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The production of this slip, with 6*d*. for packing and postage, will entitle purchasers of this part, other than members of the Society, to a set of the coloured plates, if obtained, on application to Messrs. Dulau & Co., Ltd., 37, Soho Square, W.

JOHN HOPKINSON,
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Weetwood,
Watford.

October, 1915.

THE

RAY SOCIETY.

INSTITUTED MDCCCXLIV.

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A

MONOGRAPH

OF THE

BRITISH MARINE ANNELIDS.

VOL. III. PART II.—PLATES.

POLYCHÆTA—

OPHELIIDÆ TO AMMOCHARIDÆ.

BY

WILLIAM CARMICHAEL McINTOSH, M.D.EDIN.,

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The Council of the Ray Society having found it impossible on account of the war yet to obtain the six coloured plates, LXXXVIII to XCIII, the lithographing of which was completed in the autumn of 1914, decided to have uncoloured copies made of the coloured proofs by the collotype process, so as to render the text at once available to workers. This has been satisfactorily done by Messrs. Griggs & Sons. The uncoloured plates, XCIV to CXI, were finished in October, 1914.

Should the coloured plates eventually be obtained, they will be sent to all subscribers for the year 1916.

It is well to state, in order to avoid repetitions in the explanations of the plates, that in all cases where oculars and objectives are referred to, a microscope by Zeiss was used.

A

MONOGRAPH

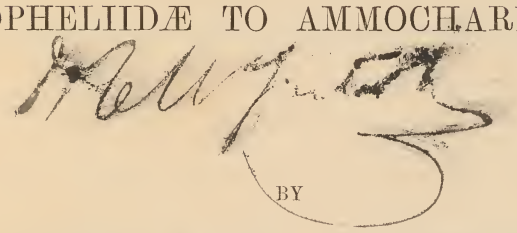
OF THE

BRITISH MARINE ANNELIDS.

VOL. III.

POLYCHÆTA—

OPHELIIDÆ TO AMMOCHARIDÆ.



BY

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PLATE LXXXVIII.

Fig.

1. Lateral view of *Ophelia limacina*, H. Rathke, from St. Andrews. Slightly enlarged.
2. Partly lateral view of *Polyophthalmus pictus*, Dujardin, from Bantry Bay. Enlarged.
3. Dorsal aspect of *Travisia Forbesii*, Johnston (the odour of which is peculiar). Enlarged.
4. *Scalibregma inflatum*, H. Rathke, from Lochmaddy, North Uist. Enlarged.
5. *Arenicola marina*, L. Dorso-lateral view with proboscis extruded.
6. Gill of *Arenicola marina*. Magnified.
7. Young of the same in its pelagic sheath of mucus. Enlarged.
8. *Arenicola ecaudata*, Johnston. Slightly enlarged. From Dr. Ashworth's Monograph, by the courtesy of the Trustees of the British Museum.
9. *Arenicola branchialis*, Audouin & Edwards. Slightly enlarged. From Dr. Ashworth's Monograph, by the courtesy of the Trustees of the British Museum.
10. *Ephesia gracilis*, H. Rathke; in a slightly softened condition, the reddish hue being due to extravasations of blood.

Figs. 4+10 R.M. Figs. 8+9 J.H.A. Cætera A.H.W.

Werner u. Winter, Frankfurt a/M.

FIGS. 4 & 10 R.M. FIGS. 8 & 9 J.H.A. CÆTERA A.H.W.

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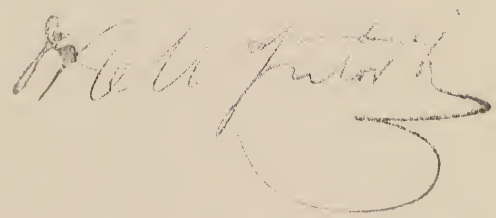
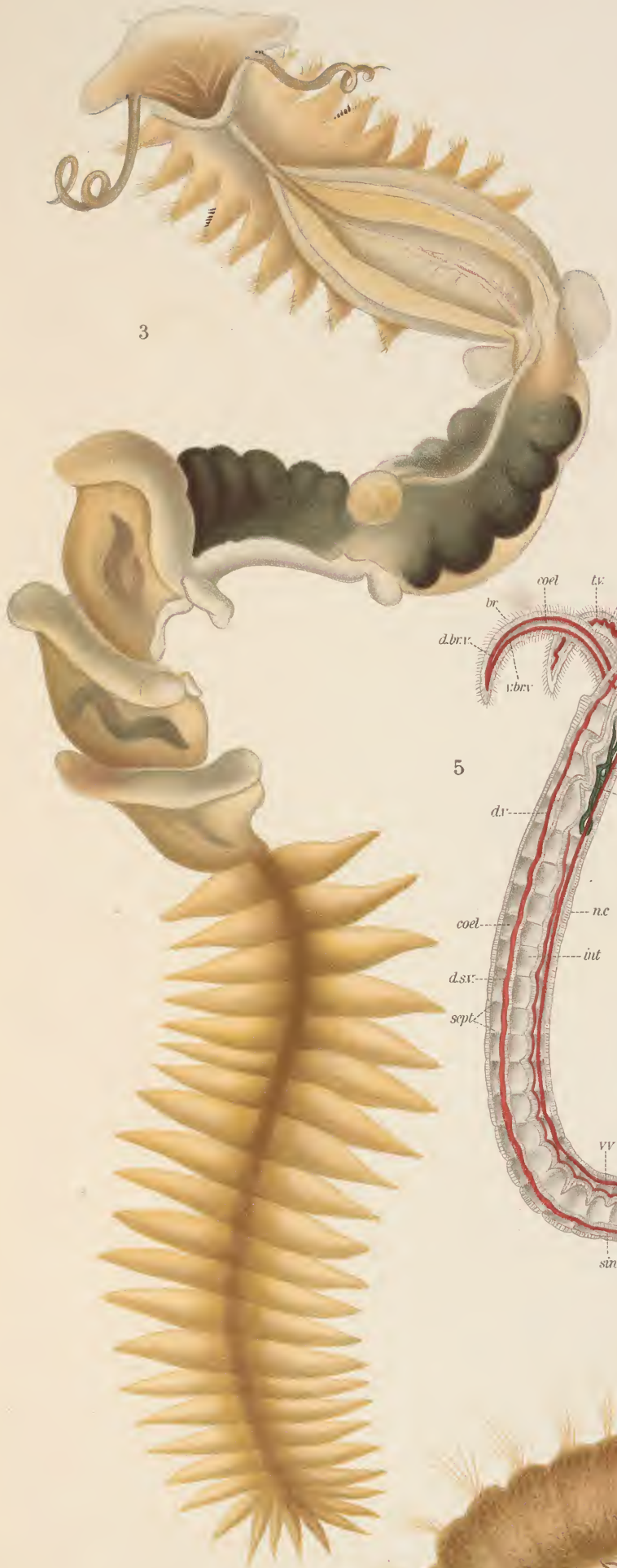


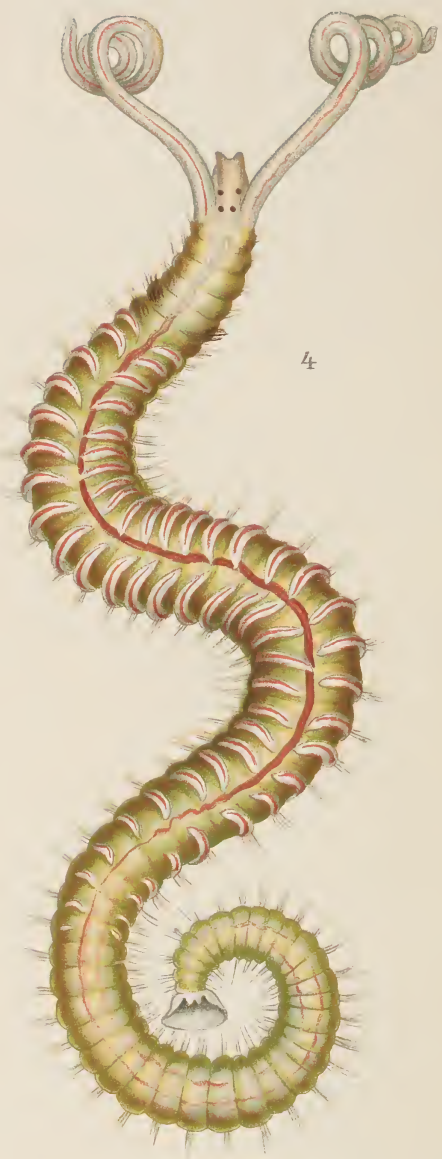
PLATE LXXXIX.

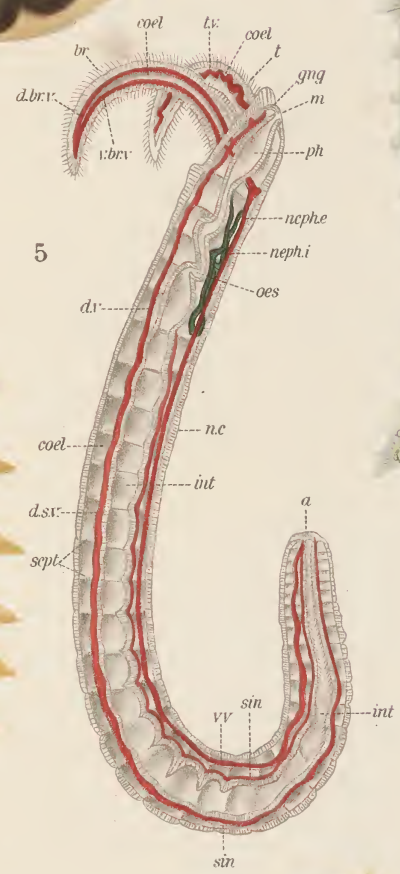
Fig.

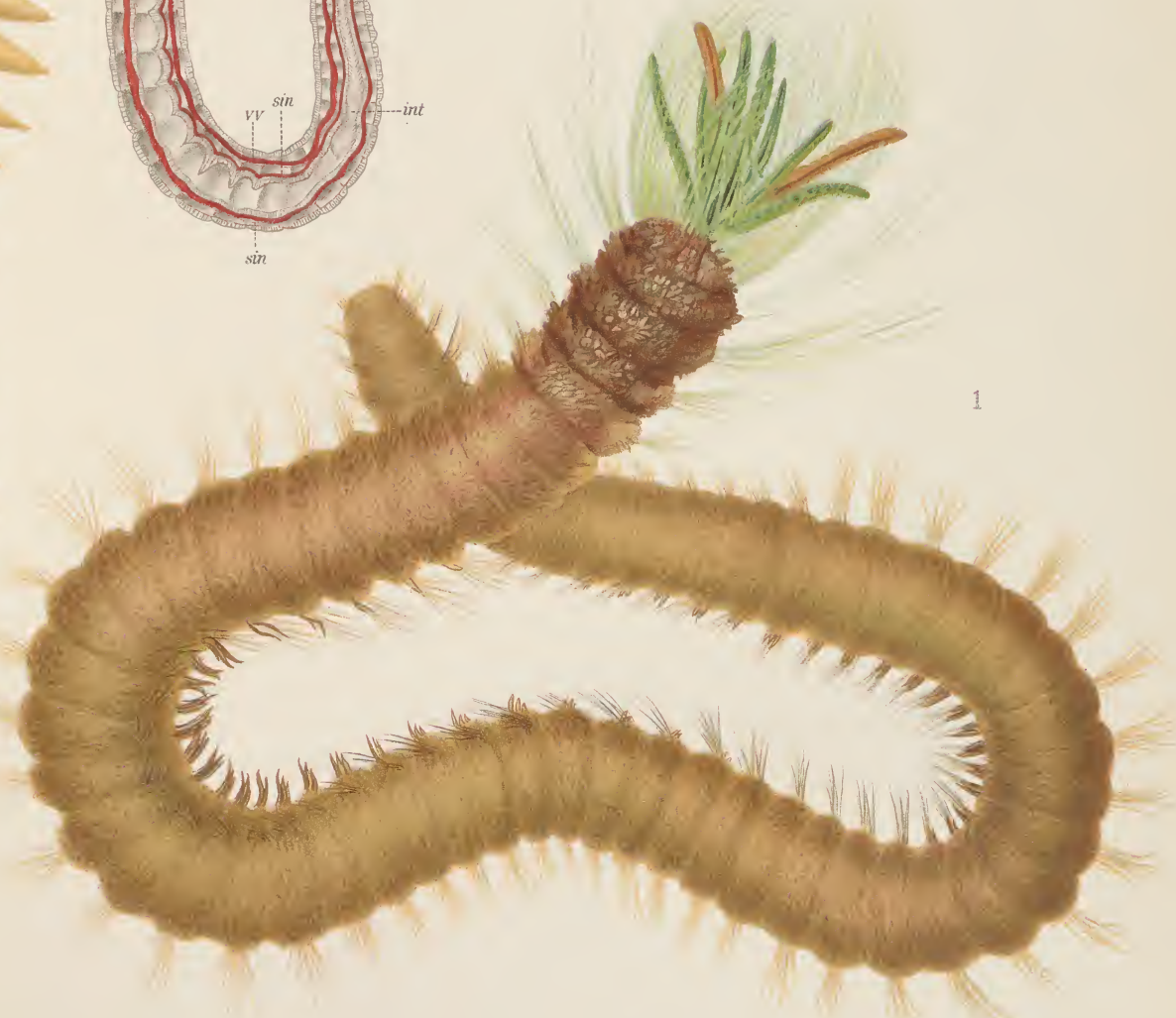
1. *Stylarioides plumosa*, O. F. Müller, from St. Andrews. Enlarged.
2. *Flabelligera affinis*, Sars, from St. Andrews. Enlarged.
3. *Chætopterus variopedatus*, Renier, from Guernsey. Enlarged.
4. *Polydora ciliata*, Johnston, from the rocks at St. Andrews. Enlarged.
5. Semi-diagrammatic view of *Streblospio shrubsolii*, F. Buchanan.

t. tentacle; *br.* branchiæ; *m.* mouth; *ph.* pharynx; *œ.* œsophagus; *int.* intestine; *a.* anus; *d. v.* dorsal vessel; *t. v.* vessel of tentacle; *d. b. v.* branchial vessel in connection with dorsal vessel; *v. b. v.* branchial vessel in connection with ventral vessel; *v. v.* ventral vessel; *sin.* sinus; *d. s. v.* dorsal vessel snipped off from the rest of the sinus, but lying close to the wall of intestine, entering the intra-vesicular ridge; *n. c.* nerve-cord; *gng.* peristomial ganglion; *neph. e.* external limb of thoracic nephridium opening in second segment to exterior; *neph. i.* internal limb of thoracic nephridium; *cœl.* cœlom; *sept.* septa. Longitudinal muscles omitted. From Miss F. Buchanan's figure.



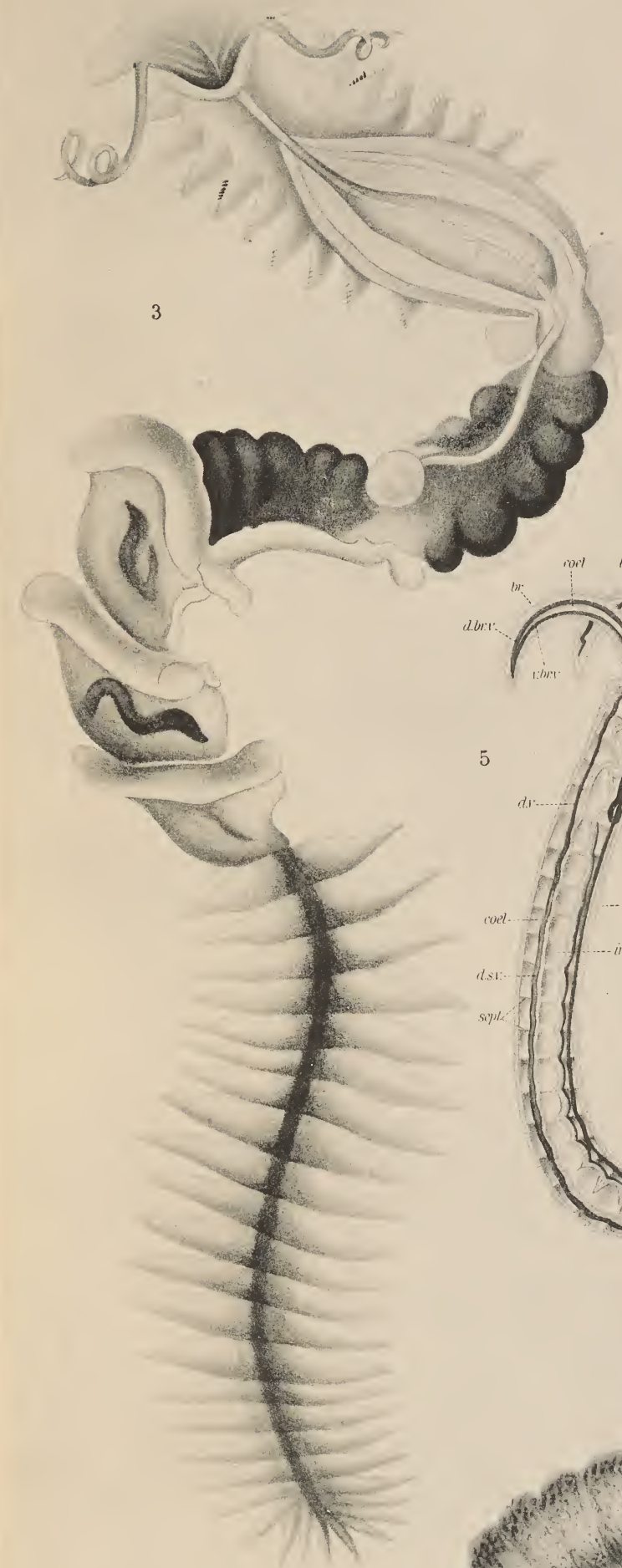






R.M. Figs 1,3+4, Fig. 5 F.B., Fig. 2 A.H.W.

Werner u. Winter, Frankfurt a. M.



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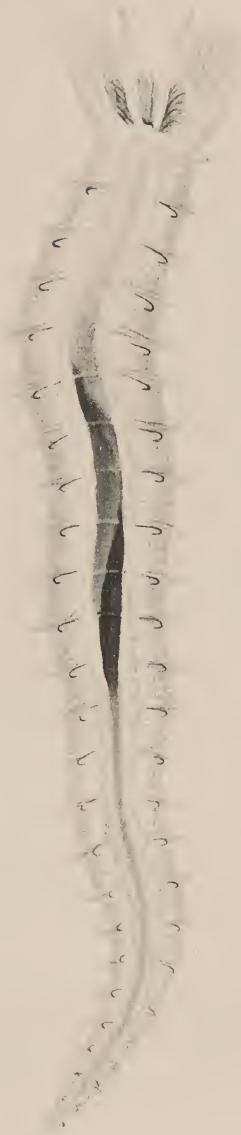

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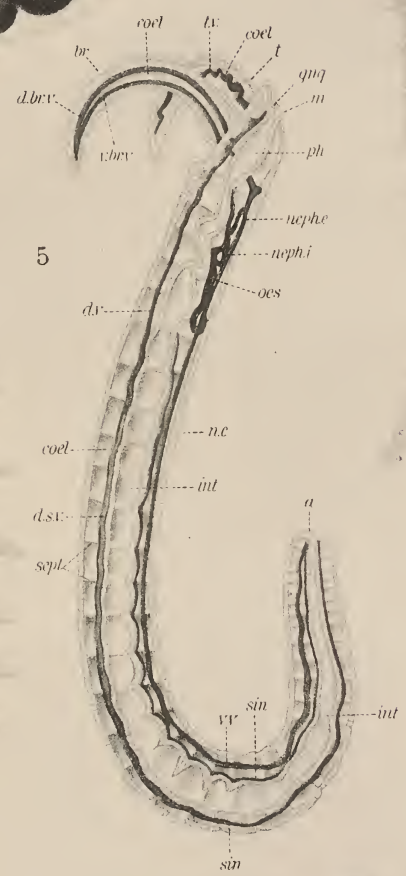

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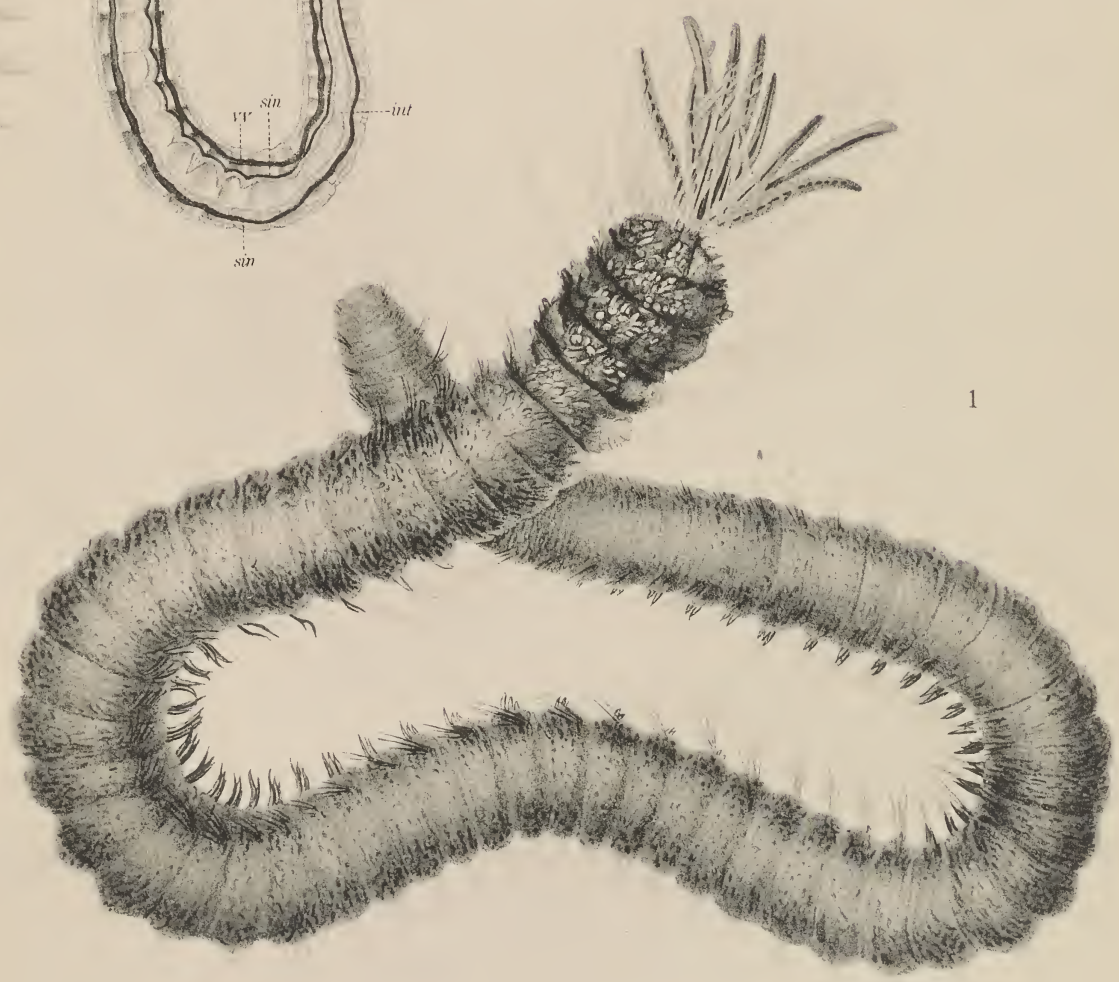

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R.M. FIGS. 1, 3 & 4; FIG. 5 F.B. FIG. 2 A.H.W.

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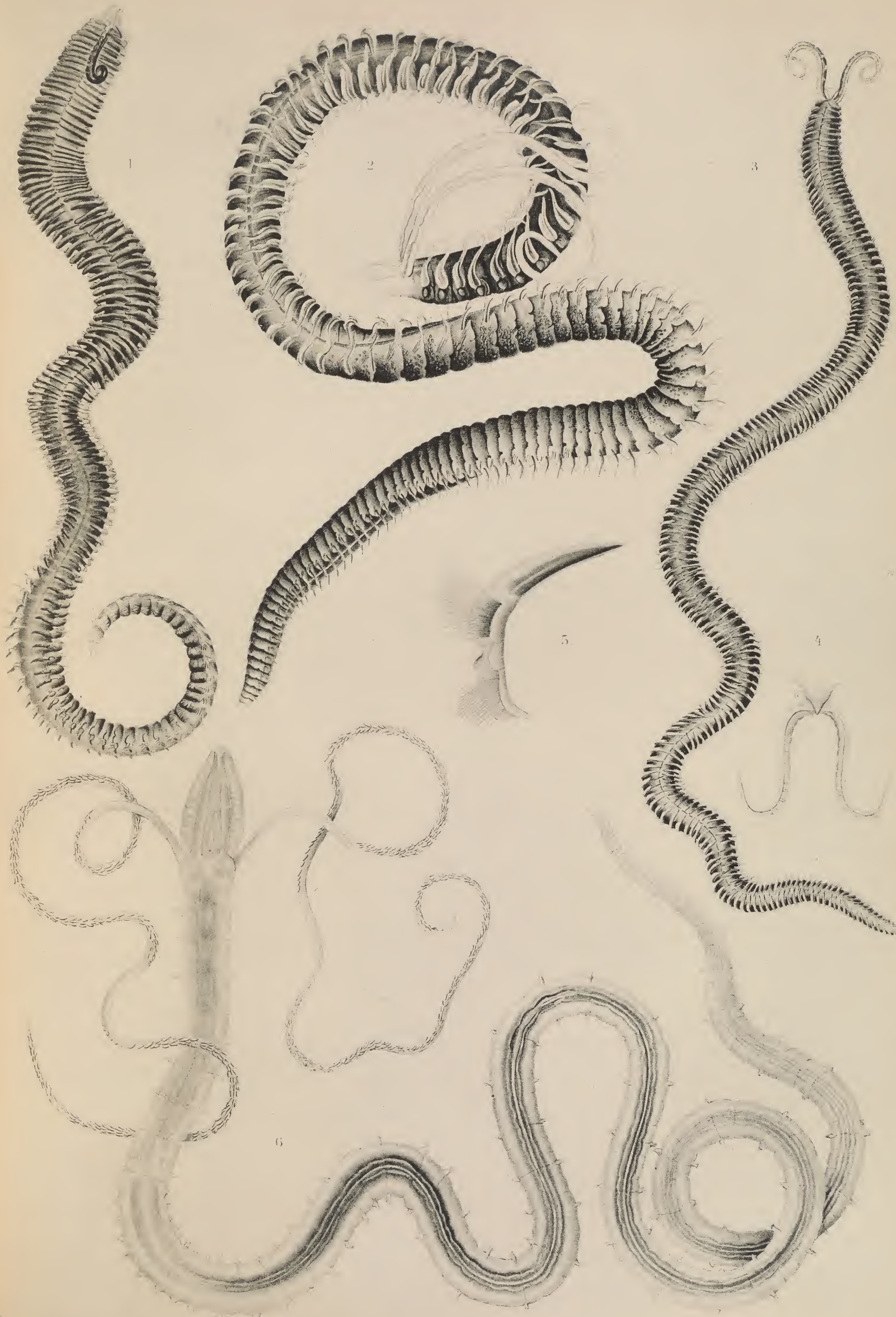
PLATE XC.

Fig.

1. Dorsal view of *Nerine foliosa*, Sars, from St. Andrews. In this example reproduction of the posterior region had taken place, as indicated by the larger branchiæ in front. Enlarged.
2. *Nerine cirratulus*, Delle Chiaje, from Guernsey. Enlarged.
3. Dorsal view of *Scolecolepis vulgaris*, Johnston, from St. Andrews. Enlarged.
4. Cephalic region and tentacles of the same. Enlarged.
5. Foot and gill of the foregoing seen from the front in life. Enlarged.
6. *Magelona papillicornis*, Fritz Müller, from St. Andrews. Enlarged.

Figs. 2-6 R.M. Gilbert A.R.W.

Warren & Wilson, Edinburgh



FIGS. 2 & 6 R.M. CÆTERA A.H.W.

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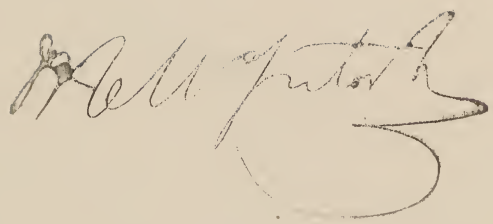
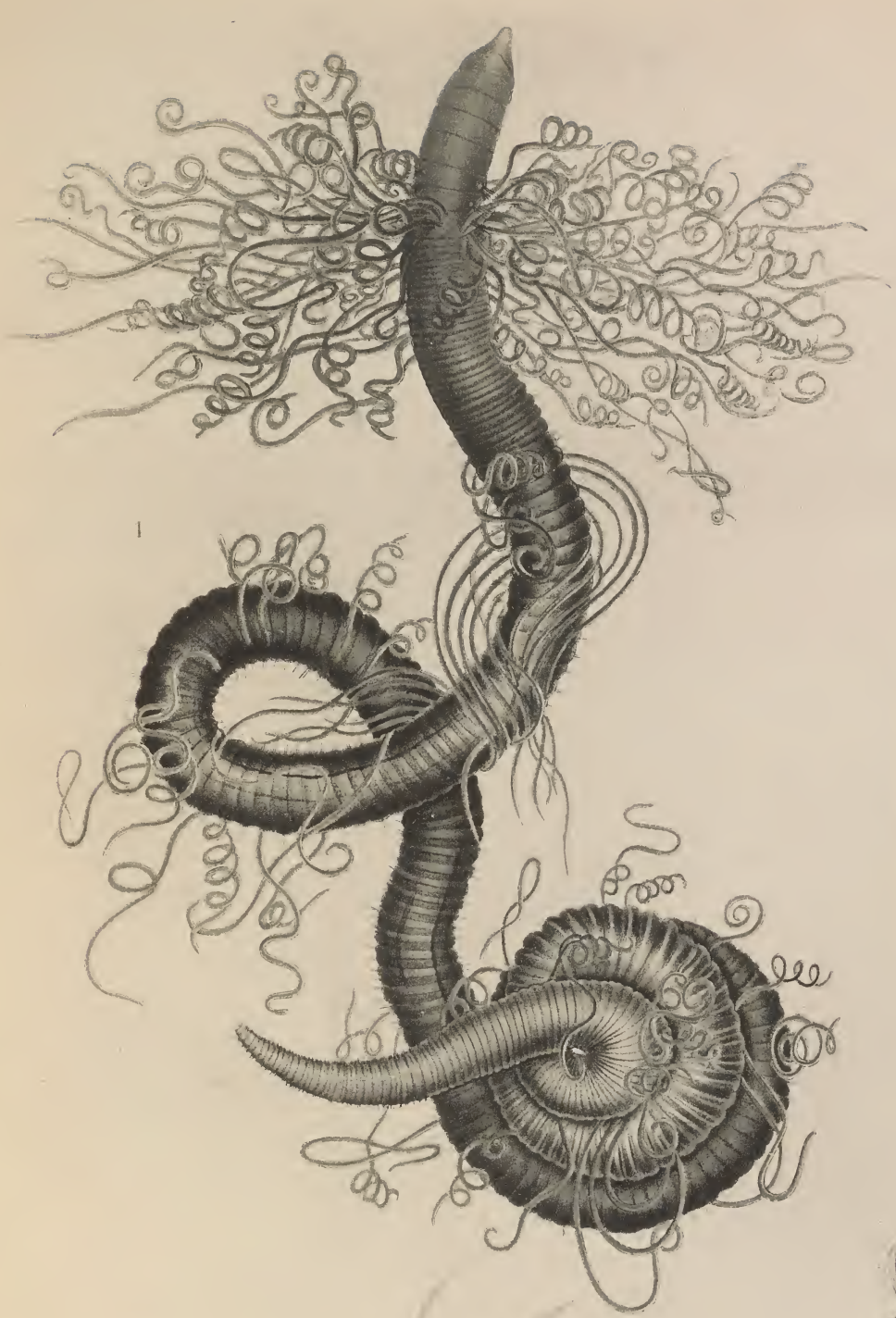


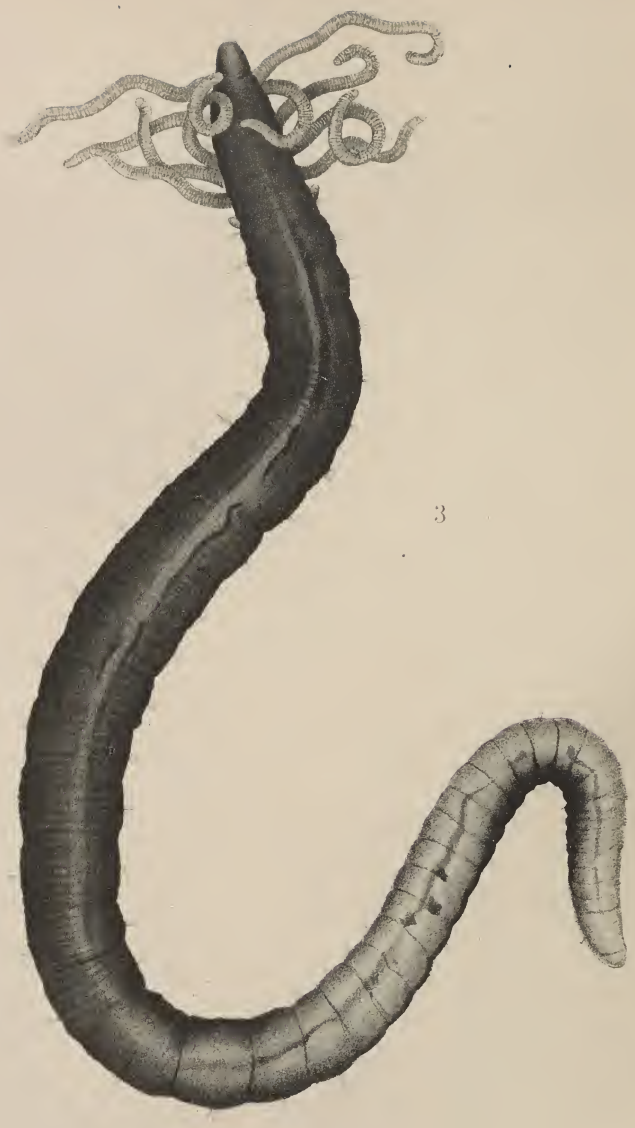
PLATE XCI.

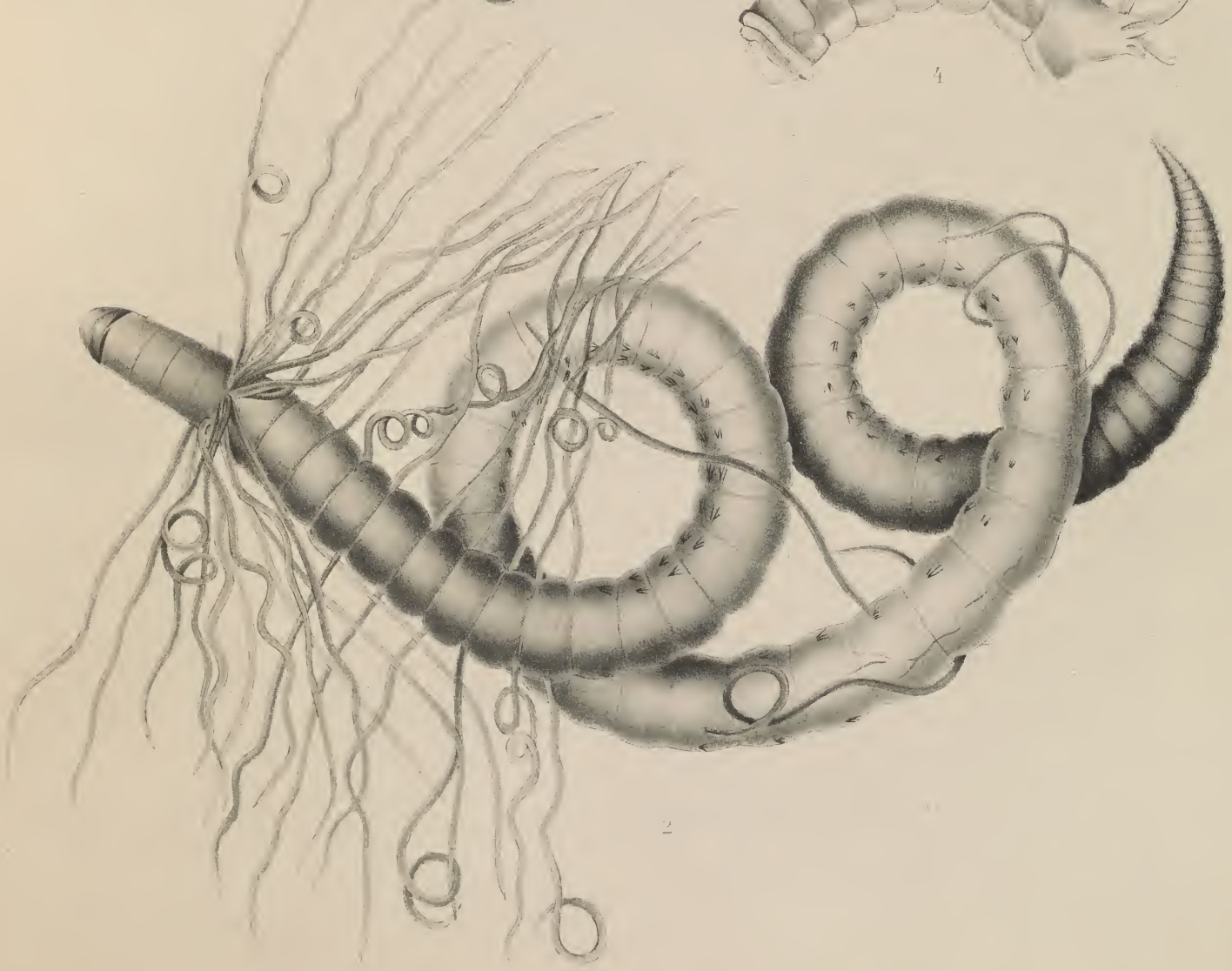
Fig.

1. *Cirratulus tentaculatus*, Montagu, from St. Andrews. Enlarged.
2. *Cirratulus cirratus*, O. F. Müller, from St. Andrews. Enlarged.
3. *Dodecaceria concharum*, Œrsted, from St. Andrews. Enlarged.
4. Part of the middle region of *Nereis cirratulus*, Delle Chiaje, from St. Andrews. Enlarged.

Figs. 344 R.M.Cætera A.H.W.
Werner & Winter Frankfurt a/M.







FIGS. 3 & 4 R.M. 1 & 2 A.H.W.

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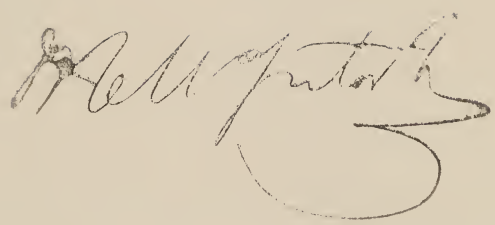

PLATE XCII.

Fig.

1. Posterior end of *Cirratulus tentaculatus*, Montague, from St. Andrews. Enlarged.
2. Portion of the posterior region of a male *Notomastus latericeus*, Sars, to show the pale enlargements due to the sperms, St. Andrews. Enlarged.
3. *Capitella capitata*, O. Fabricius, from St. Andrews. The sexual aperture is observed between the eighth and ninth segments. Enlarged.
4. Anterior end of *Pœcilochætus serpens*, Allen. Reduced from a drawing by Dr. Allen.
5. *Nicomache maculata*, Arwidsson, from St. Andrews. Enlarged.

5*a*. The same with the anterior end recently reproduced projecting from its tube and viewed laterally. Enlarged.

6. *Owenia fusiformis*, Delle Chiaje, projecting from its tube. A drawing from life by Mrs. Arnold Watson. Enlarged.

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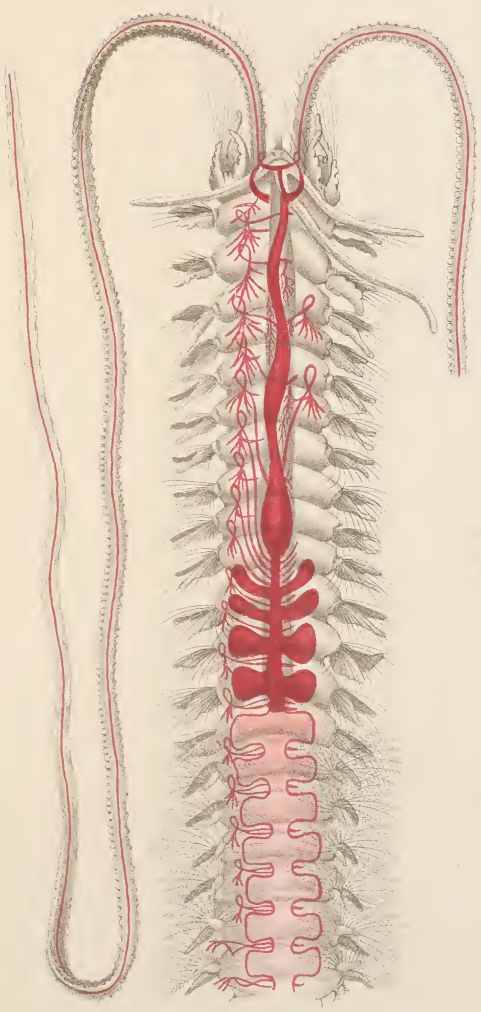
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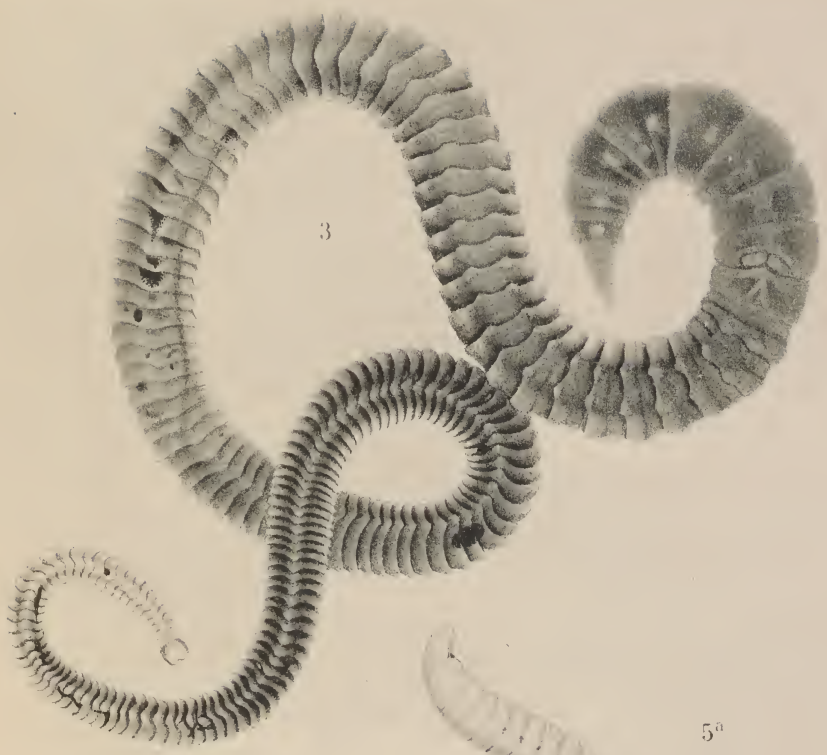

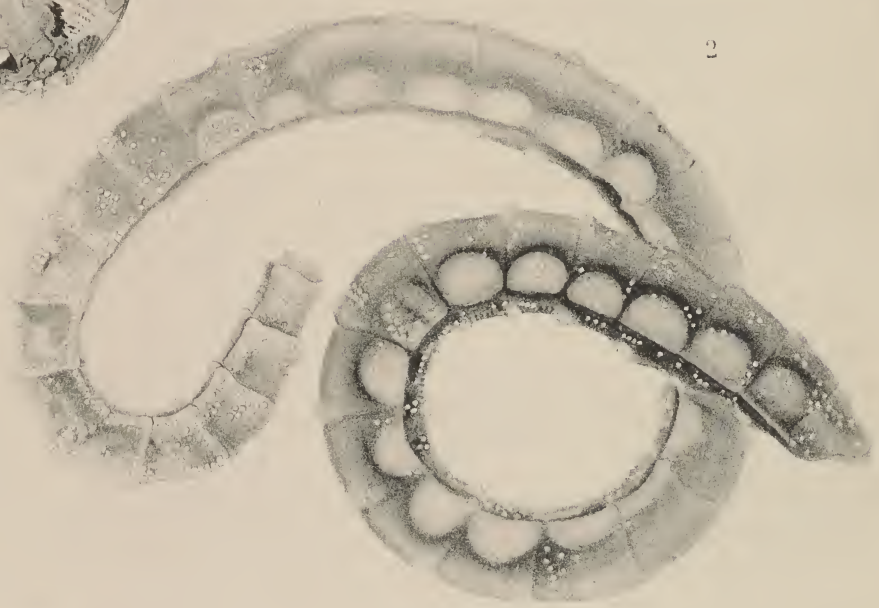

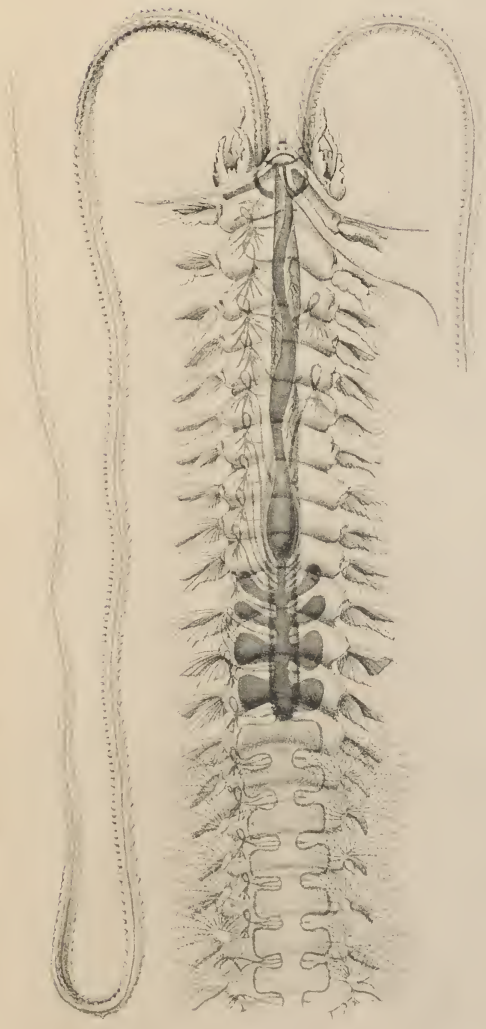

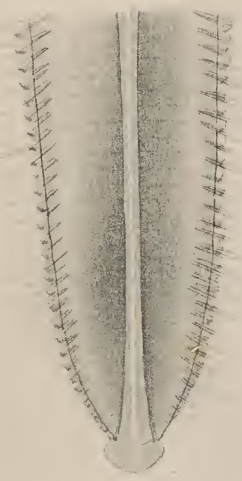

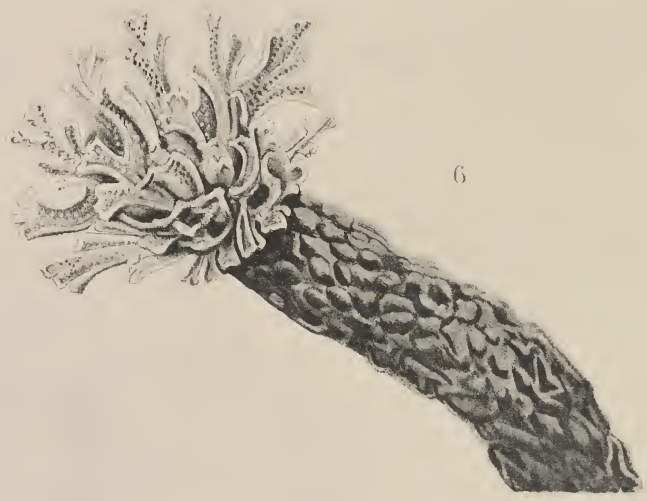

FIGS. 2 & 3 R.M. FIG. 4 E.J.A. FIG. 6 MRS. W. CÆTERA A.H.W.

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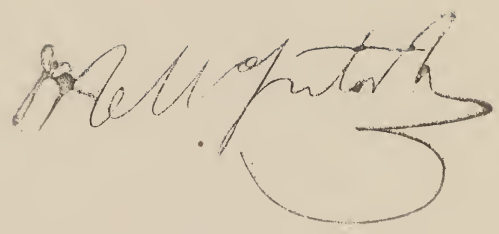

PLATE XCIII.

Fig.

1. *Spiophanes bombyx*, Claparède, from the East Sands, St. Andrews. Enlarged.
1*a*. Tail of the foregoing. Enlarged.
2. *Pygospio elegans*, Claparède, from the East Rocks, St. Andrews. Enlarged.
3. *Polydora cæca*, Œrsted, from a chink in the East Rocks, St. Andrews. Enlarged.
4. Young *Magelona papillicornis*, Fritz Müller, St. Andrews, June, 1898. Enlarged.
5. Younger stage of the same species, St. Andrews, May 15th, 1900. Enlarged.
6 and 7. Two post-larval stages of *Polydora ciliata ?*, St. Andrews. Magnified.
8. Young Spionid (*Spiophanes ?*), St. Andrews, April 21st, 1893. Magnified.
9. Older stage of young Spionid (*Spiophanes ?*), St. Andrews, April 20th, 1893. Magnified.
10. Larval Capitellid (*Capitella* or *Notomastus*), St. Andrews, October 30th, 1897. Magnified.

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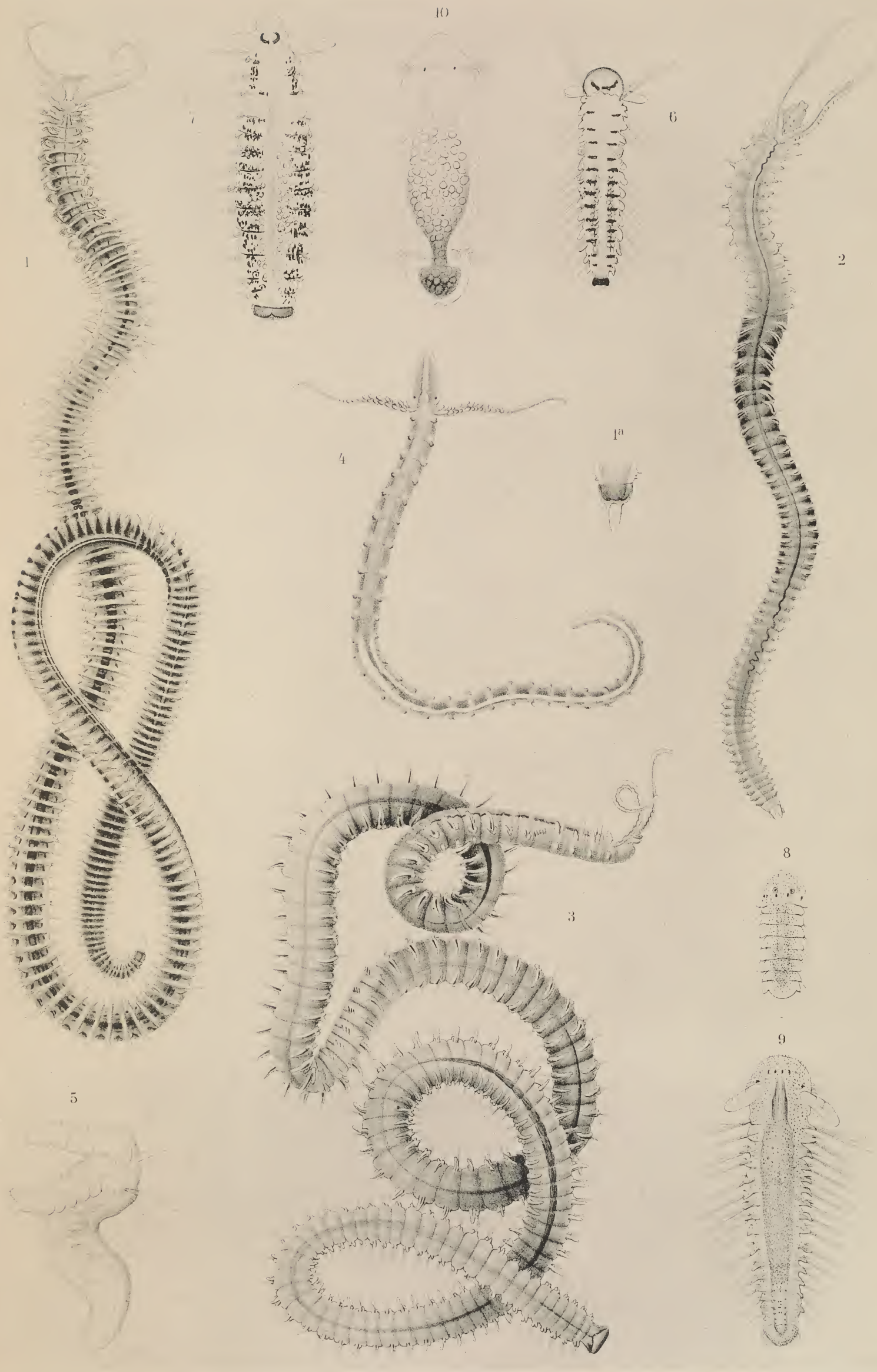

FIGS. 1-5 & 10 A.H.W CÆTERA J.P.S.

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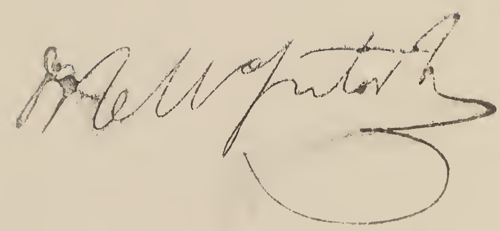


PLATE XCIV.

FIG.

1. Posterior end of *Stylarioides flabellata*, Sars, from Norway. Enlarged.
2. Young *Arenicola marina*, L., about half an inch in length. *gl.* œsophageal glands. × about 40 diam.
3. Cephalic region and barred tentacle of a young Spionid with a simple conical snout, from St. Andrews, 1863. × about 40 diam.
4. Early egg of *Nerine cirratulus*, Delle Chiaje. × 80 diam.
5. More advanced egg, February 16th, 1891. × 60 diam.
6. Larva of the foregoing, February 26th, 1889. × 116 diam.
7. Egg of *Nerine ?*, March 4th, 1892. × 116 diam.
8. Spionid larva, from tow-net July 6th, 1890, viewed from the under surface. St. Andrews. Magnified. ?

10. Older stage, probably of Sabellarian, St. Andrews, July 19th, 1888. Magnified.

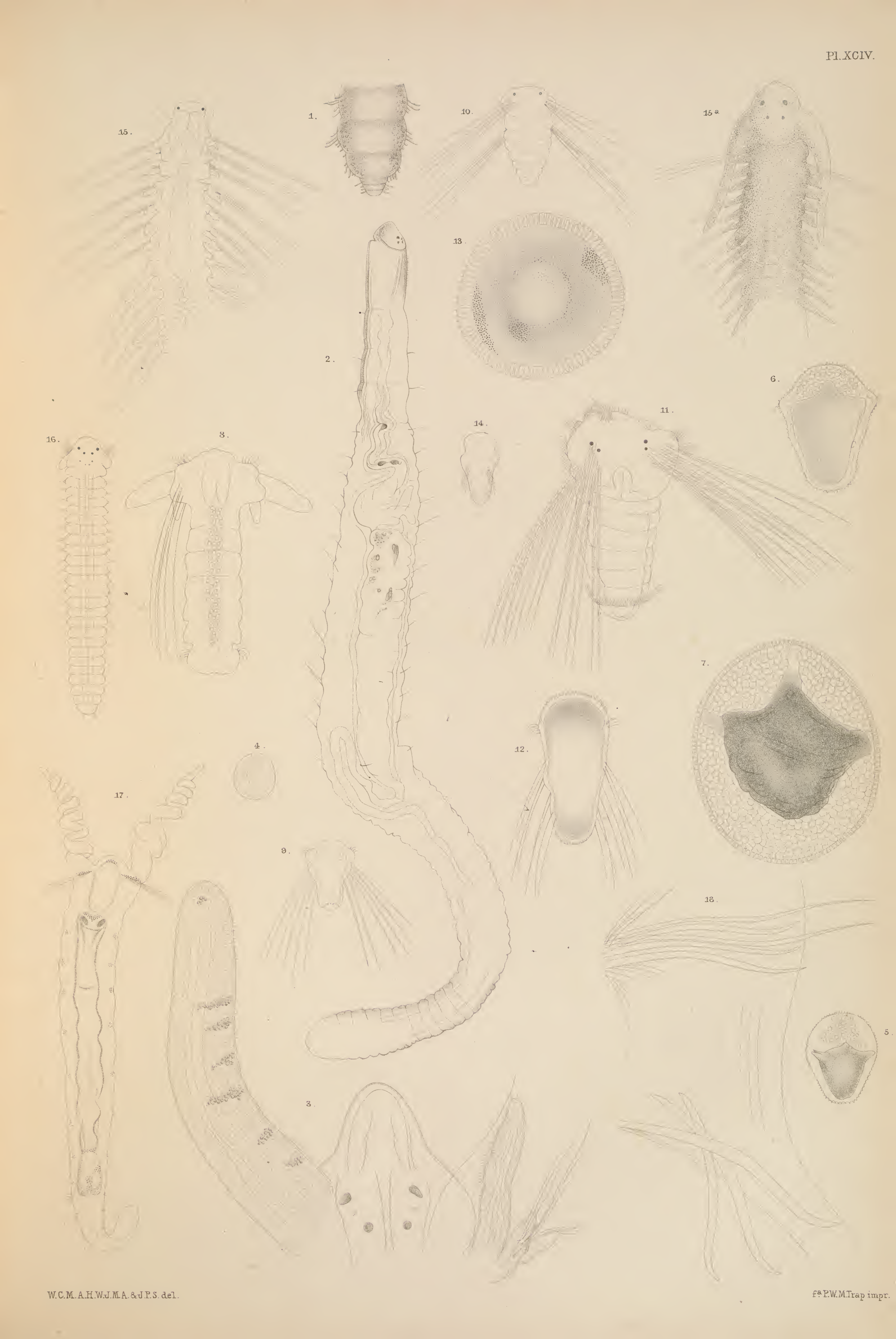
9/

11 and ~~11*a*~~. Somewhat oblique view of young Sabellarians, the former with developing palpi and tentacles, for comparison with Spionids. July 18th, 1888. St. Andrews. Magnified.

12. Larva of *Nerine cirratulus ?*. St. Andrews, February 24th, 1891. The centre is opaque. Magnified.
13. Ovum of *Scolecolepis vulgaris*, Johnston. May 11th, 1898, St. Andrews. × oc. 2, obj. D.
14. Early larva of Spionid (pelagic). St. Andrews. Magnified.
15. Young *Pæcilochætus* of thirty segments. St. Andrews, October 27th, 1888. According to Claparède, six short feet occur in front, not seven. × oc. 3, obj. A. Drawn by Mr. Pentland Smith, M.A., B.Sc.

15*a*. Young form of the same or an allied species? July, 1893. Drawn by Rev. J. M. Anderson, M.A., B.Sc. × similarly.

16. Young Spionid (*Spiophanes ?*). July 25th, 1888, St. Andrews. Drawn by Mr. Pentland Smith, M.A., B.Sc. Magnified.
17. Young *Magelona papillicornis*, F. Müller. St. Andrews, May 25th, 1900. Magnified.
18. Twentieth foot of *Cirratulus Chiajii*, McI. × 360.



W.C.M. A.H.W.J.M.A. & J.P.S. del.

fa P.W.M. Trap impr.

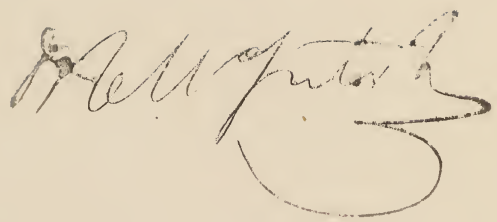
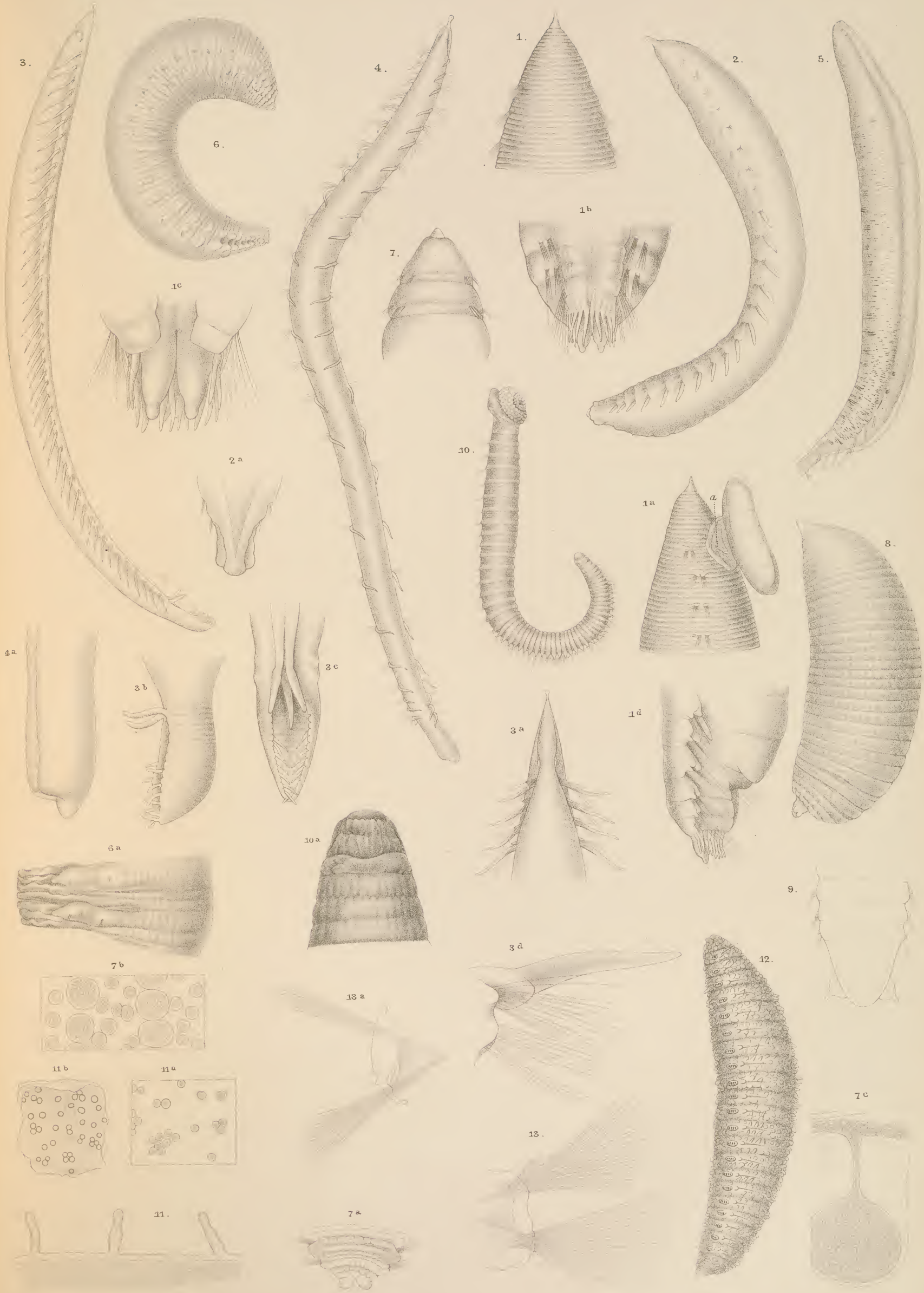


PLATE XCV.

Fig.

1. Cephalic region of *Ophelia limacina*, H. Rathke. Enlarged.
1*a*. Lateral view of the same with the proboscis (*a*) extruded. Enlarged.
1*b*. Dorsal view of the posterior end. Enlarged.
1*c*. Ventral view of the same. Enlarged.
1*d*. Lateral aspect of the caudal region. Enlarged.
2. Lateral view of young *Ophelia limacina*, about half an inch in length. Enlarged.
2*a*. Tip of the caudal region. Enlarged.
3. Lateral view of *Ammotrypane aulogaster*, H. Rathke. Slightly enlarged.
3*a*. Cephalic region with the nuchal organs, and anterior segments from the dorsum. Enlarged.
3*b*. Lateral aspect of the caudal region. Enlarged.
3*c*. Ventral view of the same in a specimen from Finmark. Enlarged.
3*d*. Foot of the foregoing, with bristles and branchial cirrus. Enlarged.
4. Dorsal view of *Ammotrypane cylindricaudatus*, Hansen. Enlarged.
4*a*. Caudal process. Enlarged.
5. Lateral view of *Armandiella Robertianæ*, McI., from the Sound of Harris. Enlarged.
6. *Eumenia Jeffreysii*, McI., dredged off Balta. Slightly enlarged.
6*a*. Lateral view of a few segments from the middle. The ventral surface is on the left. Enlarged.
7. Enlarged view of the anterior end of *Travisia Forbesii*, Johnston.
7*a*. Tip of the tail similarly enlarged.
7*b* and 7*c*. Front and lateral views of the glands of the skin of a variety from Greenland. The latter (7*c*) is in section. Magnified.
8. *Travisia Gravieri*, McI. Enlarged.
9. Outline of the posterior end of *Ephesia gracilis*, H. Rathke. Enlarged.
10. Ventro-lateral view of *Arenicola ecaudata*, Johnston, with the proboscis extruded. Enlarged.
10*a*. Anterior end of another example more highly magnified.
11, 11*a*, and 11*b*. Various aspects of the papillæ on the skin of *Stylarioides plumosa*, O. F. Müller. × 100 diam.
12. Lateral view of *Brada villosa*, H. Rathke. Enlarged.
13. Anterior foot of *Eumenia crassa*, Œrsted. Enlarged.
13*a*. Twentieth foot. Enlarged.



A.H.W. Fig. 7 & 11 W.C.M. del.

Fa. P.W.M. Trap impr.

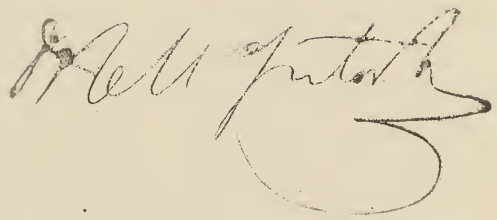


PLATE XCVI.

Fig.

1. General aspect of two of the segments of *Stylarioides plumosa*, O. F. Müller. Enlarged.
1 *a*. Bifid branchia of an example sent by Dr. Howden, from Montrose Bay. Enlarged.
2. *Stylarioides glauca*, Malmgren. Enlarged under a lens.
3. *Stylarioides arenosa*, Webster. Guernsey. Enlarged.
4. *Stylarioides flabellata*, Sars, from the Channel slope. Enlarged.
5. Head and anterior region of *Stylarioides Sarsi*, McIntosh. Enlarged.
6. *Brada villosa*, H. Rathke, var., from the Atlantic. Enlarged.
6 *a*. Lateral view of three segments, so as to show the bristles and the rough surface. Magnified.
6 *b*. Papilla from an example procured in the 'Knight Errant.' Magnified.
6 *c*. Segments of a variety of the same showing the papillæ. Magnified.
7. First foot of *Euspio Mesnili*, McIntosh (= *Spio filicornis*, Malmgren). × 35 diam.
7 *a*. Tenth foot. × 35 diam.
7 *b*. Twenty-fifth foot. × 35 diam.
7 *c*. Fiftieth foot. × 35 diam.
7 *d*. Foot in front of tail. × 35 diam.
8. Tenth foot of *Scolecolepis lamellata*, McI. Tangiers Bay, from the 'Porcupine,' 1870. × 35 diam.
8 *a*. Fiftieth foot (*vide* 'Ann. Nat. Hist.,' ser. 8, vol. iii, p. 175).
9. Cephalic and anterior regions of *Pygospio elegans*, Claparède, from St. Andrews, with seven eye-specks. Enlarged.
9 *a*. Tail of the foregoing. Enlarged.
10. Slender papilla from *Flabelligera affinis*, Sars. × oc. 4, obj. D.
11. Papilla from *Flabelligera Buskii*, McI. × oc. 2, obj. D.
12. Ventral aspect of the anterior region of *Brada villosa*, H. Rathke, showing the papillæ of the segmental organs. Enlarged.
13. Ventral view of the anterior end of *Nerine foliosa*, Sars, with proboscis extruded. From Lochmaddy. Enlarged.
14. Advanced ovum of *Spiophanes bombyx*, Claparède, from the cœlom. × 180.
15. Hooks and bristles of second segment of *Sclerocheilus minutus*, Grube, off Sark, August, 1868. × 360.

A.H.W. del. W.C.M. 15.

f.a P.W.M. Trap impr.

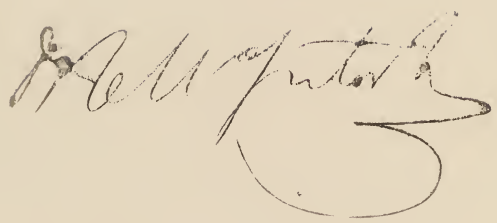
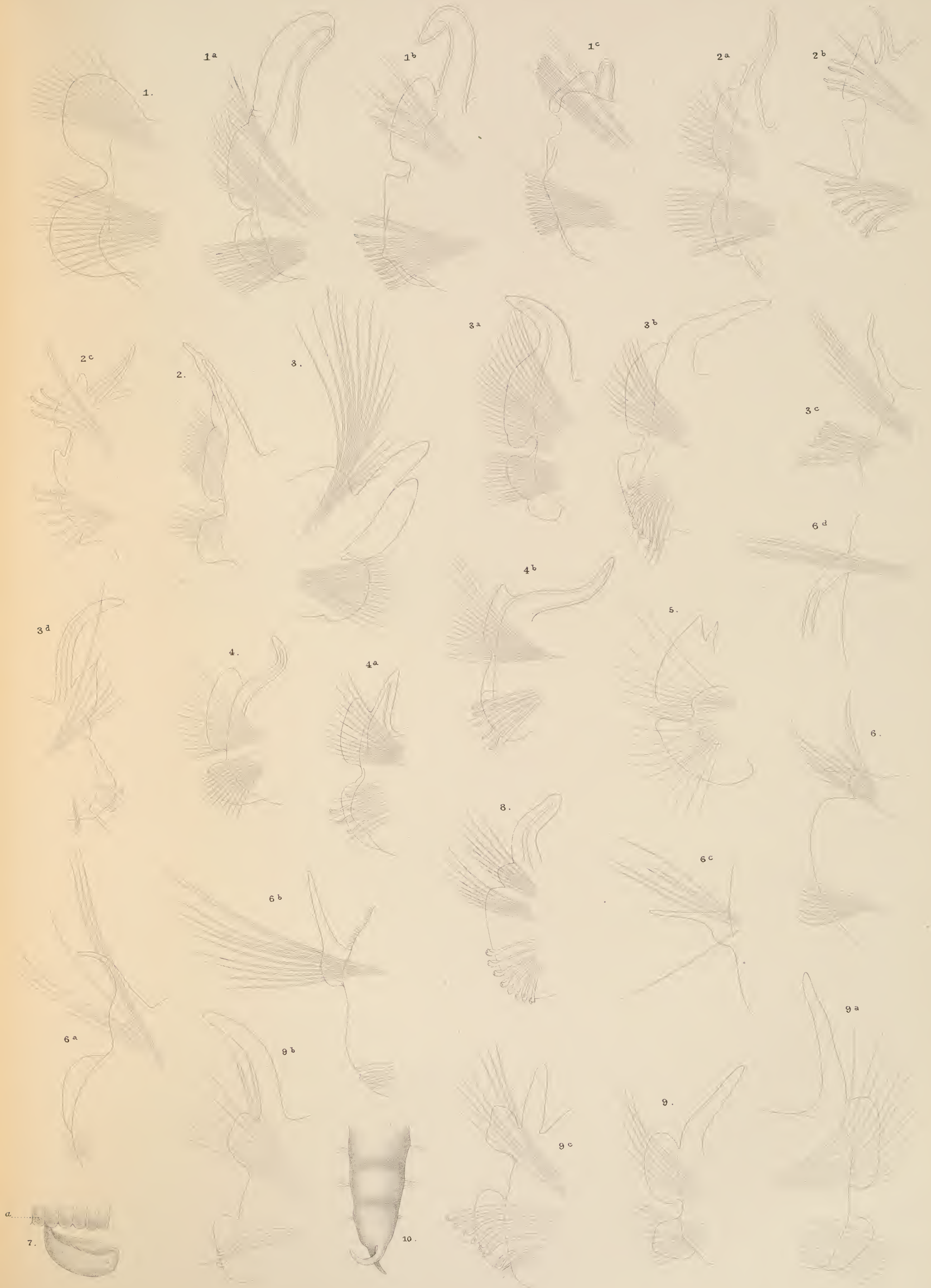


PLATE XCVII.

Fig.

1. Anterior foot (10th ?) of *Nerine foliosa*, Sars. × about 25 diam.
1 *a*. Fiftieth foot. × about 25 diam.
1 *b*. Ninetieth foot. × about 25 diam.
1 *c*. One hundred and twenty-fifth foot of the same. × about 25 diam.
2. Tenth foot of *Nerine cirratulus*, Delle Chiaje. × about 25 diam.
2 *a*. Twenty-fifth foot. × about 25 diam.
2 *b*. Ninetieth foot. × about 25 diam.
2 *c*. Posterior foot of the same species. × about 25 diam.
3. First foot of *Scolecolepis vulgaris*, Johnston. × about 25 diam.
3 *a*. Tenth foot. × about 25 diam.
3 *b*. Fiftieth foot. × about 25 diam.
3 *c*. Posterior foot. × about 25 diam.
3 *d*. Foot in front of tail. × about 25 diam.
4. Twenty-fifth foot of *Scolecolepis fuliginosus*, Claparède. × about 25 diam.
4 *a*. Fiftieth foot of an example from Whitby. × about 25 diam.
4 *b*. Posterior foot of the same species from Luccumb Chine. × about 25 diam.
5. Fifteenth foot of *Scolecolepis cirrata*, Sars. × about 25 diam.
6. Tenth foot of *Spiophanes bombyx*, Claparède. × about 25 diam.
6 *a*. Fifteenth foot. × about 25 diam.
6 *b*. Twenty-fifth foot. × about 25 diam.
6 *c*. Posterior foot. × about 25 diam.
6 *d*. Posterior foot with bifid dorsal cirrus. × oc. 2, obj. A.
7. Portion of the body of *Polydora ciliata*, Johnston, with parasitic Infusorian. × 80 diam.
8. Thirteenth foot of *Pygospio elegans*, Claparède. × about 40.
9. Second foot of *Spio filicornis*, O. Fabricius. × oc. 2, obj. A.
9 *a*. Tenth foot. × oc. 2, obj. A.
9 *b*. Twenty-fifth foot. × oc. 2, obj. A.
9 *c*. Fiftieth foot. × oc. 2, obj. A.
10. Tail of *Spio C*, St. Andrews. × 50 diam.



A.H.W. del. Fig. 7. W.C.M.

f.a P.W.M. Trap impr.

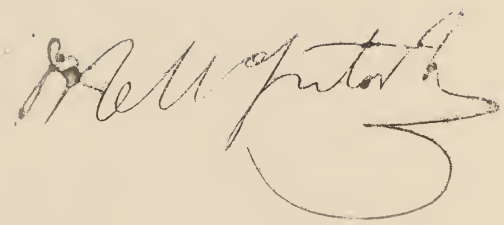


PLATE XCVIII.

FIG.

1. Head of *Nerine cirratulus*, Delle Chiaje. From a spirit-preparation. Enlarged.
2. Head and anterior end of *Scolecolepis vulgaris*, Johnston. Spirit-preparation. Enlarged.
3. Head and anterior region of *Scolecolepis cirrata*, Sars, from Peel. Spirit-preparation. Enlarged.

4 and 4′. Cephalic region of *Scolecolepis fuliginosus*, Claparède. The former shows the central region more highly magnified, the latter the entire anterior region. Enlarged.

4 *a*. Caudal process. Enlarged.

4 *b*. Compound foot viewed from the ventral surface. Enlarged.

5 and 5*a*. Dorsal and ventral views of the head and anterior region of *Euspio Gravieri*, McIntosh, St. Peter Port, Guernsey. Enlarged.

5 *c*. Tail of the foregoing (?). Enlarged.

6. Caudal region of *Euspio Mesnili*, McI. (= *Spio filicornis*, Malmgren), from Bressay Sound, Shetland. × about 100.
7. Portion of a tube of *Chætopterus variopedatus* with zoophytes growing on it. From St. Andrews Bay. Slightly enlarged.
8. Cephalic region of *Spio D.* Deep sea fishing, St. Andrews. Enlarged.
9. Snout of *Aonides oxycephala*, Sars. Enlarged.

9 *a*. Caudal end (devoid of processes). Enlarged.

9 *b*. Fourth foot. × 50.

9 *c*. Twentieth foot. × 50.

9 *d*. Foot about the middle of the body. × 50.

9 *e*. Foot near tail. × 200.

10. Snout of *Spiophanes bombyx*, Claparède. Enlarged.

10 *a*. Tail. Enlarged.

11. Head and anterior region of *Spio filicornis*, O. Fabricius. × about 50.

11 *a*. First foot. × about 50.

12. Dorsal view of the snout of *Prionospio Malmgreni*, Claparède. Enlarged under a lens.
13. Caudal region of *Polydora quadrilobata*, Jacobi, after Carazzi.
14. Head and anterior region of *Pygospio elegans*, Claparède. Enlarged.
15. Head and anterior region of *Polydora ciliata*, Johnston. Enlarged.

15 *a*. Caudal funnel. Enlarged.

16. First foot of *Polydora flava*, seen from the dorsum.

16 *a*. The same seen from beneath to show the bristles. × oc. 4, obj. A.

16 *b*. Lateral view of second foot. Enlarged.

16 *c*. Foot from the middle of the body with the bristles. × oc. 4, obj. A.

16 *d*. Caudal funnel. Enlarged.

17. Anterior foot of *Polydora quadrilobata*, Jacobi, var., seen obliquely to show the bristles. × oc. 4, obj. A.
18. Tip of the tail of *Cirratulus tentaculatus*, Montagu, from Plymouth. Enlarged.
19. Anterior region of *Notomastus latericeus*, Sars. Enlarged.
20. Anterior region of male *Capitella capitata*, O. Fabricius. Enlarged.
21. Outline of variety of *Notomastus latericeus*, Sars (spirit-preparation), dredged off Cape Finisterre, 'Porcupine,' 1870. The proboscis is extruded. Enlarged.

A.H.W. del, W.C.M. 9 c & 15.

f.a P.W.M. Trap impr.

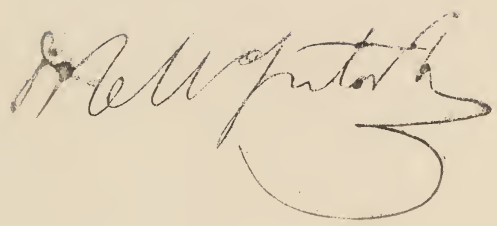


PLATE XCIX.

Fig.

1. Tubes of *Polydora ciliata*, Johnst., attached to free surface of rock in which is the tunnel. The tentacles of the living form extend from that on the right. Enlarged.

1 *a*, Contracted tentacle of the same showing its general structure in life. *a*, ciliated groove; *b*, continuation of cœlom; *c*, blood-vessel. Magnified.

2. Lateral view of the head of *Proclymene Mülleri*. Enlarged.

2 *a*. Another example in which the cephalic peak is less developed. Enlarged.

2 *b*. Dorsal view of the cephalic plate. Enlarged.

2 *c*. Anal disc of the foregoing. Enlarged.

3. Caudal region (thickened rim and disc) of *Proclymene I*. Enlarged.

4 and 4 *a*. Views of the anal disc of *Isocirrus DA*. 'Porcupine,' 1870. Enlarged.

5. Lateral view of the cephalic region of *Isocirrus planiceps*, Sars, dredged off the Hebrides. Enlarged.

5 *a*. Caudal disc. Enlarged.

5 *b*. Snout of variety *C*. Skerries, Shetland, 1868. Seen from the ventral surface. This is not mentioned in the text. Enlarged.

6. Lateral view of the cephalic region of *Arwidssonia zetlandica*, McI. Enlarged.

6 *a*. Another example with the proboscis extruded. Enlarged.

6 *b*. Papillæ of the proboscis. Magnified.

6 *c*. Dorsal view of the cephalic plate of the same. Enlarged.

6 *d*. Ventral view of the cephalic plate with the mouth. Enlarged.

6 *e*. View of the caudal disc. Enlarged.

6 *f*. Lateral view of the same. Enlarged.

7 and 7 *a*. Dorsal and lateral views of *Praxillura C*. 'Porcupine,' 1870. × 15.

8. Segments of *Rhodine gracilior* from Norway showing the collars.

A.H.W. del. Fig. 1. R.M. Fig. 1a W.C.M.

f.a P.W.M. Trap imp.

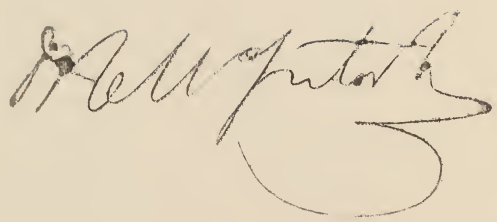


PLATE C.

Fig.

1. Tenth bristles (dorsal) of *Dodecaceria concharum*, Œrsted. × 200.
2. Fifth foot of *Chætopterus variopedatus*, Renier, from South Africa. × 15.
3. Bristles of foot of *Sclerocheilus minutus*, Grube, from Sark. × 360.
4. Fifth foot of *Euspio Gravieri*, McI. × 40.

4 *a*. Tenth foot of the same showing gland. × 40.

6. Head and anterior region of *Spio atlanticus*, contracted in spirit. × about 40.
7. Posterior foot of *Aonides oxycephala*, Sars. × 200.
8. Portion of the fifth foot of *Polydora Caulleryi*, Mesnil. × 360.
9. Portion of the fifth foot of *Polydora quadrilobata*, Jacobi. × 360.
10. Portion of the fifth foot of *Polydora flava*, Claparède, St. Andrews, with peculiar spear-shaped bristles accompanying the hooks. × 360.
11. Bristles of *Polyophthalmus pictus*, Dujardin, arising from the setigerous process. × 224.
12. Anterior foot of *Spio G*. The specimen was crushed, but the foliaceus lamella is indicated. × 360.
13. Ventral bristles of the twentieth foot of *Cirratulus caudatus*, Levinsen. × 133.
14. Lateral view of the anterior region of *Isocirrus DA*. Enlarged.

14 *a*. Cephalic plate of the same seen from the dorsum. Enlarged.

15. Profile of cephalic region of *Leiochone borealis*, Arwidsson, from North Uist. Enlarged.

15 *a*. Anal region of the foregoing. Enlarged.

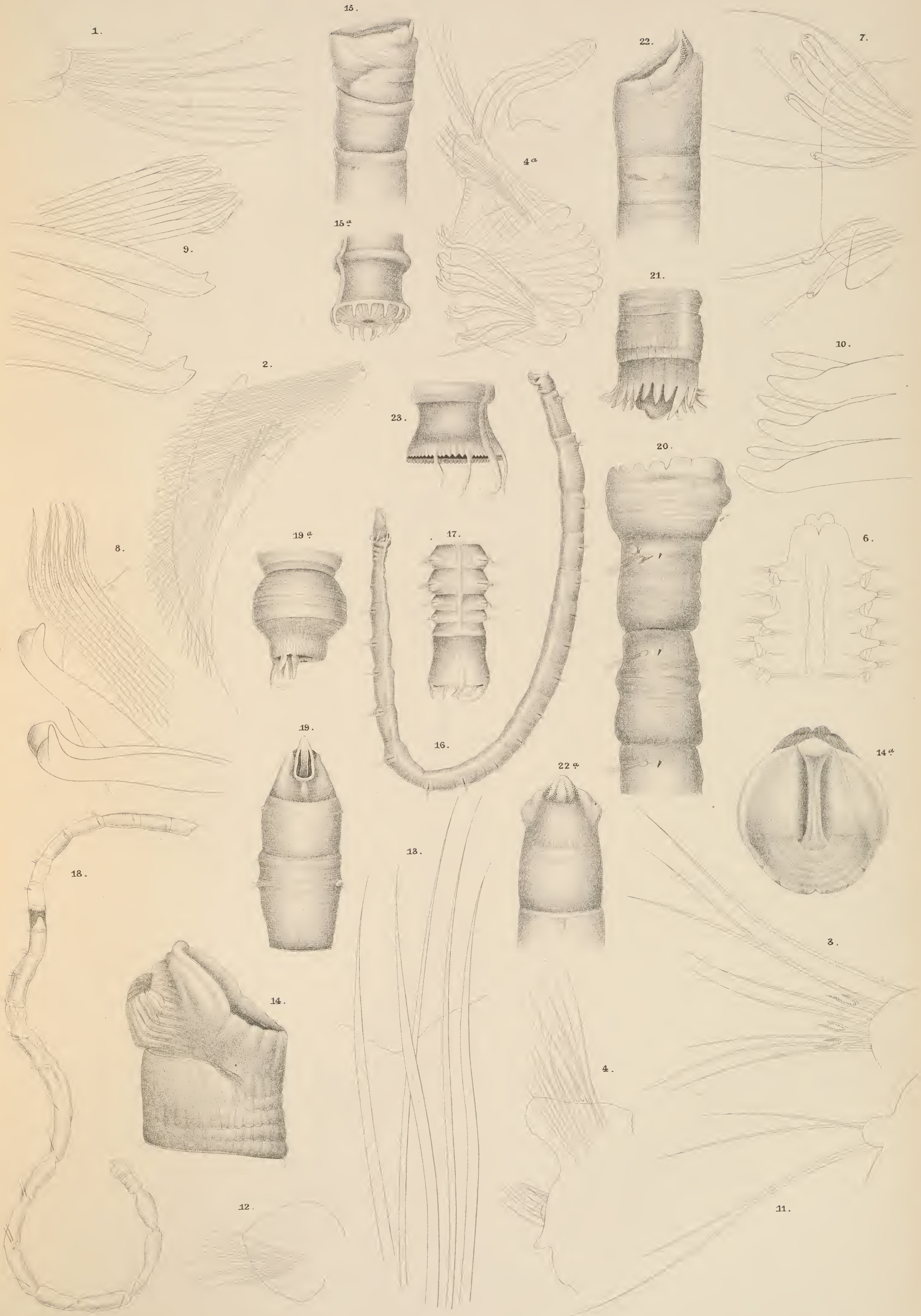
16. *Leiochone borealis*, Arwidsson, from the North Sea. A prolapse of the gut has occurred at the vent. Enlarged.
17. Posterior end of the same, from St. Magnus Bay, 1887. Enlarged.
18. *Leiochone* (*Clymene*) *ebiensis*, Aud. & Edw. Slightly enlarged.
19. Cephalic region with 2 bristled segments of *Leiochone Johnstoni*, McI., from Loch Alsh. Enlarged.

19 *a*. Anal region of the foregoing. Enlarged.

20. Cephalic and anterior regions of *Praxillella V*, off Cape Guardia, 'Porcupine,' 1870. Enlarged.
21. Anal region of *Praxillella prætermissa*, Malmgren. Enlarged.
22. Lateral view of the head and anterior region of *Pseudoclymene Œrstedi*, Claparède.

22 *a*. The same seen from the ventral surface. Enlarged.

23. Anal region of *Heteroclymene robusta*, Arwidsson. Enlarged.



A.H.W. & W.C.M. del.

fa P.W.M. Trap impr.

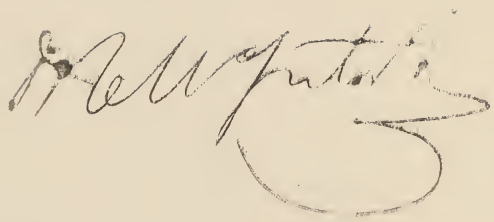


PLATE CI.

Fig.

1. Head and anterior region of *Cirratulispio Caulleryi*, McIntosh. Enlarged.
2. Head and anterior region and portion of succeeding region of *Magelona papillicornis*, F. Müller. Enlarged.

2 *a*. Dorsal lamella of an anterior foot viewed from above. Magnified.

2 *b*. Ventral lamella from the same region viewed from above. Magnified.

2 *c*. Lamellæ of the foot of the fifth segment of the posterior region : *c*, tuft of bristles ; *s*, dorsal and ventral hooks ; μ, muscles of the foregoing ; *hp*, hypoderm. Magnified.

3. Head and anterior region of *Pœcilochætus serpens*, Allen. (After Dr. Allen.) Enlarged.

3 *a*. Posterior region with caudal termination of the same. (After Dr. Allen.) Enlarged.

4. Head and anterior region of *Dasybranchus caducus*, Grube (in spirit). Enlarged.

4 *a*. Segment of the middle region with branchiæ. Enlarged.

5. Head of *Praxillella gracilis*, Sars, with proboscis extruded. Enlarged.

5 *a*. Caudal funnel of the foregoing. Enlarged.

6. Cephalic region of *Asychis Jeffreysii*, McI., off Cape Finisterre 'Porcupine,' 1870. Enlarged.

6 *a*. Cephalic plate of the foregoing from the dorsum. Enlarged.

7. Cephalic region in a small specimen of *Asychis biceps*, Sars. Enlarged.

7 *a*. Caudal extremity of the foregoing. Enlarged.

8. Tube of *Owenia fusiformis*, Delle Chiaje, from a living example between tide-marks at Lochmaddy. Slightly enlarged.

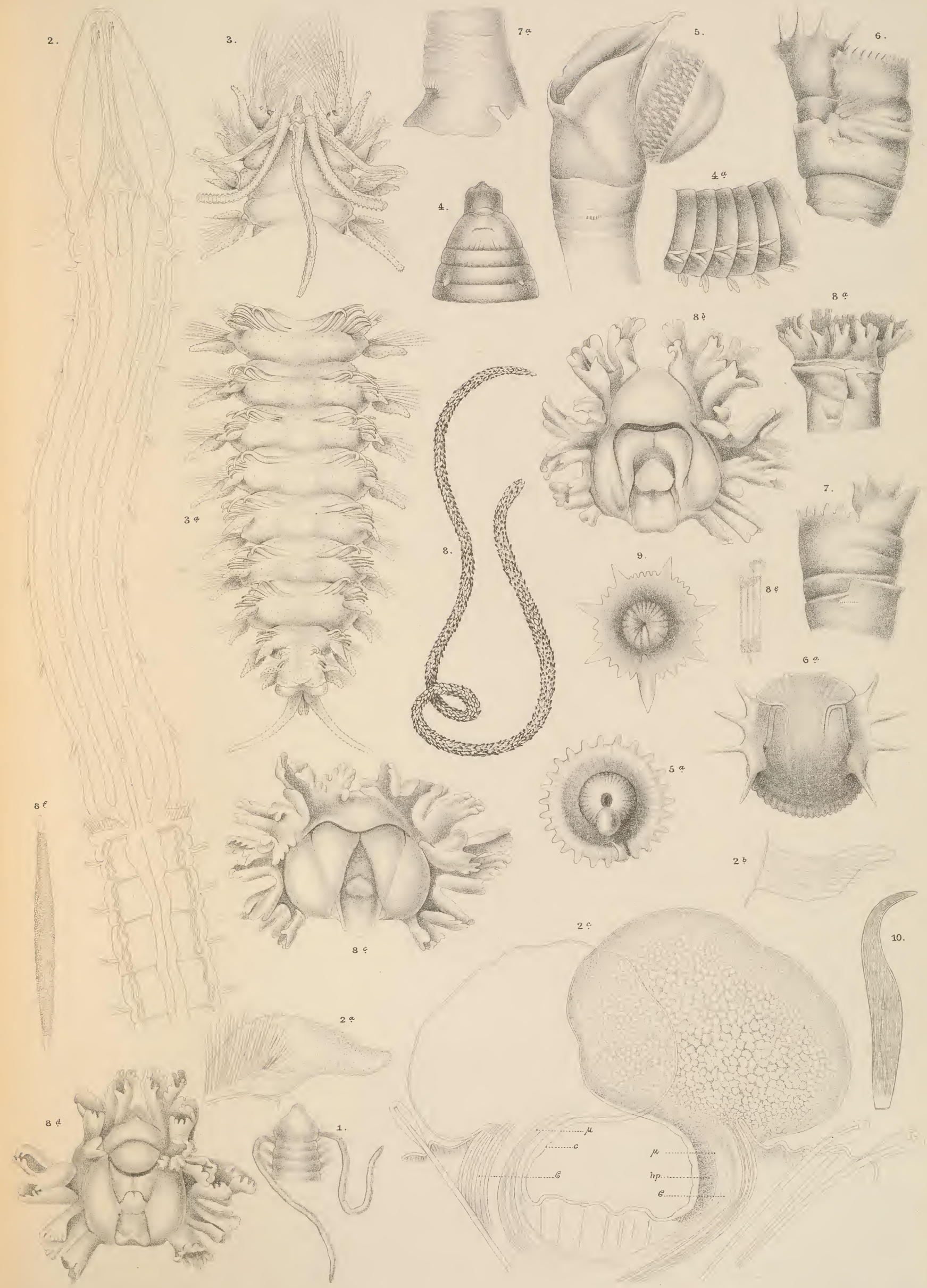
8 *a*. Branchiæ of an example of the same in a state of contraction. Enlarged.

8*b*, 8*c*, and 8*d*. Three views showing various changes in the lip-organ of this species. Enlarged.

8 *e*. Sketch showing how a specimen protected itself in a fragment of a tube a third of its length. Photo by Mr. Arnold Watson.

8 *f*. Spindle-shaped contracted tube with annelid internally. From a photograph by Mr. Arnold Watson.

9. Anal funnel of *Pseudoclymene Œrstedi*, Claparède. Enlarged.
10. Caudal hook of *Polydora hopleura*. × oc. 4, obj. A w, 3 in. draw-tube.



2-2c W.C.M, 8e & 8f A.W. Cœtera A.H.W del.

fa P.W.M. Trap impr.

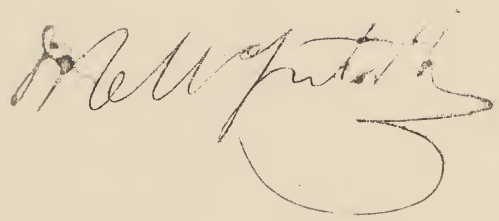


PLATE CII.

FIG.

1. Ventral bristle of *Sclerocheilus minutus*, Grube. × oc. 2, obj. D., with draw tube.
2. Strong ventral bristle of *Brada villosa*, H. Rathke. 'Knight Errant.' × oc. 2, obj. D.

2 *a*. Ventral bristles of the third series of the foregoing. × oc. 2, obj. A.

3. Bristle of *Flabelligera Buskii*, McI. × oc. 2, obj. A.

3 *a*. Hook of the foregoing. × oc. 2, obj. A.

3 *b*. Tip of the hook more highly magnified. × 350 diam.

4. Bristle of a closely allied Atlantic form dredged by the 'Porcupine,' 1869 (var. *affinis*). × oc. 2, obj. A.

4 *a*. Hook of the foregoing. × oc. 2, obj. D.

5. Capillary bristle of *Chætopterus variopedatus*, Renier, with terminal hook. From St. Andrews. × oc. 2, obj. D, with draw-tube.

5 *a* and 5 *a'*. Capillary bristles of a specimen from the coast of Cornwall. × oc. 2, obj. A, with draw-tube.

5 *b*. Bristle of the foregoing species with slightly developed spear-tip. × oc. 2, obj. A, with draw-tube.

5 *c*. Similar form from St. Andrews. × oc. 2, obj. A, with draw-tube.

5 *d*. Further modifications of the paddle-like tip from Cornwall. × oc. 2, obj. A.

5 *e* and 5 *f*. Knife-like bristle from the same species. (Guernsey and Herm.) × oc. 2, obj. A.

5 *g*. General arrangement of the bristles in the foot of an example of the same species from South Africa. × about 60.

5 *h* and 5 *i*. Tooth-like bristles from the fourth foot of *C. variopedatus*, the former from Cornwall, the latter from Herm. × oc. 2, obj. D.

5 *j* and 5 *k*. Anterior hooks of the same species from St. Andrews. × oc. 4, obj. D.

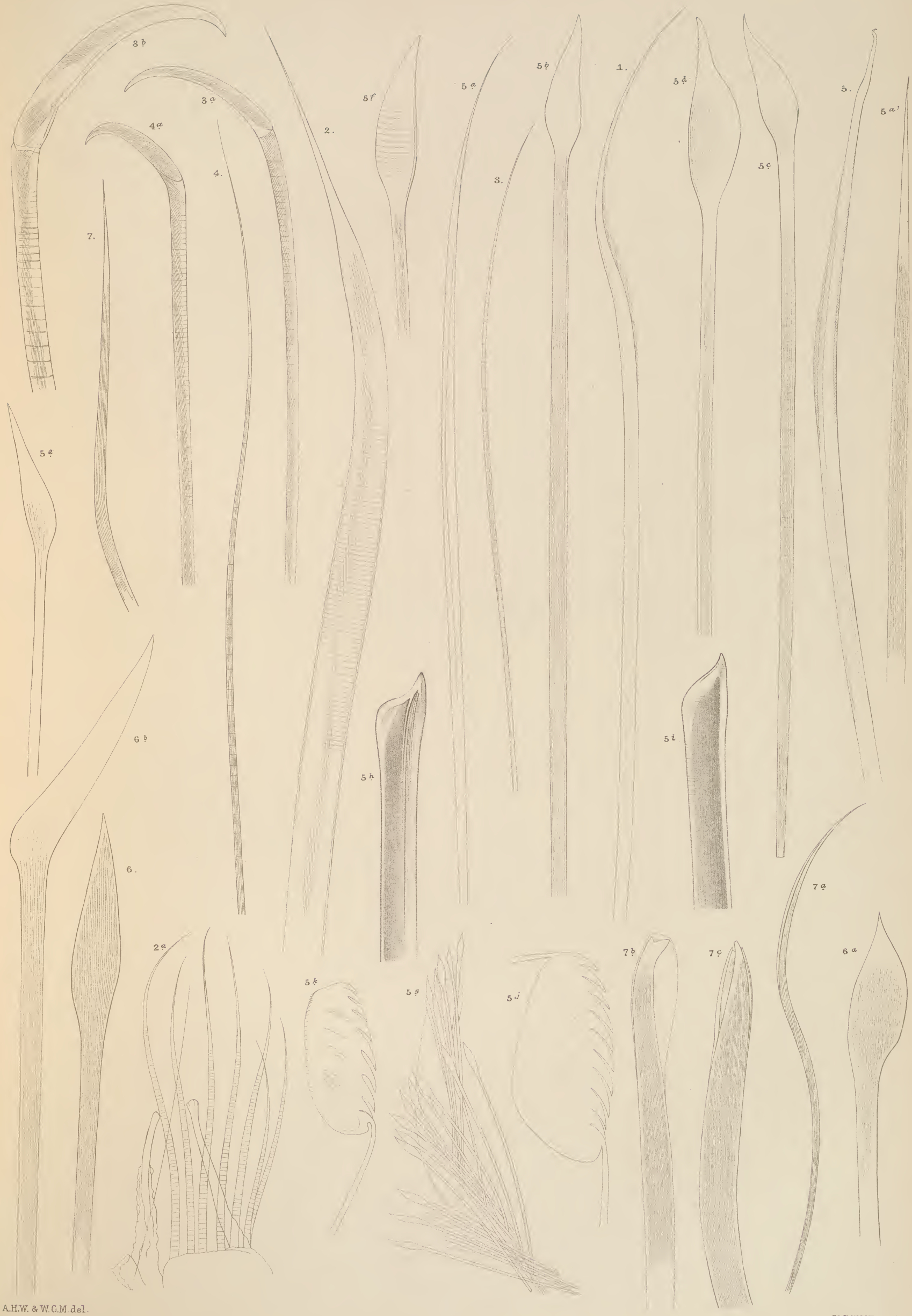
6 and 6 *a*. Paddle-like bristles of *Phyllochætopterus gracilis*, Grube, off Cape Finisterre, 'Porcupine,' 1870. Reduced from drawing made under × oc. 2, obj. D.

6 *b*. Knife-like bristle of the same species. × oc. 2, obj. D.

7 and 7 *a*. Capillary bristles of *Nerine foliosaa*, Sars. × 180 diam.

7 *b*. Hook of the foregoing in lateral view. × oc. 4, obj. D.

7 *c*. The same in antero-posterior view. × oc. 4, obj. D.



A.H.W. & W.C.M. del.

fa P.W.M.Trap impr.

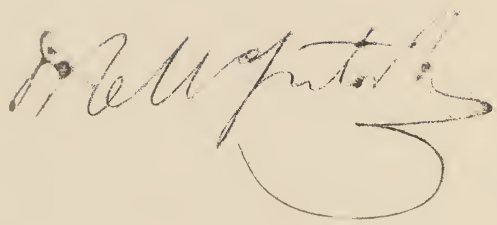


PLATE CIII.

Fig.

1. Bristle of *Ophelia limacina*, H. Rathke. × oc. 4, obj. D.
2. Bristle of a young example. × oc. 4, obj. F.
3. Bristle of *Ammotrypane aulogaster*, H. Rathke. × oc. 4, obj. D.
4. Bristle of *Travisia Forbesii*, Johnston. × oc. 2, obj. F.
5. Bristle of *Eumenia crassa*, Œrsted. × oc. 2, obj. F.

5 *a*. Forked bristle of the same. × oc. 2, obj. D.

5 *b*. Forked bristle of *Eumenia* (*Lipobranchus*) *Jeffreysii*, McI. × oc. 2, obj. D.

6. Capillary bristle. × oc. 4, obj. D.
7. Capillary bristle of *Scalibregma inflatum*, H. Rathke. × oc. 4, obj. D.

7 *a*. Tip of the foregoing more highly magnified.

7 *b*. Forked bristle of the same species. × oc. 4, obj. F., with full draw-tube.

8. Simple capillary bristle of *Sclerocheilus minutus*, Grube. × oc. 4, obj. D, with full draw-tube.

8 *a*. Winged bristle of the foregoing, second foot. × oc. 4, obj. D.

8 *b*. Bifid bristle of the same species. × oc. 4, obj. D.

9. Falcate bristle of *Ephesia gracilis*, H. Rathke. × oc. 4, obj. D.
10. Jointed bristle of *Ephesia peripatus*, Johnston, from Guernsey. × oc. 4, obj. D, with full draw-tube.

11, 11 *a*, 11 *b*, and 11 *c*. Tips and base of the dorsal bristles of *Arenicola marina*, L. × 280 diam.

11 *d*. Crotchet of the foregoing. × oc. 4, obj. D.

12 and 12 *a*. Tips of the dorsal bristles of *Arenicola branchialis*, Audouin & Edwards, showing fine spikes. × oc. 2, obj. D.

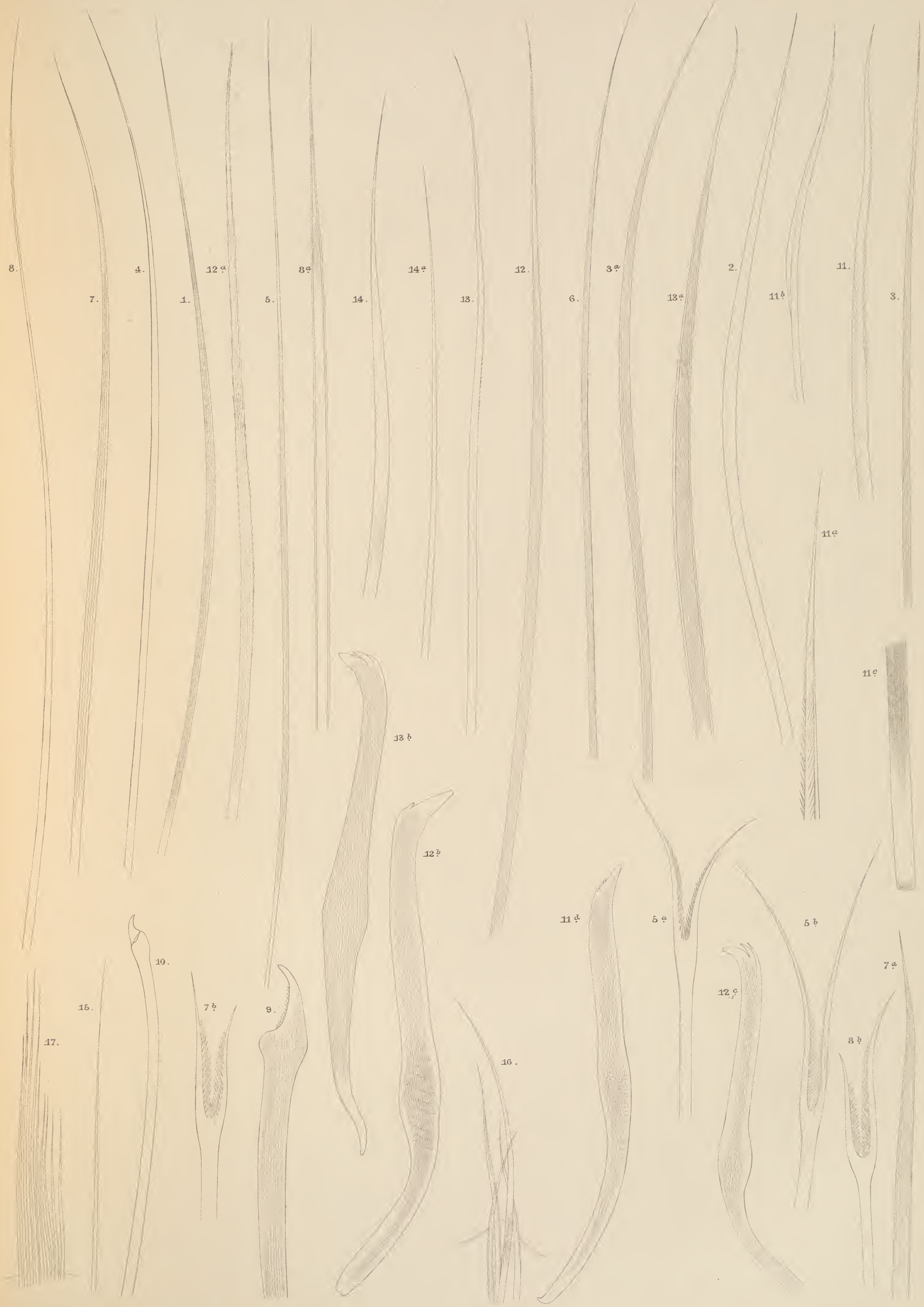
12 *b* and 12 *c*. Hooks of the same species, the former a larger and the latter a smaller specimen. 12 *b*, × oc. 4, obj. D. 12 *c*, × oc. 4, obj. D, with draw-tube.

13 and 13 *a*. Tips of the dorsal bristles of *Arenicola ecaudata*, Johnston. × oc. 2, obj. D.

13 *b*. Hook of the foregoing. × oc. 4, obj. D, with 2 in. draw-tube.

14 and 14 *a*. Bristles of *Ammotrypane cylindricaudatus*, Hansen, 'Porcupine,' 1870. × oc. 4, obj. D, with 2 in. draw-tube.

15. Bristle of *Armandiella Robertianæ*, McIntosh. × 360.
16. Bristles of *Cirratulus bioculatus*, McI., Shetland, 1867. × 360.
17. Bristles of Cirratulid Z. 'Porcupine,' 1870. × 360.



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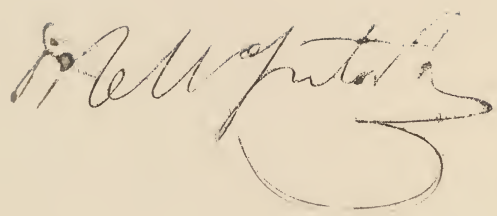
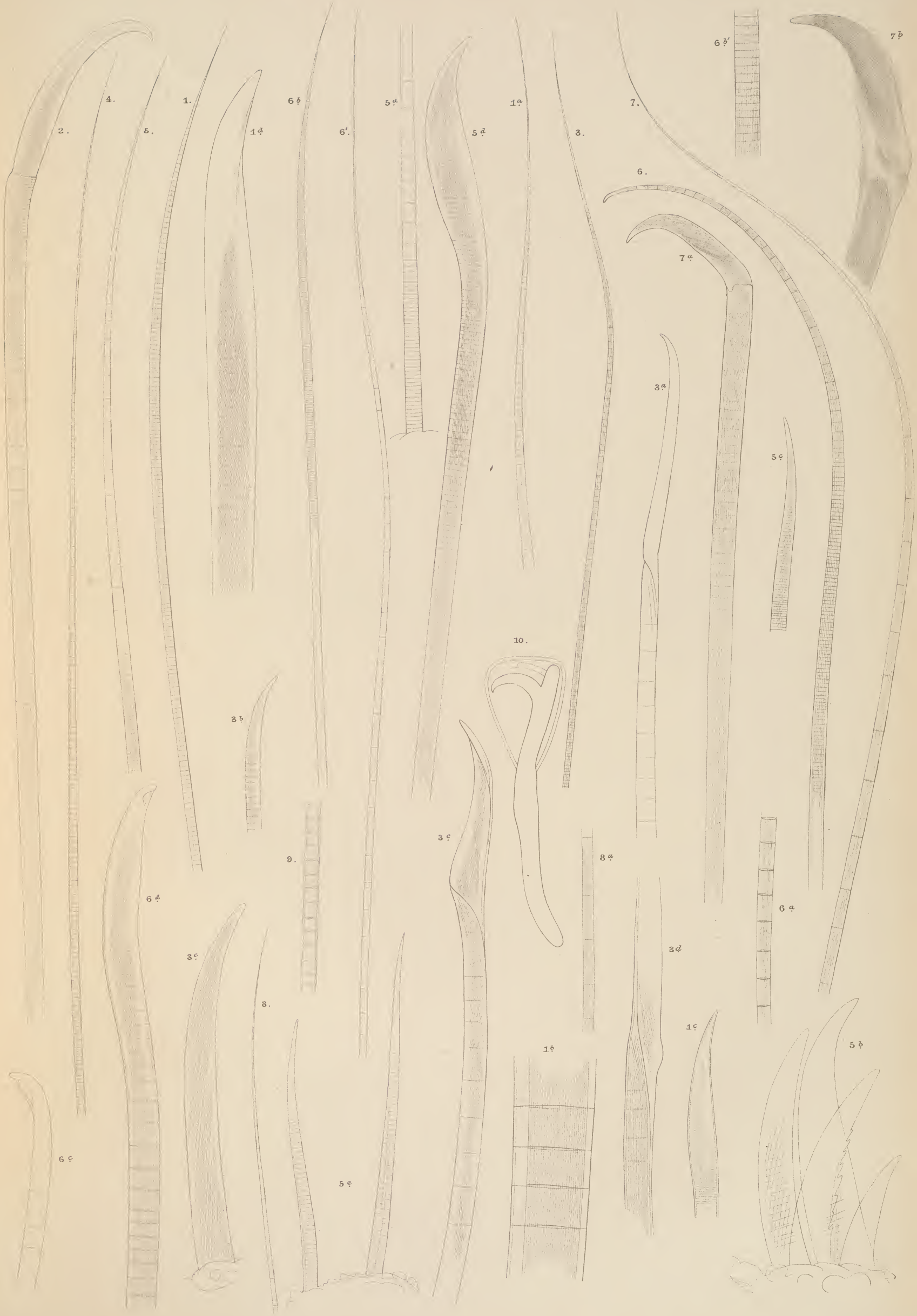


PLATE CIV.

Fig.

1. Ordinary bristle of *Stylarioides plumosa*, O. F. Müller. × oc. 2, obj. D.
1 *a*. Bristle from a specimen dredged in the Gulf of St. Lawrence, Canada. × 350.
1 *b*. Portion of a shaft of a British bristle of the same. × oc. 4, obj. D.
1 *c*. Tip of a hook of the same from the Gulf of St. Lawrence. × 40.
1 *d*. Hook of an example from the Gulf of St. Lawrence. × oc. 4, obj. A.
2. Hook of *Stylarioides diplochaitos*, Delle Chiaje, from Naples. × oc 4, obj. A, with full draw-tube.
3. Bristle of *Stylarioides flabellata*, Sars, off Bergen. × 50 diam.
3 *a*. Anterior ventral bristle of the same. × 350.
3 *b* and 3 *c*. Hooks of the foregoing. × oc. 4, obj. A.
3 *d*. Peculiarly modified articulation where shaft and tip meet in the same form. × oc. 4, obj. A.
3 *e*. Posterior hook of the foregoing. × oc. 4, obj. D.
4. Bristle of *Stylarioides hirsuta*, Hansen. × oc. 2, obj. A, with draw-tube.
5. Bristle of *Stylarioides Sarsi*, McI., from the 'Porcupine' 1870, off Cape Sagres. × oc. 2, obj. A.
5 *a*. Basal portion of a dorsal bristle of the foregoing. × 350 diam.
5 *b*. Ventral hooks of the fourth foot of this species. Similarly magnified.
5 *c*. Tip of hook-like bristle from the postero-lateral region of the same. × oc. 2, obj. A.
5 *d*. Well-developed posterior hook of the foregoing. × oc. 2, obj. A.
5 *e*. Posterior hooks of the same. × oc. 2, obj. A.
6. Articulated bristle of *Stylarioides arenosa*, Webster, with curved tip. × oc. 2, obj. D.
6′. Straighter bristle of the same. Similarly magnified.
6 *a*. Portion of a bristle of the third set with wide articulations. × oc. 2, obj. D.
6 *b* and 6 *b*′. Portions of another bristle of the third set with narrow articulations. 6 *b* × oc. 2, obj. D. 6 *b*′ more highly magnified.
6 *c*. Compound tip of a ventral bristle of the third series resembling the arrangement in *Sigalion* and *Sthenelais*. × oc. 2, obj. D.
6 *d*. Hook of the foregoing from fortieth to fiftieth foot. × oc. 2, obj. D.
7. Bristle of *Flabelligera affinis*, Sars. × oc. 4, obj. D.
7 *a*. Hook of the same. × oc. 2, obj. D.
7 *b*. Tip of a hook more highly magnified to show structure.
8. Bristle of *Flabelligera Buskii*, McIntosh. × 90 diam.
8 *a*. Portion of a bristle of the same with wide articulations. × 350 diam.
9. Fragment of a frontal bristle of *Stylarioides glauca*, Mgrn. × 350 diam.
10. Lateral view of hook of *Streblospio Shrubsoli*, after Miss F. Buchanan. × 400 ?



A.H.W. & W.C.M. del.

fa P.W.M.Trap impr.

Eugen Wolf

PLATE CV.

Fig.

1 and 1 *a*. Capillary bristles of *Nerine cirratulus*, Delle Chiaje. × oc. 4, obj. D.

1 *b*. More slender type of capillary bristle from the same species. × oc. 4, obj. D.

1 *c*. Lateral view, and 1 *d*, antero-posterior view of a hook of the foregoing. × oc. 4, obj. D.

2 and 2 *a*. Bristles of *Scolecolepis vulgaris*, Johnst. × oc. 2, obj. D.

2 *b*. Hook of the foregoing. × oc. 2, obj. D.

3. Winged bristle of *Scolecolepis fuliginosus*, Claparède. × oc. 2, obj. D, with draw-tube.

3 *a*. Hook and dotted bristle of the twenty-fifth foot. × oc. 2, obj. D.

3 *b*. Hook of the foregoing. × oc. 2, obj. D.

4. Winged bristle of *Scolecolepis cirrata*, Sars. × oc. 2, obj. D.

4 *a*. Hook of the same. × oc. 4, obj. D, with full draw-tube.

5. Capillary bristle of Spionid Z. H.M.S. 'Triton,' 1883. × oc. 4, obj. D.

5 *a*. Hook of the same. × oc. 4, obj. D.

6. Winged bristle of *Scolecolepis I.* 'Porcupine,' 1869. × oc. 4, obj. D.

7 and 7 *a*. Winged bristles of *Scolecolepis lamellata*, McI. 'Porcupine,' 1870. (*Vide* Plate XCVI.) × oc. 2, obj. D.

8. Winged bristle of *Euspio Gravieri*, McI. St. Peter Port, Guernsey. × oc. 2, obj. D.

8 *a*. Bristle of the foregoing with broader tip. × oc. 2, obj. D.

8 *b*. Hook, behind the middle of the body. × 360.

9 and 9 *a*. Capillary bristles (with narrow wings) of *Spiophanes bombyx*, Claparède. × oc. 4, obj. D.

10 and 10 *a*. Capillary bristle of *Aonides oxycephala*. × oc. 4, obj. D, with full draw-tube.

10 *b*. Hook (middle of body) of the foregoing from Herm. × oc. 4, obj. C.

11. Winged bristle of the tenth foot of *Euspio Mesnili*, McI. (= *S. filicornis*, Malmgren ?). × oc. 2, obj. D, with draw-tube.

11 *a*. Winged and minutely dotted bristle of the twenty-fifth foot of the same. × oc. 2, obj. F.

11 *b*. Hook of the foregoing. × oc. 4, obj. D.

12. Hook of *Spio G.* × oc. 4, obj. F, with 2 in. draw-tube.

13. Hook of *Spio filicornis*, O. Fabricius, from the fiftieth foot. × oc. 4, obj. D.

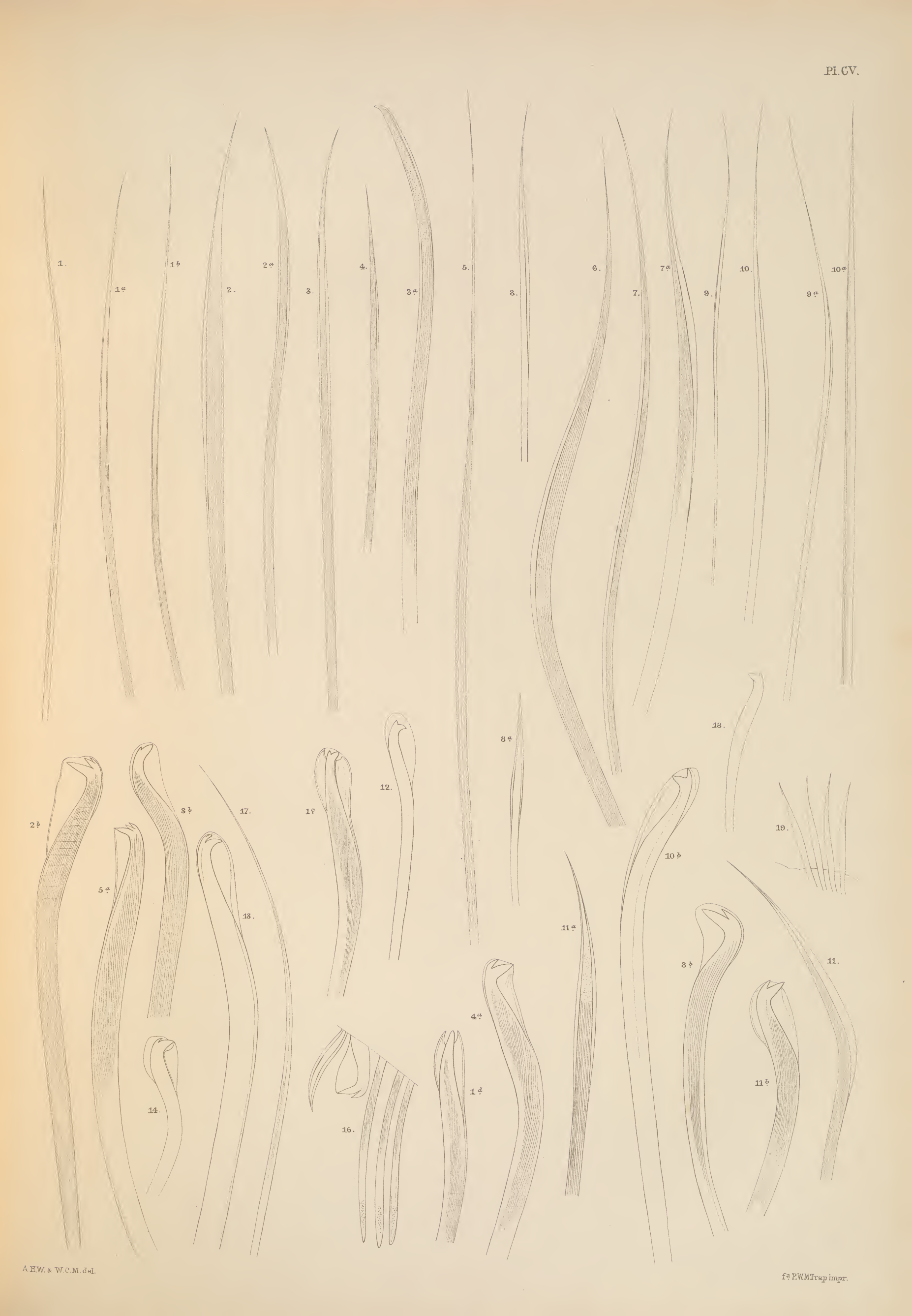
14. Hook of (?) *Spio atlanticus*, Langerhans. × oc. 4, obj. D.

16. Ventral edge of twenty-fifth foot of *Euspio Mesnili*, McI. × 360.

17. Curved simple bristle of the first foot of *Pœcilochætus serpens*, Allen. × oc. 4, obj. D.

18. Hook of *Heterocirrus viridis*, Langerhans. × oc. 2, obj. D, with 2 in. draw-tube.

19. Ventral bristles of anterior region of *Cirratulus bioculatus*, McI. Shetland, 1867. × 360.



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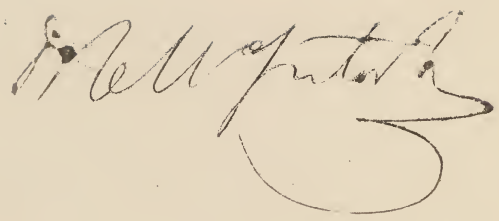
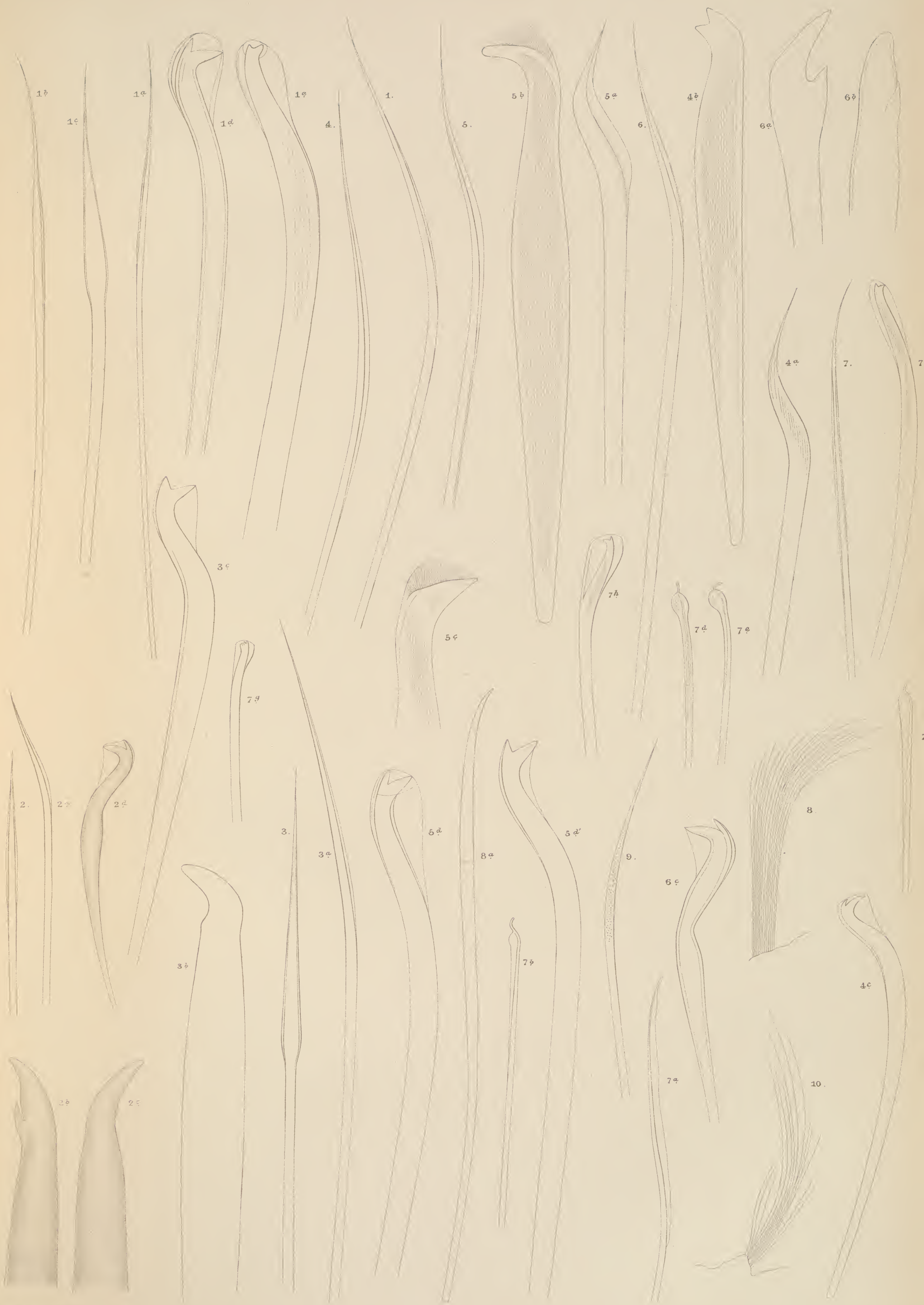


PLATE CVI.

FIG.

1. Upper curved bristle of the fourth foot of *Pygospio elegans*, Claparède. × oc. 4, obj. F.
1 *a*. Upper capillary bristle of the foregoing with a very slight wing. × oc. 2, obj. D.
1 *b*. Winged bristle in lateral view, from Whitecliffe Bay, Isle of Wight. × oc. 4, obj. C.
1 *c*. Winged bristle of the fourth foot seen antero-posteriorly. × oc. 4, obj. F.
1 *d*. Hook of the same, from Whitecliffe Bay. × oc. 4, obj. C.
1 *e*. Hook from the ninetieth foot. × oc. 4, obj. F.
2 and 2 *a*. Front and lateral views of the capillary bristles of *Polydora ciliata*, Johnston. × oc. 4, obj. D.
2 *b* and 2 *c*. Different view of the great hooks of the fifth segment of the same species. × 350 diam.
2 *d*. Hook of the foregoing. × 350 diam.
3. Front view of one of the shorter capillary bristles of *Polydora flava*, Claparède. × oc. 4, obj. D.
3 *a*. Lateral view of one of the longer bristles with narrow wings. × oc. 4, obj. D.
3 *b*. Great hook of the fifth segment. × oc. 4, obj. D.
3 *c*. Typical ventral hook. × oc. 4, obj. D.
4. Dorsal bristle, with narrow wings, of *Polydora quadrilobata*, Jacobi, var. *Mesnili*. × oc. 4, obj. D.
4 *a*. Bristle of the fifth foot. × oc. 4, obj. D.
4 *b*. Great hook of the fifth segment of the same. × oc. 4, obj. D.
4 *c*. Ventral hook of the same species. × oc. 4, obj. D.
5. Winged dorsal bristle of *Polydora Caulleryi*, Mesnil. × oc. 4, obj. F.
5 *a*. Bristle of the same species with broader tip and marked curve backward. × oc. 4, obj. F.
5 *b* and 5 *c*. Great hooks from the fifth segment. × oc. 4, obj. D.
5 *d* and 5 *d'*. Ventral hooks of the foregoing from Lochmaddy. × oc. 4, obj. F, with draw-tube.
6. Dorsal bristle of *Polydora hoplura*, Claparède, with narrow wings. × oc. 4, obj. F.
6 *a* and 6 *b*. Tips of two of the great hooks of the fifth segment viewed differently, Lochmaddy, North Uist. × oc. 4, obj. F.
6 *c*. Ventral hook of the foregoing. × oc. 4, obj. F.
7. Inferior bristle, with slight wings from the anterior region of *Magelona papillicornis*, F. Müller. × 350.
7 *a*. Upper bristle of the same region. × 350.
7 *b*, 7 *c*, 7 *d*, 7 *e*. Various bristles of the ninth segment of the same species. The enlarged tip appears to be a modification of the wing which is present in all. × 350.
7 *f*. Lateral view of a hook in a spirit-specimen. × 350.
7 *g*. Another view of a hook showing several points. × 350.
7 *h*. Hook from a living specimen. × 350.
8. Anterior dorsal capillary tuft of *Spio D*. × 200.
8 *a*. Posterior ventral bristle of the same. × 360.
9. Ventral dotted bristle of *Spiophanes bombyx*, Claparède. × 360.
10. Dorsal tuft of bristles from the middle of *Spio G*. × 200.



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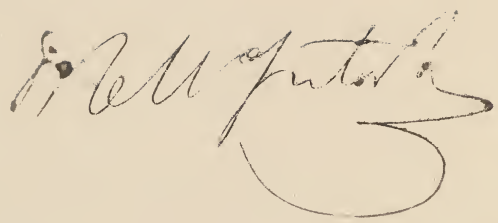
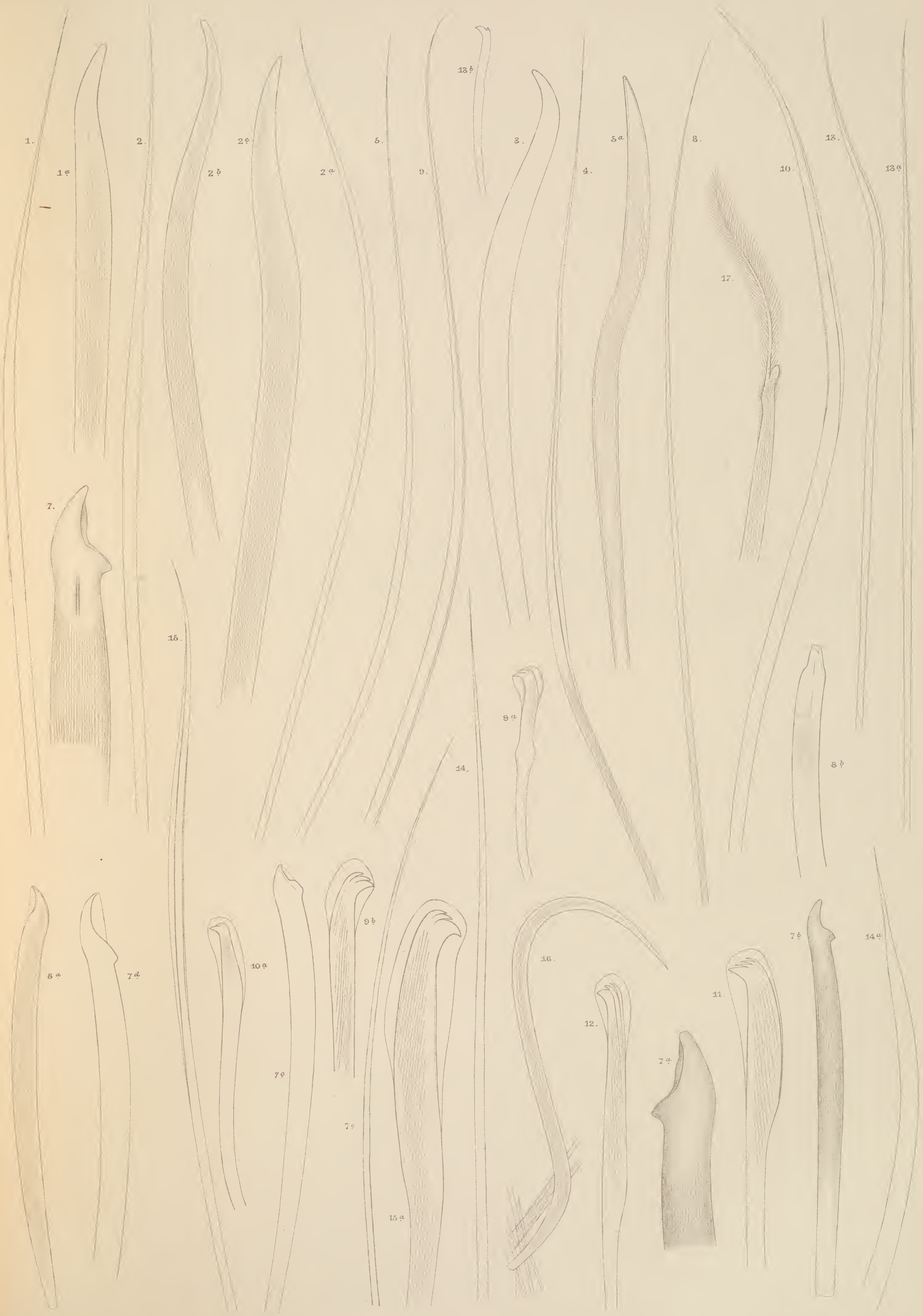


PLATE CVII.

Fig.

1. Finely serrated dorsal bristle of *Cirratulus tentaculatus*, Montagu. × oc. 4, obj. D.
1 *a*. Hook of the same. × oc. 4, obj. D.
2. Dorsal bristle of *Cirratulus cirratus*, O. F. Müller. × oc. 4, obj D.
2 *a*. Curved and serrated bristle of the same. × oc. 4, obj. D.
2 *b*. Smaller and more curved (less worn) ventral hook. × oc. 2, obj. D, with draw-tube.
2 *c*. Larger hook of the same. × oc. 2, obj. D, with 1 in. draw-tube.
3. Hook of *Cirratulus Chiaji*, McI. × oc. 4, obj. F.
4. Dorsal bristle of *Chætozone setosa*, Malmgren. × oc. 2, obj. F.
5. Dorsal bristle of *Chætozone zetlandica*, McI. × oc. 2, obj. F.
5 *a*. Ventral hook of the same. × oc. 2, obj. D.
7 and 7 *a*. Average examples of the tips of the ventral bristles of *Dodecaceria concharum*. See 'Ann. Nat. Hist.,' ser. 4, vol. ii, p. 286. × 350.
7 *b*. Entire hook. × oc. 2, obj. D.
7 *c*. Anterior hook. × oc. 2, obj. D.
7 *d*. Posterior hook in which the spoon-like cavity at the tip is longer. × oc. 2, obj. F.
7 *e*. Anterior bristle. × oc. 4, obj. F.
8. Dorsal bristle of *Heterocirrus ater*, De Quatrefages. × oc. 2, obj. D.
8 *a*. Ventral hook of the same in lateral view. × oc. 2, obj. D.
8 *b*. Antero-posterior view. × oc. 2, obj. D.
9. Dorsal bristle of *Notomastus latericeus*, Sars. × oc. 4, obj. D.
9 *a*. Hook of the foregoing. × oc. 4, obj. D, with 2 in. draw-tube.
9 *b*. Tip of a hook more highly magnified. × oc. 4, obj. F.
10. Dorsal bristle of *Capitella capitata*, O. Fabricius. × oc. 4, obj. D.
10 *a*. Hook. × oc. 2, obj. F.
11. Hook of *Capitella capitata*, Fabr. From the East Rocks, St. Andrews. × oc. 4, obj. F.
12. Hook of *Capitella capitata*, var. with eyes, from Lochmaddy. × oc. 4, obj. F.
13 and 13 *a*. Bristles of variety of *Notomastus latericeus*, Sars, off Cape Finisterre. 'Porcupine,' 1870. × oc. 2, obj. D.
13 *b*. Hook of the same. × oc. 2, obj. D.
14. Bristle from the seventh foot of *Cirratulispio Caulleryi*, McIntosh. × oc. 4, obj. D, with full draw-tube.
14 *a*. Spine-like bristle from the first segment of the second region of the foregoing. × oc. 4, obj. D.
15. Dorsal bristle from the anterior region of *Dasybranchus caducus*, Grube. × oc. 2, obj. D.
15 *a*. Hook of the foregoing, × oc. 4, obj. F.
16. Hook of the first foot of *Spiophanes bombyx*, Claparède. × 224.
17. Feathery bristle of the twentieth foot from the posterior end of *Pœcilochætus serpens*, Allen. × oc. 4, obj. D.
18. Hook of *Heterocirrus viridis*, Langerhans. × oc. 4, obj. D.



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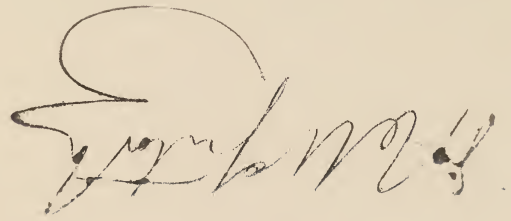


PLATE CVIII.

FIG.

1. Hook of *Lumbriclymene minor*, Arwidsson. 'Porcupine,' 1870. × 390.
2. Hook of *Notoproctus* (fragment), off Cape Guardia. 'Porcupine,' 1870. × 360.
3. Winged bristle of *Rhodine gracilior*, Tauber. × oc. 2, obj. D.

3 *a*. Simple capillary bristle. × oc. 2, obj. D.

3 *b*. Hook of the foregoing. × oc. 4, obj. F.

3 *c*. Hook of *Rhodine Loveni*, Malmgren. × oc. 4, obj. F.

4. Hook of *Isocirrus planiceps*, Sars, near the posterior end of the body. × 360.
5. Winged bristle of *Leiochone borealis* Arwidsson. × oc. 2, obj. D, with 2 in. draw-tube.

5 *a*. Simple capillary bristle (with serrated edge). × oc. 4, obj. D, with 1 in. draw-tube.

5 *c*. Peculiar bristle with serrated edge, commencing with larger spikes. × oc. 4, obj. D.

5 *d* and 5 *e*. Hooks of the foregoing. × 350 diam.

6. Hook of a variety (?) from the North Sea. × 380.
7. Winged bristle of *Leiochone Johnstoni*, McIntosh, from Loch Alsh. × oc. 4, obj. A, with full draw-tube.

7 *a*. Simple capillary bristle. × oc. 4, obj. A, with $1\frac{1}{2}$ in. draw-tube.

7 *b*. Hook of the same. × 133.

7 *c*. The foregoing more highly magnified. × oc. 4, obj. D.

8. Hook of *Praxillella affinis*, Sars. St. Magnus Bay, 1867. × 360.
9 and 11. Hooks of *Praxillella*? No gular bristles. 'Porcupine,' 1870. 994 fathoms. × 360.
10. Bristles of *Pseudoclymene quadrilobata*, Sars. × 200.

10 *a*. Hook of the foregoing from the eighth segment. × 360 diam.

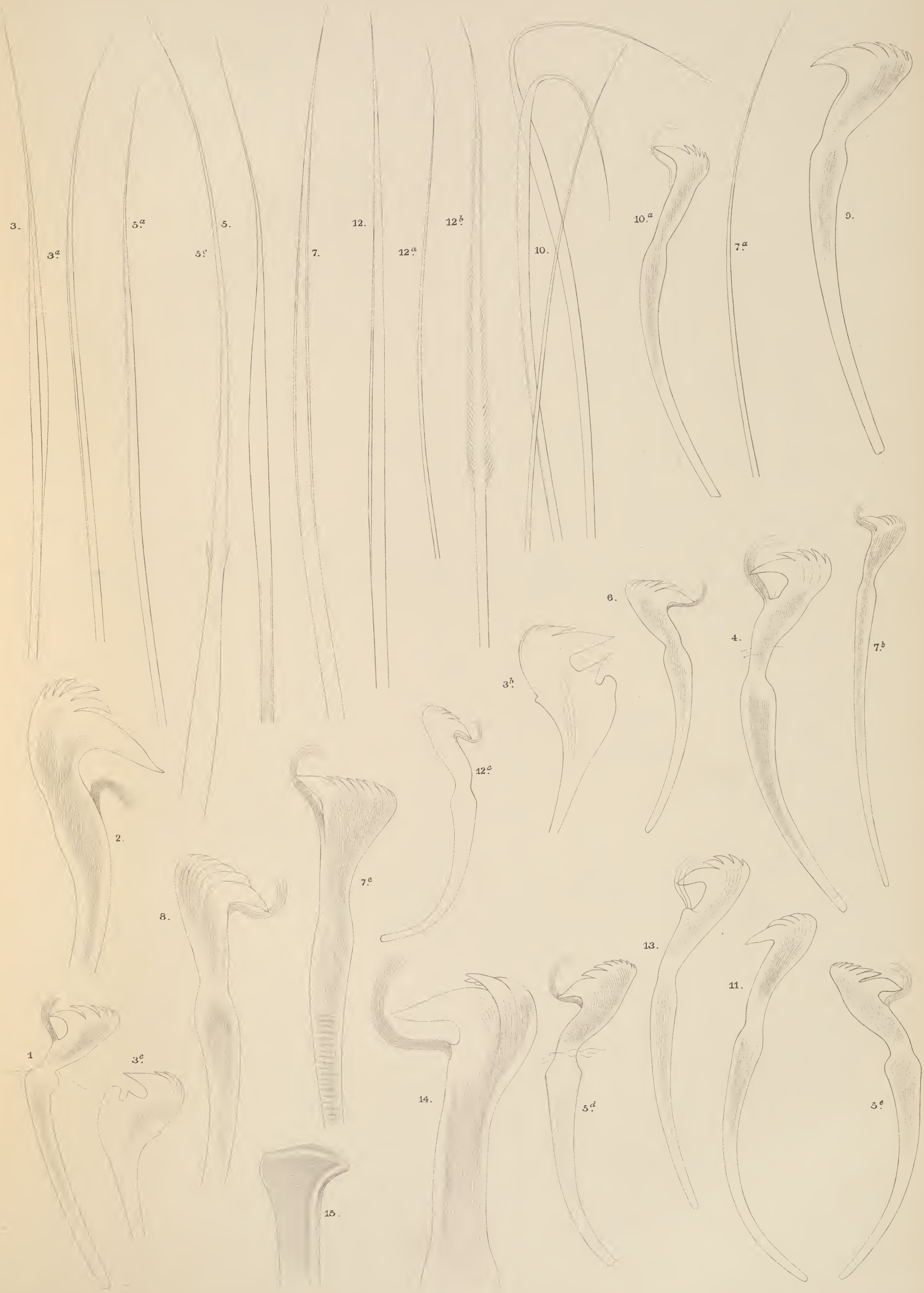
12. Winged bristle of *Pseudoclymene Œrstedi*, Claparède, from the eighth bristle-bundle. × oc. 4, obj. D, with 1 in. draw-tube.

12 *a*. Capillary bristle. × oc. 4, obj. D.

12 *b*. Spiked bristle. × oc. 4, obj. D, with full draw-tube.

12 *c*. Hook of the same. × 360 diam.

13. Hook of *Asychis Jeffreysii*, McIntosh, off Cape Finisterre. 'Porcupine,' 1870. × 200.
14. Hook of *Asychis biceps ?*, Sars, from Loch Linnhe. × 350.
15. Stout tooth-like bristle of fourth foot of *Phyllochætopterus gracilis*, Grube. × oc. 2, obj. A.



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f.a P.W.M. Trap impr.

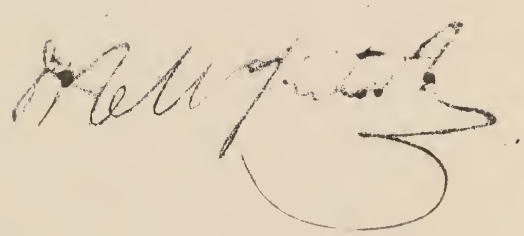


PLATE CIX.

Fig.

1. Hooks of *Rhodine gracilior*, Tauber, as published in 1869. × 350.
2. Dorsal bristle of *Nicomache maculata*, Arwidsson. × oc. 4, obj. D.

2 *a*. Spine from the anterior region of the same. × oc. 4, obj. A.

3 and 3 *c*. Dorsal bristles of *Proclymene Mülleri*, Sars. × oc. 4, obj. D.

3 *b* and 3 *d*. Hook of the foregoing. 3 *b* × about 90 diam.; 3 *d* × oc. 4, obj. D.

4. Bristle of *Heteroclymene robusta*, Arwidsson. × oc. 4, obj. D, with draw-tube.

4 *a*. Hook of the foregoing. × oc. 4, obj. D.

5. Anterior spine of *Pseudoclymene quadrilobata*, Sars. × oc. 4, obj. A, with draw-tube.
6. Tip of a spine of *Isocirrus planiceps*, Sars, from the Hebrides. × oc. 4, obj. A, with draw-tube.

6 *a*. Hook of the same. × oc. 4, obj. D.

9. Hook of *Isocirrus DA* from Montrose Bay. × oc. 4, obj. A.
10. Capillary (winged) bristle of *Leiochone* (*Clymene*) *ebiensis*, Audouin & Edwards. × oc. 4, obj. D.

10 *a*. Anterior hook in which development is incomplete. From Jersey. × oc. 4, obj. D.

10 *b*. Completely developed hook. × 350.

11. Bristle (with narrow wings) of *Leiochone clypeata*, De St. Joseph. × oc. 4, obj. D, with draw-tube.

11 *a*. Hook of the foregoing from the tenth segment. × oc. 4, obj. D.

12. Dorsal bristle of *Praxillella gracilis*, Sars. × oc. 4, obj. A, with full draw-tube.

12 *a*. Hook of the same. × oc. 4, obj. D, with full draw-tube.

13 and 13 *a*. Dorsal bristles of *Praxillella prætermissa*, Malmgren. × oc. 4, obj. D.

13 *b*. Hook of the foregoing. × oc. 2, obj. D.

13 *c*. Hook of the last row. × oc. 4, obj. D, with draw-tube.

14. Tuft of dorsal bristles from the twentieth foot of *Cirratulus caudatus*, Levinsen. × 133.

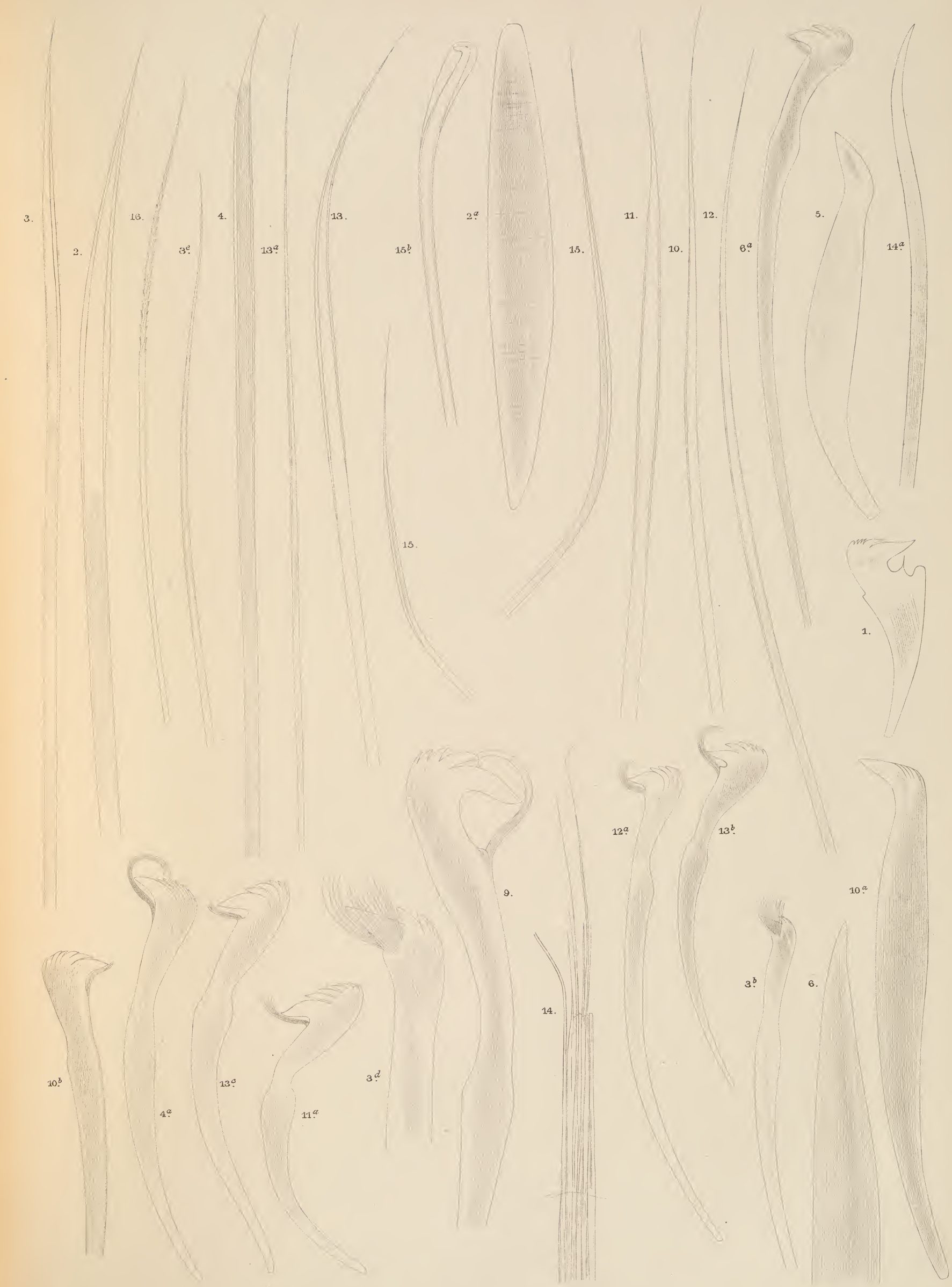
14 *a*. Posterior hook-like bristle of the same. × oc. 4, obj. A, with 2 in. draw-tube.

15. Dorsal bristle of *Prionospio Malmgreni*, Claparède. × oc. 4, obj. D.

15 *a*. (The upper fig. 15 in the plate) another with more distinctly granular contents. × oc. 4, obj. D.

15 *b*. Hook of the foregoing. × oc. 4, obj. D.

16. Spinous bristle of *Maldane Sarsi*, Malmgren. × oc. 4, obj. D.



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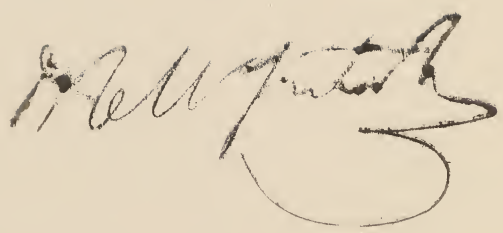


PLATE CX.

Fig.

1. Capillary bristle of *Isocirrus DA* from Montrose Bay. × oc. 2, obj. A.
1 *a*. Hook of the foregoing. × oc. 4, obj. D.
2. Hook of *Proclymene Mülleri*, Sars, from the coast of Northumberland. × oc. 2, obj. A.
4. Capillary bristle of *Axiothella catenata*, Mgrn. × oc. 4, obj. D, with draw-tube.
4 *a*. Hook of the same. × oc. 4, obj. D.
5, 5 *a*. Dorsal bristles of *Arwidssonia zetlandica*, McI. × oc. 2, obj. A, with draw-tube.
5 *b*. Larger spine of the second series. × 420.
5 *c*. Middle spine of the same series. × 420.
5 *d*. Hook of the foregoing. × 420.
6. Dorsal bristle of *Asychis biceps*, Sars. × oc. 4, obj. A, with draw-tube.
6 *a*. Hook of the same. × oc. 4, obj. A, with full draw-tube.
7. Dorsal bristle of *Asychis Jeffreysii*, McI. × oc. 4, obj. A, with draw-tube.
7 *a*. Portion more highly magnified. × oc. 4, obj. D.
7 *b*. Hook of the same. × oc. 4, obj. D.
8 and 8′. Spiked and simple bristles of *Maldane Sarsi?* × oc. 4, obj. D.
8 *a*. Portion of the spiked bristle more highly magnified. × oc. 4, obj. F.
8 *b*. Winged bristle of the second foot with peculiar curvature. × oc. 4, obj. D.
8 *c*. Hook of the foregoing. × oc. 2, obj. D.
9. Dorsal bristle of *Owenia fusiformis*, Delle Chiaje. × oc. 2, obj. F.
9 *a*. Hook of the same. × oc. 2, obj. F.
9 *b*. Hook of a Neapolitan example. × oc. 2, obj. F.
10. Dorsal bristle of *Myriochele Heeri*, Malmgren. × oc. 4, obj. F.
10 *a*. Hook of the foregoing. × oc. 4, obj. F, with full draw-tube.
11. Capillary bristle of *Spio* like D. Deep sea fishing off St. Andrews Bay, October, 1868. × 200.
13. Hook of *Nicomache maculata*, Arwidsson. × oc. 4, obj. D.
14. Dorsal bristle of *Isocirrus planiceps*, Sars. × oc. 2 obj. D, with draw-tube.
15. Posterior capillary bristle of *Cæsicirrus neglectus*, Arwidsson, from the third bristled segment. × 440.
15 *a*. Tips of capillary bristle from the thirteenth segment of the same. × 500. (Both after Arwidsson.)

A.H.W. & W.G.M. del. Fig. 15 & 15 a I. Arwidsson.

F.a P. W.M. Trap impr.

PLATE CXI.

Fig.

1. Dorsal view of *Prionospio Malmgreni*, Claparède, from a specimen of fifty-six segments forwarded by Mr. Southern. Enlarged under a lens.

1 *a*. Anterior region further enlarged. To this and the previous figure the tentacles have been added from the figure of G. O. Sars.

1 *b*. Lateral view of the same region to indicate the proportionally long branchiæ. Enlarged.

1 *c*. Anterior foot. × oc. 4, obj. A, with draw-tube.

3. Anterior region of *Cirratulus caudatus*, Levinsen, from Dunmanus Bay. The specimen is incomplete. Enlarged.

5. Anterior region of *Cæsicirrus neglectus*, Arwidsson, from the dorsum. Enlarged.

5 *a*. Lateral view of the snout of the same. Enlarged.

5 *b*. Lateral view of the posterior end. Enlarged.

5 *c*. Anal disc seen from the rear. Enlarged.

5 *d*. Feathered capillary bristle from the seventeenth segment of the foregoing. × 670 diam.

5 *e*. Hook of the same. × 530. (All from Arwidsson's memoir.)

6. Cephalic plate of *Pseudoclymene quadrilobata*, Sars, from the Outer Skerries, Shetland. Enlarged.

7.[1] Anterior region of an imperfect example of *Myriochele Heeri* (?) from Canada. Enlarged.

7 *a*.[1] Anterior region of *Myriochele Heeri*, Malmgren, from Clew Bay, Ireland; completed with the aid of Malmgren's figure. Enlarged.

8. Anterior region of *Maldane Sarsi*, Malmgren. Enlarged.

8 *a*. Posterior end with anal projection. Enlarged.

9. Anterior end of *Heterocirrus viridis*, Langerhans, from a specimen mounted by Major Elwes. Enlarged.

9 *a*. Bristle of the foregoing. × oc. 4, obj. D, with draw-tube.

10. Hook of *Heterocirrus caput-esocis*, De St. Joseph, from a specimen sent by Major Elwes. × oc. 4, obj. D, with draw-tube.

11. Simple bristle of the first foot of *Pœcilochætus serpens*, Allen. × oc. 4, obj. D.

11 *a*. Second foot of the foregoing. × 40 diam.?

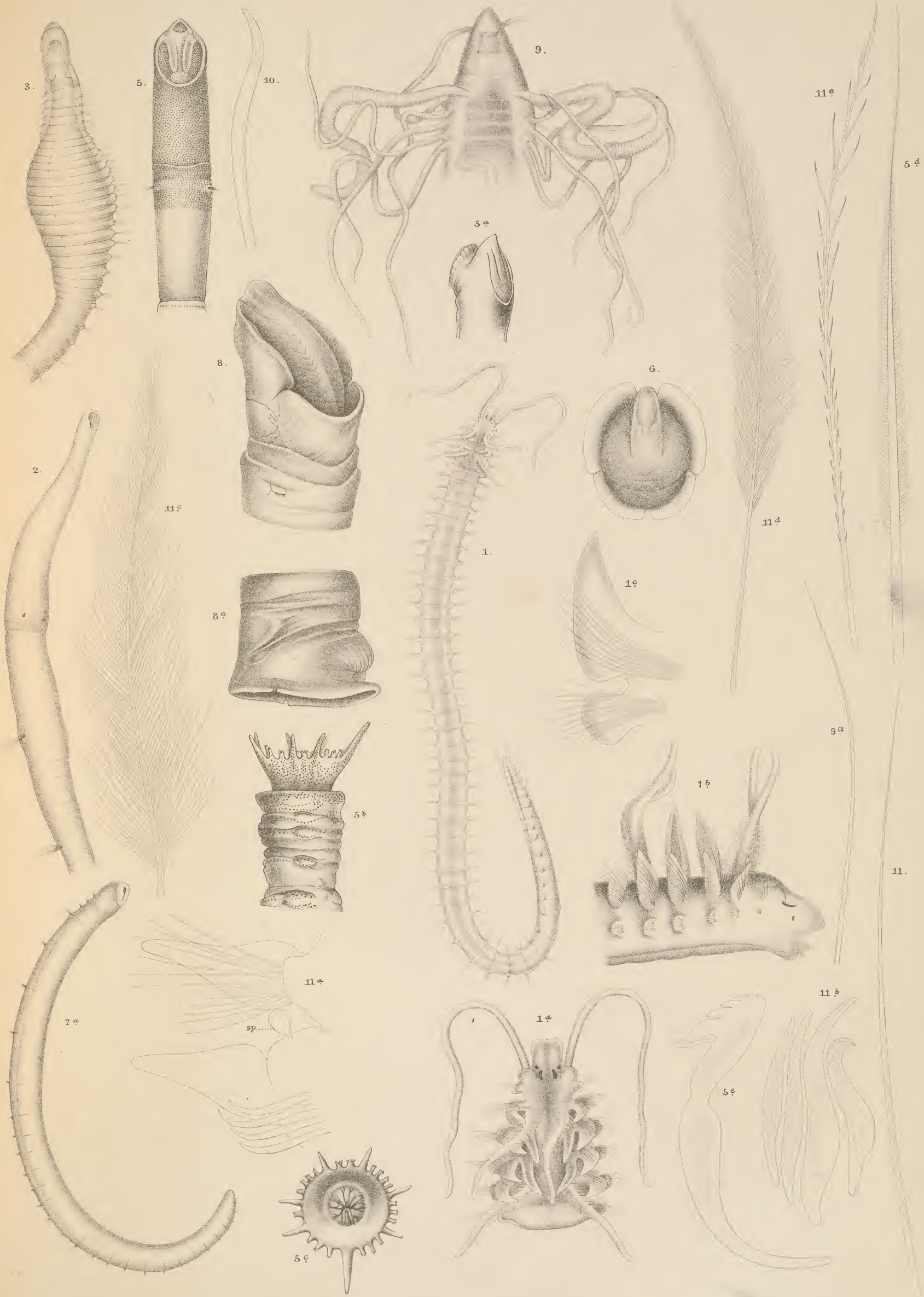
11 *b*. Posterior hooks from the dorsal division. After Dr. Allen. × 100.

11 *c*. Broadly feathered bristle. × oc. 4, obj. D.

11 *d*. More slender form of the same kind. × oc. 2, obj. D.

11 *e*. Peculiar soft spinuous ("membranous") form from the anterior third (about twentieth foot). × oc. 2, obj. D.

[1] By an error the figure is numbered 2 in the plate.



A.H.W. del. Fig. 11b E.J.A. Fig. 5-5e I. Arwidsson.

fa P.W.M. Trap impr.

A

MONOGRAPH

OF THE

BRITISH MARINE ANNELIDS.

VOL. I.

NEMERTINEA;

AND

POLYCHÆTA—

AMPHINOMIDÆ TO SIGALIONIDÆ.

BY

WILLIAM CARMICHAEL McINTOSH, M.D.Edin.,

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A

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VOL. II.

POLYCHÆTA—

NEPTHYDIDÆ TO ARICIIDÆ.

BY

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