmarda, 1861, Neue wirbellose Thiere, ii. p. 104.

Neanthes latipalpa, Kinberg, 1865, Öfv. Ak. Förh. p. 171; Marenzeller, 1888, Polychäten der Angra Pequena-Bucht, p. 6.

Schmarda committed an undoubted indiscretion in applying the same specific name to two different Nereids from the Cape, *N. latipalpa* and *Mastigonereis latipalpa*, and introduced a further element of confusion by making one and the same figure (Taf. xxxi. fig. 244) do duty for the two species.

The principal character of the species is afforded by the paragnaths of the order VI, which constitute a monostich of large triangular teeth about 23 in number, confluent across the middle line, so that the group V cannot easily be separated, and is therefore to be regarded as quasi-existent. In Kinberg's original specimen, which I have had the opportunity of examining, there were 23 teeth in the row—11 on each side and 1 in the centre.

The first specimen in the collection of the South African Museum which I looked at had the same number of teeth in the groups V + VI as in Kinberg's type. But the number is subject to considerable variation, both in different individuals and on the two sides of the same individual, ranging on either side from 8 to 15. The paragnaths of order I may be represented by a single tooth or by two or three, placed, as usual in this group, one behind the other. The teeth of group VI may be flattened and linear instead of erect and conical.

The feet are approximately equal throughout the length of the trunk (*pedes æquales*), and the dorsal cirrus is equal to or rather less than the length of the dorsal ligule.

The head is long, and the eyes are placed at the corners of a wide trapezium.

The paragnaths of the distal or maxillary division of the proboscis are much smaller and feebler than those of the proximal or oral division.

Length 95 mm.; width in front (gradually tapering backwards) is 4 mm. without the feet, 6 mm. inclusive measurement.

Locality. Forty-one atokous specimens taken among rocks at Green Point, Table Bay, in November 1896; twelve epitokous examples taken in the mud on the mud-banks of the Knysna lagoon.

In the structure of the parapodia and their armature this species apparently does not differ from Grube's *Nereis brevicirris** from St. Paul, but with regard to the arrangement of paragnaths, there is, in the latter species, a group of three teeth of the order V placed in a triangle behind the confluent monostich of VI. In spite of this apparent difference, which is not great in view of the frequency of meristic variations and of the common occurrence of supernumerary teeth, I think Grube's species would be more suitably entitled *Neanthes latipalpa brevicirris*.

Another representative of the same specific group was collected in Ceylon by Mr. L. A. Borradaile, who has added the specimen to the material of the British Museum.

11. NEANTHES CAPENSIS, sp. n. (Plate 13. fig. 10 and Plate 14. figs. 9 & 10.)

A number of small Nereids taken in company with *Platynereis striata* off Woodstock beach have all groups of paragnaths represented in the proboscis by conical sclerites, and therefore belong to Kinberg's genus *Neanthes*.

The third pair of tentacular cirri stretch over 4-8 segments. There is a faint moniliform pattern along the centre of the back over the dorsal vessel, which serves to distinguish them, when the proboscis is not exerted, from *Platynereis striata*. The ligules of the feet are rounded in front and become conical behind.

An incomplete specimen had 63 segments; length 31 mm., width over all 3.5 mm. The length of the antennæ seems to vary somewhat from about half the length of the prostomium to more than half this length.

The paragnaths of group VI are disposed in an acervus, and the species therefore falls into line with *N. acuminata*, Ehlers, and *N. crucifera*, Grube.

12. MASTIGONEREIS OPERTA. (Plate 13. figs. 11 & 12 and Plate 14. figs. 7-8 a, b.)

Nereis operta, Stimpson, 1855, Proc. Acad. Philad. vii. p. 392.

Mastigonereis latipalpa, Schmarda, 1861, Neue wirbellose Thiere, ii.

Mastigonereis retrodentata (Quatrefages, 1865, Hist. Nat. Annel. i. p. 557); cf. Marenzeller, 1888, Polychäten der Angra Pequena-Bucht, p. 7.

The collection comprises atokous and epitokous forms, with transitions from one condition to the other. The occurrence of epitoky is a fact of great bionomic interest, but from a strictly systematic standpoint an epitokous Annelid, although it has achieved its highest development, is of no more practical use for diagnosis than the same worm in the atokous condition. That is to say, the substitution of reniform setæ

* Grube, A. E., "Anneliden," Novara-Reise, Zool. Bd. ii. (Vienna, 1867), p. 19, Taf. ii. fig. 2.

for normal setæ and the development of the natatory membranes (ligular lobes) on the parapodia add no useful character to the definition of a particular species. This is a rather curious fact. In an epitokous worm the anterior region of the body retains on the whole its normal specific character, but in the modified posterior region the specific features are concealed below the profusion of secondary natatory appendages of the feet, although the characteristic form of cirri and ligules is retained and can be recognized by careful examination below the mask of epitoky.

An atokous example measured 93 mm. in length, 8 mm. in width (including the feet), and possessed 114 setigerous segments. An epitokous female was nearly 140 mm. long.

Locality. Six atokous specimens taken amongst seaweed off Woodstock beach in August 1896, and seven epitokous specimens from the same locality collected in December 1900.

13. *PERINEREIS MENDAX* (Stimpson). (Plate 13. fig. 13 and Plate 14. figs. 3-6.)

Nereis mendax, Stimpson, Proc. Acad. Philad. vii. p. 392 (1855).

Mastigonereis podocirra, Schmarda, 1861, Neue wirbellose Thiere, ii. p. 108; Marenzeller, 1888, Polychäten der Angra Pequena-Bucht, p. 7.

Nereis Stimpsonis, Grube, 1867, 'Novara' Exped., Anneliden, p. 18, Taf. i. fig. 8.

Kinberg's genus *Perinereis* is determined by the character of the paragnaths of order VI, which occur as one or two linear or broadly conical or arcuate chitinous sclerites on each side of the median group V. I have examined the types of Kinberg's genera of Nereidæ by special arrangement between the authorities of the British Museum (Natural History) and the Royal Museum at Stockholm, and am bound to say that I am not clear as to the distinct generic properties of *Perinereis*, *Paranereis*, and *Pseudonereis* *.

Very numerous examples of this species were taken between tide-marks at St. James, False Bay, and two specimens from Woodstock, Table Bay. They are described as living "in holes between the barnacles &c. on the upper sides of rocks exposed at low tide."

14. *PLATYNEREIS STRIATA* (Schmarda). (Plate 13. fig. 14 and Plate 14. figs. 11 & 12.)

Platynereis striata (Schmarda), see Kinberg, 1865, "Annulata nova, Nereidum dispositio nova," Öfv. K. Vet.-Akad. Förh. 1865, Stockholm, 1866, p. 177.

The length of the antennæ is equal to that of the prostomium. The third pair of tentacular cirri stretch over 10-14 segments. There are about 80 segments in all; length about 52 mm.; width without feet 3 mm., with feet 5 mm.

* The dorsal cirrus is about twice the length of the dorsal ligule, and this proportion does not appreciably alter through the length of the body.

The paragnaths have the form of minute granulations characteristic of the genus *Platynereis*, which has priority over Malmgren's genus *Leontis*. The groups VII+VIII

* The *Pseudonereis anomala* of Gravier ("Contribution à l'étude des Annélides . . . de la Mer rouge," Arch. Mus. Paris, (8) xi. 1900, pl. xii. figs. 50-52) is not a *Pseudonereis* in Kinberg's sense. I have seen specimens of it from Karachi, and think it is worthy of subgeneric rank at least, unless it be regarded as a *Nereis* s. str.

are represented on the ventral side of the oral division of the proboscis by five distichous or tristichous acervuli; the sides of the proboscis are unarmed, so that there is a long interval between these ventral acervuli and the group VI. Group V is unrepresented.

Numerous examples taken among roots of sea-bamboo off Woodstock beach, Table Bay, at a depth of 8-10 feet.

15. *ERIPHYLE CAPENSIS*, Kinberg.

Eriphyle capensis, Kinberg, 1864, "Annulata nova," Öfv. Ak. Förh. Stockholm, p. 561.

See Marenzeller, 1888, Polychäten der Angra Pequena-Bucht, p. 7, *ubi syn.*

According to Dr. von Marenzeller, this species is distinct from *E. aphroditois* by the structure of the falciform and scalprate setæ. I have not succeeded in convincing myself on this point, and incline towards the trinomial designation *E. aphroditois capensis*.

In the collection of the South African Museum there is a specimen, 304.8 mm. long, with diameter of 13 mm., taken "between tide-marks amongst rocks, St. James, False Bay." The colour when the worm was alive is stated to have been brick-red.

The branchiæ occur as simple filaments on the 8th, 9th, 10th, and 11th setigers, 12-pinnate on the 12th setiger, rising in succeeding segments to a maximum of about 14 pinnæ.

16. *MARPHYSA SANGUINEA HÆMASOMA*. (Plate 13. fig. 15.)

Marphysa sanguinea (Montagu), *cf.* Marenzeller, 1888, *op. cit.* p. 11.

I cannot detect any essential difference between *Marphysa hæmasoma*, Quatrefages (Hist. Nat. Annel. i. 1865, p. 334), and the European *M. sanguinea*, except a difference of size.

One small specimen was taken between tide-marks at St. James, False Bay.

The compound setæ are spinigerous; the branchiæ commence on the 17th segment, and occur as simple filaments through 7 segments.

17. *MARPHYSA CAPENSIS* (Schmarda). (Plate 13. fig. 16.)

Marphysa capensis (Schmarda), 1861, Neue wirbellose Thiere, ii. p. 126.

Numerous specimens taken among roots of sea-bamboo off Woodstock beach, Table Bay.

In one specimen, 125 mm. in length, the branchiæ commence on the 22nd segment, the first half-dozen being simple filaments. There are about 35 posterior segments without branchiæ. Width of body measured over the ventral cirri 8 mm., tapering gradually behind. Compound setæ falcigerous. Jaws:—II r. 4, l. 3, large teeth only at anterior end of the long jaw-piece; III l. 4; IV l. 3, r. 6; V 1—1.

In another specimen the branchiæ commence simple on the 15th foot, becoming biramous on the 24th and triramous on the 28th foot.

18. *MARPHYSA PURCELLANA*, sp. n. (Plate 13. fig. 17.)

This interesting species is closely related to *M. adenensis*, Gravier ("Contribution à l'étude des Annélides Polychètes de la Mer rouge," Arch. Mus. Paris, (4) ii. fasc. 2,

1900, p. 270, pl. xi. figs. 91-92), and my own inclination is to adhere to the trinomial system by the designation *Marphysa adenensis Purcellana*.

It differs from *M. adenensis* in that the prostomium is broader than long and its frontal border is emarginate; the median antenna is the shortest, shorter than the prostomium.

The branchiæ are pinnate and the compound setæ falcigerous, these being the principal characters which relate it to *M. adenensis*.

The pinnate branchiæ occur on segments 10-30. The feet are low. There are 136 segments (in the specimens examined), followed by an apparently regenerated tail-end of about 10 segments, terminated by two slender anal cirri, at the base of which are two quite short cirri. The total length is about 95 mm., and the width in the branchial region 5 mm.

This species, in common with *M. adenensis*, differs from *M. Belli* in the form of the setæ and branchiæ, but resembles it in a striking manner in the localization of the branchiæ*.

I have much pleasure in dedicating this species to Mr. W. F. Purcell, by whom it was collected.

19. *LYSIDICE CAPENSIS*, Grube. (Plate 13. fig. 18)

Lysidice capensis, Grube, 1867, 'Novara' Exped., Annel. p. 12, Taf. i. fig. 4.

Five examples of this species were taken between tide-marks at St. James, False Bay.

20. *MACLOVIA IRICOLOR CAPENSIS*. (Plate 13. figs. 19 & 20.)

One specimen taken among roots of sea-bamboo off Woodstock beach, Table Bay. It consists of 215 segments, incomplete behind, 102 mm. long, 3 mm. wide. The dorsal cirræ are evanescent, but the setæ which enter them are present. It can hardly be separated specifically from *M. iricolor* (Montagu) †, differing only in size, so far as I can ascertain from the alcoholic material. Another specimen comes from St. James, False Bay.

21. *LUMBRICONEREIS COCCINEA*, Renier. (Plate 13. fig. 21 and Plate 14. fig. 13.)

See Ehlers, Borstenwürmer, 1868, p. 389.

A tube contained 28 Lumbriconereids from St. James, False Bay. Most of them appeared to belong to this species, which is characterized by the breadth of the anterior end, and especially by the subglobular prostomium. Compound falciform setæ (in the specimen examined) occurred in the first 13 setigerous segments, simple hamate setæ thereafter. Simple limbate capillary setæ occurred in the first 28 setigers, and on one side I found them again cropping up in segments 41, 42, and 43. This shows (what I have often observed before) that the distribution of the various forms of setæ in the Lumbriconereidæ is subject to considerable variation.

A specimen of 70 mm. had 100 setigerous segments.

* Compare also *Eunice stragulum*, Grube (Philippine Annelida, 1878, p. 163).

† Cf. Willey, A., "On *Maclovioa iricolor* (Montagu)," J. Mar. Biol. Assoc. (n. s) vi. pp. 98-100.

22. LUMBRICONEREIS NARDONIS, Grube. (Plate 13. fig. 22.)

See Ehlers, Borstenwürmer, 1868, p. 381.

It is with some hesitation that I assign a specimen found in the same tube with the preceding to this species. It is difficult to distinguish Lumbriconereidæ, as a rule, from one another. Almost the only difference (the only one which I can recognize) between *L. coccinea* and *L. nardonis* relates to the form of the prostomium, which is subglobular in the former and subconical in the latter.

Capillary setæ occur in the first 46 segments, up to 7 in a fascicle.

The two species *L. coccinea* and *L. nardonis* are associated together in the Adriatic, and it would seem that this is also the case in Table Bay, though further observations are required in confirmation of this statement.

23. LUMBRICONEREIS CAPENSIS, Grube.

Lumbriconereis capensis, Grube, "Fortsetzung . . . über Eunicea: II. Lumbriconereidæ," Jahresber. Schles. Ges. 1878 (Jhrg. 56), Breslau, 1879, p. 95.

Probably synonymous with *L. cavifrons*, Grube ('Novara' Exped., Annel. 1867, p. 13); it cannot be distinguished satisfactorily from *L. Dübeni*, Kinberg, 1864.

Six specimens from St. James, False Bay. One was much slenderer than the rest, having 300 segments, head conical, capillary setæ in about 60 segments. Another shorter specimen had capillary setæ (frequently 3 in a foot) in about 36 segments. No compound setæ.

Another specimen (125 segments, incomplete behind) had simple curved limbate setæ in the first 50 setigerous segments, thereafter the hamate limbate setæ. Prostomium rather longer than three succeeding segments, ovate.

24. CIRRATULUS ATROCOLLARIS, Grube.

Cirratulus atrocollaris, Grube, "Annel. Gazelle," Monatsber. Akad. Berlin, 1877, p. 536.

Body round, smooth, and short; segments over 200, crowded and short; there is a half-collar of black pigment on the third segment below; length nearly 40 mm.; ventral aciculæ no stronger than the dorsal, slightly curved; aciculæ absent from about 30 anterior segments; most of the curved ends of the aciculæ are broken off; the setæ are excessively brittle; branchiæ in paired acervi.

Twelve specimens "in mud on mud-banks in the Knysna Lagoon," a large salt-water lagoon formed by the sea entering the mouth of the Knysna River.

25. CIRRATULUS TENTACULATUS MERIDIONALIS.

Cf. Marenzeller, Polychäten der Angra Pequena-Bucht, 1888, p. 16.

Ventral aciculæ commence at the 46th segment (52nd, Marenz.), the dorsal after the 100th (184th, Marenz.); anterior branchial filaments numerous, forming a continuous transverse acervus; length 70 mm., width 2.5-3 mm.

Twenty-one examples between tide-marks amongst rocks at Sea Point, Table Bay.

26. *CIRRATULA CAPENSIS*, Schmarda.

Cirratulus capensis, Schmarda, 1861, Neue wirbellose Thiere, ii. p. 56; McIntosh, 1885, 'Challenger' Polychæta, vol. xii. p. 383; Marenzeller, 1888, Polychäten der Angra Pequena-Bucht.

Segments 1st-3rd achæitous, 4th-28th with capillary setæ only, 29th ventral aciculæ commence, 41st dorsal aciculæ commence; on the dorsum of segments 6 and 7 on each side an acervus of about 20 branchial filaments with slender insertions and thickened extremities; then for about 20-25 segments branchiæ occur in each segment, afterwards becoming more and more irregular, reappearing in greater numbers and with more dorsad insertion towards the posterior end; ventral aciculæ 5, sometimes 3, in a fascicle; a few capillary setæ occur throughout the length of the body in the ventral fascicles; the ventral aciculæ are stout and strongly curved; dorsal aciculæ slender and nearly straight; eye-spots on sides of head; length 114 mm., width 5-8 mm.; colour in life, orange.

Numerous examples off Woodstock beach, Table Bay.

27. *FLABELLIGERA LUCTATOR*, Stimpson.

Cf. Marenzeller, 1888, op. cit. p. 15.

Large pro-eminent brown hooks (*festucæ*), one to each segment, with one in reserve; setæ of flabellum numerous; dorsal surface convex, smooth, about 46 segments without the flabellum, attenuate behind; length 33 mm., maximum width nearly 5 mm.

I cannot properly distinguish this species from the northern *F. affinis*, M. Sars. It is evidently the Cape form of the species, and I think the name should read *F. affinis luctator*. Of course, *F. affinis capensis* would be the more appropriate designation, but it would probably introduce confusion, as the name *luctator* has been applied to the Cape members of this race of Flabelligeridæ.

Seven specimens among roots of sea-bamboo off Woodstock beach; five specimens from St. James, False Bay.

28. *LIPOBRANCHUS CAPENSIS*, sp. n. (Plate 13. figs. 23 & 24 and Plate 14. fig. 14.)

A single specimen of a small black Scalibregmid with white transverse head was collected between tide-marks amongst rocks at St. James, False Bay, by Mr. W. F. Purcell.

I submitted this worm to Dr. J. H. Ashworth*, who pronounced it to be unlike any of the Scalibregmidæ known to him.

There are 4 fascicles of setæ in all segments commencing immediately behind the head; setæ of two kinds—simple, smooth, capillary setæ and furcate setæ; a fringe of papillæ surrounds the terminal anus; branchiæ absent; more than 60 segments.

The collection also contains a Capitellid (tube No. 87) from roots of sea-bamboo off Woodstock beach, which I was unable to identify.

* Ashworth, J. H., "The Anatomy of *Scalibregma inflatum*, Rathke," Quart. Journ. Micr. Sci. vol. xlv. pp. 237-309; see p. 297, on the family Scalibregmidæ.

EXPLANATION OF THE PLATES.

PLATE 13.

- Fig. 1. *Euphrosyne capensis*. Anterior end from below, showing the *tori buccales*. $\times 8$.
 2. Same. Ventral surface of prostomium, enlarged to show the anterior pair of eyes, with the minute parophthalmic tentacles.
 3. Same. Anterior end from above, showing the caruncle. $\times 8$.
 4. *Lepidonotus clava semitectus*. Anterior end from above; the first two pairs of elytra have been removed. $\times 8$.
 5. *Polynoe scolopendrina*. Anterior end from above. $\times 8$.
 6. *Hemilepidia erythrotænia*. Anterior end from above. $\times 8$.
 7. *Parmensis capensis*. Anterior end from above. $\times 8$.
 8. Same. Head from the right side.
 9. *Neanthes latipalpa*. Anterior end from above. $\times 4$.
 10. *Neanthes capensis*. Anterior end from above. $\times 8$.
 11. *Mastigonereis operta*. Anterior end from above; in the extruded pharynx the paragnaths of group V are irregular; the tentacular cirri are rather abnormal. $\times 4$.
 12. Same. Epitokous phase; eyes enlarged and contiguous. $\times 4$.
 13. *Perinereis mendax*. Anterior end from above. $\times 4$.
 14. *Platynereis striata*. Anterior end from above. $\times 8$.
 15. *Marphysa sanguinea hæmasoma*. Anterior end from above. $\times 3$.
 16. *Marphysa capensis*. Anterior end from above. $\times 2$.
 17. *Marphysa Purcellana*. Anterior end from above. $\times 3$.
 18. *Lysidice capensis*. Anterior end from above. $\times 2$.
 19. *Maclovina iricolor capensis*. Anterior end from above. $\times 4$.
 20. Same. In a state of protraction. $\times 4$.
 21. *Lumbriconereis coccinea*. Anterior end from above. $\times 4$.
 22. *Lumbriconereis nardonis*. Anterior end from above. $\times 4$.
 23. *Lipobranchus capensis*. Anterior end from above. $\times 15$.
 24. Same. Anterior end from below. $\times 15$.
 25. *Polynoe scolopendrina*. Ventral setæ: *A*, superior; *C*, inferior. $\times 130$.
 26. *Hemilepidia erythrotænia*. Corresponding setæ. $\times 130$.
 27. *Parmensis capensis*. Foot from an elytra-bearing segment. $\times 20$.
 28. Same. Tip of a ventral seta.
 29. Same. Portion of an elytron.

PLATE 14.

Fig. 1. *Neanthes latipalpa*. Eighth foot of right side. $\times 26$.

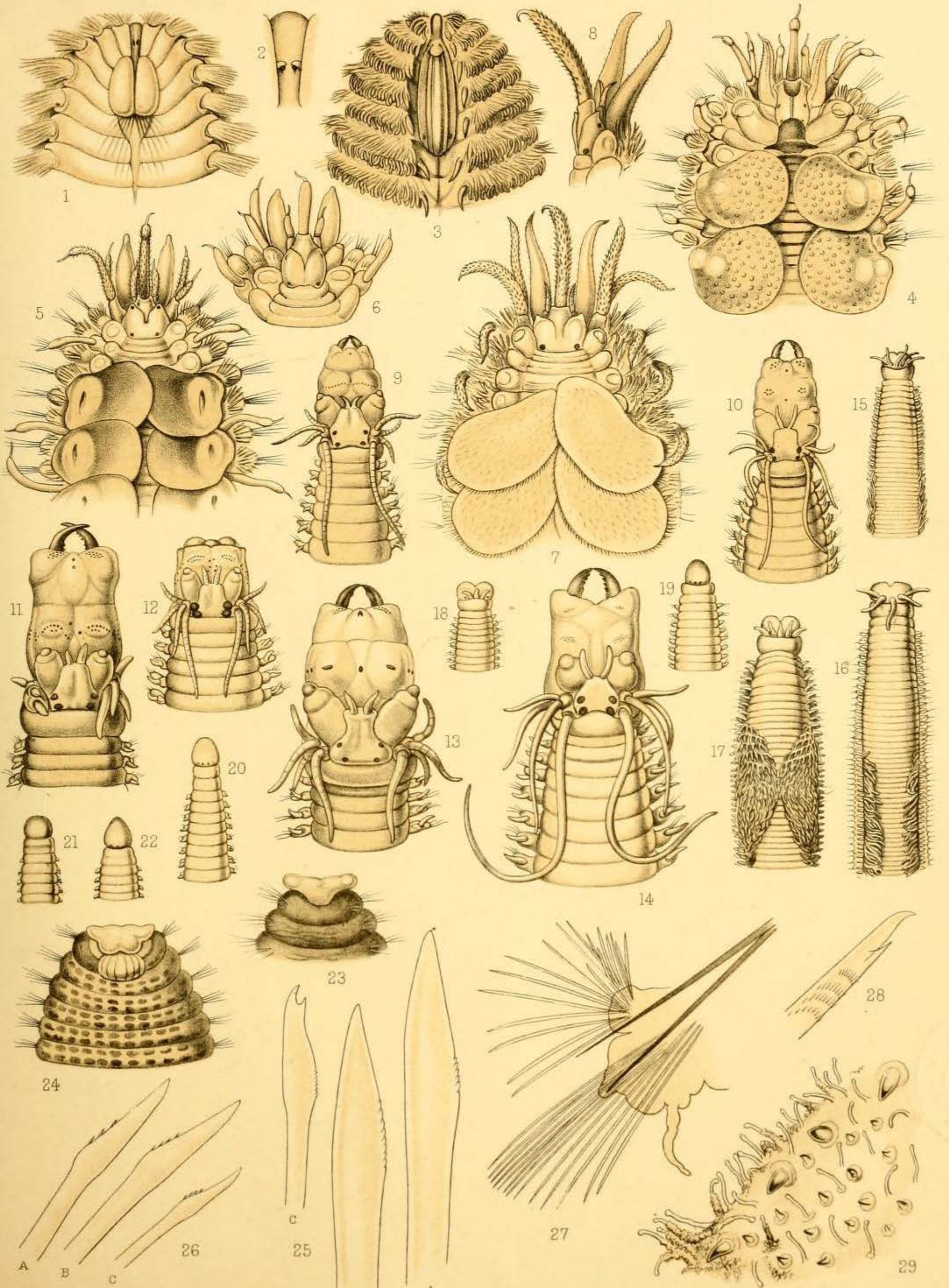
2. Same. Seventy-third foot of right side. $\times 26$.

Figs. 2 *a* & *b*. Details of ventral setæ.

N.B.—The few setæ represented in the feet are designed to illustrate the distribution of the homogomph and heterogomph varieties.

Fig. 3. *Perinereis mendax*. Thirty-ninth foot of right side during commencing epitoky. $\times 24$.

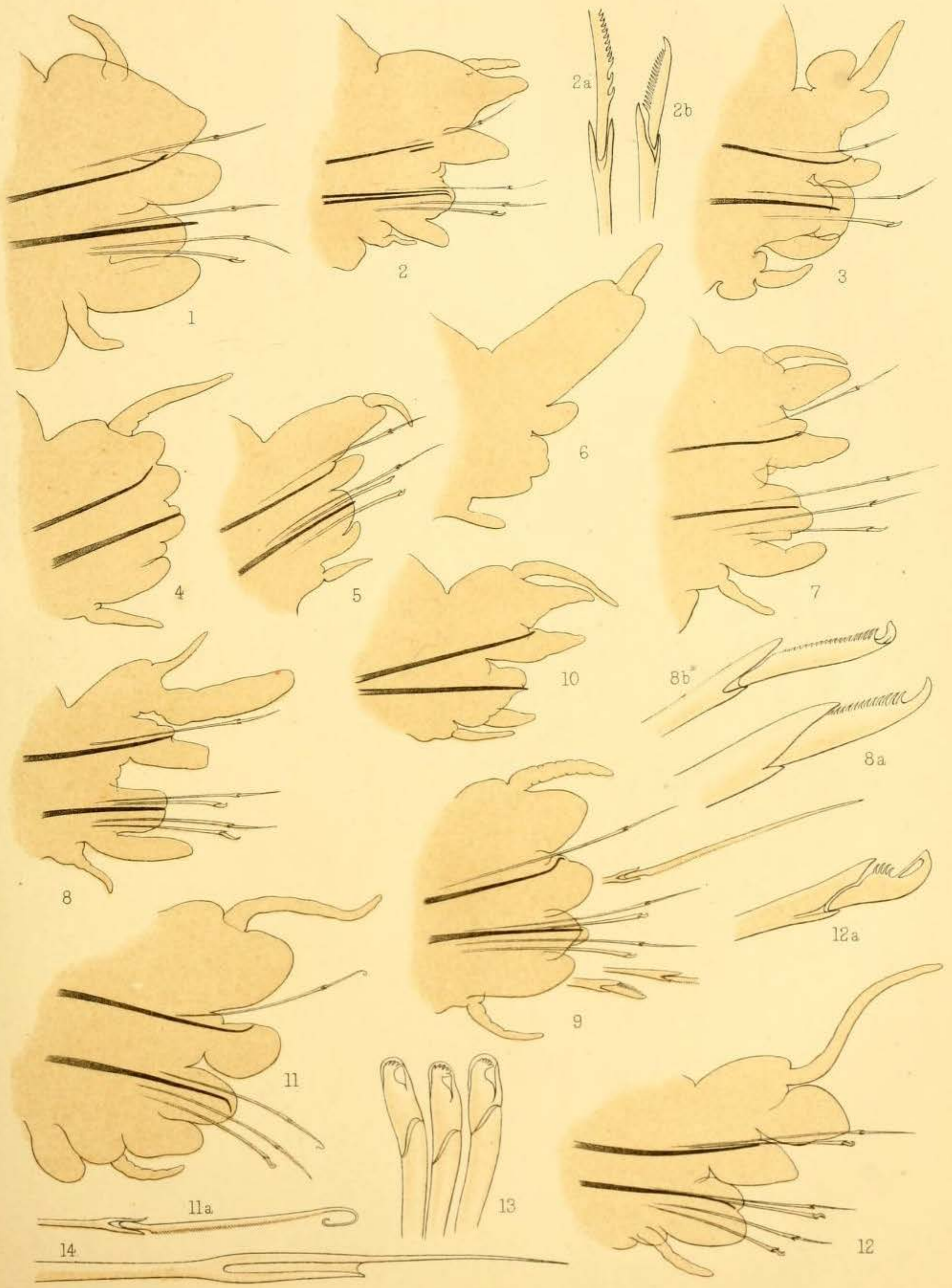
- Figs. 4, 5, & 6. *Perinereis mendax*. Eleventh, sixty-second, and seventy-eighth parapodia respectively of the right side of an atokous individual. $\times 24$.
- 7 & 8. *Mastigonereis operta*. Thirty-eighth and eighty-fourth feet respectively of the right side. $\times 24$.
- 8 a & b. Details of setæ.
- 9 & 10. *Neanthes capensis*. Twelfth and fifty-seventh feet of right side, with details of setæ. $\times 55$.
- 11 & 12. *Platynereis striata*. Twelfth and seventieth feet of right side. $\times 40$.
- 11 a & 12 a. Details of setæ.
- Fig. 13. *Lumbriconereis coccinea*. Compound ventral setæ from the sixth foot of right side.
14. *Lipobranchus capensis*. Furcate seta. $\times 350$.



P. Highley del.

West, Newman lith. London.

CAPE POLYCHÆTA.



P. Highley del.

West, Newman lith. London.

CAPE POLYCHAETA.