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On some new tubicolous Annelids from Japan, the Bonin Islands and the Antarctic.

By

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With 4 Plates.

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In the years 1917—1919 I had the opportunity of examining some collections of tubicolous Annelids belonging partly to the Zoological Institution of the University of Uppsala partly to the Swedish Natural State Museum (Riksmuseet) of Stockholm. The groups which interested me were Hermellidae, Serpulidae and Sabellidae. I intended to make a general systematical revision of these families, but, being compelled to put off the publishing of the revision for some years, I will here give the diagnoses of some new species belonging to Hermellidae and Sabellidae. Two of the species have been found in the collections of the SWEDISH ANTARCTIC EXPEDITION 1901—1903 and are preserved in the Swedish State Museum, most, however, are from the large and excellent collections made by Dr. S. BOCK during his journey to Japan and the Bonin Islands in 1914, which collections are preserved in the Zoological Institution of Uppsala.

In the sequel I have maintained some terms which certainly are not quite correct but which have been admitted into litterature, thus for instance »branchiae» though BOUNHIOL (1902) has proved that these appendices are not organs of respiration.

Fam. Hermellidae.

Tetreres CAULL.

T. curvata n. sp.

This species is particularly distinguished by the form of the bristles in the operculum, that is in the first setigerous segment. The parapodia which form the operculum are at the outer convex edge provided with a row of small papillae. Inside those there are two rows of bladeshaped, undivided, obtuse bristles. Those of the inner row (pl. II, fig. 2) are much thicker than the others. The bristles of the outer row (pl. II, fig. 1) are near the end distinctly curved to the right resp. left hand. The bristles of the inner row are straight. On the dorsal side there are two large hooks. The so-called gill filaments are arranged in about 10 rows on each side. The palps are well developed and reach the end of the prostomial lobe.

On each side of the hindmost part of the lower lip there are two papillae, the outer of which forms a triangular flap. Laterally of that flap there is a bundle of hair-bristles. At the base of the opercular parapodia there is laterally a fold, the edge of which forms three papillae. In front of the first of them there is a bundle of hair-bristles, which under the microscope prove to be distinctly fringed (pl. II, fig. 5).

Besides there are four complete toracal segments. The dorsal parapodia are flat, fin-shaped, and at the edge have oar-blade-shaped bristles, which are splitted or fringed at the end (pl. II, fig. 3). The ventral parapodia are papilla-shaped, and have a few bristles, which are of the same type as those in the dorsal parapodia but smaller (pl. II, fig. 4). Ventral cirri are missing in all segments, dorsal cirri only in the first.

Also in the abdominal region the dorsal parapodia are broad and fin-shaped. At their edge there are numerous comb-like bristles with 6—8 teeth (pl. II. fig. 6). The ventral parapodia are papilla-shaped like those in torax but smaller than those. They have 2—3 tiny hair bristles (pl. II, fig. 8) and 3—4 thicker ones (pl. II, fig. 7); all of them have teeth directed towards the point. These teeth are, on the tender bristles, visible only under a high magnifying power. Dorsal

cirri are to be found on the 21 foremost segments. The caudal part of the abdomen is broken off and for that reason cannot be described.

The body is perfectly uncoloured except the gill-filaments and the ventral parts of the opercular parapodia, which are brown.

This species seems to stand near *Tetreres* (*Pallasia*) *giardi* (Mc Intosh), from which it is distinguished by the different form of the bristles in the operculum. As Mc Intosh has not figured the other bristles, I cannot say whether these too are different.

In the collections there was only one specimen. It measured (without the caudal part) 28 mm. The breadth at the 3rd abdominal segment was 5 mm.

Locality: Bonin Islands (Ogasawara) Kopepe Bay 6/8 1914 (S. Bock).

Fam. Sabellidae.

Sabella Lin.

S. Wireni n. sp.

Filaments of the branchiae 27 on each side, perfectly separated. Terminal part of each filament winged. Basal blade strongly developed. The two triangular appendices of the mouth slender.

The collar begins dorsally from the first bristle-bundle (pl. I, fig. 1) and runs down without incisions to the ventral side, where it forms a rosette-shaped intumescence and ends between the ventral tips of the collar.

The toracal region consists of 8 setigerous segments. The hairbristles are of two different forms, as figured in figs. 1 & 2 pl. III. The broad ones seem to form a transition to the spatulate bristles. The hooks and the paddle-shaped bristles are figured in figs. 3 & 4, pl. III.

In abdomen the hair-bristles are of two kinds, as in torax, the terminal parts of the broad ones, however, are much slenderer (fig. 6, pl. III) and moreover not palé-shaped. The dorsal parapodia typically lack the paddle-shaped bristles,

but as an anomaly I have found some of them at one specimen together with the hooks in the four foremost abdominal segments. The same phenomenon is not known in this family as far as I could find, apart from that discussed genus *Protulides*, which was established by WEBSTER 1884. The species *P. elegans* is said to have been found in North Carolina. That genus was characterized by paddle-shaped bristles also in the abdominal segments. Since that year *Protulides* has been searched for in the same locality, but in vain (ANDREWS 1891). Instead, however, there has been found a species of *Protis* that completely corresponds to the *Protulides* of WEBSTER except that paddle-shaped bristles are missing in the abdominal segments. It seems very peculiar that there should be two species which correspond completely except that the one has paddle-bristles in the abdominal segments whereas the other lacks them. I think that WEBSTER has described a species of *Protis* which like the above mentioned specimen of *Sabella Wireni* anomalously had paddle-shaped bristles in some of the abdominal segments, and that he has examined such a segment and none with normal bristles. This is, at least, a plausible explanation of that strange fact.

The excremental furrow ends on the dorsal side of the torax between two prominent longitudinal folds which may be homological to the dorsal lobes of the collar in other Sabellidean genera.

The type specimen was (excl. the branchiae) 19 mm. The branchiae measured 13 mm. The breadth at the 4th toracal segment was 3,5 mm. I have made a formula for the measures of this specimen so: $\frac{13 + 19}{3,5}$ mm.

Locality. Japan Sagami Misaki Okinose $^{26}/_{6}$ 1914 (S. BOCK).

S. albicans n. sp.

The branchiae 9 on each side, completely separated. The length of their naked terminal parts is $^{1}/_{6}$ of that of the whole branchiae. The basal blade is very low, only $^{1}/_{20}$ of the branchiae. The branchiae are quite white. On the

basal plate, however, there are brown spots on the ridges which continue the branchial filaments. The appendices of the mouth are broad with a short pointed tip. They are 1/6 the length of the branchial filaments.

The dorsal lobes of the collar are very small and are seen as a low but distinct fold on each side of the dorsal furrow (pl. I, fig. 7). The lateral and ventral lobes are not separated; they are 3/4 the height of the basal blade. On the ventral side there are two scarcely perceivable tips.

Torax consists of 8 setigerous segments. As in the other Sabellae, the bristles scarcely afford any distinct characteristics of the species. The dorsal bristles are partly short and broad, partly long and more slender (pl. III, fig. 7). The form of the hooks, which are accompanied by paddle-shaped bristles, is shown by the fig. 9, pl. III. In the abdomen the hair-bristles are very slender (pl. III, fig. 8).

The ventral plates are well developed. In the foremost part of the torax they are vaguely divided by a transversal furrow.

The body is white apart from the brown spots on the basal blade.

Only one specimen was found in Dr. Bock's collections. It measured $\frac{6 + 16}{1,5}$ mm.

Locality: Japan, Misaki, »Diver». Bottom: Laminaria. (S. Bock).

S. pusilla n. sp.

The branchial filaments are on each side 7, perfectly separated from each other. The thread-like, terminal naked parts are 1/4—1/5 the length of the filaments. Eyes are missing and so are all pigment spots.

The collar begins as a very slight fold dorsally from the first bristle-bundle, but it grows higher and higher, and on the ventral side forms two considerable triangular tips, which are separated by a broad incision (pl. I, fig. 6). They are the height of three toracal segments.

The toracal region consists of 8 setigerous segments. Because all the dorsal bristles are broken, I can give no description of them. The hooks are very short-pointed.

In abdomen the hair-bristles are broad, about 6 in each segment.

The excremental furrow is visible in torax, but not very distinctly.

The type specimen measured $\frac{2,5 + 6,5}{0,75}$ mm.

Localities: Falkland Islands, Port William 51° 41′ S. L. — 57° 47′ W. L. 12 metres. 3/9 1902. Tierra del Fuego (I), Ushnaia, 10 metres. 21/9 1902 (SWEDISH ANTARCTIC EXPEDITION 1901—1903).

Sabellastarte SAINT-JOSEPH.

S. Bocki n. sp.

The branchiae are white with 20—25 narrow brown bands and between these sometimes yellow ones. Eyes are missing. The basal blade is low, only as high as 1/9—1/10 the length of the filaments. The triangular appendices of the mouth are very slender and 2/3—3/4 the length of the branchiae, their terminal parts are thread-like.

The collar is low, on the dorsal side very open. It commences on a level with the first bundle of hair-bristles (pl. I, fig. 2). On the ventral side the collar forms a couple of triangular lobes, whose bases are very thick. The ventral lobes are nearly separated from the lateral parts of the collar by a ventro-lateral slit. Between the ventral lobes the ventro-labial folds have their ends.

The toracal region consists of 6—7 setigerous segments. The hair-bristles are of two sorts, partly with a narrow »brim», partly with a broad one (pl. III, fig. 11). The hooks are as usual unshafted (pl. III, fig. 10).

In the abdomen the hair-bristles and the hooks are of the same type as in torax but a little more slender (pl. IV, fig. 7 & 8).

The ventral shields are, in the toracal region, divided by a more or less discernible transversal furrow.

The specimens which are preserved in spiritus are yellow-white except the brown bands on the branchiae mentioned above. Between the dorsal and the ventral bristle-bundle there is always a small but distinct pigment spot.

The tubes are dark, not very tenacious, a little striped transversally.

In Dr. BOCK's collections there are 20 complete specimens. The type specimen measured $\frac{20 + 64}{5}$ mm.

Locality: Bonin Islands (Ogasawara) Port Lloyd 10 fathoms. $^{26-27}/_{7}$ 1914 (S. BOCK).

Potamilla MLGRN.

P. elegans n. sp.

Branchial filaments 15 on each side, perfectly separated. Pinnae 10 times as long as the breadth of the filament. The basal blade is low. The filaments are more or less yellow, the basal blade is white. Eyes are missing. The terminal parts of the 2 triangular appendices of the mouth are very slender, the length of the appendix being $^{1}/_{5}$ of that of the filament.

The collar is $^{1}/_{2}$ the height of the basal blade. The dorsal lobes continue as two folds between the basal blades (pl. I, fig. 5). Dorsally from the first bristle-bundle there is a deep incision, which on each side separates the dorsal lobe from the lateral one. On the ventral side the collar is higher and forms two broad not very marked tips, separated in the median line by a shallow and broad incision.

The toracal region normally consists of 8 segments, but sometimes there are as many as 13. The dorsal bristles are partly norrow hair-bristles partly spatulate bristles. The hooks and the paddle-shaped bristles do not afford characteristics for the species.

In the abdominal region the hair-bristles are thick with long slender points.

The body except the branchial filaments is quite uncoloured.

In Dr. BOCK's collections I found about 10 more or less defective specimens. The type specimen measured $\frac{9 + (5)}{2,5}$ mm.

The tubes are thin but hard, generally dark. They are always a little rough from intermingled grains of sand.

Localities: Japan, Kiuschiu, Goto Islands (TRAWL II) $^{17}/_{5}$ 1914; Sagami, Misaki, Okinose 150—600 m. $^{5}/_{5}$—$^{3}/_{7}$ 1914; D:o Yokuska-Strait, 135 m. $^{19}/_{6}$ 1914 (S. BOCK).

P. japonica n. sp.

The branchial filaments on each side 6, completely separated; the distal naked parts $^{1}/_{5}$ the length of the whole filament. The basal blade is as high as the breadth of the animal at the height of the 1st setigerous segment. The edges of the two blades are dorsally parallel, ventrally in the middle they part but in the anterior and the posterior part they unite again. Dorsally the blades pass without limit into torax (pl. I, figs. 3 & 4).

The collar begins as a narrow edge dorsally from the first bristle-bundle. Ventrally it considerably increases in height at the same time as the base-line is removed forward. Ventrally it also forms two distinct flips. Besides those there are no incisions.

Torax consists of 17 setigerous segments, which are $1^{1}/_{2}$—2 times as broad as long. In the first segment all the bristles were broken, so I cannot say anything about their form. In the other segments there are spatulate bristles in the dorsal parapodia (pl. IV fig. 4) and some broken ones, which had probably been hair-bristles. In the ventral parapodia there are hooks with long shafts turned backwards (pl. IV, fig. 5), together with paddle-shaped bristles.

In abdomen all the bristles in the ventral parapodia are broken. In the dorsal parapodia there are short-shafted hooks with exceedingly high crowns (pl. IV, fig. 6).

The ventral plates are well developed but not distinctly limited at the sides. They are not divided by a transversal furrow.

Only one defective specimen was to be found. It measured: the branchiae 8,5 mm., torax 6 mm.; the breadth at the 4th toracal segment was 0,75 mm. From the abdomen there were 13 segments left, which measured 5 mm.

A fragment of the tube enclosed a part of the abdomen. It was opaque, rusty-brown, somewhat sandy. It was fixed at a clod of sand.

Locality: Japan, Sagami, Misaki, Sunosaki, 45—60 m. $^{19}/_{8}$ 1914 (S. BOCK).

Fabricia BLAINV.

F. ventrilinguata n. sp.

Branchial filaments on each side 3, perfectly separated. I could not detect any eyes. Appendices round the mouth are missing.

The collar too is wanting as usual; on the ventral side, however, there is a broad and thick, tongue-shaped lobe, separated from the underlip only by a hardly visible furrow.

Torax consists of four setigerous segments. In the foremost of them there are, as usual, only hair-bristles. In the other segments there are, besides hair-bristles, 2—3 long-shafted hooks.

In abdomen the hair-bristles are, as in torax, very thin. The hooks have short shafts and about 12 teeth. They are about 35 in each segment.

No excremental furrow is to be seen.

The type specimen measured: $\frac{1,5 + 5}{0,5}$ mm.

Localities: Japan, Sagami, Misaki »Ebb-shore» $^{29}/_{5}$—$^{7}/_{7}$ 1914; Bonin Islands (Ogasawara) Taki no ura, 20—30 fathoms $^{2}/_{8}$ 1914 (S. BOCK).

Because, as far as I know, nobody before Dr. BOCK has made collections at the Bonin Islands I will here give a list of all the Hermellids and Sabellids he has found there:

Hermellidae:

Tetreres curvata n. sp. (see above)

Sabellidae:

Sabellastarte Bocki n. sp. (see above)

» *indica* (SAV.) (Ogasawara) Kopepe Bay, »Ebb-shore» $^{6}/_{8}$ 1914.

Branchiomma (*Dasychone*) *cingulata* (GR.) (Ogasawara) $^{23}/_{7}$ 1914.

Hypsicomus phaeotaenia (SCHM.) (Ogasawara) »Diver[illegible] Bottom: Coral. $^{23}/_{7}$—$^{28}/_{7}$ 1914; Hatse no ura, Bottom: Por[illegible] pitas Coral $^{5}/_{8}$ 1914.

Explanation of the plates:

Plate I.

Fig. 1. *Sabella Wireni* n. sp. The collar region, dorsal view. $^{3}/_{1}$
» 2. *Sabellastarte Bocki* n. sp. » » » , » » $^{9}/_{1}$
» 3. *Potamilla japonica* n. sp. » » » , ventral » $^{15}/_{1}$
» 4. » » » » » » , dorsal » $^{15}/_{1}$
» 5. » *elegans* » » » » , » » $^{6}/_{1}$
» 6. *Sabella pusilla* » » » » , ventral » $^{15}/_{1}$
» 7. » *albicans* » » » » , dorsal » $^{15}/_{1}$

Plate II.

Tetreres curvata n. sp.

Fig. 1. Opercular bristle, outer row. 285 ×.
» 2. » » , inner row. 150 ×.
» 3. Torax: bristle from 2nd segm., dorsal. 285 ×.
» 4. » » » » » , ventral. 285 ×.
» 5. » » » the first lateral bristle-bundle. 435 ×.
» 6. Abdomen: dorsal. 600 ×.
» 7. » ventral. 435 ×.
» 8. » » 435 ×.

Plate III.

Fig. 1. *Sabella Wireni* n. sp. Torax, dorsal. 285 ×.
» 2. » » » , » 285 ×.
» 3. » » » , ventral. 650 ×.
» 4. » » » , » 435 ×.
» 5. » » Abdomen, dorsal. 435 ×.
» 6. » » » , ventr. 285 ×.
» 7. » *albicans* n. sp. Torax, dorsal. 435 ×.
» 8. » » Abdomen, ventr. 600 ×.
» 9. » » Torax, » 600 ×.

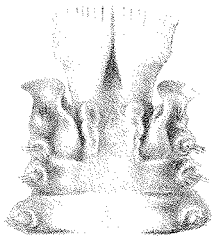
Fig. 10. *Sabellastarte Bocki* n. sp. Torax, ventral. 435 ×.
» 11. » » » , dorsal. 295 ×.

Plate IV.

Fig. 1. *Fabricia ventrilinguata* n. sp. Torax, dorsal. 600 ×.
» 2. » » Abdomen, » 940 ×.
» 3. » » Torax, ventral. 940 ×.
» 4. *Potamilla japonica* n. sp. » , dorsal.
» 5. » » » , ventral.
» 6. » » Abdomen, dorsal.
» 7. *Sabellastarte Bocki* n. sp. » , ventral. 435 ×.
» 8 » » » , dorsal. 435 ×.

Tryckt den 23 december 1922.

Uppsala 1922. Almqvist & Wiksells Boktryckeri-A.-B.



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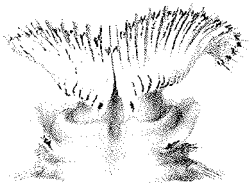

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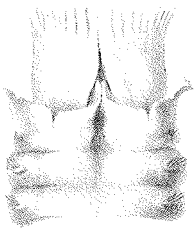

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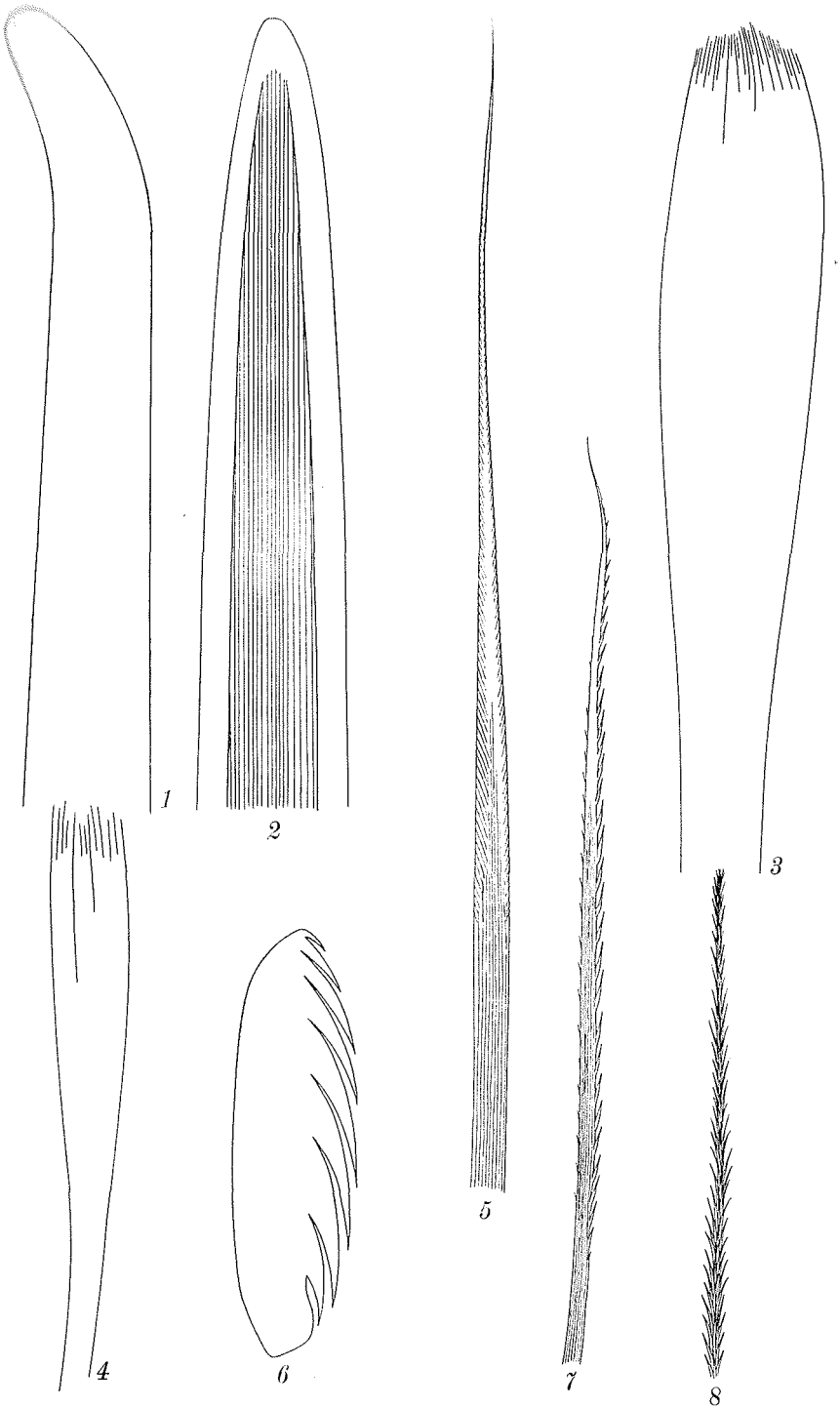

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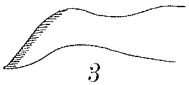
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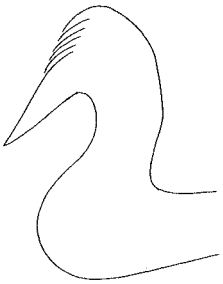
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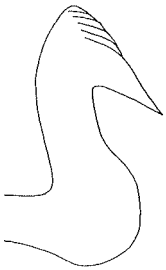
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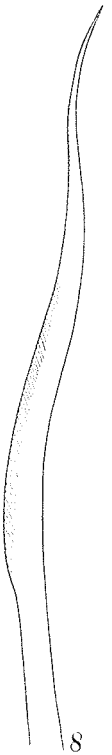
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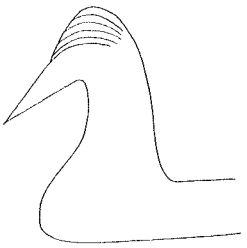
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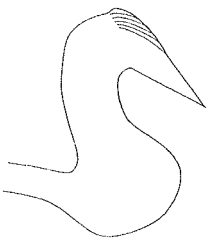
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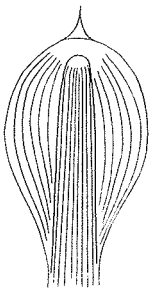
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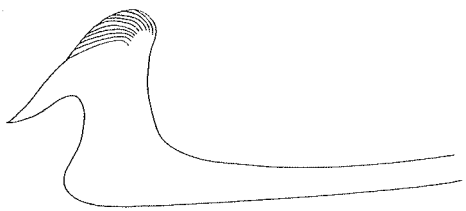
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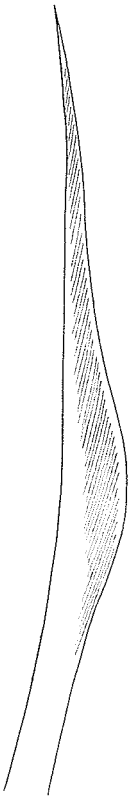
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