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REVIEW OF SOME SPECIES REFERRED TO *SCALISETOSUS* MCINTOSH (POLYCHAETA, POLYNOIDAE)

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In connection with an extended review of the polynoid genera, based on a study of the type-species, it was found that *Scalisetosus* McIntosh (1885) has been used for a heterogenous group of species. The genus has served to include species with setae as transparent as crystal and the neurosetae characterized by the presence of a basal semilunar cusp or pocket, although this particular feature was not shown on the figure of the neurosetae of the type-species, *S. ceramensis,* by McIntosh (1885, pl. 10A, fig. 14). Any species equipped with this peculiar type of neurosetae has been placed in *Scalisetosus,* regardless of other characters. Saint-Joseph (1899) proposed the new genus *Adyte* for three species (*Polynoe pellucida* Ehlers, *Hermadion assimile* McIntosh, and *H. echini* Giard) having the peculiar type of neurosetae, separating them from *S. ceramensis,* which lacks the basal semilunar cusps. McIntosh (1900) was responsible for changing the diagnosis of *Scalisetosus* to include the species referred to *Adyte* by Saint-Joseph. Subsequently, *Adyte* was abandoned and was synonymized with *Scalisetosus* by Fauvel (1914, p. 47).

During a visit to the British Museum of Natural History in May 1967, I was able to examine the unique type of *Scalisetosus ceramensis* and to verify that the neurosetae indeed do lack the basal semilunar cusps and that the species therefore lacks one of the key characters that has been attributed to the genus. The purpose of this paper is to report on the re-examination of the holotype of *S. ceramensis,* as well as some of the

other species of polynoids that have been referred to *Scalisetosus*. Additional species were available for study in the British Museum of Natural History (BMNH), the Zoological Museum Amsterdam (ZMA), Swedish State Museum Natural History (SSMNH), the Zoological Museum Hamburg (ZMH), the Zoological Museum Berlin (ZMB), and the United States National Museum (USNM). An effort was made to separate the species in more meaningful ways by emending *Adyte* Saint-Joseph and by establishing four new genera. The study is summarized by providing a key to the genera previously included under *Scalisetosus*.

The following genera and species are included in the study:

Scalisetosus McIntosh	*S. ceramensis* McIntosh
Adyte Saint-Joseph, EMENDED	*A. assimilis* (McIntosh)
Subadyte new genus	*S. pellucida* (Ehlers), new combination
	S. papillifera (Horst), new combination
	S. mjoebergi (Augener), new combination
Paradyte new genus	*P. crinoidicola* (Potts), new combination
	P. tentaculata (Horst), new combination
Pottsiscalisetosus new genus	*P. praelongus* (Marenzeller), new combination
Australaugeneria new genus	*A. rutilans* (Grube), new combination
	A. michaelseni new species

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FAMILY POLYNOIDAE MALMGREN

Genus Scalisetosus McIntosh, 1885

Type-species: S. *ceramensis* McIntosh, 1885, by monotypy. Gender: masculine.

Diagnosis: Body flattened, elongate-oval, tapered posteriorly, composed of about 40 segments. Elytra 16 pairs, arranged on segments 2, 4, 5, 7, alternate segments to 23, 26, 29, 32, and 35. Prostomium bilobed, with distinct cephalic peaks, with 2 palps and 3 antennae; ceratophore of median antenna inserted in anterior notch; ceratophores of lateral antennae distinct, inserted ventrally. Tentacular segment (I) with 2 pairs tentacular cirri, with few setae, without facial tubercle. Buccal segment (II) without dorsal nuchal fold; with long ventral buccal cirri. Parapodia subbiramous. Notopodia with long projecting acicular lobes. Notosetae much stouter than neurosetae, clear, without spinous rows but with few stout spines. Neuropodia with long projecting presetal acicular lobes, from which tips of acicula project, and shorter rounded postsetal lobes. Neurosetae slender, with faint spinous regions, with tips slightly falcate, entire (lower ones) and bifid (upper ones); without basal semilunar pockets or cusps. Dorsal cirri with short, cylindrical cirrophores. Dorsal tubercles nodular. Ventral cirri short, tapered. Nephridial papillae distinct, short, cylindrical.

Scalisetosus ceramensis McIntosh

Fig. 1

Scalisetosus ceramensis McIntosh, 1885, p. 103, pl. 13, fig. 7, pl. 10A, figs. 13, 14.

?*Scalisetosus ceramensis.*—Horst, 1917, p. 98.

Material examined: Challenger station 195A south of Ceram Island, 4° 31′ S, 129° 57′ E, 659 meters, volcanic mud, 29 September 1874.—Holotype (BMNH 85: 12: 1: 85) *Siboga* station 267, east of Great Kei Island, 5° 54′ S, 132° 56.7′ E, 984 meters.—1 specimen (ZMA 1294).

Description: As in generic diagnosis. Neither specimen is complete, although the holotype is tapered posteriorly and appears to be nearly complete, consisting of 40 segments. There are two dorsal transverse ciliated bands per segment. All of the elytra and the styles of the dorsal cirri are missing. Most of the notosetae are provided with 4 spines each but the number varies from 2 to 5. The nephridial papillae begin on segment 9. The pharynx was not extended and was not examined.

Distribution: East Indies. In 659 to 984 meters.

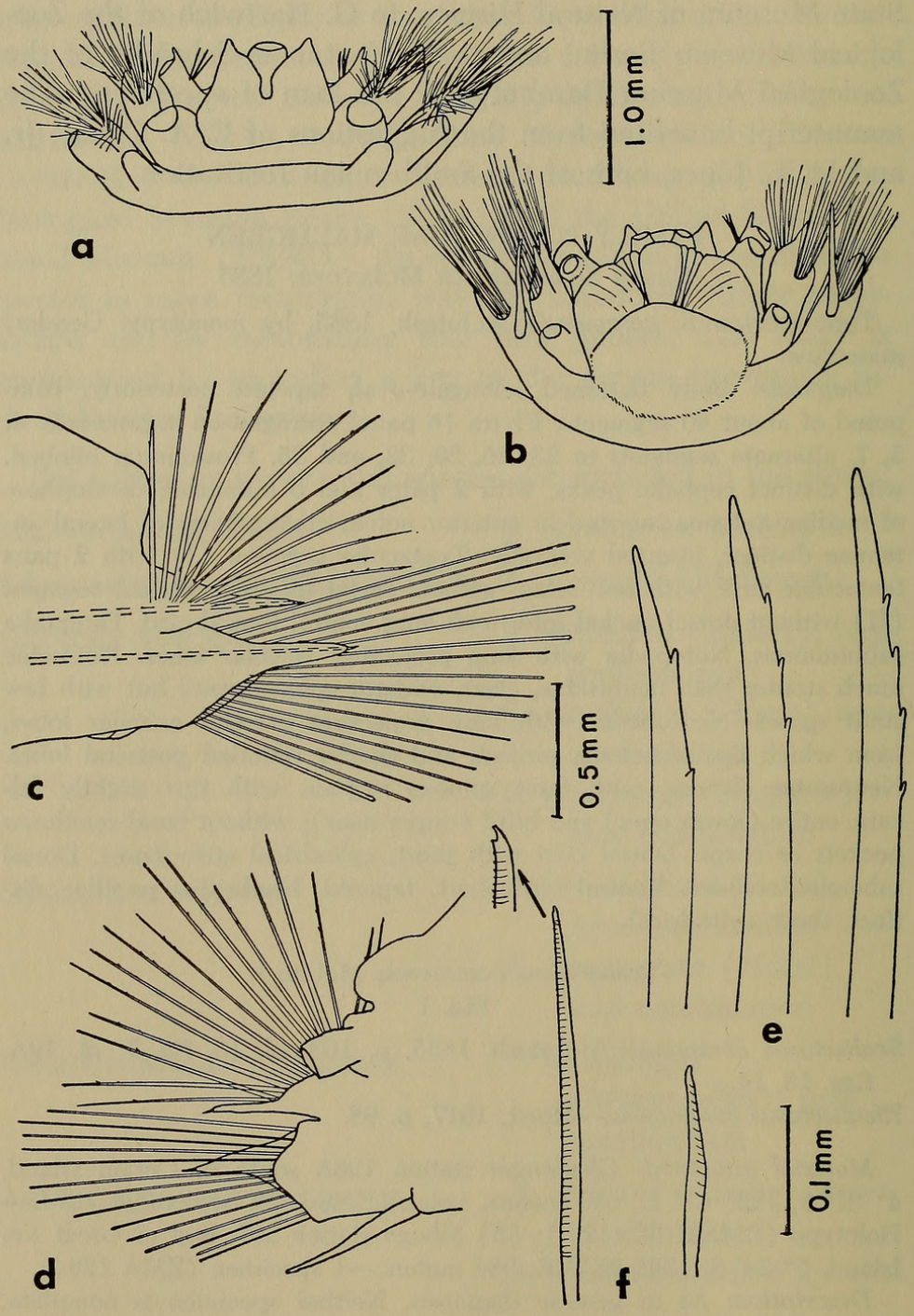

FIGURE 1. *Scalisetosus ceramensis* (Holotype, BMNH 85: 12: 1: 85): a, Anterior end, dorsal view; elytra, palps, styles of antenna, tentacular and dorsal cirri missing; eyes faded; b, same, ventral view; ventral buccal cirri of segment II missing; c, elytrigerous parapodium, anterior view, elytron missing; d, cirrigerous parapodium, posterior view, style of dorsal cirrus missing; e, notosetae; f, upper and lower neurosetae.

Genus Adyte Saint-Joseph, 1899, Emended

Type-species: Hermadion assimile McIntosh, 1874, herein designated. Gender: feminine.

Remarks: Adyte Saint-Joseph was proposed for three species: *Polynoe pellucida* Ehlers (designated as type-species of *Subadyte* new genus; see below), *Harmadion assimile* McIntosh [=*Adyte assimilis* (McIntosh) Saint-Joseph] and *H. echini* Giard [referred to *Scalisetosus assimilis* (McIntosh) by Fauvel, 1923].

Diagnosis: Body flattened, elongate, subrectangular, tapered posteriorly, composed of numerous segments (up to 74). Elytra 15 pairs, arranged on segments 2, 4, 5, 7, alternate segments to 23, 26, 29, and 32, leaving large number of posterior segments without elytra (up to 42). Elytra delicate, smooth, without tubercles or fringes of papillae but with scattered sensory papillae. Prostomium bilobed, with lobes rounded anteriorly or with slight indication of cephalic peaks, with 2 palps and 3 antennae; ceratophore of median antenna inserted in anterior notch, ceratophores of lateral antennae distinct, inserted ventrally. Tentacular segment (I) with 2 pairs tentacular cirri, without setae; without facial tubercle. Buccal segment (II) without dorsal nuchal fold; with long ventral buccal cirri. Parapodia subbiramous. Notopodia with short conical acicular lobes. Notosetae as stout as or stouter than neurosetae, nearly smooth, with scattered, closely appressed spinous rows along convex border. Neuropodia with diagonally truncate, rounded presetal lobes containing acicula (acicula not extending to tips of lobes) and short, rounded postsetal lobes. Neurosetae all similar (lower ones shorter), with basal semilunar cusps or pockets and faint distal spinous rows, with tips hooked, minutely bifid. Dorsal cirri with cylindrical cirrophores and with styles long, smooth, somewhat inflated below terminal filament. Dorsal tubercles inconspicuous. Ventral cirri short, subulate, Nephridial areas bulbous but without definite papillae.

Adyte assimilis (McIntosh)
Figs. 2, 3

Hermadion assimile McIntosh, 1874, p. 194; 1876, p. 387, pl. 70, figs, 4–6.
Adyte assimilis.—Saint-Joseph, 1899, p. 167, pl. 6, figs, 1–3.
Scalisetosus assimilis.—McIntosh, 1900, p. 377, pl. 30, fig. 15, pl. 33, fig. 6, pl. 40, figs. 20–22.—Fauvel, 1923, p. 74, fig. 27, g–i.—Støp-Bowitz, 1948, p. 10, fig. 6.

Material examined: Porcupine Expedition, off Spanish coast, 110–293 meters, on *Echinus esculentus,* 1870.—Syntype (BMNH 1921: 5: 1: 499). St. Andrews, Scotland.—Syntype (BMNH 1921: 5: 1: 498). Clew Bay, Ireland, 9–11 meters, on *Echinus.*—1 specimen (BMNH 1914: 12: 1258). North Sea, 49° 35′ N, 6° 47′ W, 128 meters, 17 September 1895, R. Meyer, collector.—1 specimen (SSMNH 1262).

Description: As in generic diagnosis. The specimen from Clew Bay is complete, consisting of 74 segments, 30 mm in length, 3.5 mm in width,

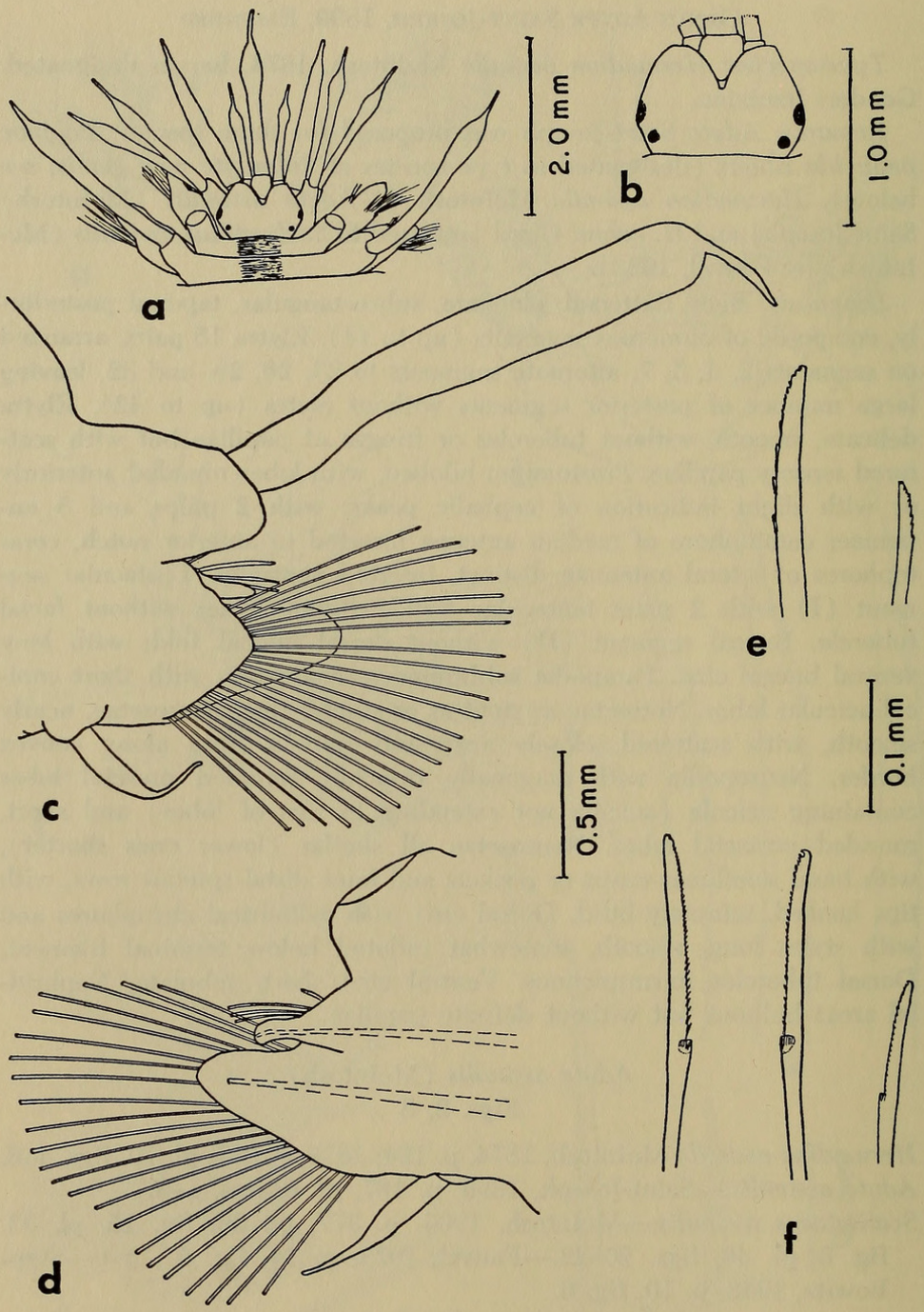

FIGURE 2. *Adyte assimilis* (SSMNH 1262): a, Anterior end, dorsal view; elytra removed; b, prostomium, dorsal view; c, cirrigerous parapodium, posterior view; d, elytrigerous parapodium, anterior view, elytron removed; e, notosetae; f, upper, middle and lower neurosetae.

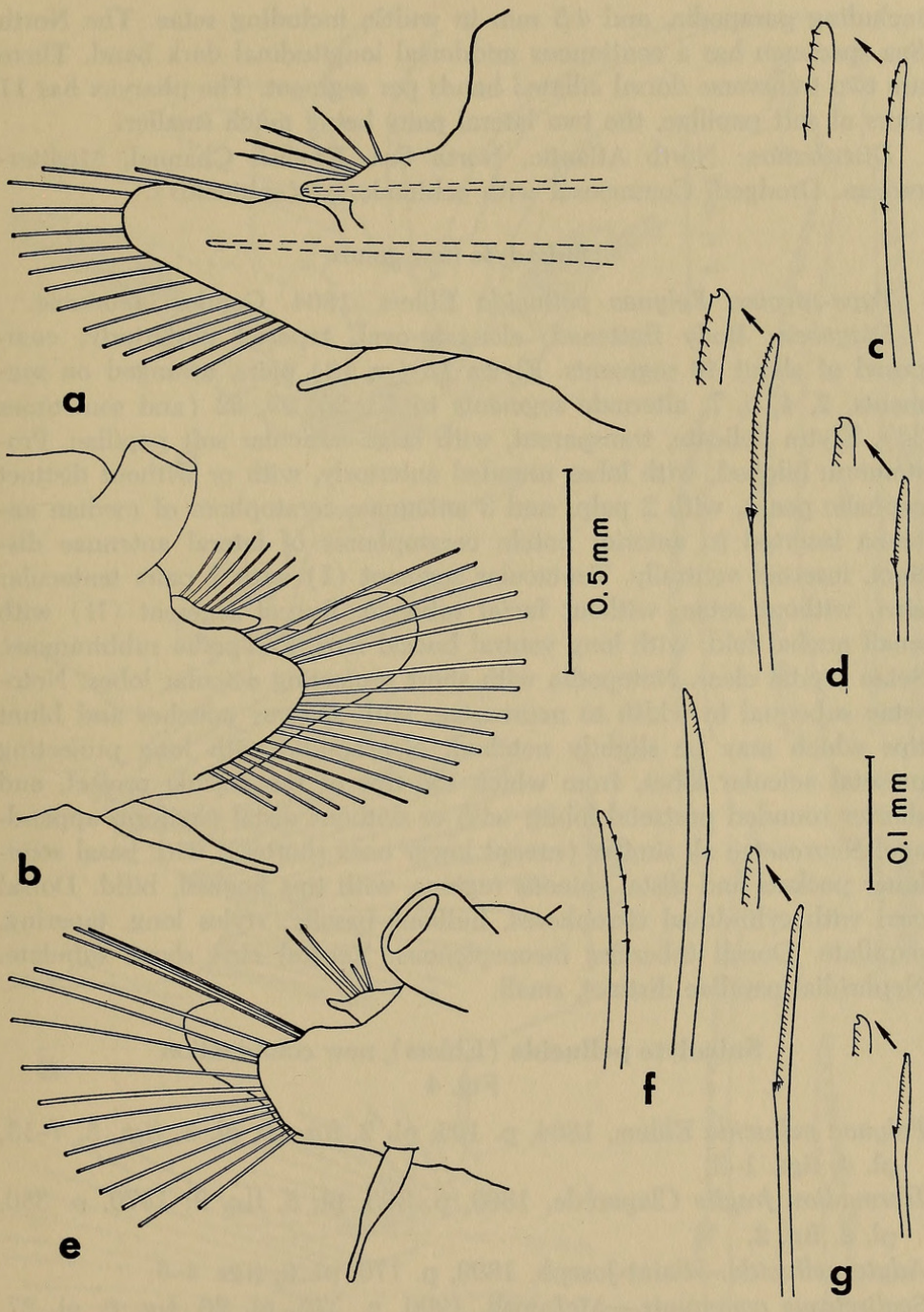

FIGURE 3. *Adyte assimilis* (BMNH 1914: 12: 1258): a, Elytrigerous parapodium from anterior region, anterior view; b, cirrigerous parapodium from anterior region, posterior view; c, notoseta from same; d, upper and lower neurosetae from same; e, cirrigerous parapodium from posterior region, posterior view; f, notosetae from same; g, upper and lower neurosetae from same.

including parapodia, and 4.5 mm in width, including setae. The North Sea specimen has a continuous middorsal longitudinal dark band. There are two transverse dorsal ciliated bands per segment. The pharynx has 11 pairs of soft papillae, the two lateral pairs being much smaller.

Distribution: North Atlantic, North Sea, English Channel, Mediterranean. Dredged. Commensal with echinoderms (echinoids).

Subadyte new genus

Type-species: Polynoe pellucida Ehlers, 1864. Gender: feminine.

Diagnosis: Body flattened, elongate-oval, tapered posteriorly, composed of about 40 segments. Elytra 15 (or 16) pairs, arranged on segments, 2, 4, 5, 7, alternate segments to 23, 26, 29, 32 (and sometimes 34). Elytra delicate, transparent, with large vesicular soft papillae. Prostomium bilobed, with lobes rounded anteriorly, with or without distinct cephalic peaks, with 2 palps and 3 antennae; ceratophore of median antenna inserted in anterior notch; ceratophores of lateral antennae distinct, inserted ventrally. Tentacular segment (I) with 2 pairs tentacular cirri, without setae; without facial tubercle. Buccal segment (II) with small nuchal fold; with long ventral buccal cirri. Parapodia subbiramous. Setae crystal clear. Notopodia with short projecting acicular lobes. Notosetae subequal in width to neurosetae, with spinous pouches and blunt tips which may be slightly notched. Neuropodia with long projecting presetal acicular lobes, from which the tips of the acicula project, and shorter rounded postsetal lobes; with or without distal cirriform appendage. Neurosetae all similar (except lower ones shorter), with basal semilunar pockets and distal spinous regions, with tips hooked, bifid. Dorsal cirri with cylindrical cirrophores, bulbous basally; styles long, tapering, papillate. Dorsal tubercles inconspicuous. Ventral cirri short, subulate. Nephridial papillae distinct, small.

Subadyte pellucida (Ehlers), new combination
Fig. 4

Polynoe pellucida Ehlers, 1864, p. 105, pl. 2, fig. 10, pl. 3, figs. 5, 7–13, pl. 4, figs. 1–3.

Hermadion fragile Claparède, 1868, p. 383, pl. 5, fig. 2; 1870, p. 380, pl. 2, fig. 2.

Adyte pellucida.—Saint-Joseph, 1899, p. 170, pl. 6, figs. 4–5.

Scalisetosus communis.—McIntosh, 1900, p. 372, pl. 26, fig. 6, pl. 27, fig. 12, pl. 30, fig. 9, pl. 33, fig. 7, pl. 34, fig. 1, pl. 40, figs. 17–19. Not *Lysidice communis* Delle Chiaje, 1841 (fide Claparède, 1870, p. 380).

Hermadion pellucidum.—Alaejos y Sanz, 1905, p. 31, pl. 4, fig. 7, pl. 5, figs. 1–7.

Scalisetosus pellucidus.—Fauvel, 1914, p. 47; 1923, p. 74, fig. 27, a–f.—Monro, 1930, p. 48.

Scalisetosus fragilis.—Day, 1962, p. 631; 1967, p. 59, fig. 1.7, g–k.

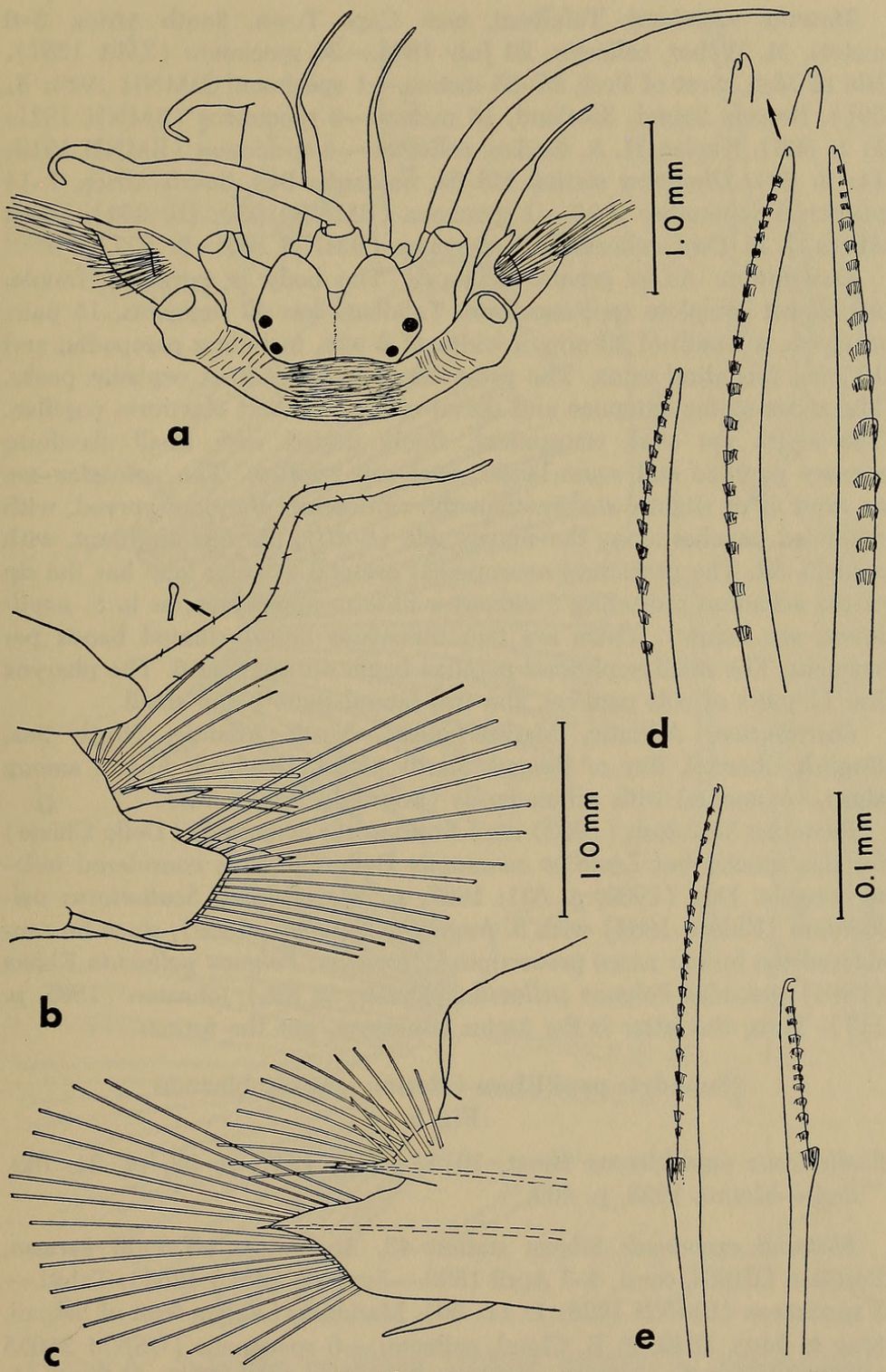

FIGURE 4. *Subadyte pellucida* (ZMA 1287): a, Anterior end, dorsal view, right palp regenerating; all tentacular cirri missing except for lower right one; elytra missing; b, cirrigerous parapodium, posterior view; c, elytrigerous parapodium, anterior view; d, notosetae; e, upper and lower neurosetae.

Material examined: Tafelbaai, near Cape Town, South Africa, 5–8 meters, M. Weber, collector, 23 July 1894.—30 specimens (ZMA 1287). Isle of Man, west of Peel, 27–55 meters.—1 specimen (BMNH 1923: 5: 501). Bressay Sound, Scotland, 18 meters.—2 specimens (BMNH 1921: 5: 1: 505). Naples, H. A. Bayliss, collector.—4 specimens (BMNH 1919: 11: 6: 30). *Discovery* station MS 82, Saldanha Bay, South Africa, 7–14 meters, 6 September 1926.—1 specimen (BMNH 1930: 10: 254). South Africa, J. H. Day, collector.—1 specimen (BMNH 1961: 9: 837).

Description: As in generic diagnosis. The body is extremely fragile. An almost complete specimen from Tafelbaai has 40 segments, 15 pairs of elytra, a length of 22 mm, a width of 6 mm, including parapodia, and 10 mm, including setae. The prostomium lacks distinct cephalic peaks. The styles of the antennae and dorsal cirri have short claviform papillae. The elytra are oval, transparent, finely dotted with small claviform sensory papillae and some larger, oval soft papillae. The notosetae are as stout as or slightly stouter than the neurosetae; they are curved, with denticled pouches along the convex side (6–20); the tips are blunt, with a small slit. The projecting neuropodial presetal acicular lobe has the tip of the aciculum projecting (without a filiform appendage, as in *S. papillifera*; see below). There are two transverse dorsal ciliated bands per segment. The small nephridial papillae begin on segment 6. The pharynx has 11 pairs of soft papillae, the two lateral pairs being small.

Distribution: Adriatic, Mediterranean, North Atlantic, North Sea, English Channel, Bay of Bengal, South Africa. Dredged. Found among algae, commensal with echinoderms (asteroids, ophiuroids).

Remarks: McIntosh (1900) used *Scalisetosus communis* (Delle Chiaje) for this species but *Lysidice communis* Delle Chiaje is considered indeterminable. Day (1962, p. 631; 1967, p. 59) replaced *Scalisetosus pellucidum* (Ehlers, 1864) with *S. fragilis* (Claparède, 1868), since he considered the former name preoccupied. However, *Polynoe pellucida* Ehlers (1864) precedes *Polynoe pellucida* (Dyster, in litt.) Johnston (1865, p. 117). Thus, the latter is the junior homonym, not the former.

Subadyte papillifera (Horst), new combination
Fig. 5

Scalisetosus papilliferous Horst, 1915, p. 17; 1917, p. 99, pl. 21, figs 2–4.—Monro, 1928, p. 469.

Material examined: Siboga station 43, Anchorage off Pulu Sarasso, Postillon Islands, coral, 4–5 April 1899.—Syntype (ZMA 1286). Tahiti.—5 specimens (BMNH 1928: 1: 11: 30). Marianas, Lagoon west of Saipan, May to June, 1949, P. E. Cloud, collector.—6 specimens (USNM 26055 to 26058). Caroline Islands, Ifalik Atoll, August 1953, D. P. Abbott, collector.—1 specimen (USNM 22977).

Description: As in generic diagnosis. The body is extremely fragile. The syntype has 38 segments and 15 pairs of elytriphores. Some specimens show a characteristic mottled pattern dorsally. The elytra are deli-

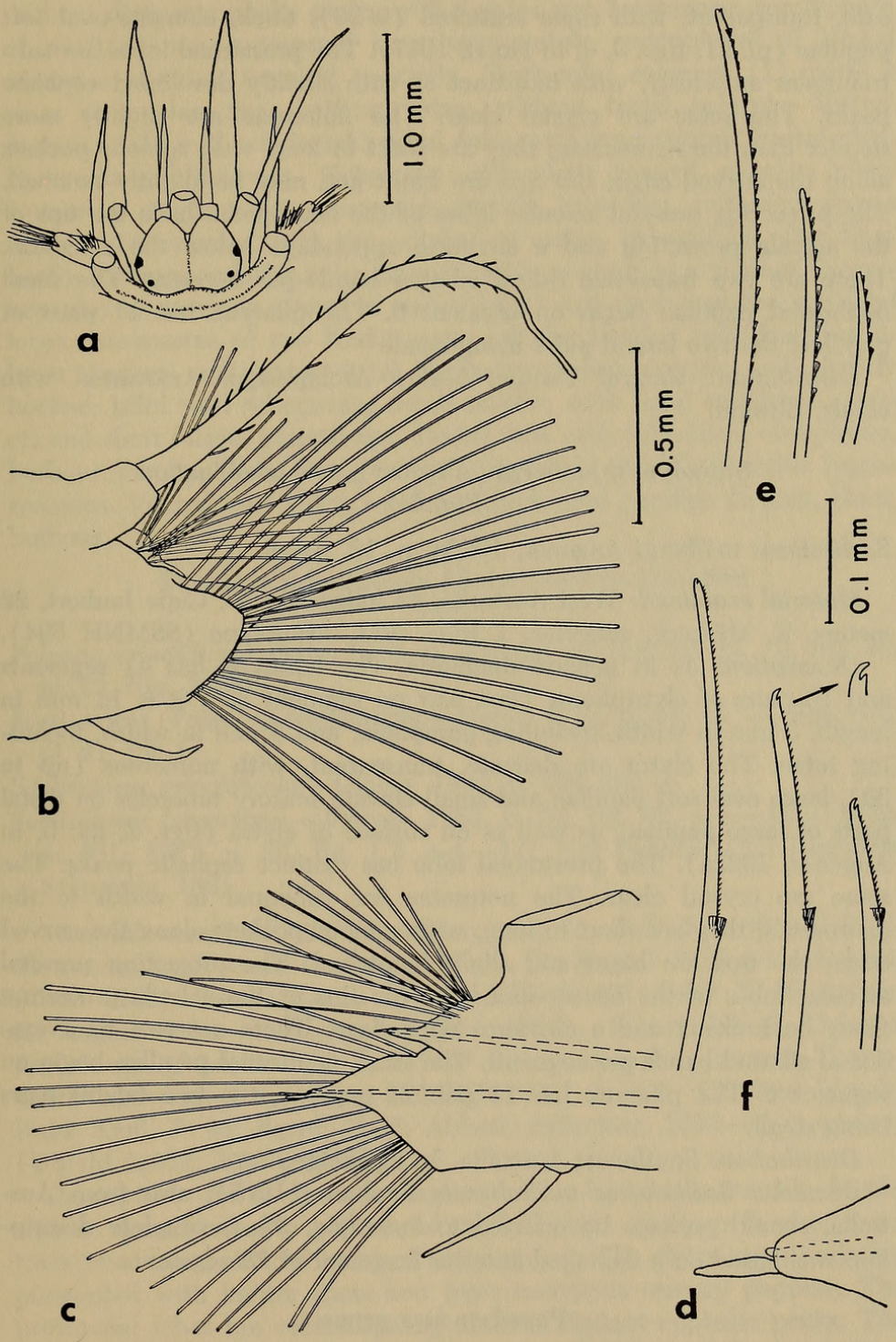

FIGURE 5. *Subadyte papillifera* (USNM 26057): a, Anterior end, dorsal view; styles of median antenna, left and upper right tentacular cirri missing; elytra missing; b, cirrigerous parapodium, posterior view; c, elytrigerous parapodium, anterior view; d, distal tip of neuropodium of same; e, notosetae; f, upper, middle and lower neurosetae.

cate, transparent, with some scattered (9–20), thick, elongate-oval soft papillae (pl. 21, figs. 3, 4, in Horst, 1917). The prostomial lobes are subtriangular anteriorly, with indistinct or with slightly developed cephalic peaks. The setae are crystal clear. The notosetae are slightly more slender than the neurosetae; they are short to long, with spinous pockets along the curved edge; the tips are blunt and may be slightly notched. The projecting presetal acicular lobes of the neuropodia have the tips of the acicula projecting and a cirriform appendage below the aciculum. There are two transverse dorsal ciliated bands per segment. The small nephridial papillae begin on segment 6. The pharynx has 11 pairs of papillae, the two lateral pairs being small.

Distribution: Central Pacific, Malay Archipelago. Associated with corals. Littoral.

Subadyte mjoebergi (Augener), new combination
Fig. 6

Scalisetosus mjöbergi Augener, 1922a, p. 12, fig. 2.

Material examined: West Australia, 45 miles W.S.W. Cape Jaubert, 22 meters, E. Mjöberg, collector, 1 June 1911.—Holotype (SSMNH 594).

Description: As in generic diagnosis. The holotype has 41 segments and 16 pairs of elytriphores (last pair on segment 34); it is 12 mm in length, 3 mm in width, including parapodia, and 5 mm in width, including setae. The elytra are delicate, transparent, with numerous (up to 30), large oval soft papillae and small clavate sensory tubercles on distal parts of large papillae, as well as on surface of elytra (figs. 2, 2a, b, in Augener, 1922a). The prostomial lobe has distinct cephalic peaks. The setae are crystal clear. The notosetae are subequal in width to the neurosetae; they are short to long, with spinous pockets along the curved edge; the tips are blunt and slightly notched. The projecting presetal acicular lobes of the neuropodia have the tips of the acicula projecting (may be broken) and a cirriform appendage. There are two transverse dorsal ciliated bands per segment. The small nephridial papillae begin on segment 6. The pharynx has 11 pair of papillae, the two lateral pairs being small.

Distribution: Southwest Australia. In 22 meters.

Remarks: Scalisetosus australiensis Benham (1915), also from Australia, should perhaps be referred to *Subadyte;* the incomplete description was based on a damaged anterior fragment of 28 segments.

Paradyte new genus

Type-species: Polynoe crinoidicola Potts, 1910. Gender: feminine.

Diagnosis: Body flattened, elongate-oval, tapered posteriorly, segments about 40. Elytra 15 pairs, arranged on segments 2, 4, 5, 7, alternate segments to 23, 26, 29, and 32. Elytra delicate, smooth, without tubercles or fringes of papillae (may have scattered sensory papillae). Prostomium bilobed, with lobes rounded, subtriangular anteriorly, with or

without distinct cephalic peaks, with 2 palps and 3 antennae; ceratophore of median antenna inserted in anterior notch; ceratophores of lateral antennae distinct, inserted ventrally. Tentacular segment (I) with 2 pairs tentacular cirri, without setae; without facial tubercle. Buccal segment (II) without dorsal nuchal fold; with long ventral buccal cirri. Parapodia subbiramous. Notopodia with short conical acicular lobes. Notosetae stouter than neurosetae, curved, sabre-like, with few spines along convex border, with tips notched or entire. Neuropodia with diagonally truncate, subtriangular presetal lobes containing aciculum (aciculum may or may not extend to end of lobe) and short rounded postsetal lobes. Neurosetae of two kinds: supra-acicular slender, with basal semilunar pockets and more distal elongate spinous regions and slightly hooked, bifid tips; subacicular much stouter, with basal semilunar pockets and short falcate smooth tips. Dorsal cirri with cylindrical cirrophores, bulbous basally; styles long, smooth, tapering. Dorsal tubercles inconspicuous. Ventral cirri short, subulate. Nephridial papillae distinct, short, bulbous.

Paradyte crinoidicola (Potts), new combination

Fig. 7

Polynoe crinoidicola Potts, 1910, p. 337, pl 18, fig. 10, pl. 20, fig. 30, pl. 21, figs. 39–41.

Scalisetosus (Polynoe) crinoidicola.—Horst, 1917, p. 98, pl. 16, figs. 6–8, pl. 21, fig. 1.

Scalisetosus crinoidicola.—Okuda, 1936, p. 564, fig. 3.

Scalisetosus longicirrus.—Fauvel, 1953, p. 50, fig. 22, a–c.—Day, 1962. p. 631; 1967, p. 58, fig. 1.7, a–f.—[?] Not *Polynoe (L.) longicirra* Schmarda, 1861.

Material examined: Siboga station 164, 1° 42.5′ N, 130° 47.5′ E, 32 meters, sand, small stones and shells, 20 August 1899.—1 specimen (ZMA 1285). *Siboga* station 167, 2° 35.5′ S, 131° 26.2′ E, 95 meters, 22 August 1899.—1 specimen (ZMA 1994). Inhaca Island, Delagoa Bay, South Africa, 25° 50′ S, 32° 50′ E, commensal on crinoid, *Tropiometra carinata.*—1 specimen (BMNH 1936: 1: 10). Caroline Islands, Ifalik Atoll, F. M. Bayer, D. P. Abbott, collectors, 1953.—4 specimens (USNM 22972, 22973, 22976).

Description: As in generic diagnosis. The body is extremely fragile and is dorsally darkly pigmented with lighter spots, with prominent transverse dorsal ciliated bands, 2 per segment. The elytra are also darkly pigmented with lighter spots and have numerous sensory papillae. The prostomial lobes are subtriangular, without distinct cephalic peaks. The setae are bronze-colored. The notosetae are stouter than the neurosetae, curved, sabre-like, with 1–5 widely spaced spines along the curved border, with tips notched. In the diagonally truncate presetal lobes of the neuropodia, the acicula do not extend to the tips of the lobes. The supra-acicular group of neurosetae are slender, slightly curved, with long spinous regions and bifid tips. The subacicular group of neurosetae are

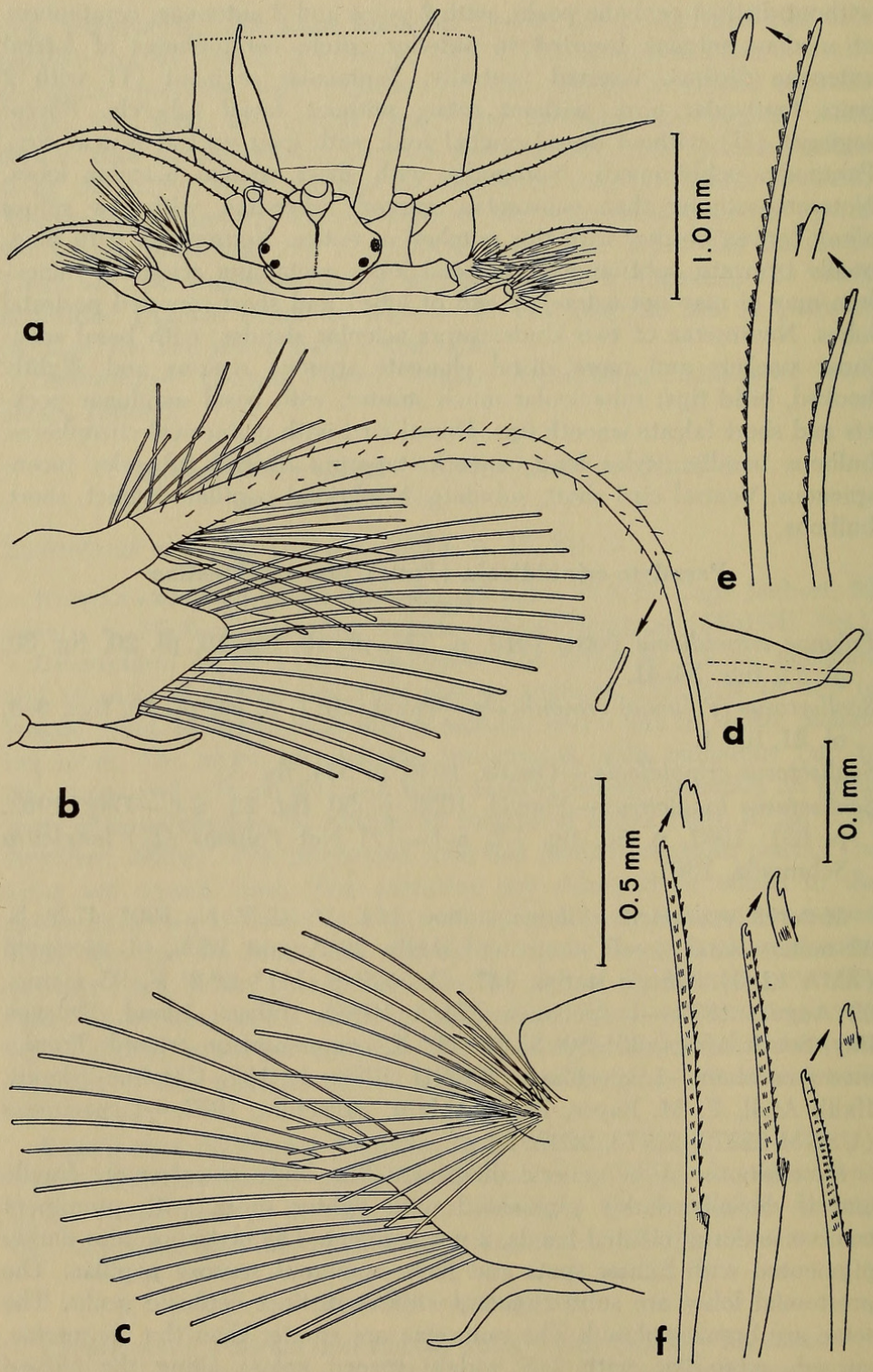

FIGURE 6. *Subadyte mjoebergi* (Holotype, SSMNH 594): a, Anterior end, dorsal view; styles of median antenna, upper tentacular and dorsal cirri missing; elytra missing; base only of extended pharynx shown; b, cirrigerous parapodium, posterior view; c, elytrigerous parapodium, an-

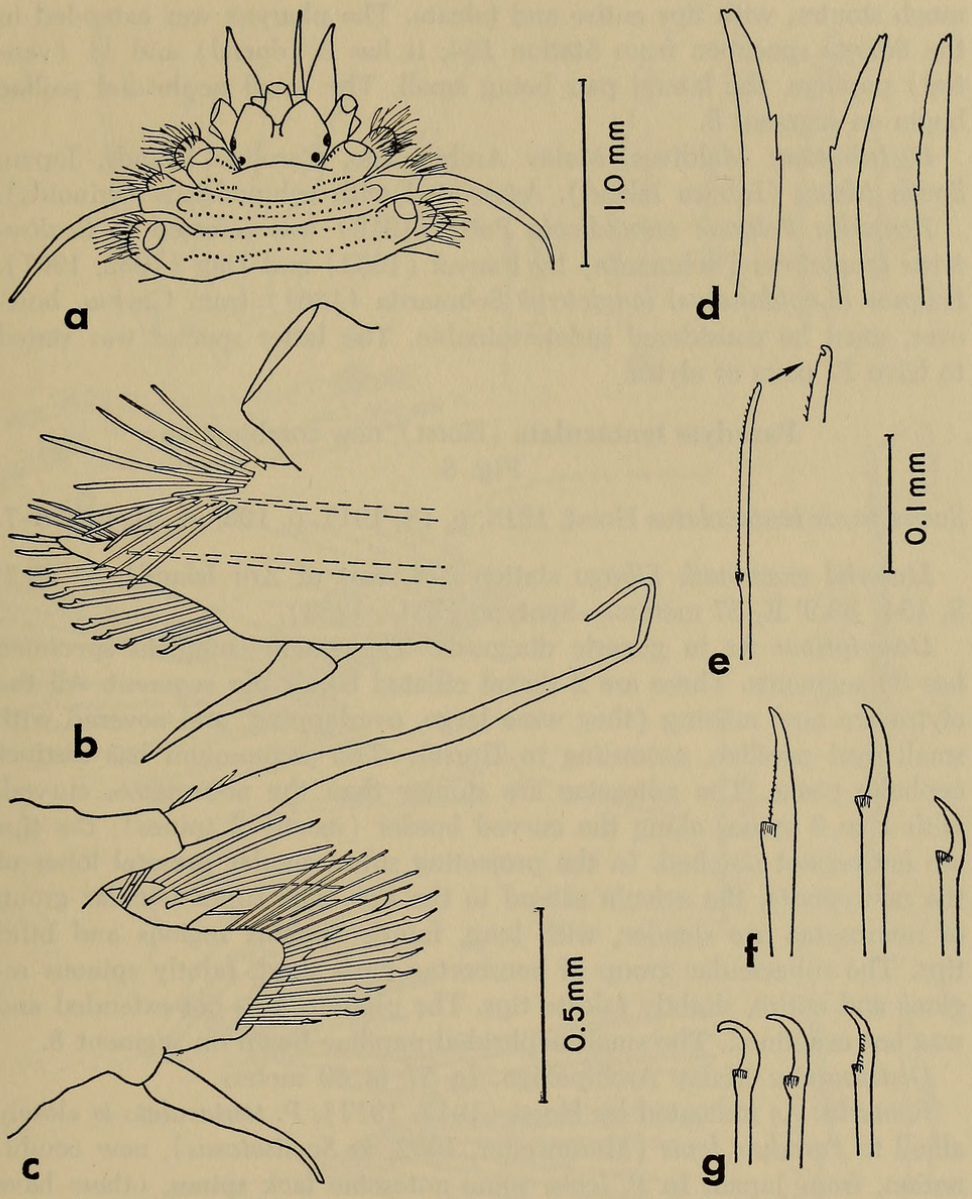

FIGURE 7. *Paradyte crinoidicola* (USNM 22972): a, Anterior end, dorsal view; styles of median and left lateral antennae and tentacular cirri missing; elytra missing; b, elytrigerous parapodium, anterior view, elytron missing; c, cirrigerous parapodium, posterior view; d, notosetae; e, supra-acicular neuroseta; f, upper, middle and lower subacicular neurosetae; g, neurosetae from segment II.

←

terior view; elytron missing; d, tip of neuropodium from same; e, notosetae; f, upper, middle and lower neurosetae.

much stouter, with tips entire and falcate. The pharynx was extended in the *Siboga* specimen from Station 164; it has 9 (dorsal) and 11 (ventral) papillae, the lateral pair being small. The small nephridial paillae begin on segment 8.

Distribution: Maldives, Malay Archipelago, Caroline Islands, Japan, South Africa (Inhaca Island). Associated with echinoderms (crinoids).

Remarks: Polynoe crinoidicola Potts (1910) was referred to *Scalisetosus longicirrus* (Schmarda) by Fauvel (1953) and Day (1962, 1967). *Polynoe (Lepidonotus) longicirrus* Schmarda (1861) from Ceylon, however, must be considered indeterminable. The latter species was stated to have 17 pairs of elytra.

Paradyte tentaculata (Horst), new combination
Fig. 8

Scalisetosus tentaculatus Horst, 1915, p. 18; 1917, p. 100, pl. 21, figs. 5–7.

Material examined: Siboga station 274, east of Aru Islands, 5° 28.2′ S, 134° 53.9′ E, 57 meters.—Syntype (ZMA 1288).

Description: As in generic diagnosis. The single complete specimen has 39 segments. There are 2 dorsal ciliated bands per segment. All the elytra are now missing (they were large, overlapping, and covered with small oval papillae, according to Horst). The prostomium has distinct cephalic peaks. The notosetae are stouter than the neurosetae, curved, with 1 to 3 spines along the curved border (mostly 2 spines); the tips are entire, not notched. In the projecting subtriangular presetal lobes of the neuropodia, the acicula extend to the tips. The supra-acicular group of neurosetae are slender, with long, faintly spinous regions and bifid tips. The subacicular group of neurosetae have short, faintly spinous regions and entire, slightly falcate tips. The pharynx was not extended and was not examined. The small nephridial papillae begin on segment 8.

Distribution: Malay Archipelago. In 57 to 69 meters.

Remarks: As indicated by Horst (1915, 1917), *P. tentaculata is* closely allied to *Paradyte levis* (Marenzeller, 1902, as *Scalisetosus*), new combination, from Japan. In *P. levis,* some notosetae lack spines, others have single spines. *Scalisetosus pacificus* Izuka (1912), also from Japan, appears to be identical with *P. levis.*

Pottsiscalisetosus new genus

Type-species: Scalisetosus praelongus Marenzeller, 1902. Gender: masculine.

Diagnosis: Body flattened, elongate-vermiform, tapered posteriorly, segments numerous (50–110 or more). Elytra numerous pairs (28 or more), arranged on segments 2, 4, 5, 7, alternate segments to 23, 26, 29, 32, 33, 35, continuing on alternate segments to end of body (may be some irregularity after segment 39). Elytra soft, translucent, without tubercles or papillae. Prostomium bilobed, with lobes rounded, without distinct cephalic peaks, with 2 palps and 3 antennae; ceratophore of

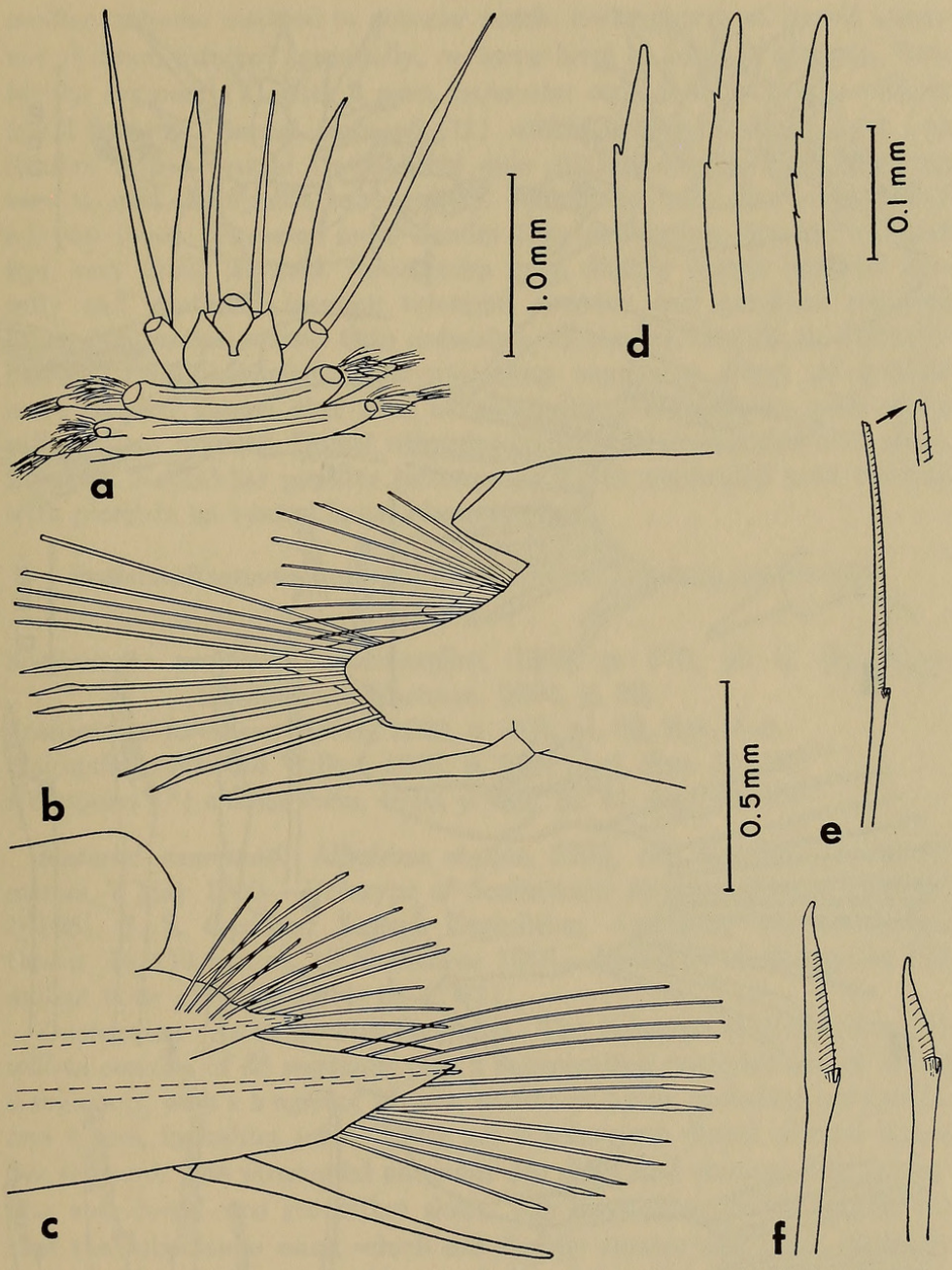

FIGURE 8. *Paradyte tentaculata* (Syntype, ZMA 1288): a, Anterior end, dorsal view; styles of median antenna, upper tentacular cirri and dorsal cirri missing; elytra missing; eyes faded; b, cirrigerous parapodium, posterior view; style of dorsal cirrus missing; c, elytrigerous parapodium, anterior view; elytron missing; d, notosetae; e, supra-acicular neuroseta; f, upper, and lower subacicular neurosetae.

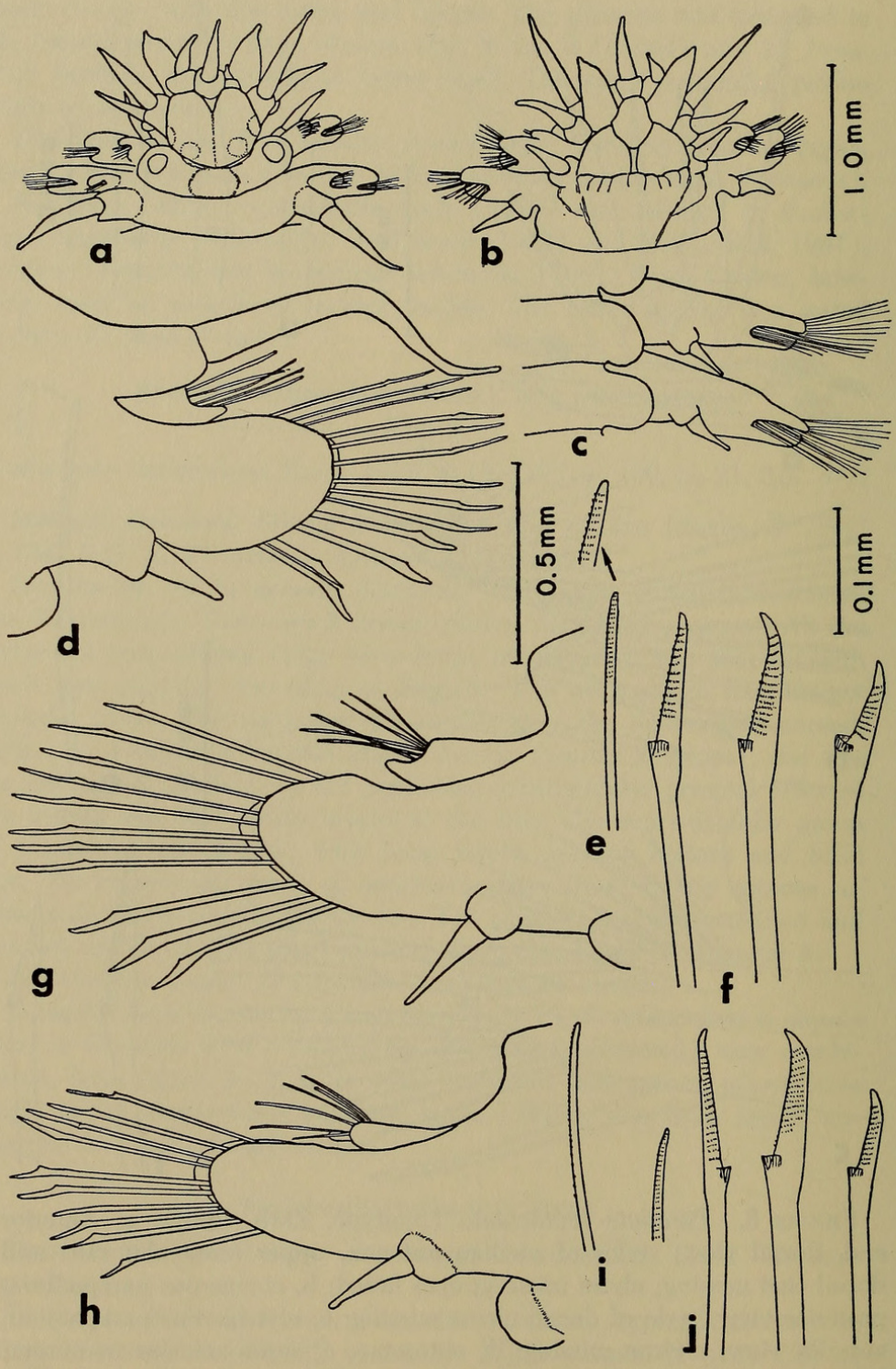

FIGURE 9. *Pottsiscalisetosus praelongus* (Holotype of *Halosydna* (?) *willeyi* Potts, BMNH 1924: 3: 1: 63): a, Anterior end, dorsal view; elytra missing; right lateral antenna regenerating; eyes faded (dotted); b, same, ventral view; c, two parapodia from middle region of body showing platelets on ventral bases of parapodia, ventral view; d, cirrigerous

median antenna inserted in anterior notch; ceratophores of lateral antennae distinct, inserted terminally, on same level as median antenna. Tentacular segment (I) with 2 pairs tentacular cirri, without setae; without facial tubercle. Buccal segment (II) with middorsal bulbous area (no distinct flap); ventral buccal cirri only slightly longer than following ventral cirri. Parapodia subbiramous. Notopodia with short, subconical acicular lobes. Notosetae more slender than neurosetae, tapered to blunt tips, very finely serrated. Neuropodia long, distally deeply notched dorsally and ventrally, forming subequal anterior and posterior rounded lobes. Neurosetae stouter than notosetae, all similar, slightly to distinctly hooked, finely serrated, with projecting semilunar cusps or pockets more basally. Dorsal cirri with long cylindrical cirrophores, with styles rather short, tapered. Dorsal tubercles inconspicuous. Ventral cirri short, subulate. Nephridial papillae inconspicuous, the nephridial area covered with platelets on ventral bases of parapodia.

Pottsiscalisetosus praelongus (Marenzeller), new combination
Fig. 9

Scalisetosus praelongus Marenzeller, 1902, p. 575, pl. 3, fig. 11.—Imajima and Hartman, 1964, p. 39.
Scalisetosus formosus Moore, 1903, p. 403, pl. 23, figs, 4–6.
Halosydna zeylanica Willey, 1905, p. 250, pl. 1, figs. 12, 13.
Halosydna (?) *willeyi* Potts, 1910, p. 340, pl. 21, figs. 44, 45.

Material examined: Albatross station 3703, off Honshu, Japan, 57 meters, 7 May 1900.—Holotype of *Scalisetosus formosus* Moore (USNM 16165). J. S. Gardiner *Sealark* Expedition, Amirante, western Indian Ocean, 44–155 meters, 10 November 1905.—Holotype of *Halosydna* (?) *willeyi* Potts (BMNH 1924: 3: 1: 63).

Description: As in generic diagnosis. The holotype of *Halosydna* (?) *willeyi* consists of 58 segments plus a regenerating posterior end of about 8 segments, with a length of 21 mm, widths of 3 mm, including parapodia, and 4 mm, including setae. There are 2 transverse dorsal ciliated bands per segment. The prostomial antennae are short and stumpy. The tentacular and dorsal cirri are rather short. The neurosetae are all similar except the subacicular ones, which are slightly stouter and more distinctly hooked. The pharynx was not extended and was not examined.

Distribution: Japan, Indian Ocean (Amirante, Ceylon). In 20 to 165 meters. Commensal with echinoderms (asteroids).

←

parapodium from anterior region of body, posterior view; e, notoseta from same; f, upper, middle and lower neurosetae from same; g, elytrigerous parapodium from middle region of body, posterior view; h, same, from posterior region of body; i, notosetae from same; j, upper, middle and lower neurosetae from same.

Australaugeneria new genus

Type-species: Polynoe rutilans Grube, 1878. Gender: feminine.

Diagnosis: Body flattened, elongate-oval, tapered posteriorly, composed of about 40 segments. Elytra 15 pairs, arranged on segments 2, 4, 5, 7, alternate segments to 23, 26, 29, 32. Elytra soft, translucent, without tubercles or papillae. Prostomium bilobed, with lobes rounded, without distinct cephalic peaks, with 2 palps and 3 antennae; ceratophore of median antenna inserted in anterior notch; ceratophores of lateral antennae distinct, inserted ventrally. Tentacular segment (I) with 2 pairs tentacular cirri, without setae; without facial tubercle. Buccal segment (II) without dorsal nuchal fold; notosetae lacking; neurosetate strongly hooked; ventral buccal cirri slightly longer than following ventral cirri. Parapodia subbiramous. Notopodia with projecting acicular lobes. Notosetae stouter than or more slender than neurosetae, smooth or spinous. Neuropodia long, deeply notched dorsally and ventrally, forming subequal anterior and posterior rounded lobes; presetal neuropodial lobes of segments II and III enlarged, hoodlike. Neurosetae of several kinds; stout hooks on segments II and III (and sometimes on IV); upper group slender, with wider basal regions and long, more slender spinous regions, with tips blunt; lower group stouter, with wider basal regions and short hooked tips (may be faintly spinous; may have small secondary tooth). Dorsal cirri with long cylindrical cirrophores, with styles long, filamentous. Dorsal tubercles inconspicuous. Ventral cirri short, subulate. Nephridial papillae short, wide, distinct in posterior half of body.

Remarks: The type material of *Scalisetosus hartmeyeri* Augener, deposited in the Zoological Museum Hamburg, consisted of two lots: one lot (ZMA 7895) contained 29 syntypes (2 complete but with regenerating posterior ends, 27 anterior fragments, 7 posterior ends and a few middle fragments); the other lot (ZMA 10087) contained a single specimen (anterior and posterior fragments). Both lots were collected at the same station in Southwest Australia. On examination of this material, it was found to contain two species—a more slender one with spinous notosetae (25 anterior and 7 posterior ends from ZMA 7895) and a slightly stouter species with smooth notosetae (anterior and posterior fragments from ZMA 10087 and 4 anterior fragments and a middle piece from ZMA 7895). The fact that one of the stouter specimens had been separated from the others suggests that Augener had noted some differences. Both species are similar in most respects, the most remarkable character being the presence in segments II and III of modified neurosetae in the form of golden hooks, enclosed in enlarged hoodlike presetal neuropodial lobes. A new genus, *Australaugeneria,* is herein proposed for the two species. Since Augener's description and figures agree more closely with the more numerous slenderer specimens, I have retained *Scalisetosus hartmeyeri* Augener for this group and from it selected a Lectotype and 24 Paralectotypes. The other group of 5 specimens is herein described as a new species, *A. michaelseni.*

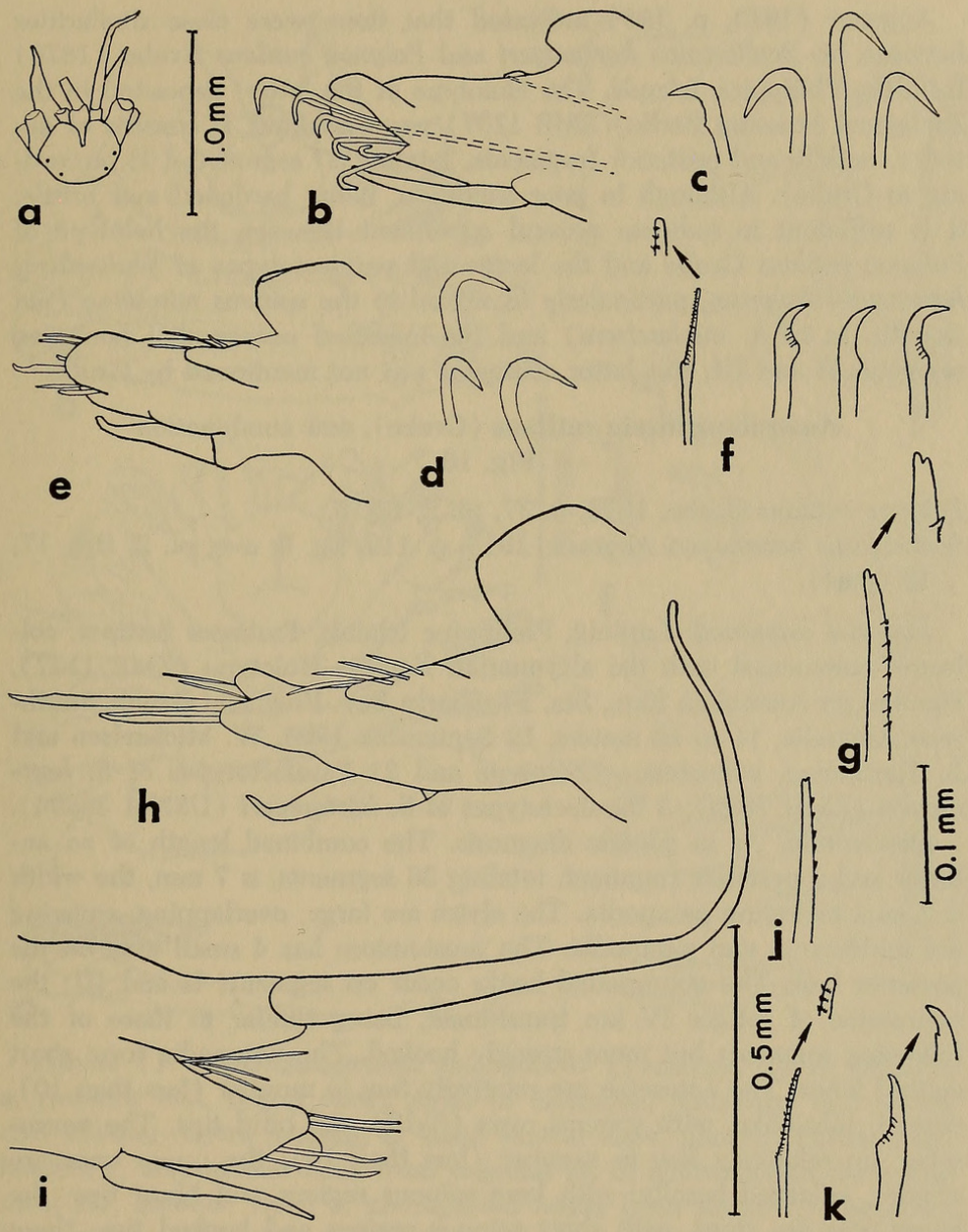

FIGURE 10. *Australaugeneria rutilans* (Paralectotype of *S. hartmeyeri*, ZMH 7895); a, Anterior end, dorsal view; styles of left lateral antenna and tentacular cirri missing; style of median antenna broken; b, elytrigerous parapodium from segment II, anterior view; c, neuropodial hooks from same; d, neuropodial hooks from segment III; e, elytrigerous parapodium from segment IV, anterior view; f, upper and lower neurosetae from same; g, notoseta from same; h, middle elytrigerous parapodium, anterior view; i, middle cirrigerous parapodium, posterior view; j, notoseta from same; k, upper and lower neurosetae from same.

Augener (1913, p. 123) indicated that there were close similarities between his *Scalisetosus hartmeyeri* and *Polynoe rutilans* Grube (1878) from the Philippine Islands. The Holotype of the latter, deposited in the Zoological Museum Berlin (ZMB 1137) was examined. It consists of anterior, middle and posterior fragments, totaling 37 segments (38, according to Grube). Although in poor condition, being hardened and brittle, it is sufficient to indicate general agreement between the holotype of *Polynoe rutilans* Grube and the lecto- and paralectotypes of *Scalisetosus hartmeyeri* Augener, particularly in regard to the spinous notosetae (not smooth, as in *A. michaelseni*) and the modified neuropodial hooks on segments II and III; this latter character was not mentioned by Grube.

Australaugeneria rutilans (Grube), new combination
Fig. 10

Polynoe rutilans Grube, 1878, p. 37, pl. 2, fig. 5.
Scalisetosus hartmeyeri Augener, 1913, p. 119, fig. 5, a–e, pl. 2, figs. 17, 18 (part).

Material examined: Lapinig, Philippine Islands, Professor Semper, collector, commensal with the alcyonarian *Xenia.*—Holotype (ZMB 1137). Hamburger Australian Exp., Sta. 14, Sharks Bay, Freycinet Reach, Southwest Australia, 11 to 16 meters, 12 September 1905, W. Michaelsen and R. Hartmeyer, collectors.—Lectotype and 21 Paralectotypes of *S. hartmeyeri* (ZMH 7895); 3 Paralectotypes of *S. hartmeyeri* (USNM 38894).

Description: As in generic diagnosis. The combined length of an anterior and a posterior fragment, totaling 36 segments, is 7 mm, the width is 2 mm, including parapodia. The elytra are large, overlapping, covering the middorsum and parapodia. The prostomium has 4 small eyes on the posterior half. The neuropodial hooks occur on segments II and III; the neurosetae of setiger IV are transitional, being similar to those of the following segments but more strongly hooked. The notopodia form short conical lobes. The notosetae are relatively few in number (less than 10), curved, sabre-like, with spinous rows (5–12) and bifid tips. The neurosetae are relatively few in number (less than 10); the upper ones are slender, enlarged basally, with long spinous regions and blunt tips; the lower ones are stout, with short spinous regions and hooked tips; there may be a minute secondary tooth. The pharynx was not extended in any of the specimens. The short and wide nephridial papillae are distinct, beginning on segment 17. There are transverse ciliated bands, 2 per segment dorsally and one ventrally near the posterior border.

Distribution: Philippine Islands, Southwest Australia. In 11 to 16 meters. Associated with alcyonarians.

Australaugeneria michaelseni new species
Figs. 11, 12

Scalisetosus hartmeyeri Augener, 1913, p. 119 (part).

Material examined: Hamburger Australian Exp., Sta. 14, Sharks Bay,

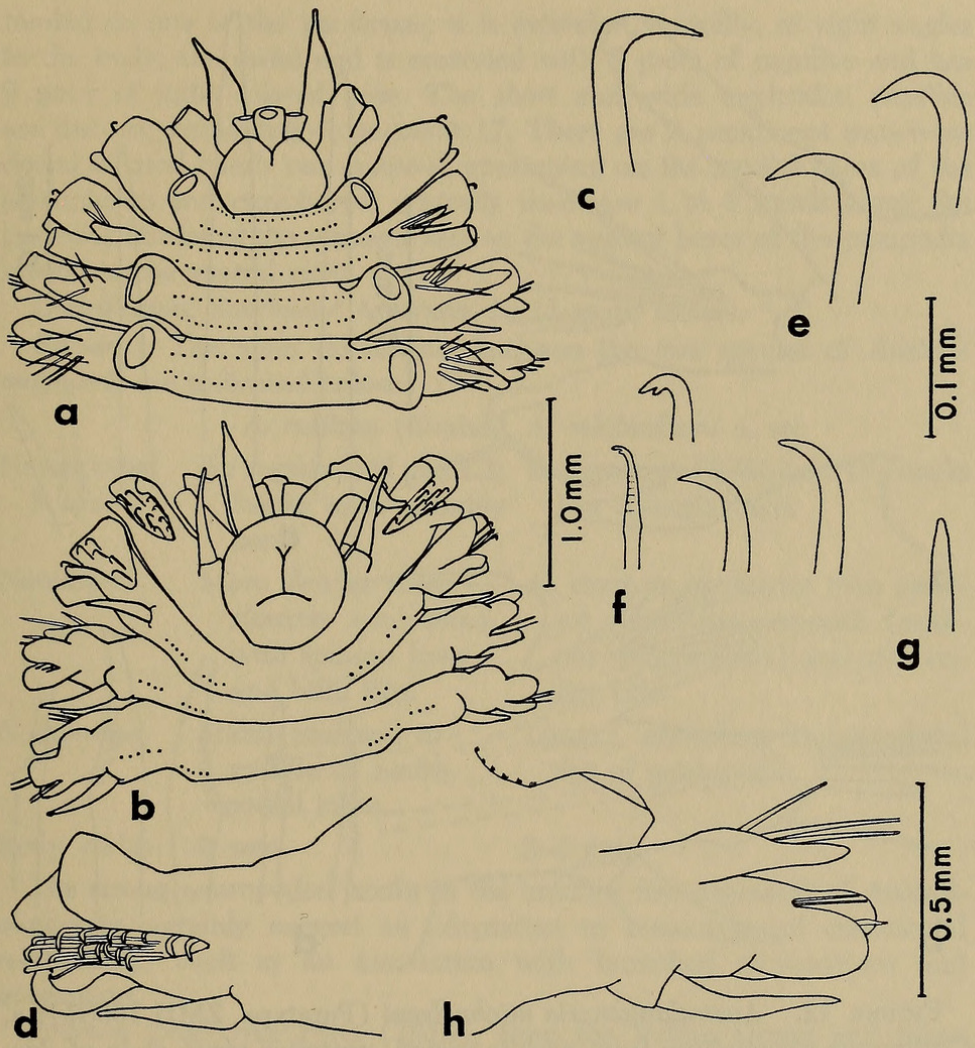

FIGURE 11. *Australaugeneria michaelseni* (Paratype, ZMH 10087): a, Anterior end, dorsal view; styles of antennae, tentacular and dorsal cirri missing; elytra missing; b, same ventral view, pharynx partially extended; c, neuropodial hook from segment II; d, neuropodium from segment III, anterior view; e, neuropodial hooks from same; f, neurosetae from segment IV; g, notoseta from same; h, elytrigerous parapodium from segment V.

Freycinet Reach, Southwest Australia, 11 to 16 meters, 12 September 1905, W. Michaelsen and R. Hartmeyer, collectors.—Holotype and 3 Paratypes (ZMH 10087); Paratype (USNM 38893).

Description: As in generic diagnosis. The holotype, consisting of an anterior fragment of 14 segments and a posterior fragment of 7 segments (the latter all with cirrophores, corresponding perhaps to segments 33 to 39), has a length of 6 mm and width of 3 mm, including parapodia. An incomplete paratype of 25 segments has a length of 11 mm

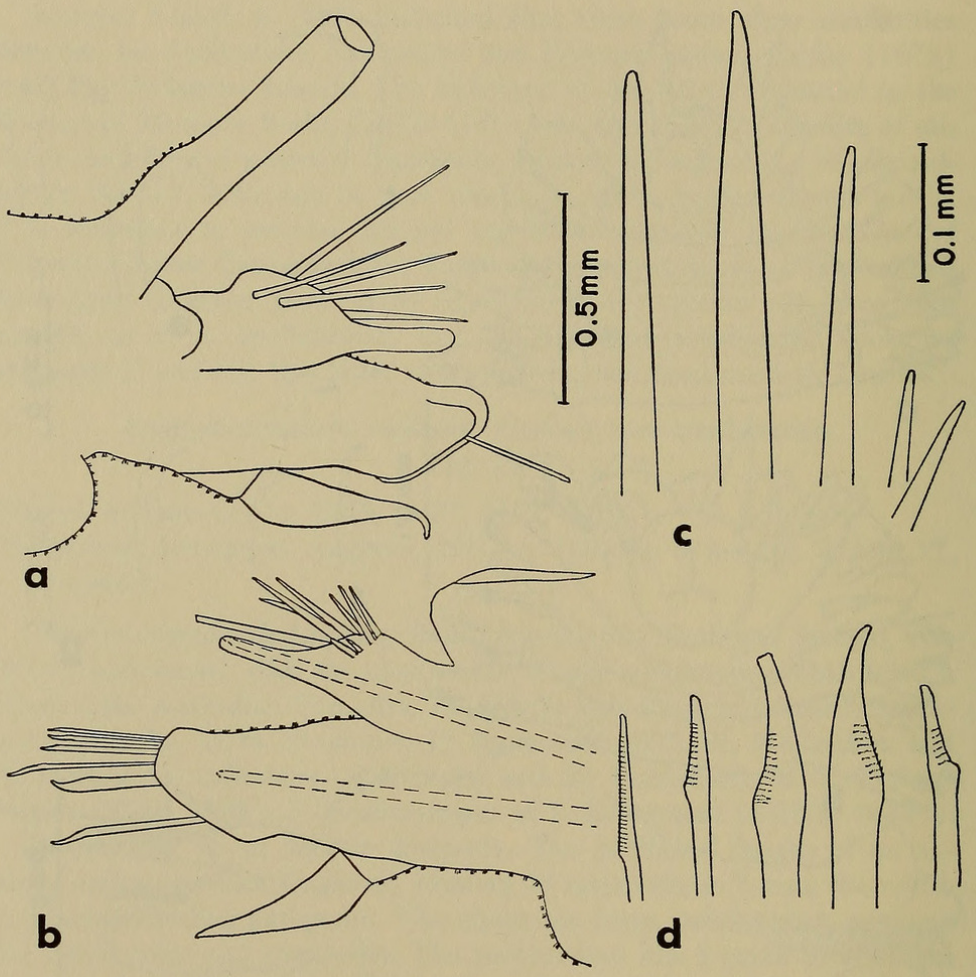

FIGURE 12. *Australaugeneria michaelseni* (Paratype, ZMH 10087): a, Cirrigerous parapodium from middle region, posterior view; style of dorsal cirrus missing; b, elytrigerous parapodium from middle region, anterior view; c, notosetae from same; d, upper and lower neurosetae from same.

and a width of 4 mm, including parapodia. No elytra remain attached. The styles of the antennae, tentacular and dorsal cirri are all missing. No eyes are visible on the prostomium (perhaps faded). The neuropodial hooks occur on segments II, III, and IV; on the latter segment, a transitional type of neuroseta occurs in addition to the hooks. The notopodia form inflated basal lobes with digitiform acicular lobes extending to near the distal tips of the neuropodia. The notosetae are few in number (about 12), stout, spike-like, smooth, tapering to blunt, entire tips (may be worn). The neurosetae are few in number (less than 10); the upper ones are more slender, with stouter basal portions and long spinous regions with blunt tips; the lower neurosetae are stout, with short spinous regions and slightly hooked tips. The pharynx was ex-

tended on one of the paratypes; it is extended ventrally, at right angles to the body; the distal end is encircled with 9 pairs of papillae and has 2 pairs of light colored jaws. The short and wide nephridial papillae are distinct, beginning on segment 17. There are 2 prominent transverse dorsal ciliated bands per segment, continuing on the medial bases of the elytriphores and cirriphores; ventrally there are 1 to 2 bands along the posterior border of the segment and on the ventral bases of the parapodia medial to the ventral cirri.

Distribution: Southwest Australia. In 11 to 16 meters.

Remarks: The main differences between the two species of *Australaugeneria* are indicated below:

	A. rutilans (Grube)	*A. michaelseni* n. sp.
Neuropodial hooks:	In segments II and III; hooks more strongly bent.	In segments II, III, and IV; hooks less strongly bent.
Notosetae:	More slender than stoutest neurosetae; with spinous rows and bifid tips.	As stout as or stouter than stoutest neurosetae; smooth (without spinous rows) and with entire tips.
Notopodia:	Short, confined to middle of neuropodial lobes.	Longer, extending to near distal tips of neuropodia.
Body width:	2 mm	3–4 mm

The strong neuropodial hooks in the anterior few segments of *Australaugeneria* certainly suggest an adaptation to some type of commensal relationship, such as an association with branched alcyonarians and gorgonians.

Polynoe longicirrus Potts (1910), from the Indian Ocean and taken "off a Gorgonian," has been referred to *Scalisetosus* by Hartman (1959, p. 108), perhaps following a suggestion by Augener (1922b, p. 10; footnote) that it might be a *Scalisetosus*-like form; the species may very well prove to belong to *Australaugeneria*. The type-specimens, deposited in the British Museum (Natural History), need to be re-examined. As pointed out by Hartman (1959, pp. 103, 108), *Polynoe longicirrus* Potts (1910) is a junior homonym of *Polynoe* (*Lepidonotus*) *longicirra* Schmarda (1861).

An attempt was made to re-examine types of *Scalisetosus acutipinnis* Ehlers (1920) from Amboina. However, the four syntypes, deposited in the Zoological Museum Berlin, are now completely dry and unsatisfactory, according to Dr. G. Hartwich (in litt.).

KEY TO THE SIX GENERA FORMERLY REFERRED TO *SCALISETOSUS* MCINTOSH

1. Neurosetae of segments II and III modified in the form of stout hooks, associated with enlarged presetal hoodlike neuropodial lobes. [Body short, about 40 segments. Elytra 15 pairs, on segments

2, 4, 5, 7 . . . 23, 26, 29, 32. Ceratophores of lateral antennae inserted ventrally. Tentacular segment (I) achaetous. Buccal segment (II) without nuchal fold. Notosetae stouter than or more slender than neurosetae, smooth or with spines, Neuropodia with presetal and postsetal lobes rounded, subequal, without projecting presetal acicular lobes. Neurosetae without basal semilunar pockets or cusps, of 2 or more types, with wide basal regions and long slender spinous regions and blunt tips (upper ones) and short, stout, slightly hooked tips (lower ones). Dorsal tubercles inconspicuous. Nephridial papillae distinct on posterior half of body.] ---------- *Australaugeneria* new genus

1′. Segments II and III without neuropodial hooks and modified lobes 2

2. Neurosetae without basal semilunar pockets or cusps. Tentacular segment (I) with few setae. Dorsal tubercles nodular. [Body short, about 40 segments. Elytra 16 pairs, on segments 2, 4, 5, 7 . . . 23, 26, 29, 32, 35. Ceratophores of lateral antennae inserted ventrally. Buccal segment (II) without nuchal fold. Notosetae much stouter than neurosetae, without spinous rows but with few stout spines. Neurosetae slender, with faint spinous regions, with tips slightly falcate, entire (lower ones) and minutely bifid (upper ones). Neuropodia with long projecting presetal acicular lobes and short rounded postsetal lobes. Nephridial papillate distinct.] ---------- *Scalisetosus* McIntosh

2′. Neurosetae with basal semilunar pockets or cusps. Tentacular segment (I) achaetous. Dorsal tubercles inconspicuous ---------- 3

3. Neuropodia with presetal and postsetal lobes rounded, subequal, without projecting presetal acicular lobes. Ceratophores of lateral antennae inserted terminally, on same level as median antenna. Elytra numerous (28–54 pairs or more), on segments 2, 4, 5, 7 . . . 23, 26, 29, 32, 33, 35, alternate segments to end of body. [Body elongate, 50–110 or more segments. Buccal segment (II) with bulbous area middorsally. Notosetae more slender than neurosetae, tapering to blunt tips, very finely serrated. Neurosetae all similar, finely serrated, tips slightly to distinctly hooked, entire. Without nephridial papillae but with rounded platelike structures over nephridial areas.] ---------- *Pottsiscalisetosus* new genus

3′. Neuropodia with projecting presetal acicular lobes and short, rounded postsetal lobes. Ceratophores of lateral antennae inserted ventrally. Elytra 15 (or 16) pairs, on segments 2, 4, 5, 7 . . . 23, 26, 29, 32 (and sometimes 34), leaving variable number of posterior segments without elytra ---------- 4

4. Body elongate, up to 74 segments, with long posterior region (up to 42 segments) lacking elytra. Nephridial papillae indistinct but with inflated nephridial areas. [Buccal segment (II) without nuchal fold. Notosetae as stout as or stouter than neurosetae, nearly smooth, with scattered closely appressed spinous rows along convex border. Neuropodial presetal lobes broad, diagonally truncate. Neurosetae

all similar, with long finely spinous regions, tips slightly hooked, minutely bidentate.] ..... *Adyte* Saint-Joseph, EMENDED

4′. Body short, about 40 segments, with short posterior region (12 or less segments) lacking elytra. Nephridial papillae distinct 5

5. Notosetae stouter than neurosetae, curved, sabre-like, smooth except for few spines along convex margin. Neurosetae of two kinds: supra-acicular slender, with elongate spinous areas, tips slightly hooked, bifid; subacicular stouter, smooth, tips falcate, entire. Neuropodial presetal lobes diagonally truncate, subtriangular. Buccal segment without nuchal fold ..... *Paradyte* new genus

5′. Notosetae subequal to neurosetae in width, with spinous pouches and blunt tips. Neurosetae all similar (lower ones shorter), with distal spinous regions, tips hooked, bifid. Neuropodial presetal lobes conical. Buccal segment with small nuchal fold .. *Subadyte* new genus

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