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AUSTRALASIAN *PECTINISETA* STEIN, WITH NOTES ON THE GENUS (Diptera, Muscidae)

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Figures 1-32.

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SYNOPSIS

A key is given to the Indo-Australasian species of *Pectinisetia* Stein. Descriptions are given of the type-species, *pectinata* (Stein), and of the four Australian species, *australis* (Malloch), new comb., *occulta* sp. nov., *similis* sp. nov. and *torresiana* sp. nov. Notes are given on the other two Australasian species. A catalogue of the described species in the genus is given.

INTRODUCTION

The genus *Pectinisetia* was described by Stein (1919: 145) for a species of Coenosiinae with an unusual head-profile, where a sharp angle is formed at the profrons, with a long face and long antennae, and with a pectinate arista in the male sex. The genus has been maintained in subsequent revisionary work by Malloch (1929b), Crosskey (1962) and Snyder (1965), and these authors, particularly Malloch and Crosskey, have emphasized the very close relationship between *Pectinisetia* and *Lispocephala* Pokorny. The characters of the pectinate male arista and the long-plumose female arista, combined with the angular head-profile (figs 1 and 2), are still the principal characters that have been used to define the genus and to differentiate it from *Lispocephala*.

In a recent key to the Oriental genera of Coenosiinae, Crosskey (1962) has included *Pectinisetia*, but he doubted whether it could be distinguished satisfactorily from *Lispocephala* and maintained as a good genus. In my opinion, not only *Pectinisetia* but also *Parvisquama* Malloch can be maintained as distinct genera, closely related to but distinct from *Lispocephala*. It is possible that new species of *Lispocephala* will be discovered with a long-plumose arista that will be indistinguishable from *Pectinisetia* in the female sex: in this case *Pectinisetia* might be used as a name for a subgeneric segregate within *Lispocephala*. Using the characters of the head and of the female ovipositor discussed below, I am continuing to treat *Pectinisetia* as a genus.

Location of Specimens

The following abbreviations are used below to indicate the institutes in which material is located:

ANIC	Australian National Insect Collection, CSIRO, Canberra.
Aust. Mus.	The Australian Museum, Sydney.
BMNH	British Museum (National History), London.
Cop.	University Zoological Museum, Copenhagen.
NMV	National Museum of Victoria, Melbourne.
ZMA	Zoologisch Museum der Universiteit van Amsterdam.
ZMB	Zoologisches Museum der Humboldt-Universität zu Berlin.

Genus *Pectiniseta* Stein

Pectiniseta Stein, 1919: 96, 145. Type-species: *Caricea prominens* Stein, 1910 (= *Coenosia pectinata* Stein, 1900), by monotypy.

Pectiniseta Stein; Malloch, 1928: 315; Malloch, 1929b: 163; Malloch, 1929c: 326; Séguy, 1937: 223, 231, 242; Emden, 1940: 97; Crosskey, 1962: 400; Snyder, 1965: 201, 218; Hennig, 1965: 65.

Pectinaseta (sic) Stein; Snyder, 1953 and 1965 (passim), errore.

Diagnosis

Pectiniseta can be distinguished from the other genera of the Coenosiinae by the long-pectinate arista of the male (fig. 1) and by the long-plumose arista of the female (fig. 2) combined with the presence of 2 *ors* and 1 *p* seta on mid tibia.

Description

Head rather angular in male, with a long face and with antennae inserted high; less angular in female, with face shorter and less receding. Frons dichoptic in both sexes, at middle almost as broad as an eye. Interfrontalia with a large clearly defined frontal triangle which reaches lunula. Ocellar setae strong. Two pairs of reclinate *ors*. Male with third antennal segment long, just over four times as long as broad, pointed at anterior tip, in frontal view reaching epistoma; female with this segment shorter and normal, a little over three times as long as broad, not pointed at tip, but reaching epistoma. Male with arista pectinate, with a few tiny hairs on apical two-thirds below, but with long regular hairs on most of length above, the longest of which are about one-third length of third antennal segment; female with arista long-plumose, not pectinate except in *fulvithorax* which is pectinate as in the male, the longest plumosity as long as length of third antennal segment. Male with face long and strongly receding, in lateral view face about one and a half times as long as frons (measured from vibrissa to profrons to anterior ocellus). Mentum of proboscis glossy. *Dc* 1 + 3, with a stronger setula before *prst* seta. Anterior *ia* strong. Three *stpl* setae, the lower one equidistant from the upper two and slightly weaker than anterior one. Scutellum with the apical and sub-basal lateral setae strong. Mid femur with 0 *a* and 1 *p* preapical seta. Mid tibia without submedian setae except for 1 *p* at basal two-fifths. Hind femur with 1 *d* preapical seta, in addition to the *ad*. Hind tibia with 2 *ad* and 2 *pd* setae. Lower squama projecting well beyond lower one. Sternite 1 bare.

In the genera *Pectiniseta*, *Lispocephala* and *Parvisquama* the aedeagus with its associated structures is very similar, but there is considerable diversity in the ovipositors. In *Pectiniseta* (figs 4–6), the ovipositor is short. Segment 6 has a normally developed tergite and sternite. Segments 7 and 8 are fused: tergite 7 + 8 extends right round the segment, like a ring, and is even fused ventrally, whilst sternite 7 + 8 has been displaced posteriorly and is divided longitudinally into two small plates. The apical sternite is normal, triangular in shape, the apical tergite is absent, and the cerci are large. The spermathecae (fig. 7) are large. In species of *Lispocephala* dissected for comparison, the ovipositor is similarly short. Segments 7 and 8 are distinct and not fused. Segments 6 and 7 have the tergites extending right round the segments, ring-like, and fused ventrally, but unlike *Pectiniseta* they are divided dorsally along the mid-line; these segments have no sternites. Tergite 8 is present, and sternite 8 is present as a single plate though deeply cleft medially. The apical sternite is narrow and boomerang-shaped, the apical tergite is absent, and the cerci are small. The spermathecae are very large. *Parvisquama ciliata* Malloch has a longer slimmer ovipositor with small cerci and spermathecae. There is very little sclerotization: tergite 6 consists of a pair of longitudinal strut-like sclerites and sternite 6 is minute and round. Segments 7 and 8 are fused: tergite 7 + 8 is round with 2 anterior projections, sternite 7 + 8 is absent. The apical tergite is present but minute, and the apical sternite normal and oval.

Key to Indo-Australasian Species of *Pectiniseta*

1. Thorax entirely yellow in ground-colour. Antennae and coxae wholly clear yellow. Parafacialia and genae yellow in ground-colour. Scutellum with only about 3 discal setulae, near tip. Palpi entirely yellow *fulvithorax* Malloch
- Thorax black in ground-colour. At least basal two antennal segments partly infuscated. At least mid and hind coxae with some dark shadows. Parafacialia and genae black in ground-colour. Scutellum with more discal setulae, at most with basal third bare. Palpi dark at base 2
2. Femora yellow, but the tips sometimes brownish and the fore femur sometimes more extensively darkened in the female. Fore coxa clear yellow, mid and hind coxae partly to mainly yellow 3
- Femora dark brown, only the tips yellow. Coxae usually wholly dark, rarely partially paler at tips 5
3. Upper *ori* weaker, vestigial and hair-like to absent. ♂: fore femur with only the apical 1–2 *pv* setae strong, the rest of the *pv* setae fine and shorter than femoral depth (fig. 8); 5th sternite with the apical part very long and with a row of long setae in addition to the ground-setulae (figs 17 and 18). ♀: fore femur with the *pv* ground-setulae among the setae comparatively long, fine and erect, and those on the *av* surface fine and semi-decumbent *similis* nov.
- Upper *ori* stronger, half or more than half as long as lower *ori*. ♂: fore femur with the setae of the *pv* row of uniform length and strength (as in *pectinata* (Stein), fig. 9); 5th sternite with the apical part short and covered with short fine hairs only (figs 14 and 20). ♀: fore femur without erect *pv* ground-setulae among the setae, the setulae all normal and short, and those on the *av* surface stronger and more spine-like in basal half 4

4. ♂: 5th sternite with an indentation in lateral view (fig. 16) and with the setulae on the inner margins of the lobes confined to the posterior part of the sternite (fig. 22); cercal plate broader (fig. 32). ♀: indistinguishable from that of *australis* (Malloch) *torresiana* nov.
- ♂: 5th sternite simple in outline in lateral view (fig. 14) and with the lobes almost entirely covered with setulae along inner margins (fig. 20); cercal plate narrower (fig. 31). ♀: indistinguishable from that of *torresiana* sp. nov. *australis* (Malloch)
5. ♂: 5th sternite bearing only hairs, which are not or hardly longer than that part of the sternite on which they are situated (figs 10–12 and 21–21a); fore femur with the setae of the *pv* row of uniform length and strength (fig. 9). (Upper *ori* stronger, half or more than half as long as lower *ori*. ♀: indistinguishable from that of *societas* Malloch) *pectinata* (Stein)
- ♂: 5th sternite bearing setae in addition to hairs, most of which are much longer than that part of the sternite on which they are situated 6
6. Upper *ori* stronger, half or more than half as long as lower *ori*. ♂: 5th sternite with the setae confined to a tuft on inner edge, directed at right-angles away from the sternite (figs. 13 and 23); fore femur with the setae of the *pv* row of uniform length and strength [as in *pectinata* (Stein), fig. 9]. (♀: indistinguishable from that of *pectinata* (Stein).) *societas* Malloch
- Upper *ori* weaker, fine and rudimentary, less than half as long as lower *ori*. ♂: 5th sternite with longer and more scattered setae situated along the outer edge, directed towards the tip of the sternite (figs 15–15a and 19); fore femur with only the apical 1–2 *pv* setae strong, the rest of the *pv* setae fine and shorter than femoral depth (as in *similis* sp. nov., fig. 8) *occulta* nov.

***Pectiniseta pectinata* (Stein)**

(Figs 1–7, 9–12, 21–21a, 24–27)

- Coenosia pectinata* Stein, 1900: 147. Holotype ♂, NEW GUINEA: Friedrich Wilhelmshafen (= Madang). Destroyed; formerly in the Hungarian Natural History Museum, Budapest [see Pont, 1969: 87].
- Caricea prominens* Stein, 1910: 152. Syntypes, SOCOTRA ISLAND. Lost; formerly in the Zoological Museum of the Humboldt University, Berlin [see note below]. Synonymy by Malloch, 1929b: 163.
- Coenosia pallitarsis* Stein, 1920: 63. Lectotype ♀, JAVA: Batavia, Moeara Angkee. In the University Zoological Museum, Amsterdam [designation by Pont, 1970: 98] Synonymy by Pont, 1970: 98.
- Pectiniseta prominens* (Stein) Malloch, 1928: 315; Malloch, 1929b: 163; Malloch, 1929c: 328; Hennig, 1941: 209; Snyder, 1965: 218, figs. 20b–c.
- Lispocephala proxima* Malloch, 1929a: 393. Holotype ♀, BURU ISLAND. In the University Zoological Museum, Amsterdam [revid. Lee, Crust and Sabrosky, 1956: 331; Pont, 1970: 100]. Synonymy by Pont, 1970: 100.

In the above bibliography, the catalogue references of Stein (1919) and Séguy (1937) have been omitted.

Although the holotype of *pectinata* has been destroyed, Stein's description fits the present species perfectly. In addition, it is the only species of the genus known from New Guinea.

The synonymy of *pectinata* and *prominens* was first suggested by Malloch (1929b: 163), but this synonymy has been followed neither by Malloch himself (1929c) nor by other authors (Séguy, 1937; Snyder, 1965).

Stein described *prominens* from 2 males and 4 females collected on Socotra Island by Simony, which should be preserved in the Zoological Museum of the Humboldt-University, Berlin. None of the original material could be located, and Dr Schumann wrote to me (letter of 19th August, 1969): "Die Art *Pectinisetia prominens* konnte ich ebenfalls in unserer Sammlung nicht finden. Hinter dem Etikett sind zwar Einstiche von Nadeln zu entdecken, jedoch fehlen jegliche Fliegen."

♂. Head: Ground-colour black. Parafrontalia, frontal triangle and occiput densely grey to yellowish-grey pruinose; parafacialia, face and genae lighter grey pruinose. Interfrontalia black, matt from almost all points of view. Eyes bare. Frons broadening uniformly from vertex to lunula. Vertical setae strong; *pv* short, fine. Post-ocular setulae short, uniform, with scattered setulae below the upper row. Two pairs of inclinate *ori*, the lower one strongest, without interstitials; upper *ori* strongest and closer to the lower one than to vertical; parafrontalia with 3-5 short setulae outside *ori*, otherwise bare. Parafrontalia moderate, at middle of frons a parafrontale equal to twice diameter of anterior ocellus and one-third width of interfrontalia at this point. First and second antennal segments dark, second yellow at tip; third segment orange-yellow to brownish. Parafacialia linear almost throughout, mostly hidden by the eye in profile. In lateral view, vibrissal angle well behind level of profrons. Genae very slender; the depth below lowest eye-margin well under half width of third antennal segment. Vibrissae long and strong; peristomal setae quite long and sparse. Mentum of proboscis dark brown. Palpi slim, yellow, brown at base.

Thorax: Ground-colour black. Mesonotum grey to yellowish-grey dusted, usually with weak traces of 3 brown vittae, a median (*acr*) one and a pair of paramedian (*dc*) ones; the median one sometimes very distinct, sometimes all three very distinct. Pleura and scutellum dusted as mesonotum, the latter dark on sides. Anterior spiracle yellowish to brownish. *Acr* in 2 rows before suture, in 3-4 rows behind. Inner *h* short, half or less than half as long as outer one. Posterior *ph* one-third longer than anterior one. Two propleural and 2 prostigmatal setae, without ground-setulae. Disc of scutellum often bare on basal third, with up to 15 setulae.

Legs: Trochanters, knees, tibiae and tarsi yellow; coxae and femora dark brown, the coxae sometimes partially pale. Fore femur with a row of about 6 *pv* setae, of uniform length and strength. Fore tibia without submedian setae. Mid femur without *av* setae, with a few short *pv* in basal half; 1 *a* at basal two-fifths. Hind femur with 1 *pv* seta just before middle, and sometimes with a few more short *pv*, and 3-4 moderate sparsely placed *av* setae; *ad* row complete. Hind tibia with 2 short *pd*, at basal fifth and at middle; 2 *ad* opposite them, the apical one strongest; 1 short *av*, just beyond middle.

Wings: Virtually clear, the veins yellow. Epaulet brownish, basicosta yellow to brown. Costal spine inconspicuous. Small cross-vein below or slightly apical of the point where vein 1 enters costa, at or just beyond middle of discal cell. Hind cross-vein straight, upright, slightly longer to slightly shorter than the apical section of vein 5. Veins 3 and 4 subparallel towards wing-margin. Squamae white, halteres yellow.

Abdomen: Short, cylindrical. Tergite 1 + 2 and the sides of tergite 3 yellow, tergites 3 and 4 with pale incisures; otherwise dark. In posterior view, tergites 3-5 and the genital tergites densely grey dusted, tergite 1 + 2 appearing undusted except on posterior margin. Tergites 3-5 with black undusted paramedian spots, those on tergites 3 and 4 large and separated by a black undusted median vitta, those on tergite 5 small and confined to anterior half of tergite; sometimes those on tergite 5 also large and separated by a median vitta, and tergite 1 + 2 with a dark median spot. Sides of tergites dusted, except for the pale parts, tergites 3 and 4 with broad dark-brown undusted spots. Genital segments without spots. Tergites 3-5 each with a strong lateral discal seta, placed just outside or on the edge of the black spots, otherwise without well-developed setae except for (usually) a strongish pair of paramedian marginals on tergite 4.

Measurements: Length of body, 3.0-3.5 mm. Length of wing, 2.5-3.0 mm.

♀. Differs from the male as follows. Head: Differences as given in the generic description. Legs: Femora pale basally in two specimens. Mid femur with the *pv* setae longer. Hind femur usually with 2 long *pv* setae and with up to 5 short *av*. Hind tibia with the *ad* setae longer and stronger, and the *pd* either longer or shorter. Abdomen: Short and pointed, not cylindrical. Markings as in male, but spots on tergites 3 and 4 rather smaller. Tergite 1 + 2 with some dust posteriorly. Setae as in male, but rather weaker, the laterals on tergite 3 usually absent. Measurements: Length of body, 3.5-4.0 mm. Length of wing, 3.0-3.5 mm.

In this species, the cercal plate of the male hypopygium (fig. 27) is most like that of *societas* and *torresiana*: it is broader and more densely bristled than in *oculta*, *australis* and *similis*.

The male 5th sternite is unlike that of any other species except for *australis* and *torresiana* in that it is entirely haired and without setae. The shape, in profile, although slightly variable (figs 10-12), is also consistently different in ground-plan from the other species except for *torresiana*: after the median ventral notch, the sternite is directed slightly ventrad again before running out to the tip. There is some slight geographic variation in shape and in distribution of the ground-hairs. But it should be borne in mind that many of the hairs are on the internal face of the sternite, and so any difference in the angle of inclination of the sternite during observation will produce apparent differences in structure and ciliation. Thus fig. 21a is of a sternite rather flattened beneath a cover-slip and fig. 21 is of a sternite floating in creosote.

Despite the similarities in genital structure between this species and *torresiana*, *pectinata* can be distinguished immediately by the dark-brown femora.

Material examined.—India: Silchar, Cachar, 14.ii.1911 (1 ♂, BMNH), C. B. Antram. Ceylon: Trincomali, Hot Wells, 27.vii.1890 (1 ♂, 1 ♀, BMNH), J. W. Yerbury. Malaya: Kedah Peak, 3,000 feet, 13.iii.1928 (1 ♀, BMNH), H. M. Pendlebury; Kedah Peak, 3,300 feet, 19.iii.1928 (1 ♂, BMNH), H. M. Pendlebury. Sabah: Mt. Kinabalu, Mesilau, 14.ii.1964 (3 ♀, BMNH), J. Smart. Philippines: Tawi Tawi, Tarawakan, north of Batu Batu, caught in Malaise-traps, 4-14.xi.1961 (5 ♀, 1 BMNH and 4 Cop.), Noona Dan Exp.; Balabac, Dalawan Bay, caught in Malaise-traps, 13.x.1961 (1 ♀, Cop.), Noona Dan Exp. Java: Batavia, Moeara Angkee, iv.1908 (♀ lectotype of *pallitarsis* Stein, ZMA), E. Jacobson. Buru Is.: Station 1, 13.xii.1921 (♀ holotype of *proxima* Malloch, ZMA), L. J. Toxopeus. New Guinea: Papua, Central District, Gaile Forest, 28 miles SE of Port Moresby, 1.v.1965 (1 ♂, 1 ♀, BMNH), R. W. Crosskey; Siutmeri, Sepik River, 16.iii.1964 (1 ♂, ANIC), D. H. Colless; Korogo, Sepik River, 8.iii.1964 (1 ♂, ANIC), D. H. Colless. Bismarck Islands: Lavongai, Banatam, 20-26.iii.1962 (1 ♂, 7 ♀, 1 ♀ BMNH and 1 ♂ 6 ♀ Cop.),

Noona Dan Exp.; Dyaul, Sumuna, 6.iii.1962 (1 ♀, Cop.), Noona Dan Exp.; Manus, Lorengau, 18.vi.1962 (1 ♀, Cop.), Noona Dan Exp.; Mussau, Boliu, 5.vi.1962 (1 ♂, Cop.), Noona Dan Exp.; Mussau, Talamalaus, 18.i to 9.ii.1962 (7 ♀, 1 BMNH and 6 Cop.), Noona Dan Exp. Solomons, Rennell Is.: Niupani, 22-30.viii.1962 (2 ♂, 3 ♀, 1 ♀ BMNH and 2 ♂ 2 ♀ Cop.), Noona Dan Exp.; Hutuna, 26.iii.1965 and 3.iv.1965 (2 ♀, Cop.), Torben Wolff. Australia, Queensland: Kuranda, 27.xii.1958 (1 ♂, Aust. Mus.), D. K. McAlpine; River Bank Rain Forest, Silkwood, Innisfail, 25.v.1958 (3 ♂, 1 BMNH and 2 Aust. Mus.), D. K. McAlpine; Mulgrave River, 4 miles west of Gordonvale, 29.xii.1958 (3 ♂, 1 BMNH and 2 Aust. Mus.) and 4.i.1959 (1 ♀, Aust. Mus.), D. K. McAlpine; St. Helens Creek, Mackay District, 18.xii.1961 (2 ♀, BMNH and Aust. Mus.), D. K. McAlpine; Mulgrave River, 4 miles west of Gordonvale, 1.i.1967 (1 ♂, Aust. Mus.), 2.i.1967 (1 ♀, Aust. Mus.) and 12.i.1967 (1 ♂, Aust. Mus.), D. K. McAlpine and G. Holloway; 2 miles north of Tully River Bridge, Cardstone-Ravenshoe Road, 16.i.1967 (1 ♂, 1 ♀, Aust. Mus.) and 17.i.1967 (3 ♀, 1 BMNH and 2 Aust. Mus.), D. K. McAlpine and G. A. Holloway; The Intake, via Redlynch, 30.xii.1866 (2 ♂, 3 ♀, 1 ♂, 1 ♀ BMNH and 1 ♂ 2 ♀ Aust. Mus.), D. K. McAlpine and G. Holloway; Earl Hill, north of Cairns, 8.v.1967 (6 ♂, 3 ♀, 1 ♂ 2 ♀ BMNH and 5 ♂ 1 ♀ ANIC) and 11.v.1967 (1 ♂, BMNH), D. H. Colless; Bramston Beach, near Innisfail, open savannah, 30.iv.1967 (1 ♂, 1 ♀, ANIC), D. H. Colless; Bamboo Creek, near Miallo, north of Mossman, 25.iv.1967 (3 ♂, 1 BMNH and 2 ANIC), D. H. Colless; Kuranda Range State Forest, 7-8 miles Black Mt. Road, 20.iv.1967 (1 ♂, ANIC), D. H. Colless; Kuranda Range State Forest, 20.iv.1967 (2 ♂, ANIC), D. H. Colless; Yungaburra (State Forest 452), 29.iv.1967 (1 ♀, ANIC), D. H. Colless; Forest Road, near Ingham, 20.iii.1961 (1 ♀, ANIC), R. Straatman; 22 miles SW Ingham, 5.vi.1961 (1 ♀, ANIC), R. Straatman.

In addition to the localities given above, *pectinata* has been recorded from East Africa (Emden, 1940), Socotra Island (type-locality of *prominens* Stein), Formosa (Malloch, 1928; Hennig, 1941), Samoa (Malloch, 1929c), South Mariana Islands (Snyder, 1965) and Caroline Islands (Snyder, 1965).

***Pectiniseta similis* sp. nov.**

(Figs 8, 17-18, 30)

♂. Head: Ground-colour black. Parafrontalia, frontal triangle and occiput densely grey to yellowish-grey pruinose; parafacialia, face and genae lighter grey pruinose. Interfrontalia black, matt from almost all points of view. Eyes bare. Frons broadening uniformly from vertex to lunula. Vertical setae strong; *pvt* short, fine. Post-ocular setulae short, uniform, with scattered setulae below the upper row. One pair of inclinate *ori*, at lunula, sometimes with a short, fine auxiliary pair above which is always less than half as long as lower *ori*; upper *ors* strongest and closer to the lower one than to vertical; parafrontalia with 2-4 short setulae outside *ori*, otherwise bare. Parafrontalia moderate, at middle of frons a parafrontale equal to twice diameter of anterior ocellus and one-third of interfrontalia at this point. First and second antennal segments brown, the second yellow at tip; third segment orange-yellow, usually smoky at tip. Parafacialia linear almost throughout, mostly hidden by the eye in profile. In lateral view, vibrissal angle well behind level of profrons. Genae very slender; the depth below lowest eye-margin well under half width of third antennal segment. Vibrissae long and strong. Mentum of proboscis dark brown. Palpi slim, yellow, brown at extreme base.

Thorax: Ground-colour black. Mesonotum grey dusted, partially and weakly tinged with yellow, without vittae but sometimes with very faint weak traces of vittae along the *dc* rows. Pleura and scutellum dusted as mesonotum, the latter dark on sides. Anterior spiracle dirty yellowish. *Acr* in 2 rows before suture, in 3-4 rows behind. Inner *h* short, half or less than half as long as outer one. Posterior *ph* one-third longer than anterior one. Two propleural and 2 prostigmatal setae, without ground-setulae. Disc of scutellum mainly setulose, with up to 12 setulae.

Legs: Yellow; mid and hind coxae partly darkened, and mid and hind femora with weak brownish rings at tips. Fore femur with a row of about 6-8 *pv* setae, only the apical 1-2 setae strong, all the others fine and shorter than femoral depth. Fore tibia without submedian setae. Mid femur without *av* or *pv* setae, but some of the basal setulae longer and more erect; 1 *a* at basal two-fifths. Hind femur with 1 moderate *pv* seta just before middle, sometimes with a few other short *pv*; 1 strong preapical *av* seta, and a series of 4-5 short fine *av* setae in basal half; *ad* row complete. Hind tibia with 2 short *pd*, at basal quarter and at middle; 2 *ad* opposite them, the apical one strongest; 1 short *av*, just beyond middle.

Wings: Virtually clear, the veins yellow. Epaulet and basicosta yellow or brown. Costal spine inconspicuous. Small cross-vein below the point where vein 1 enters costa, just beyond middle of discal cell. Hind cross-vein straight, upright, slightly shorter than the apical section of vein 5. Veins 3 and 4 subparallel towards wing-margin. Squamae white, halteres yellow.

Abdomen: Short, cylindrical. Tergite 1 + 2 and sides of tergites 3 and 4 yellow, tergites 3 and 4 with pale incisures; otherwise dark. In posterior view, tergites 3-5 and the genital tergites densely grey dusted, tergite 1 + 2 undusted except posteriorly. Tergites 3-5 with black undusted paramedian spots, those on tergites 3 and 4 large and separated by a weakly dusted dark median vitta, those on tergite 5 small and confined to anterior half of tergite. Sides of tergites dusted, except for the pale parts, tergites 3 and 4 with dark brown virtually undusted spots. Genital segments without spots. Tergites 3-5 each with a strong lateral discal seta placed just outside or on the margins of the black spots, otherwise without well-developed setae; sometimes tergites 4 and 5 each with a pair of moderate median marginal setae.

Measurements: Length of body, 3.0-3.5 mm. Length of wing, 2.5-3.0 mm.

♀. Differs from the male as follows: Head: Differences as given in the generic description. Thorax: Rather more distinct traces of brownish vittae present, a median (*acr*) one and a pair of paramedian (*dc*) ones. Legs: Mid and hind femora often rather infuscated in apical quarter to third. Fore femur with the *pv* row developed normally, the setae uniform; several long *pv* setulae among the setae in basal half or more. Mid femur with 3-4 short *pv* setae in basal third. Hind femur with 2 strong *pv* setae around middle. Hind tibia with the *ad* setae much longer and stronger. Abdomen: Short and pointed, not cylindrical. Tergites 3 and 4 not very yellow at sides, tergite 5 pale at tip. Markings as in male, but spots on tergite 5 larger and separated by a dark median vitta. Setae as in male, but tergite 5 with neither lateral discals nor median marginals. Measurements: Length of body, 3.0-3.5 mm. Length of wing, 2.5-3.0 mm.

P. similis can be recognized by the external characters without difficulty. The male 5th sternite is very characteristic: the apical part is greatly elongated and curved, and is longer than in any of the other species. It is covered with more numerous and longer setulae than in any other species. For further discussion, see under *occulta* nov.

The cercal plate of the male genitalia (fig. 30) is most like that of *occulta* and *australis*: it is narrower and more sparsely bristled than in *pectinata*, *societas* and *torresiana*. However, it is more bulbous in the basal part than is *occulta*.

Material examined.—Australia, Queensland: Mulgrave River, 4 miles west of Gordonvale, 15.xii.1961 (♂ holotype, Aust. Mus.), McAlpine and Lossin; Kuranda, 23.xii.1958 (1 ♂ paratype, BMNH) and 24.xii.1958 (1 ♂ paratype, Aust. Mus.), D. K. McAlpine; North Maria Creek, near Silkwood, 14.xii.1961 (2 ♀ paratypes, Aust. Mus.), D. K. McAlpine; 7–14 miles west of Herberton, via Watsonville, 1.v.1967 (1 ♂ paratype, ANIC), D. H. Colless; Bramston Beach, near Innisfail, open savannah, 30.iv.1967 (1 ♀ paratype, ANIC), D. H. Colless; Mopo, near Babinda, 29.xii.1966 (1 ♀ paratype, Aust. Mus.), D. K. McAlpine and G. Holloway; W. Burleigh, 4.v.1970 (1 ♀, not a paratype, ANIC), Z. Liepa. Australia, Northern Territory: 48 miles south-west of Daly River, 14.11 S, 130.08 E, 25.viii.1968 (1 ♂ paratype, ANIC), M. Mendum. Australia, New South Wales: Brunswick Heads, 22.v.1966 (1 ♀ paratype, ANIC), Z. Liepa. Australia, Western Australia: Crossing Pool, Millstream, 21.x.1970 (2 ♂, 1 ♀ paratypes, ANIC), D. H. Colless; Millstream, 22.x.1970 (1 ♀ paratype, ANIC), 23.x.1970 (1 ♂, 2 ♀ paratypes, ANIC), 24.x.1970 (1 ♀ paratype, ANIC), and 25.x.1970 (24 ♂, 42 ♀ paratypes, 4 ♂ and 7 ♀, BMNH, 20 ♂ and 35 ♀ ANIC), D. H. Colless.

***Pectiniseta occulta* sp. nov.**

(Figs 15–15a, 19, 28)

♂. Head: Ground-colour black. Parafrontalia, frontal triangle and occiput densely grey to yellowish-grey pruinose; parafacialia, face and genae lighter grey pruinose. Interfrontalia black, matt from almost all points of view. Eyes bare. Frons broadening uniformly from vertex to lunula. Vertical setae strong; *pvt* short, fine. Post-ocular setulae short, uniform, with scattered setulae below the upper row. Two pairs of inclinate *ori*, the lower one strong, the upper one fine and rudimentary, without interstitials; upper *ors* strongest and closer to the lower one than to the vertical; parafrontalia with 2–4 short setulae outside *ori*, otherwise bare. Parafrontalia moderate, at middle of frons a parafrontale equal to twice diameter of anterior ocellus and one-third width of interfrontalia at this point. First and second antennal segments dark brown, second yellow at tip; third segment orange-yellow, sometimes smoky near tip. Parafacialia linear almost throughout, mostly hidden by the eye in profile. In lateral view, vibrissal angle well behind level of profrons. Genae very slender; the depth below lowest eye-margin well under half width of third antennal segment. Vibrissae long and strong; peristomal setae quite long and sparse. Mentum of proboscis dark brown. Palpi slim, brown in basal half or more, yellow at tip.

Thorax: Ground-colour black. Mesonotum grey to yellowish-grey dusted, with weak traces of darker dusted vittae, a median (*acr*) one and a pair of paramedian (*dc*) ones. Pleura and scutellum dusted as mesonotum, the latter dark on sides. Anterior spiracle dirty yellowish. *Acr* in 2 rows before suture, in 3–4 rows behind. Inner *h* half or less than half as long as outer one. Posterior *ph* one-third longer than anterior one. Two propleural and 2 prostigmatal setae, without ground-setulae. Disc of scutellum usually bare on basal third, with 10–12 setulae.

Legs: Trochanters, knees, tibiae and tarsi yellow; coxae and femora dark brown. Fore femur with a row of 6-7 *pv* setae, only the apical seta strong, all the others fine and shorter than femoral depth. Fore tibia without submedian setae. Mid femur without *av* or *pv* setae, with only a few longer *pv* ground-setulae in basal third; 1 *a* at basal two-fifths. Hind femur with 1 *pv* seta just before middle, and 1-2 other short *pv*; *av* surface with 1 strong preapical seta and 1-2 other setae; *ad* row complete. Hind tibia with 2 short *pd*, at basal fifth and at middle; 2 *ad* opposite them, the apical one strongest; 1 short *av*, just beyond middle.

Wings: Virtually clear, the veins yellow. Basicosta and epaulet dark brown. Costal spine inconspicuous. Small cross-vein below or slightly apicad of the point where vein 1 enters costa, at or just beyond middle of discal cell. Hind cross-vein straight, upright, slightly shorter than apical section of vein 5. Veins 3 and 4 subparallel towards wing-margin. Squamae white, halteres yellow.

Abdomen: Described from holotype only. Short, cylindrical. Tergite 1 + 2 and lowest edges of tergites 3 and 4 orange-yellow; tergites 3 and 4 with pale incisures; otherwise dark. In posterior view, tergites 3-5 and the genital tergites densely grey dusted, posterior part of tergite 1 + 2 also dusted. Tergites 3 and 4 with large black undusted paramedian spots, separated by a black undusted median vitta; tergite 5 partly withdrawn, but large black spots and weak traces of a median vitta visible. Sides of tergites dusted, except for the pale parts, tergites 3 and 4 with broad dark brown undusted spots. Genital segments without spots. Tergites 3-5 each with a pair of strong lateral discal setae, placed on the edge of or just outside the black spots, those on tergite 5 closer to hind-margin; otherwise without well-developed setae.

Measurements: Length of body, 3.0 mm. Length of wing, 2.5 mm.

♀. Differs from the male as follows. Head: Differences as given in the generic description. Thorax: Mesonotal vittae more strongly developed. Legs: Fore femur with the *pv* row developed normally, the setae uniform. Hind femur and hind tibia with the setae longer and stronger, 2 strong *pv* on hind femur. Abdomen: Short and pointed, not cylindrical. Markings as in male, dorsal and lateral spots on tergites 3-5 bold. Setae as in male, but weaker, the lateral discals on tergite 3 absent. Measurements: Length of body, 3.0-3.5 mm. Length of wing, 2.5-3.0 mm.

The cercal plate of the male genitalia (fig. 28) is most like that of *australis* and *similis*: it is narrower and more sparsely bristled than in *pectinata*, *societas* and *torresiana*. It is, however, less markedly swollen in the basal part than are *australis* and *similis*.

The male 5th sternite is very similar to that of *similis*, and these two species are more closely related to each other than to the other four Australasian species. The bristling of the sternite is rather similar in the two species, with long setae along the whole length of the apical part: as the apical part is much shorter in *occulta* than in *similis*, there are fewer setae in that species than in *similis*.

Material examined.—Australia, Queensland: Claudie River near Mt. Lamond, 3.vi.1966 (♂ holotype and 1 ♂ 1 ♀ paratypes, Aust. Mus.) and 31.v.1966 (1 ♂ paratype, BMNH), D. K. McAlpine. Bismarck Islands: Lavongai, Banatam, 21.iii.1962 (1 ♂ paratype, Cop.) and 22.iii.1962 (1 ♀ paratype, Cop.), Noona Dan Exp.

***Pectiniseta australis* (Malloch) new comb.**

(Figs 14, 20, 31)

Lispocephala australis Malloch, 1923: 604. Holotype ♀, AUSTRALIA: Queensland, Burnett River. In the British Museum (Natural History), London (revid. Lee, Crust and Sabrosky, 1956: 309; examined by myself].

Lispocephala australis Malloch; Séguy, 1937: 229.

♂. Head: Ground-colour black. Parafrontalia, frontal triangle and occiput densely grey to yellowish-grey pruinose; parafacialia, face and genae lighter grey pruinose. Interfrontalia black, matt from almost all points of view. Eyes bare. Frons broadening uniformly from vertex to lunula. Vertical setae strong; *pvt* short, fine. Post-ocular setulae short, uniform, with scattered setulae below the upper row. One pair of inclinate *ori*, at lunula, with a second weaker pair above that is just over half as long as lower pair, without any interstitials; upper *ors* strongest and closer to the lower one than to vertical; parafrontalia with 2-4 short setulae outside *ori*, otherwise bare. Parafrontalia moderate, at middle of frons a parafrontale equal to twice diameter of anterior ocellus and one-third of interfrontalia at this point. First and second antennal segments brown, the second yellow at tip; third segment orange-yellow, smoky at tip. Parafacialia linear almost throughout, mostly hidden by the eye in profile. In lateral view, vibrissal angle well behind level of profrons. Genae very slender; the depth below lowest eye-margin well under half width of third antennal segment. Vibrissae long and strong. Mentum of proboscis brown. Palpi slim, yellow, brown at extreme base.

Thorax: Ground-colour black. Mesonotum grey dusted, partially and weakly tinged with yellow, without vittae but sometimes with very faint weak traces of vittae along the *dc* rows. Pleura and scutellum dusted as mesonotum, the latter dark on sides. Anterior spiracle dirty yellowish. *Acr* in 2 rows before suture, in 3-4 rows behind. Inner *h* short, half or less than half as long as outer one. Posterior *ph* one-third longer than anterior one. 2 propleural and 2 prostigmatal setae, without ground-setulae. Disc of scutellum mainly setulose, with up to 12 setulae.

Legs: Yellow; mid and hind coxae partly darkened, and mid and hind femora with small weak brownish rings at tips. Fore femur with a row of 6 *pv* setae, all more or less uniform and subequal to femoral depth. Fore tibia without submedian setae. Mid femur with 3 short fine *pv* setae in basal third, slightly shorter than femoral depth; 1 *a* at basal two-fifths. Hind femur with 1 moderate *pv* near middle, and a few shorter *pv* nearer base; 1 strong preapical *av* seta, and a series of 4-5 short fine *av* setae in basal half; *ad* row complete. Hind tibia with 2 short *pd*, at basal quarter and at middle; 2 *ad* opposite them, the apical one strongest; 1 short *av*, just beyond middle.

Wings: Virtually clear, the veins yellow. Epaulet and basicosta orange-yellow. Costal spine inconspicuous. Small cross-vein below the point where vein 1 enters costa, just beyond middle of discal cell. Hind cross-vein straight, upright, slightly shorter than the apical section of vein 5. Veins 3 and 4 subparallel towards wing-margin. Squamae white, halteres yellow.

Abdomen: Only two males seen, both damp and rubbed. Short and cylindrical. Tergite 1 + 2, tergite 3 except for dark spots, and hind-margin of tergite 4 yellow; sides of posterior tergites more yellow; otherwise dark. Rather damp, but in posterior view with some of the dark areas with visible grey dust. Tergites 3-5 each with a pair of black paramedian spots, these rather small and oval, those on tergites 3 and 4 separated by a dark median spot or vitta. Sides of tergites apparently grey dusted on the dark areas, which are not very extensive, without dark spots. Genital segments without spots. Tergites 3-5 each with a strong lateral discal seta placed just outside or on the margins of the black spots, otherwise without well developed setae except for a pair of median marginals on tergite 4.

Measurements: Length of body, 3.0-3.5 mm. Length of wing, 2.5-3.0 mm.

♀. Differs from the male as follows. Head: Differences as given in the generic description. In addition, upper *ori* stronger, and very distinct, third antennal segment sometimes smoky, and mentum of proboscis dark brown. Thorax: Mesonotum sometimes with more distinct traces of brownish vittae present, a median (*acr*) one and a pair of paramedian (*dc*) ones. Legs: Fore femur with the *pv* setae stronger; *av* surface with a comb-like row of strong almost spine-like setulae in basal half. Mid femur with 2-4 *pv* setae. Hind femur with 2 strong *av* setae in apical half, otherwise as in male. Wings: Epaulet and basicosta orange-brown to yellow to brown. Abdomen: Short and pointed, not cylindrical. Tergite 1 + 2 entirely yellow, tergites 3-5 broadly so on hind-margins; tergite 3 yellow on fore-margin, on dorsal surface and at sides. In posterior view, grey dusted except on the dark spots and on the yellow areas. Tergites 3-5 with the paramedian and median spots darker and bolder; sides of tergites 3 and 4 with weak dark spots. Measurements: Length of body, 3.5-4.0 mm. Length of wing, 3.0-3.5 mm.

The cercal plate of the male genitalia (fig. 31) is most like that of *occulta* and *similis*: it is narrower and more sparsely bristled than in *pectinata*, *societas* and *torresiana*. It is, however, more bulbous in the basal part than is *occulta*.

The male 5th sternite is rather short and simple, unlike that of any species in the genus. The apical part is without any notch or indentation in either dorsal or lateral view, and is covered with only fine setulae few, if any, of which are longer than that part of the sternite on which they are situated.

Material examined.—Australia, Queensland: Burnett River, no date (♀ holotype, BMNH), T. L. Bancroft; 7-14 miles west of Herberton via Watsonville, 1.v.1967 (1 ♂, 1 ♀, ANIC), D. H. Colless; Big Mitchell Creek, Mareeba-Molloy Road, 4.v.1967 (1 ♀, ANIC), D. H. Colless. Australia, Northern Territory: 48 miles southwest of Daly River, 14.11 S, 130.08 E, 5.ix.1968 (1 ♂, ANIC), M. Mendum; 34 miles northwest of Dorisvale HS, 14.13 S, 130.55 E, 14.viii.1968 (1 ♀, ANIC), M. Mendum.

***Pectiniseta torresiana* sp. nov.**

(Figs 16, 22, 32)

♂. Head: Ground-colour black. Parafrontalia, frontal triangle and occiput densely yellowish-grey pruinose; parafacialia, face and genae lighter grey pruinose. Interfrontalia black, matt from almost all points of view. Eyes bare. Frons broadening uniformly from vertex to lunula. Vertical setae strong; *pvt* short, fine. Post-ocular setulae short, uniform, with scattered setulae below the upper row. One pair of inclinate *ori*, at lunula, with a second weaker pair above that is just over half as long as lower pair, without any interstitials; upper *ors* strongest and closer to the lower one than to vertical; parafrontalia with 2-4 short setulae outside *ori*, otherwise bare. Parafrontalia moderate, at middle of frons a parafrontale equal to twice diameter of anterior ocellus and one-third of interfrontalia at this point. First and 2nd antennal segments brown, the 2nd yellow at tip; 3rd segment orange-yellow. Parafacialia linear almost throughout, mostly hidden by the eye in profile. In lateral view, vibrissal angle well behind level of profrons. Genae very slender; the depth below lowest eye-margin well under half width of 3rd antennal segment. Vibrissae long and strong. Mentum of proboscis dark brown. Palpi slim, yellow, brown at base.

Thorax: Ground-colour black. Mesonotum grey to yellowish-grey dusted, without distinct vittae but with very faint weak traces of vittae along the *dc* rows. Pleura and scutellum dusted as mesonotum, the latter dark on sides. Anterior spiracle dirty yellowish. *Acr* in 2 rows before suture, in 3-4 rows behind. Inner *h* short, half

or less than half as long as outer one. Posterior *ph* one-third longer than anterior one. Two propleural and 2 prostigmatal setae, without ground-setulae. Disc of scutellum mainly setulose, with up to 10 setulae.

Legs: Yellow; mid and hind coxae mainly dark. Fore femur with a row of 6 *pv* setae, all more or less uniform and subequal to femoral depth. Fore tibia without submedian setae. Mid femur with 2-3 short fine *pv* setae in basal third, slightly shorter than femoral depth; 1 *a* at basal two-fifths. Hind femur with 1 long *pv* at middle, and a few shorter *pv* nearer base; 1 strong preapical *av* seta, and a series of 2-3 shorter setae in basal half; *ad* row complete. Hind tibia with 2 short *pd*, at basal quarter and at middle; 2 *ad* opposite them, the apical one strongest; 1 short *av*, just beyond middle.

Wings: Virtually clear, the veins yellow. Epaulet and basicosta orange-yellow. Costal spine inconspicuous. Small cross-vein below the point where vein 1 enters costa or slightly beyond, just beyond middle of discal cell. Hind cross-vein straight, upright, slightly shorter than apical section of vein 5. Veins 3 and 4 subparallel towards wing-margin. Squamae white, halteres yellow.

Abdomen: Described from the holotype only, in which the tip of the abdomen was damp, prior to maceration. Short and cylindrical. Tergite 1 + 2 mainly and sides of tergites 3 and 4 yellow, and tergites 3 and 4 with pale incisures; otherwise dark. In posterior view, tergites 3-5 densely yellowish-grey dusted, tergite 1 + 2 undusted except posteriorly. Tergites 3-5 with dark-brown to black undusted paramedian spots, those on tergites 3 and 4 large and separated by a weakly dusted dark median vitta, those on tergite 5 small and confined to anterior half of tergite. Sides of tergites thinly dusted, tergites 3 and 4 with dull yellow virtually undusted spots. Genital segments without spots. Tergites 4 and 5 each with a pair of strong lateral discal setae placed on the margin of the dark spots and a weaker pair on tergite 3, otherwise without well developed setae except for a pair of moderate median marginal setae on tergites 4 and 5.

Measurements: Length of body, 3.0 mm. Length of wing, 2.5 mm.

♀. Differs from the male as follows. Head: Differences as given in the generic description. 3rd antennal segment smoky in apical part. Legs: Fore femur rather infuscated in 1 female, mid and hind femora brown at tips in the other. Fore femur with the *pv* setae stronger; *av* surface with a comb-like row of more erect setulae in basal half. Hind tibia with the setae rather longer. Abdomen: Short and pointed, not cylindrical. Tergite 1 + 2 wholly yellow; tergites 3 and 4 with yellow incisures and sides; tergite 5 broadly yellow on hind-margin. Spots on tergite 5 rather larger. Marginal setae rather stronger.

Measurements: Length of body, 3.0 mm. Length of wing, 2.5 mm.

The cercal plate of the male genitalia (fig. 32) is most like that of *societas* and *pectinata*: it is broader and more densely bristled than in the other species, but is, if anything, rather broader but less densely bristled than in either *societas* or *pectinata*.

The male 5th sternite is most like that of *pectinata*, and in lateral view the similarity is most striking (cf. figs 10-12 and 16). Like this species and *australis*, *torresiana* lacks all strong setae but, unlike *australis*, it possesses a preapical indentation in lateral view. In spite of the similarities in genital structure between *torresiana* and *pectinata*, the entirely yellow femora, except for the partially darkened femora of the female, will separate it immediately from *pectinata*.

Material examined.—Australia, Torres Strait: Banks Island, 3.iv.1969 (♂ holotype and 2 ♀ paratypes, NMV), A. Neboiss; Prince of Wales Island, 27-30.v.1969 (1 ♂ paratype, BMNH), A. Neboiss.

Pectiniseta societas Malloch

(Figs 13, 23, 29)

Pectiniseta societas Malloch, 1929c: 326, fig. 1. Holotype ♂, TAHITI. In the British Museum (Natural History), London [revid. Lee, Crust and Sabrosky, 1956: 335; examined by myself].

Pectiniseta societas Malloch; Séguy, 1937: 231.

Of this species I have studied only that part of the type-series present in the BMNH. This consists of the holotype ♂, allotype ♀, and 11 paratypes. Lee, Crust and Sabrosky (l.c.) list the holotype and 12 paratypes as being in the BMNH. Three paratypes, 1 collected by Cheesman and 2 by Tonnoir, are not in the BMNH and were not located by Lee, Crust and Sabrosky.

P. societas is very similar to *pectinata*. It has a dark thorax and dark femora, the upper *ori* is strong and well-developed, and the male has the setae of the *pv* row on fore femur of uniform length and strength. In the male, the 5th sternite is very characteristic (see below). There is some variation, particularly in the female sex. The mesonotum may have more extensive dark markings; the long femoral setae may be more robust; the abdomen is sometimes very dark. The female is indistinguishable from that of *pectinata*.

The cercal plate of the male genitalia (fig. 29) is most like that of *pectinata* and *torresiana*: it is broader and more densely bristled than in *occulta*, *australis* and *similis*.

The male 5th sternite is unique and striking, but clearly closer to that of *occulta* and *similis* than to *pectinata* and *torresiana*, both in shape and setation. It is distinguished above all by the absence of setae except for the tuft on the inner apical edge. The ground-setulae, too, are almost totally absent, and none are visible when the sternite is viewed in profile.

Material examined.—Society Islands: Tahiti, no further locality, 19.vii.1925 (♂ holotype, ♀ allotype and 1 ♀ paratype, BMNH) and 10.iii.1925 (1 ♂ and 1 ♀ paratypes, BMNH), L. E. Cheesman; Tahiti, Lake Vaihiria, 17.vii.1925 (1 ♂ and 1 ♀ paratypes, BMNH) and 18.vii.1925 (1 ♀ paratype, BMNH), L. E. Cheesman; Raiatea, no further locality, 14.v.1925 (1 ♀ paratype, BMNH), 25.v.1925 (3 ♀ paratypes, BMNH) and 26.v.1925 (1 ♀ paratype, BMNH), L. E. Cheesman.

Pectiniseta fulvithorax Malloch

Pectiniseta fulvithorax Malloch, 1929b: 163. Holotype ♀, SAMOA: Savaii, Safune. In the B. P. Bishop Museum, Honolulu [revid. Lee, Crust and Sabrosky, 1956: 318; not examined by me].

Pectiniseta fulvithorax Malloch; Séguy, 1937: 231.

I have seen only one specimen of this species, Malloch's male allotype, which is in the BMNH. The abdomen is missing, as was noted by Malloch, and all the legs are missing, too.

This is a very characteristic species that may be easily recognized by the entirely pale colour of the thorax. The other characters given in the key, taken from the single specimen studied, may prove useful additional diagnostic characters.

Material examined.—SAMOA: Savaii, Safune, 2,000–4,000 feet, rainforest, 8.v.1924 (♂ allotype, BMNH), E. H. Bryan.

Catalogue of the Species of *Pectinisetia* Stein

- australis* Malloch, 1923, Proc. Linn. Soc. N.S.W., 48: 604 (*Lispocephala*).
 AUSTRALIA: Queensland, Burnett River.
 QUEENSLAND, NORTHERN TERRITORY.
- equiseta* Snyder, 1953, Am. Mus. Novit., 1608: 1, figs. 1-2 (*Pectinisetia* [sic]).
 LIBERIA: Robertsport.
 LIBERIA.
- fulvithorax* Malloch, 1929, Ins. Samoa, 6 (3): 163 (*Pectinisetia*).
 SAMOA: Savaii, Safune.
 SAMOA.
- obscura* Emden, 1940, Ruwen. Exp. 1934-5, 2 (4): 243 (*Pectinisetia*).
 UGANDA: Ruwenzori Mts.
 UGANDA.
- occulta* sp. nov.
 AUSTRALIA: Queensland, Claudie River.
 PAPUAN SUBREGION.
- pectinata* Stein, 1900, Természetr. Füzet., 23: 147 (*Coenosia*).
 NEW GUINEA: Madang (as Friedrich Wilhelmshafen).
- prominens* Stein in Becker, 1910, Denkschr. Akad. Wiss. Wien (math.-nat. Kl.),
 71 (2): 152 (*Caricea*).
 SOCOTRA ISLAND.
- pallitarsis* Stein, 1920, Tijdschr. Ent., 62 [1919], Suppl.: 63 (*Coenosia*).
 JAVA: Batavia, Moeara Angkee.
- proxima* Malloch, 1929, Treubia, 7: 393 (*Lispocephala*).
 BURU ISLAND.
 E. AFRICA, ORIENTAL AND AUSTRALASIAN REGIONS
- similis* sp. nov.
 AUSTRALIA: Queensland, Mulgrave River.
 NORTH AND EAST AUSTRALIA.
- societas* Malloch, 1929, Ann. Mag. nat. Hist. (10), 4: 326, fig. 1 (*Pectinisetia*).
 TAHITI ISLAND.
 SOCIETY ISLANDS.
- torresiana* sp. nov.
 TORRES STRAIT: Banks Island.
 TORRES STRAIT ISLANDS.

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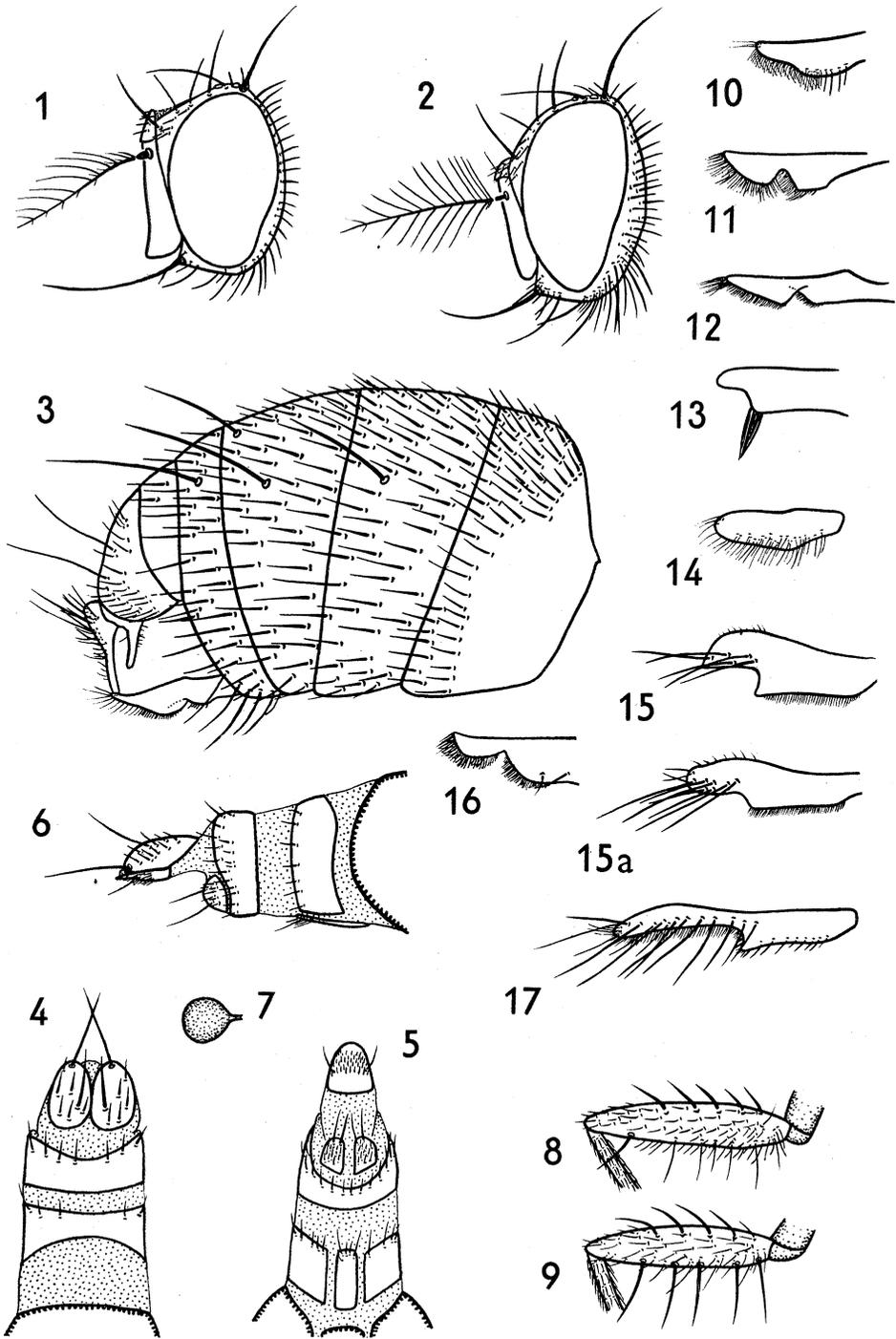
REFERENCES

- Becker, T., 1910*. Dipteren aus Südarabien und von der Insel Sokotra. *Denkschr. Akad. Wiss. Wien (math.-nat. Kl.)*, 71 (2): 131-160, 5 figs.
- Crosskey, R. W., 1962. A revision of the genus *Pygophora* Schiner (Diptera: Muscidae). *Trans. Zool. Soc. Lond.*, 29 (6): 393-551, 124 figs.
- Emden, F. I. van, 1940. Muscidae, B: Coenosiinae. In Ruwenzori Expedition 1934-5, 2 (4): 91-255, 82 figs. London.
- Hennig, W., 1941. Verzeichnis der Dipteren von Formosa. *Ent. Beih. Berl.-Dahlem*, 8: 1-239.
- 1965. Vorarbeiten zu einem phylogenetischen System der Muscidae (Diptera: Cyclorrhapha). *Stuttg. Beitr. Naturk.*, 141: 100 pp., 53 figs.
- Lee, D. J., Crust, M., and Sabrosky, C. W., 1956. The Australasian Diptera of J. R. Malloch. *Proc. Linn. Soc. N.S.W.*, 80 (1955): 289-342, pl. XI.
- Malloch, J. R., 1923. Notes on Australian Diptera with descriptions. *Proc. Linn. Soc. N.S.W.*, 48: 601-622.
- 1928. Exotic Muscaridae (Diptera). XXII. *Ann. Mag. nat. Hist.* (10), 2: 307-319.
- 1929a. Fauna Buruana. Diptera, Fam. Muscidae. *Treubia*, 7: 390-408.
- 1929b. Muscidae. In *Insects of Samoa and other Samoan terrestrial Arthropoda*, 6 (3): 151-175. London.
- 1929c. Exotic Muscaridae (Diptera). XXVIII. *Ann. Mag. nat. Hist.* (10), 4: 322-341, 2 figs.
- Pont, A. C., 1969. Notes on the Muscidae of New Guinea (Diptera). III. Species described by Stein in 1900, *Természetr. Füz.*, Volume 23. *Dt. ent. Z.*, 16: 81-90.
- 1970. The type-material of Oriental and Australasian Muscidae (Diptera) in the Zoological Museum, Amsterdam. *Beaufortia*, 18: 77-111.
- Séguy, E., 1937. Muscidae. In Wytzman, P., *Genera Insect.*, 205: 604 pp., 9 plates. Bruxelles.
- Snyder, F. M., 1953. Notes and descriptions of some Ethiopian Muscidae (Diptera). *Am. Mus. Novit.*, 1608: 21 pp., 7 figs.
- 1965. Diptera: Muscidae. In *Insects of Micronesia*, 13 (6): 119-327, 27 figs., 2 tables. Honolulu.
- Stein, P., 1900. Anthomyiden aus Neu-Guinea, gesammelt von Herrn L. Biró. *Természetr. Füz.*, 23: 129-159.
- 1919. Die Anthomyidengattungen der Welt, analytisch bearbeitet, nebst einem kritisch-systematischen Verzeichnis aller aussereuropäischen Arten. *Arch. Naturgesch.*, 83 A 1 (1917): 85-178, 2 figs.
- 1920. Anthomyiden aus Java, Sumatra, Waigeoe und Ceram. *Tijdschr. Ent.*, 62 (1919), Suppl.: 47-86.

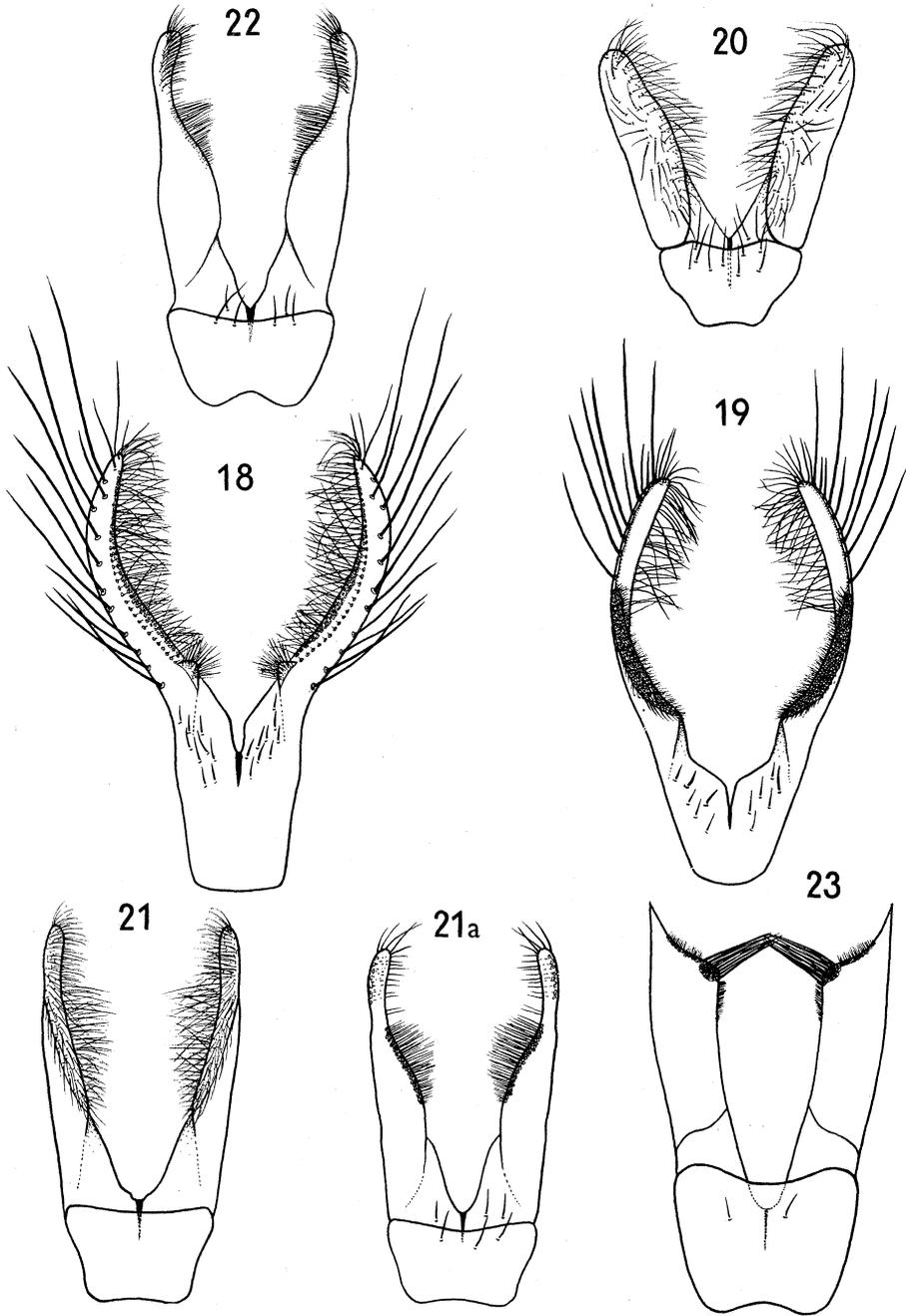
* Date of publication given variously as 1907 and 1931. No date is given in the original journal, but as the manuscript was submitted by Stein on 4th November, 1909, the paper was probably published in 1910, as stated by Séguy (1937). See Emden, 1940: 103, footnote.

EXPLANATION OF FIGURES

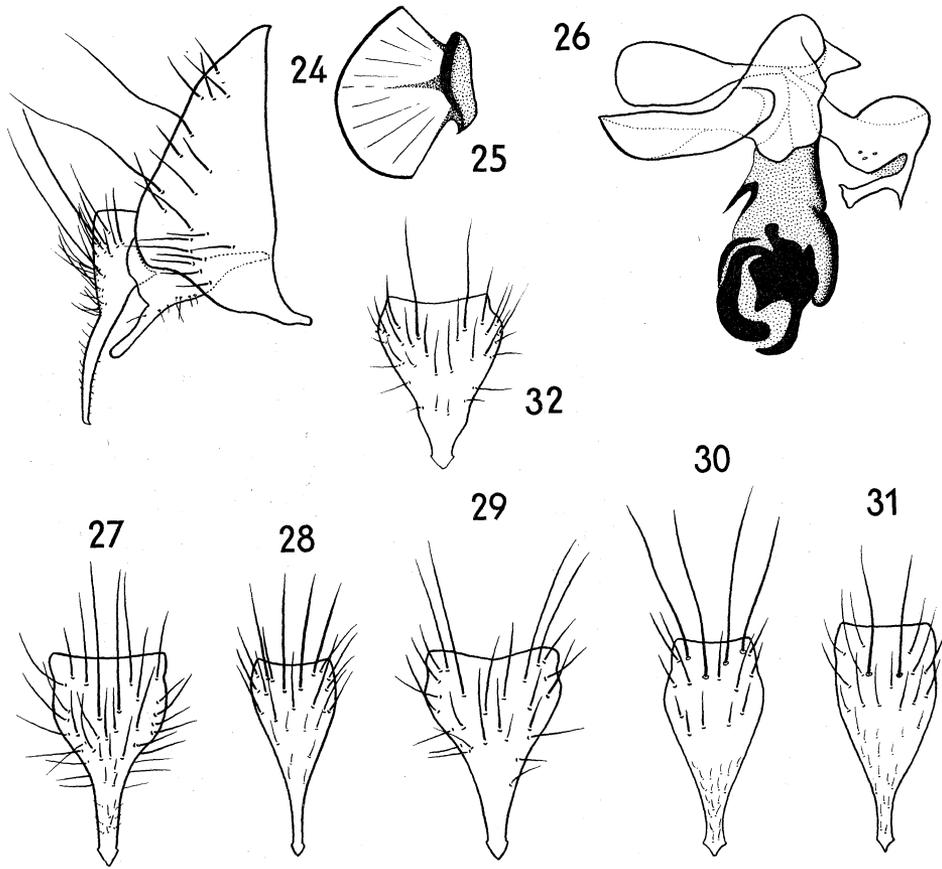
1. *Pectiniseta pectinata*, head of male in lateral view.
2. *P. pectinata*, head of female in lateral view.
3. *P. pectinata*, abdomen of male in lateral view, Malaya.
4. *P. pectinata*, ovipositor of female in dorsal view, Earl Hill, Queensland.
5. *P. pectinata*, ovipositor of female in ventral view, Earl Hill, Queensland.
6. *P. pectinata*, ovipositor of female in lateral view, Earl Hill, Queensland.
7. *P. pectinata*, spermatheca of female, Earl Hill, Queensland.
8. *P. similis*, fore femur of male in posterior view, holotype.
9. *P. pectinata*, fore femur of male in posterior view, Australia.
10. *P. pectinata*, apical part of male 5th sternite in lateral view, Trincomali, Ceylon.
11. *P. pectinata*, apical part of male 5th sternite in lateral view, Niupani, Rennell Island.
12. *P. pectinata*, apical part of male 5th sternite in lateral view, Mulgrave River, Queensland.
13. *P. societas*, apical part of male 5th sternite in lateral view, Lake Vaihiria, Tahiti.
14. *P. australis*, apical part of male 5th sternite in lateral view, Herberton, Queensland.
15. *P. occulta*, apical part of male 5th sternite in lateral view, Claudie River, Queensland.
- 15a. *P. occulta*, apical part of male 5th sternite in lateral view, Banatam, Lavongai Island.
16. *P. torresiana*, apical part of male 5th sternite in lateral view, Torres Strait, Prince of Wales Island.
17. *P. similis*, apical part of male 5th sternite in lateral view, Kuranda, Queensland.
18. *P. similis*, 5th sternite of male in dorsal view, Kuranda, Queensland.
19. *P. occulta*, 5th sternite of male in dorsal view, Claudie River, Queensland.
20. *P. australis*, 5th sternite of male in dorsal view, Herberton, Queensland.
21. *P. pectinata*, 5th sternite of male in dorsal view, Trincomali, Ceylon.
- 21a. *P. pectinata*, 5th sternite of male in dorsal view, Gaile Forest, Papua.
22. *P. torresiana*, 5th sternite of male in dorsal view, Torres Strait, Prince of Wales Island.
23. *P. societas*, 5th sternite of male in dorsal view, Lake Vaihiria, Tahiti.
24. *P. pectinata*, hypopygium of male in lateral view, aedeagus omitted, Kedah Peak, Malaya.
25. *P. pectinata*, sperm pump of male aedeagus, Kedah Peak, Malaya.
26. *P. pectinata*, aedeagus of male with epandrium in lateral view, Earl Hill, Queensland.
27. *P. pectinata*, cercal plate of male in dorsal view, Kedah Peak, Malaya.
28. *P. occulta*, cercal plate of male in dorsal view, Claudie River, Queensland.
29. *P. societas*, cercal plate of male in dorsal view, Lake Vaihiria, Tahiti.
30. *P. similis*, cercal plate of male in dorsal view, Kuranda, Queensland.
31. *P. australis*, cercal plate of male in dorsal view, Herberton, Queensland.
32. *P. torresiana*, cercal plate of male in dorsal view, Torres Strait, Prince of Wales Island.



Figures 1-17



Figures 18-23



Figures 24-32