

I. — ON NEW AND LITTLE-KNOWN SPECIES OF POLYNOINAE
FROM THE NETHERLANDS' EAST-INDIES.

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Our knowledge of the *Aphroditidae* from the Malay-Archipelago hitherto was very scanty and considering the great variety of those worms in neighboring seas — Grube from the Philippines ¹⁾ mentioned 27 and Potts from the Indian Ocean 31 species ²⁾ — it could be expected that a thorough examination of this region, as done by the Siboga-expedition, should reveal us many new and interesting form; in these expectations we are not disappointed. Two remarkable species viz. *Lepidasthenia sibogae* and *Eulepis malayana*, besides three species of *Psammolyce* are already mentioned before ³⁾; in the present paper we wish to confine ourselves to the sub-family of the *Polynoïnae*. Only six representatives of this group hitherto are mentioned from Amboina, Borneo, Ceram and Ternate, viz. *Lepidonotus carinulatus* Gr., — *Wahlbergi* Kinb., *Polynoë cornuta* Fischli, — (*Lepid.*) *gymnonotus* Mrz. — *cristatus* Gr., (*Polynoë tumorifera* Gr.) and *Scalisetor torus ceramensis* McInt, whereas in the Siboga-collections I was able to recognize more as forty species and varieties of *Polynoïnae* ⁴⁾.

Unfortunately it is no easy task to decide to what genus these species belong, for every one, who has been occupied with the study of Polynoïnae, will agree with Johnson's assertion that „the classification of the Polynoids is in a most unsatisfactory state, and much in need of thorough revision. The great multiplication of genera, nearly all of them founded upon variable, non-essential, or even accidental characters, and none of them clearly and fully defined, has been a serious drawback to the study of these interesting forms ⁵⁾.” Also Darboux in his elaborate paper „Recherches sur les Aphroditiens” ⁶⁾, has not succeeded to give a clear definition of the different genera and it is not unusual to see the

1) *Annulata Semperiana*, Beiträge zur Kenntniss der Annelidenfauna der Philippinen: Mém. de l'Acad. Imp. des Sciences de St. Pétersbourg (7e S.) t. XXV. 1878.

2) *Polychaeta of the Indian Ocean*: Transact. Linn. Society of London, Vol. XIII, 1910.

3) *Notes from the Leyden Museum*, Vol. XXXV. 1912/13, p. 161 and 186.

4) The common worm *Iphione muricata* (Sav.) and the rare *Iphionella cimex* (Qfgs) I prefer to range into the sub-family: *Iphioninae*.

5) A preliminary account of the Marine Annelids of the Pacific coast etc. Proc. California Acad. of Sc. (S. 3) Vol. I (Zoology) 1897.

6) Bull. Scient. de la France et de la Belgique, Vol. XXXIII. 1900.

same species ranged by different authors in six different genera. Augener ¹⁾ therefore proposes to cancel the genera *Eucrante*, *Eunoa*, *Eupolynoë*, *Evarne*, *Laenilla*, *Nychia* and *Parmenis* and to unite them with the genus *Harmothoë*, and Johnston prefers to range all the Polynoids under two genera: *Polynoë* Sav. and *Harmothoë* Kinb., nearly corresponding with the „Polynoën der ersten Reihe” and „Polynoën der zweiten Reihe” of Grube ²⁾; however the American author has overlooked that to the last group there belong some species, that have more than forty somites and much more than twelve to fifteen pairs of elytra. Though I fully agree with Augener about the desirability to cancel some of the old genera, I cannot follow Johnston's example to omit all of them and I prefer in accordance with Grube (and Ehlers) to maintain two large groups:

I. *Lepidonotidae*: the lateral frontal lobes of the prostomium prolonged to form the basal joint of the paired antennae.

II. *Harmothoïdae*: the lateral frontal lobes of the prostomium produced into two acuminate or rounded peaks, beneath which the paired antennae arise.

Of these groups the second appears to represent the eldest one, because Marenzeller has observed, that in the juvenile state of *Lepidasthenia elegans* ³⁾ (*Polynoë lamprophthalma* Mrz) the lateral antennae arise beneath the frontal margin ⁴⁾.

I. *Lepidonotidae*.

LEPIDONOTUS Leach.

Including only those species, that consist of 27 somites, and are provided with 12 pairs of elytra; notopodial bristles all similar.

Lepidonotus acantholepis Grube ⁵⁾.

Siboga-expedition, Stat. 50, bay of Badjo, west-coast of Flores; Stat. 220, anchorage off Pasir Pandjang, west-coast of Binongka; Stat. 234, Nalahia-bay, Noesa-laut island; Stat. 285, south-coast of Timor.

This species, mentioned by Grube from Oepoloe and the Philippines, and afterwards found by Driesch in the neighbourhood of Ceylon ⁶⁾, was

1) Polychaeten von Franz-Joseph-land: Zoolog. Anzeiger, Bd. XLI, 1913, p. 202.

2) Bemerk. über die Familie der Aphroditeen, III, Polynoïna: Sitz.ber. Schles. Gesellsch. Vaterl. Kultur, 1875.

3) Zur Kenntniss der Adriatischen Anneliden, II, Sitz.ber. K. Akad. d. Wissensch. Wien, 1e Abth. Vol. LXXII, 1875, p. 139.

4) ibidem Vol. LXIX, 1874, p. 408, Pl. I, fig. 1.

5) Annulata Semperiana, p. 24, Pl. II, fig. 1.

6) Michaelsen, Polychaeten von Ceylon, 1892, p. 5.

met with by the Siboga-expedition on the four above-named stations; like in the specimens from the Philippines and from Ceylon also in the Malay-specimens the elytra are much smaller than in the worm from Oepoloe and therefore also the number of their tubercles is much smaller. Michaelsen has rightly stated, that the ventral bristles are not bifid, as mentioned by Grube, but trifid; for there are two small conical teeth at the base of their large, faintly bent tip. They correspond to the largest teeth of the distal transverse row in other *Lepidonotus*-species. If this species is to be ranged in the genus *Lepidonotus*, henceforward in the diagnosis of that genus the phrase, „elytra, covering the dorsum entirely” ought to be cancelled.

? *Lepidonotus adpersus* Grube ¹⁾.

Siboga-expedition, Stat. 299, Cyrus-bay, south-coast of Rotti-island.

On the above-named Station a Polynoid-worm was dredged, that on account of the appearance of its elytra I venture to identify with *Lepidon. adpersus*, described by Grube from the Philippines. It has a length of about 15 mm. and a breadth of 6 mm. (with bristles); the body is dark-coloured. The head is longer as broad; its anterior eyes are situated on the lateral prominences, whereas the posterior ones lie hidden under a nuchal collar. The lateral antennae are provided with a black ring on their dilated subterminal part, beneath the filiform tip, like also the tentacular and dorsal cirri and the ventral cirrus of the first setigerous parapodium. The elytra are elongated-oval; nearly their whole surface is covered with small pointed tubercles, among which there is a number of larger ones, some of them, especially in the area of the scar of attachment, surrounded by black pigment, whereas there is also sometimes a black patch in front of the latter. Along the posterior and exterior border of the scales there is a row of stiff, cylindrical papillae, all of the same length. The neuropodial setae have a secondary tooth beneath the tip and about ten denticulated rows on their dilated subterminal part, the distal of which bear some large teeth; the notopodial ones have a fine distal tip and are provided with densely crowded, spirally arranged lacinated fringes.

Lepidonotus albo-pustulatus n. sp.

Siboga-expedition, Stat. 305, Solor-strait.

This species is characterised by the conspicuous appearance of its elytra and by the structure of its parapodia. The single specimen measures

1) *Annulata Semperiana*, p. 80, Pl. II, fig. 7.

nearly 25 mm. in length, whereas its breadth (with bristles) is about 10 mm. The elytra, overlapping each other in the median dorsal line, are oval, with a smooth margin; the free part of their surface is brownish-red, whereas the covered area like the scar of attachment is whitish. Behind the last one there occurs a group of large white spines, passing into a band of obtuse, wart-like papillae, situated along the inner margin and visible with low power; examined with high power the total surface of the scale appears to be covered with small tubercles and the brown pigment to be distributed over a net with small meshes. The tentacle and the lateral antennae are about of the same length, with a white filiform tip and a subterminal dilatation. The eyes of each side lie close to each other; the anterior of them are situated on the lateral prominences of the head. The parapodia have the notopodial lobe rudimentary, containing only a few short straight setae, provided with spirally arranged lacinated rows and a smooth tip; the large neuropodial lobe is provided with an obtuse conical posterior lip, whereas the anterior lip by an incision is divided in a large trapezoidal ventral part and a papilliform dorsal one. Its bristles are long, with a short subterminal dilated part, a tooth-like secondary process beneath the tip and about ten indistinct denticulated rows; in the dorsal part of this fascicle there are some bristles, that have the subterminal part slightly dilated, with several lacinated fringes but without a tooth beneath the acute tip.

Lepidonotus carinatus Potts. ¹⁾

Siboga-expedition, Stat. 53, bay of Nangamassi, Soemba.

The largest specimen has a length of 22 mm. Its elytra are elliptical of shape and have a smooth margin; their median border is coloured by black pigment, producing on the dorsum a dark median stripe. There are two longitudinal keels on the posterior half of each elytron, distinguished in that regard from those of *Halosydna fulvovittata*, that they are already visible with low power; examined with high power, each keel proves to be beset with a row of keeled tubercles. The species was first found on the reef of Praslin-island (Seychelles).

Lepidonotus carinulatus Grube. ²⁾

Siboga-expedition, Stat. 51, Madoera-bay in Molo-strait; Stat. 104, Soeloe-harbour; Stat. 213, Saleyer-anchorage, reef-exploration; Stat. 273, anchorage of Poeloe-Jedan, east-coast of Aroe-islands.

1) Potts, loc. cit., p. 334, Pl. XVIII, fig. 1.

2) *Annulata semperiana*, 1878, p. 26, Pl. III, fig. 2.

This widely-spread *Lepidonotus*, already found by Bedot near Ambon, was met with by the Siboga on several Stations in the Malay-archipelago. Marenzeller ¹⁾, Willey ²⁾ and Fauvel ³⁾ rightly state, that the ventral spines are not „apice simplici”, as mentioned by Grube, but obviously „bidentate”.

Lepidonotus cristatus Grube. ⁴⁾

This species, that was already met with by Bedot near Amboina, was dredged by the Siboga at seven different stations; moreover I could state the presence in the Malay-Archipelago of the two varieties *Lep. cristatus*, var. *echinata* and var. *ornata*, first described by Potts from Mauritius and Salomon (Chagos archipelago).

Lepidonotus cristatus, var. *echinata* Potts. ⁵⁾

Siboga-expedition, Stat. 96, Soeloe-archipelago, South-east side of Pearlbank; Stat. 99, anchorage off North-Oebian; Stat. 144, anchorage north of Damar-island; Stat. 154, north of Waigeoe-island; Stat. 273, anchorage off Poeloe-Jedan, east-coast of Aroe-island. Poeloe-weh, P. Buitendijk.

In the specimens of Stat. 144 and 154 the two chitinous patches of the elytra are rust-coloured. The worms of Stat. 96 and of Poeloe-weh have a carmine colour and a dark spot, surrounded by a paler ring on the midst of the elytra; the bilobed crest is faintly developed and consists only of a couple of slight elevations, provided with a pair of white tubercles. In variance with Mr. Potts I observed a conspicuous spur beneath the apex of nearly all ventral setae.

Lepidonotus cristatus, var. *ornata* Potts. ⁶⁾

Siboga-expedition, Stat. 260, west off Great Kei-island.

A *Lepidonotus*-specimen, measuring 16 mm. in length and 8 mm. in breadth, must be identified with the above-named variety of Potts, though its characters are somewhat deviating from the description of that author; f. i. the scales lack the large oval chitinous patches, described and figured by Potts. They are densely covered with papillae, each bearing one, two, three or a real crown of spinelets on their tip, all tinged with red.

1) Sudjapanische Anneliden, III, 1902, p. 9, Pl. I, fig. 4.

2) Ceylon Pearl-oyster report, 1905, p. 248, pl. I, figs. 7—11.

3) Annél. polychètes du Golfe Persique, 1911, p. 367, fig. 1.

4) Loc. cit. p. 27, Pl. II, fig. 3.

5) Potts, loc. cit., p. 334, Pl. XVIII, figs. 4 and 5.

6) Ibidem, p. 333, Pl. XVIII, figs. 6 and 7.

Lepidonotus malayanus n. sp.

Siboga-expedition, Stat. 156, west off Waigeo-island; Stat. 262, west off Great Kei-island.

The head rounded, nearly as long as broad, with the eyes situated close to each other in its posterior half, like in *Polynoë crinoidicola* Potts. ¹⁾ A broad nuchal collar with two papillae. The scales are auriculate, with a conspicuous scar of attachment, lying eccentrically in its posterior half, from which several branched nerve-stems are emerging; their surface is smooth except a band along its border specially at the outer side, that is covered with small knob-shaped papillae. The margin is without cilia. The notopodial fascicle consists of a dozen of short, slightly curved bristles, with a smooth blunt tip and faint, densely crowded, circular ridges; the neuropodial setae are about twice as long as the notopodial ones, with a dilated subterminal part, that shows faint transverse rows and a distinct secondary process beneath the tooth-like tip.

THORMORA Baird. ²⁾

This genus differs from *Lepidonotus* by its notopodial fascicle, consisting of two kinds of setae: a ventral part of slender, smooth capillary bristles with a sagittate distal end and a dorsal part of ordinary setae.

Thormora trissochaeta (Grube). ³⁾

Siboga-expedition, Stat. 99, anchorage off North-Oebian, Soeloe-islands; Stat. 231, Ambon-anchorage, reef; Stat. 240, Banda-anchorage; Stat. 248, anchorage off Roemah Loesi, Tioer-island, reef; Stat. 315, anchorage east of Sailus Besar, Paternoster-islands.

This species is very variable of colour, as already stated by Potts; in the specimen from Ambon the elytra have a dark green pigment, like in those from Tioer-island. The specimen from Banda has the scales red-coloured, whereas spots of the same colour occur in the median dorsal line in the intersegmental grooves. The specimens from North-Oebian show purple spots. The elytra bear along their border small keeled tubercles, that towards the centre acquire a conical shape, whereas some large spines occur around the scar of attachment. That *Thorm. trissochaeta* (Gr.) should be identical with *Thorm. Jukesii* Baird, as asserted by Augener ⁴⁾, I cannot accept, without having seen the typical specimens, for the elytra

1) Potts, loc. cit., pl. XVIII, fig. 10.

2) Journal Linnean Society, Vol. VIII, 1865, p. 199.

3) Annulata Sempertiana, p. 25, Pl. II, fig. 4.

4) Die Fauna Südwest-Australiens, Bd. IV, 1913. p. 107.

are described by Grube "marginæ laevi" and by Baird "ciliated on the external margin".

PARALEPIDONOTUS n. g.

This genus differs from *Lepidonotus* by a larger number of segments (38), by the presence of 15 pairs of elytra, situated on segment 2, 4, 5, 7 23, 26, 29 and 32, and by a much stronger fascicle of notopodial setae.

Paralepidonotus ampulliferus (Gr.) ¹⁾.

Siboga-expedition, Stat. 71, Makassar and surroundings.

Of this species, characterized by the large globular tubercles of its elytra, only a single incomplete specimen was found.

Paralepidonotus boholensis (Gr.) ²⁾.

Siboga-expedition, Stat. 33, bay of Pidjot, Lombok; Stat. 49^a, Sapeh-strait; ? Stat. 138, anchorage on the east-coast of Kajoa-island; Stat. 162, west-coast of Salawatti; Stat. 164, South off Salawatti; Stat. 220, anchorage off Pasir Pandjang, west-coast of Binongka, reef; Stat. 282, anchorage between Noesa Besi and N. E. point of Timor; Stat. 305, Solor-strait.

Of this species first described by Grube from the Philippines and since only met with by Fauvel among the Annelids of the Persian Gulf ³⁾, the Siboga-expedition collected 4 complete and 4 incomplete specimens. It can be easily recognized by its conspicuously coloured elytra, that issuing from the scar of attachment, are divided in four opposite areas, an exterior and interior, dark, blackish, and an anterior and posterior area, pale, buff-coloured. The large anterior, pale area is densely beset with small tubercular papillae, that interiorly and posteriorly pass into large acute spines; moreover the interior and posterior margin is provided with a fringe of long cylindrical papillae, with dilated tip, that anteriorly decrease in number and in length. Characteristical for this species is also the semilunar lobe at the posterior ventral margin of each segment, at the median side of the nephridial papilla, commencing on the 4th segment.

ALLMANIELLA Mc Intosh ⁴⁾.

This genus, based by Mc Intosh on the anterior fragment of a mi-

1) Grube, loc. cit., p. 35, Pl. III, fig. 5; Gravier, Annél. Polychètes de la Mer rouge, 1901, p. 214, Pl. VII, figs 111—113, Pl. VIII, fig. 127 and 128.

2) Ibidem, p. 41, Pl. III, fig. 4.

3) Fauvel, Annél. Polych. du Golfe Persique, Arch. Zool. Expériment. (S. 5) Vol. VI, 1911, p. 369.

4) Challenger reports, Zoology, Vol. XII, p. 102, Pl. XIV, fig. 2. Pl. XA, figs 3 and 4.

nute worm, dredged by the Challenger off Setubal, differs from *Paralepidonotus* especially by its large eyes and the long prolongations of its setigerous lobes.

I have some doubt that the genus is based on specimens, in a state of sexual maturity and belonging to *Paralepidonotus*.

Allmaniella arafurensis n. sp.

Siboga-expedition, Stat. 262, off Kei-islands, depth of 560 M.

At the above-named Station a Polynoid was found, that with regard to the shape of its head and its large eyes much agrees with *Allmaniella setubalensis* dredged by the challenger in great depth. It has a length of 30 mm. and consists of 36 segments; on the dorsal side of each segment there occurs a transverse, oblong elliptical spot of brown colour, preceded and succeeded by a linear one. Laterally on each side of the head there is a pair of large eyes, the anterior of which are larger than the posterior ones. The tentacle as well as the lateral antennae are incomplete; the scales are also absent, but probably there have been fifteen pairs of them. The cirrophores (the dorsal cirri are wanting) lie nearly in the same line with the clytrophores; there are no dorsal tubercles. The parapodia have both setigerous lobes prolonged in a long digitiform process, in which the tip of the acicula lies enclosed. The notopodial bristles lie in a fan-shaped fascicle and are faintly curved, broad, with obtuse tips, longitudinal striae and numerous spinous rows in their distal half; the neuropodial setae are more slender, with an elongated subterminal dilatation, furnished with spinous rows and terminated by a bifid tip. They do not show the long smooth region below the tip, that according to McIntosh should be characteristic for *Allman. setubalensis*; however this character is also met with in the ventral setae of *Paralepid. boholensis* and *ampulliferus*.

Allmaniella ptycholepis (Grube) ¹⁾.

Siboga-expedition, Stat. 43, anchorage of Poeloe Sarassa, Postillon-islands; Stat. 96, south-east side of Pearlbank, Soeloc-archipelago; Stat. 299, South-coast of Rotti-island.

The Polynoids, dredged on the above-named Stations, must be identified with *Polynoë ptycholepis* Gr., on account of the characteristic feature of the papillae on its elytra; considering the structure of the parapodia and the large eyes, I think it must be ranged in the genus *Allmaniella*. The head and dorsum are marbled with brown, whereas a trans-

1) Loc. cit. p. 39, Pl. II, fig. 6.

verse white band occurs on the middle of each segment, preceded and succeeded by a white dotted line. The head, more broad as long, shows on each side two large eyes, situated laterally; its posterior margin lies hidden under a large semilunar nuchal collar. There are 15 to 17 pairs of elytra, not overlapping each other in the median dorsal line; each elytron is translucent, rounded quadrangular, with its scar of attachment somewhat eccentric and the exterior area of its surface covered with small three-spined papillae. In the parapodia both lobes are provided with a filiform prolongation, enclosing the acicula; the ventral bristles are slender, with the distal part lanceolate, faintly serrated, the superior ones indistinctly bifid, the inferior with a distinct spur beneath the tip.

HALOSYDNA Kinberg ¹⁾.

Elongated body with 18—21 pairs of elytra, situated on segment 2, 4, 5, 7, 9 23, 25, 27, 29, 31 33 and 35; notopodial fascicle rudimentary.

Halosydna fulvovittata (Grube) ²⁾.

(*Polynoë platycirrus* Mc Intosh) ³⁾.

Siboga-expedition, Stat. 51, Madoera-bay, Molo-strait; Stat. 164, South off Salawatti; Stat. 273, anchorage off Poeloe Jedan, east-coast of Aroe-islands.

This species strikes the eye by the striped appearance of its oblong elytra, that are furnished with 4 or 5 longitudinal dark stripes, that pass in a somewhat oblique direction from the inner to the outer margin; moreover they show in their posterior half, in the vicinity of the scar of attachment, a couple of keels, having the same direction as the above-named stripes. Along the anterior and interior margin of each elytron there occurs a band of small refringent bodies, also figured by Mc Intosh and Potts, though not mentioned by them; Marenzeller calls them "sehr niedere Papillen", what however appears not very correct, because they do not extend above the surface of the elytron, but lie embedded in a dish-like cavity of the cuticula. I quite agree with Marenzeller in considering *Polynoë platycirrus* Mc Intosh to be identical with *Polynoë fulvovittata* Grube.

PARAHALOSYDNA n. g.

Characterized by the presence of only 15 pairs of elytra, on segment 2, 4, 5, 7, 9 23, 26, 28 and 30, covering the whole dorsum; notopodial fascicle rudimentary.

1) *Annulata*, p. 15.

2) *Loc. cit.* p. 33, Pl. III, fig. 1.

3) *Challenger-Annelida*, p. 111, Pl. III. fig. 4 etc.

Parahalosydna sibogae n. sp.

Siboga-expedition, Stat. 105, north off Soeloe-island.

At this Station a small Polynoid-worm was caught, that with regard to the structure of its head and the rudimentary feature of its notopodia fully agrees with *Halosydna*, but only possesses 15 pairs of elytra. The specimen is colourless and has a length of 12 mm.; the number of its segments amounts to 34. The head is provided on each side with a pair of large eyes, situated next to each other, laterally in front of its posterior margin. There are 15 pairs of elytra, covering the whole dorsum and overlapping each other in the median dorsal line, they are firmly attached, faintly reniform, with a smooth surface except a group of small tubercles along its concave side. Their margin is without appendages and the scar of attachment lies eccentrically and is associated with a nerve-ganglion and numerous branching stems irradiating from it. In the parapodia the dorsal lobe is rudimentary and besides the acicula only contains three small faintly serrated bristles; the ventral setae have a smooth shaft and a dilated, wedge-shaped distal part, faintly bent and serrated along both edges. The dorsal cirrus is very long, about four times the length of the neuropodial fascicle. This species cannot be ranged among the genus *Halosydna*, that according to Kinberg's diagnosis, is characterized by an elongated body, with at least eighteen pairs of elytra; „dorsum non omnino tegentia”.

GASTROLEPIDIA Schmarda ¹⁾.

The sternum of the segments provided with a foliaceous appendage on each side. More as 21 pairs of elytra, covering the whole dorsum; from the 23^d to the 35th segment the elytophore-bearing segments alternate with two cirrophore-bearing ones, however more posteriorly the arrangement becomes irregular.

Gastrolepidia clavigera Schm.

(— *amblyphyllus* Gr.) ²⁾.

Siboga-expedition, Stat. 60, Haingsisi, Samau-island, reef; Stat. 213, Saleyer-anchorage; Gaspar-strait, P. N. van Kampen, Oct. 1907.

The prostomium, in my opinion, more agrees with that of *Lepidonotus* than of *Harmothoë*, as suggested by Darboux, for the lateral antennae are inserted upon the frontal margin; however there occurs an annular constriction, that makes the insertion somewhat indistinct. Schmarda

1) Schmarda, Neue wirbellose Thiere, 1861, p. 159, Pl. XXXVI, fig. 315.

2) Grube, loc. cit., p. 46, Pl. III, fig. 7.

already mentioned, that the colour of this worm is very variable, but Potts¹⁾ first observed, that this is due to its association as a commensal with holothurians, the colour of which it matches.

LEPIDASTHENIA Malmgren²⁾.

Body elongate. Elytra numerous, minute, leaving the greater part of the dorsum naked, inserted on segments 2, 4, 5, 7 23, 26, 29 to the end. Notopodial fascicle absent or rudimentary; in neuropodial fascicle sometimes upper setae enlarged or slender.

Lepidasthenia microlepis Potts³⁾.

Siboga-expedition, Stat. 60, Haingsisi, Samau-island, shore-exploration.

This species is characterized by the rudimentary feature of its elytra, only just capping the elytophores, with exception of the first pair, that covers the head; they are edged with a chocolate pigment, that extends over their underside. It is first mentioned by Potts from the Maldives.

Lepidasthenia sibogae Horst⁴⁾.

Siboga-expedition, Stat. 282, off the North East point of Timor; Stat. 306, Lobetobi-strait.

At Stat. 306 the posterior fragment of a worm was found, consisting of 22 segments, that is not quite colourless as the specimen from Stat. 282, but each of its segments shows on the dorsum two narrow transverse brown bands, one behind the anterior margin and another in front of the posterior border.

II. *Harmothoëinae*.

HARMOTHOE Kinberg⁵⁾.

Body short, consisting of 35—37 segments. Scales 15 pairs, covering the whole dorsum, inserted to segments 2, 4, 5, 7 23, 26, 29, 32. Antennae and cirri sometimes densely covered with cilia. Neuropodial bristles stouter than notopodial ones, with spinous distal region and simple or bifid tip.

1) Loc. cit. p. 341.

2) *Annulata Polychaeta Spetsbergiae* etc. 1867, p. 15.

3) Loc. cit. p. 343, Pl. 19, fig. 17, Pl. 21, fig. 52.

4) Notes from the Leyden Museum, Vol. XXXV, 1912/13, p. 161.

5) Loc. cit. p. 21.

Harmothoë pallida (Ehlers) ¹).

(*Gattyana pallida* Ehl.).

Siboga-expedition, Stat. 65^a, off Tanah Djampeah, at a depth of 400 M.

At the above-named Station a small worm was dredged, that must be identified with *Gattyana pallida*, caught by the Deutsche Tiefsee-expedition south off Poeloe Nias, at a depth of 616 M. It measures 21 mm. in length and has 37 segments. The species is characterized by its reniform scales, that have the scar of attachment situated near their concave margin, and show an areolate structure, especially in the vicinity of the margin.

Harmothoë dictyophora (Grube) ²).

Siboga-expedition, Stat. 258, Toeal-anchorage, Kei-islands; Stat. 310, East off Soembawa.

This species appears to be distributed over a very large area, for it was mentioned from the Gulf of Persia (Fauvel) as well as from Sharksbay in South-west-Australia (Michaelsen and Hartmeyer).

? *Harmothoë Kerguelensis* (Mc Intosh) ³).

Siboga-expedition, Stat. 256, north off Kei-island, at a depth of 397 M.

A worm, that much agrees with *Evarne Kerguelensis* Mc Int. from Kerguelen-island. It measures about 10 mm. in length and consists of 37 segments. There are two pairs of conspicuous eyes, the anterior of them situated on the lateral prominences of the head, the posterior ones in its posterior half. The scales are roundish, slightly concave in front; the outer and posterior part of their margin is provided with long cilia, whereas their surface is for the greater part covered with conical spines, towards the posterior border a few of them increasing to large, bluntly conical papillae.

Harmothoë atra n. sp.

Siboga-expedition, Stat. 19, bay of Laboean Tring, Lombok.

Head blackish, nearly as long as broad, divided in two halves by a conspicuous median groove; it is provided with two blunt frontal peaks that bear the large anterior eyes. The posterior pair of eyes are smaller and lie hidden under a nuchal collar. The antennae as well as the cirri provided with papillae. On the dorsum of each segment there

1) Die Bodensässigen Anneliden der deutscher Tiefsee-Expedition, 1912, p. 49, Pl. I, figs. 1—9.

2) Loc. cit. p. 44, Pl. XV, fig. 9.

3) Loc. cit. p. 97, Pl. VI, VI A and XIX.

occurs a broad transverse band (sometimes divided into two) succeeded by a smaller one. The scales are blackish, roundish, slightly concave in front, with the scar of attachment situated eccentrically; their surface is covered with small tubercles, passing outwards in conical spines, whereas slight oval papillae occur along the external border.

Harmothoë nigricans n. sp.

Siboga-expedition, Stat. 213, Saleyer-anchorage.

At the above-named Station a Polynoid-worm was dredged, that possesses only some of the anterior scales; they are reniform, with their uncovered part blackish, and beset with rather large conical spines, whereas their posterior margin is fringed with rather long, cylindrical papillae. On the covered part of each scale there are only small tubercles. No dorsal tubercles are present and eyes could also not be recognized. The dorsal cirri are long, furnished with rather long papillae, whereas the ventral cirri are minute, smooth. The notopodium has a rounded, ear-shaped edge; its anterior lip is short, straightly cut, whereas the posterior one is elongated, pointed. The neuropodium has a triangular, elongated anterior lip, enclosing the acicula; its bristles are long, bifid, with lacinated whorls on the dilated distal part.

LAGISCA Malmgren ¹⁾.

This genus differs from *Harmothoë* especially by a greater number of segments, 40 or more. There are 15 pairs of scales; the posterior segments of the body uncovered.

Lagisca flaccida Potts ²⁾.

Siboga-expedition, Stat. 305, Solor-strait.

A specimen, that must be identified with *Lag. flaccida* Potts, especially characterized by the feature of its elytra, though some of Potts' statements could not be confirmed; f. i. he mentions, small distinct eyes, whereas in our specimen the eyes are rather large. The elytra are transparent, with an opaque ring around the scar of attachment and the outer half (inner according to Potts) of the surface covered with small cylindrical tubercles, whereas on the innerhalf there is a group of mammiform eminences parallel to the margin.

1) Nordiska Hafs-annulater, p. 65.

2) Loc. cit. p. 339, Pl. XVIII, fig. 11, Pl. XXI, figs. 49 and 50.

Lagisca Pottsi Horst.

(*Polynoë longicirrus* Potts) ¹⁾.

Siboga-expedition, Stat. 51, Molo-strait; Stat. 164, South off Salawatti-island.

Of this species, characterised by its long dorsal cirri as well as by the peculiar shape of its inferior neuropodial bristles, specimens were met with at the above-named stations. Potts appears to have overlooked, that the name of *Polynoë longicirra* was already given by Schmarda in 1861 to an other Polynoid-worm from Ceylon ²⁾; therefore I propose to call the species, first described by him from the Maldives, that presumably belongs to the genus *Lagisca*: *Lag. Pottsi*.

Lagisca cornuta Potts ³⁾.

Siboga-expedition, Stat. 100, Soeloe-sea; Stat. 139, north off Batjan; Stat. 173, off east-coast of Ceram; Stat. 262, west off Great Kei-island; Stat. 266, off Kei-Islands.

From a depth of 397 to 595 M. at the above named Stations specimens of a *Lagisca* were collected, that must be identified with *Lagisca cornuta* Potts, characterised by its short lateral antennae and by its large eyes. Only the specimen of Stat. 173 possesses some elytra and these much agree with the scales of *Lag. crosetensis* Mc Int. ⁴⁾; their surface is covered with spines, that commence anteriorly as minute tubercles and their posterior and outer border are also fringed with cilia.

Lagisca (Polynoë) minuta Potts ⁵⁾.

Siboga-expedition, Stat. 99, anchorage off North-Oebian.

A small, badly preserved worm, that lacks all the elytra as well as most of the dorsal cirri, must be identified with this species; it is characterised by the great difference in length and appearance of the ventral and the dorsal bristles of the neuropodial fascicle.

Lagisca elytrophora n. sp.

Siboga-expedition, Stat. 273, anchorage off Poeloe Jedan (Aroe-islands).

The head shows a conspicuous median dorsal groove, from which the basal part of the tentacle arises; its distal joint is slender, pointed, nearly as long as the head; the lateral antennae are short, as long as

1) Loc. cit. p. 336, Pl. XVIII, fig. 9, Pl. XX, fig. 29, Pl. XXI, figs. 37 and 38.

2) Loc. cit. p. 152, Pl. XXXVI, fig. 309.

3) Loc. cit. p. 339, Pl. XIX, fig. 14, Pl. XXI, fig. 48.

4) Challenger-Annelida, p. 88.

5) Loc. cit. p. 337, Pl. XIX, and XXI, figs. 12, 31, 42 and 43.

half the breadth of the head. No eyes are visible. There are 15 pairs of elytra, not only overlapping each other in the middle of the dorsum, but also covering entirely the parapodia; they are large, reniform, with the scar of attachment nearly in the centre and numerous ramified nervous stems radiating from it. Their surface is bare, except the region behind the concave border, that is covered with small tubercles; their margin is smooth. Dorsal tubercles are present. The neuropodium is strongly developed, triangular; its fascicle consists of a dorsal part, with slender setae, hardly dilated, finely serrated, while its ventral part contains stouter bristles, with simple curved tip and obsolete fringes along the dilated distal part.

Lagisca malayana n. sp.

Siboga-expedition, Stat. 273, anchorage of Poeloe Jedan (Aroe-islands).

Two specimens, that unfortunately lost their elytra and almost all their cirri, could not be identified with one of the known species. They are characterized by a peculiar coloration on their dorsum; the blackish median area being separated by some longitudinal and transverse pale lines in a number of regular compartments, lying in three transverse rows. Head broader as long, divided by a median groove in two halves, with two pairs of large eyes, the posterior of which are situated in front of the posterior border of the head, whereas the anterior ones lie on the lateral prominences. Lateral antennae slender, densely beset with long cylindrical papillae, measure about two thirds of the length of the palpi. Parapodia with both lobes nearly equal in length: ventral lobe rounded triangular, with a short curved appendix; its setae of the usual shape, with bifid tip and dilated distal part, with laciniated fringes. Dorsal lobe rounded, with cylindrical tip, enclosing the acicula; its bristles slightly curved, with smooth distal extremity and conspicuous dentate rows beneath it. Dorsal tubercles large.

SCALISSETOSUS Mc Intosh ¹⁾.

Body of moderate length. Eyes large, placed close together on each side of the prostomium. Elytra 15 pairs or more, inserted on the same segments as in the preceding genera; they cover the dorsum in front, but posteriorly leave the central part bare. Dorsal bristles slightly curved, with some blunt spines; ventral ones hooked, with semilunar cusp.

1) British Annelids, p. 372.

? *Scalisetosus ceramensis* Mc Intosh ¹⁾.

Siboga-expedition, Stat. 267, east off Great Kei-island.

At the above-named Station, in a depth of 984 M., a worm was dredged, that with regard to its bristles much agrees with *Scalis. ceramensis*; unfortunately Mc Intosh only had a single badly preserved specimen at his disposal, and our specimen also lacks the elytra and the cirri. The neuropodial lobe has its anterior lip very much elongated, with a filiform tip, extending beyond the point of the acicula, that lies enclosed in its base; its long and slender bristles have the distal end dilated, slightly falciform, obviously serrulated along both edges, with a small tooth beneath the tip, but not separated from the shaft by a semilunar cusp as in other species. The dorsal lobe is also pointed and elongated, but hardly reaches to half the length of the ventral one; its bristles are stout, half as long as the ventral ones, slightly curved and furnished with three spines in stead of the usual fringes.

Scalisetosus (Polynoë) crinoidicola Potts ²⁾.

Siboga-expedition, Stat. 164, south off Salawatti.

At the above-named Station a small worm was caught, that most agrees with Potts' description of *Polynoë crinoidicola*, found on crinoids from the Maldives. Its dorsum is brownish black, somewhat paler in the median line, with two narrow white, tranverse lines over each segment; the parapodia and the ventral side of the body are yellowish buff. The eyes are surrounded by a pale ring; the anterior pair of them are the largest, strongly protuberant. Of the fifteen pairs of elytra only a single one was left; it is circular, except a small notch near the eccentrical scar of attachment, from which several nerve-trunks are ramifying towards the circumference. The surface of the elytra is smooth, its border without fringes; at the inferior side it was partly covered with a layer of pigment cells of the same colour as the dorsum. The parapodia are characterized by the elongated, conical shape of the neuropodium; the notopodium is much shorter, rudimentary, only its acicula is surrounded by a short cylindrical process.

Scalisetosus papilliferus n. sp.

Siboga-expedition, Stat. 43, anchorage of Poeloe Sarassa, Postillon-islands; Stat. 99, anchorage of North-Oebian; Stat. 172, off Gisser.

This species is characterized by the feature of its elytra; they are

1) Challenger Annelida Polychaetae, p. 103, Pl. X A, figs. 13 and 14.

2) Loc. cit. p. 337, Pl. XVIII, fig. 10, Pl. XX, fig. 30, Pl. XXI, figs. 39—41.

nearly rounded, translucent, with an eccentric scar of attachment. Their exterior half shows about twenty large, club-shaped papillae, that are covered on their whole surface with small tubercles. The cirrophores are situated in the line of the elytophores; no dorsal tubercles are present. The neuropodial fascicle consists of bristles that have the distal end separated from the shaft by a semilunar, lacinated cusp and are provided with a bifid tip; the ventral ones are serrated along both edges, whereas the dorsal bristles have a number of lacinated fringes. The notopodium is rudimentary and contains a number of faintly bent, undivided setae with some lacinated fringes along their edge.

Scalissetosus tentaculatus n. sp.

Siboga-expedition, Stat. 49^a, Sapeh-strait; Stat. 274, east off Aroe-islands.

The prostomium has a deep incision, from which the tentacle arises, that is long and slender, about twice as long as the lateral antennae. The eyes are inconspicuous, situated in front of the posterior margin of the head. The elytra are large, overlapping each other in the median dorsal line; they have an elliptical shape, with the scar of attachment situated eccentrically and the distal half of the surface covered with small, oval papillae. The notopodial bristles are stout, slightly curved, usually provided with two spines, situated at some distance from the tip. The neuropodial fascicle contains two kinds of setae: 1^o the dorsal ones slender, with their distal part beyond the semilunar cusp finely serrated with a feebly bifurcated tip; 2^o ventral bristles, that are shorter, stouter, hook-shaped with their distal part serrated along both edges. This species is closely allied to *Scalis. laevis* Mrz. ¹⁾.

ADMETELLA Mc Intosh. ²⁾

Body elongate with 75 segments; 30 pairs of scales, inserted to segments 2, 4, 5, 7 23, 26, etc. Head with the lateral frontal corners elongated, triangular; eyes absent. Both lobes of the parapodia with an elongated distal extremity; their bristles long, vitreous.

Admetella longipedata Mc Int.

Siboga-expedition, Stat. 316, east off Paternoster-islands.

At the above-named Station, in a depth of 538 M., two specimens were dredged, that must be identified with *Admet. longipedata*, first dredged by the Challenger east off Prince Edward island at 1375 fath.

1) Sudjapanische Anneliden, III, p. 13, Pl. III, fig. 12.

2) Loc. cit. p. 124, Pl. XIV, fig. 5, Pl. XX, fig. 6, Pl. XII A, fig. 17.

and afterwards found at great depth by the Blake in the West-Indian Sea ¹⁾ and by the Valdivia off the Somali-coast ²⁾. Unfortunately both worms are in a bad state of preservation and lack all the cirri as well as the elytra. The thin triangular processus of the head — according to Ehlers homologous with the lateral frontal corners — could be recognized, but nothing can be said about their real nature. The flattened, translucent bristles have an elongated, smooth, triangular tip, furnished with a triangular ridge; that the tip should be bifid, as suggested by Mc Intosh, or provided with a pore according to Ehlers, could not be confirmed.

POLYNOË Savigny ³⁾.

Body elongate, consisting of more than 45 segments; elytra 15 pairs or more, inserted on segments 2, 4, 5, 7 23, 26, 29 etc., restricted to the anterior region of the body (*Hemilepidia* Schm.) or not (*Hololepidella* Willey). Notopodial bristles more slender than neuropodial ones.

Polynoë (Hemilepidia) Versluysi n. sp.

Siboga-expedition, Stat. 251, south off Koer-island; Stat. 253, south off Taam-island.

Commensal on *Primnoidae* (*Thouarella hilgendorfi* Stud.) ⁴⁾ Versluys met with a Polynoid-worm, that is characterized by its long dorsal cirri and its elytra, that are restricted to the anterior half of the body; they live in ducts, formed by the short branches of the Alcyonarian, that are placed close together, while their tips are inclining towards each other, thus forming a kind of avenue. The head is separated by a median dorsal groove in two halves; between them the basal part of a tentacle arises, that bears a long and slender distal joint, reaching till on the 5th segment. There are two pairs of large eyes, the posterior of which are situated in front of the posterior margin of the head, whereas the anterior pair occurs on the lateral prominences. 15 pairs of elytra are restricted to the anterior region of the body; each of them is rounded rectangular, with the scar of attachment situated eccentrically. Their surface is densely beset with small, obtuse, spinous tubercles and some small cylindrical papillae along their margin. No dorsal tubercles are present.

1) Augener, West-Indische Polychaeten, p. 123.

2) Bodensässigen Anneliden der deutsch. Tiefsee-Exp. p. 40, Pl. II, figs. 10, 11, Pl. III, figs. 1—5.

3) Système des Annelides, p. 20.

4) Siboga-expeditie, Vol. XIII, die Gorgoniden: Primnoidae, p. 25.

Polynoë nigro-punctata n. sp.

Siboga-expedition, Stat. 231, Ambon-anchorage, reef.

A slender Polynoid-worm, measuring 8 mm. in length, characterized by a nice coloration; the head is dotted with black, interrupted by a white median groove and a white ring around the eyes. Also the dorsum of the body is marked with black spots, interrupted by a curved transverse line, that divides the dorsal area in a narrow anterior and a broad posterior field and terminates laterally on the elytophores or the tubercula dorsalia. The tentacle consists of a short stout basal part and a slender distal joint somewhat longer than the head; the lateral antennae are short, conical, with a filiform tip, about a fourth of the length of the tentacle. The elytra are all wanting, but presumably there have been 20 pairs of them; the posterior scales are not situated as usually, for the 15th pair (in stead of on segm. XXXII) is placed on segment XXXI, the 16th on segm. XXXIV, the 17th on segm. XXXVI, the 18th on segm. XXXVIII, the 19th on segm. XL and the 20th on segm. XLII.

Polynoë Kampeni n. sp.

South-east off Borneo, P. N. van Kampen, Dec. 1908.

A slender worm, measuring about 10 mm. in length, with 44 segments. The head much agrees with that of *Lagisca magellanica*, var. *Grubei* Mc Int. ¹⁾ Both pairs of eyes are situated on the posterior half of the head; the anterior pair a little behind the middle of the lateral side, the other pair in front of the posterior edge. The lateral antennae are tiny and rather short, about a fourth of the length of the tentacle. There have been 18 pairs of scales, but only the posterior ones are left. They are elliptical, translucent, finely granular, entirely smooth without any appendages; the scar of attachment is somewhat eccentric, with a nerve-ganglion in its vicinity and numerous dichotomously ramifying stems emerging from it.

1) Challenger-Annelida Polychaeta, Pl. III, fig. 5.

Leiden, May 1915.

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