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## AUSTRALIAN NYCTERIBIIDAE.

By

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(Plates xlv-xlv.)

Only four species of Nycteribiidæ have hitherto been recognised from Australia, and to these I add a fifth which appears to be new. As the bat fauna of Australia is large, this number should certainly be increased in the future, for the group has been somewhat neglected owing to lack of material due to the failure on the part of mammal collectors to secure the parasites. Of recent years, however, the importance of securing animal parasites with all particulars has been fully realised by Mr. E. Le G. Troughton, Mammalogist of the Australian Museum, to whom I am greatly indebted for his efforts in securing material for me.

In 1901 Speiser<sup>1</sup> described a male Nycteribid, parasitic on *Chalinolobus gouldi* Gray, collected at Smithfield, N.S. Wales. He identified it as *Nycteribia oceanica* Bigot<sup>2</sup>, a New Caledonian species from an unknown host. Falcoz<sup>3</sup> has since pointed out that the description given by Speiser could not apply to Bigot's species, the true *oceanica* possessing ocelli and showing a remarkable reduction of the ctenidium (14 teeth in that of the male) while in Speiser's specimen the eyes are absent and the ctenidium is well developed (60 teeth). As Falcoz omitted to suggest another name for Speiser's species, and as this institution is fortunate in possessing specimens which agree with Speiser's description, I here propose to describe the species as new, figure the male and female, the latter being quite unknown to Speiser.

In 1904 Rainbow<sup>4</sup> added a new species *Nycteribia pteropus*, a parasite of the Flying-fox *Pteropus gouldi* Peters from the Gulf of Carpentaria. He erroneously believed it to be the first Nycteribid to be made known from Australia, and being unable to refer to Speiser's monograph of the group failed to place it in its correct genus. According to Speiser's key *pteropus* enters the genus *Cyclopodia*, having three oblique white bands on the tibia. The species has been recently characterised and refigured by Ferris<sup>5</sup> as *Cyclopodia pteropus*, but that author questions its specific status, and suggests that it cannot be separated from *C. similis* Speiser.

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<sup>1</sup> Speiser—Arch. Naturg., lxxvii, 1, 1901, p. 41.

<sup>2</sup> Bigot—Ann. Soc. Ent. Fr. (6), v, 1885, p. 246.

<sup>3</sup> Falcoz—Nova Caledonia, iii, 1923, p. 86.

<sup>4</sup> Rainbow—Rec. Austr. Mus., v, 1904, p. 78, pl. ix.

<sup>5</sup> Ferris—Amer. Mus. Novit., No. 110, 1924, p. 5, f. 5.

In 1914 Scott<sup>6</sup> published a description and figure of *Nycteribia* (*Listropodia*) *parilis* Walk.<sup>7</sup>, a species originally made known from the Moluccas. He identified as this species a dried male specimen in the British Museum which was labelled as taken from an Australian bat, *Miniopterus australis*, and presented by Mr. Tomes. This was the third species to be recorded from Australia.

In 1923 Falcoz<sup>8</sup> recorded the fourth species, *Nycteribia* (*Listropodia*) *sarasini* Falcoz from Mossman, Queensland.

In drawing up the description of the following species I have followed the plan adopted by Scott<sup>9</sup>. I agree with him that until we have a wider knowledge of the family than we possess at present, and a clearer understanding as to the limits of the genera, full and detailed descriptions are necessary. This will account for the long description of the species below.

To Mr. A. R. McCulloch, Zoologist of the Australian Museum, I desire to express my indebtedness for advice and assistance, to Mr. Tom Iredale for much valuable help with problems of nomenclature, and to Miss Joyce K. Allan for preparing some of the figures. Dr. E. W. Ferguson has kindly perused the manuscript and made useful suggestions.

*Genus* NYCTERIBIA Latreille 1796.

*Subgenus* NYCTERIBIA Latr. 1796.

*Nycteribia* Latreille, Précis Caractères Insectes, 1796, p. 176.

Haplotype.—*N. vespertilionis* = *Acarus vespertilionis* Fabr = *Pediculus vespertilionis* Linn.

*Phthiridium* Hermann, Mém. aptérolog., 1804, p. 120.

Logotype.—*Phthiridium vespertilionis* = *N. vespertilionis* Linn.

*Acrocholidia* Kolenati, Wien. Ent. Monats., i, 1857, p. 62 ? (nomen nudum); Horae Soc. Ent. Ross., ii, 1862, p. 60.

Logotype.—*Acrocholidia montagui* Kolenati = *N. vespertilionis* Linn.

*Nycteribia* was proposed by Latreille for a single species, which he identified as Linné's *Pediculus vespertilionis* apparently on the basis of Fabricius's work, and he gave a short diagnosis of the genus. Linné's<sup>10</sup> *Pediculus vespertilionis* was briefly described and a reference given to a poor figure by Frisch. The description applies to a member of this genus, and nearly every author has regarded the species, later

<sup>6</sup> Scott—Ann. Mag. Nat. Hist. (8), xiv, 1914, p. 231, pl. xii, f. 20-23.

<sup>7</sup> Walker—Journ. Linn. Soc. Lond., Zool. v, 1861, p. 300.

<sup>8</sup> Falcoz—Loc. cit, iii, 1923, p. 89, figs. 9-12.

<sup>9</sup> Scott—Loc. cit, p. 210.

<sup>10</sup> Linné—Syst. Nat. Ed. x, 1758, p. 611.

named *vexata* West<sup>11</sup>, and *montagui* Kol., as the equivalent, but latterly it has been the custom to discard Linné's name in favour of recent ones. I can see no reason for dismissing Linné's name, as a great deal of confusion would ensue if this action were logically followed out, the elimination of the family and generic names being anticipated. As a matter of fact Kolenati did get rid of the subgenus *Nycteribia*, and he has been unthinkingly followed by later workers such as Speiser, who has admitted three subgenera of the genus *Nycteribia*, namely, *Acrocholidia*, *Stylidia* and *Listropodia*. *Phthiridium* was introduced independently for the same group by Hermann, the logotype being *P. vespertilionis*. The name becomes an absolute synonym of the typical *Nycteribia*. Kolenati's *Acrocholidia* was used for the same series, and is consequently exactly synonymous.

*Subgenus CELERIPES Montagu 1815.*

*Celeripes* Montagu, Trans. Linn. Soc. Lond., ix, 1808, p. 166 (nomen nudum); op. cit., xi, 1815, p. 11.

Haplotype.—*C. vespertilionis* Montagu (? not Latreille) =  
*Phthiridium biarticulata* Hermann.

*Stylidia* Westwood, Introd. mod. classific. Insects, ii, 1840, Synops. Genera, p. 154.

Haplotype.—*S. biarticulata* Hermann.

*Celeripes* was introduced by Montagu as a *nomen nudum* in 1808, and in 1815 he described the insect under the genus *Nycteribia*, but cited his *Celeripes* in the synonymy, this according to the International Rules establishing its validity, and it must replace the twenty-five years later *Stylidia*, the haplotype in each case being the same species.

*Subgenus LISTROPODA Kolenati, 1857.*

*Listropoda* Kolenati, Wien. Ent. Monats., i, 1857, p. 62.

Logotype.—*L. latreillei* Leach.

*Listropoda* is the spelling given by Kolenati at the introduction of the name; later he used *Listropodia*, whether by accident or design is unknown, so we must revert to the earlier usage. Latreille's<sup>12</sup> *Nycteribia pedicularia* was proposed purely as a new name for Linné's *Pediculus vespertilionis*, and therefore passes into the synonymy of the Linnean species, and cannot be used in place of Leach's *latreillei* as has been done by Speiser.

<sup>11</sup> Westwood—Trans. Zool. Soc. Lond., i, 1835, p. 291.

<sup>12</sup> Latreille—Hist. Nat. Crust. et Insectes, xiv, 1805, p. 403.

A Key to the subgenera of the genus *Nycteribia*, based on that of Speiser, is here given:—

Key to Subgenera of *Nycteribia*.

- A. Tibia of the usual form, not expanded outwards.
  - a. Anal segment of the ♂ conical, more or less tapering to a point, that of the ♀ being without appendages upon its dorsal surface. *Nycteribia*.
  - b. Anal segment of the ♂ stout, conical with a very blunt end, that of the ♀ dorsally with a pair of longer styloid processes and long, bristly appendages at the end. *Celeripes*.
- B. Tibia expanded laterally, so that in the anterior legs of some species they are almost as broad as long. *Listropoda*.

*Subgenus NYCTERIBIA Latreille.*

NYCTERIBIA FALCOZI *sp. nov.*

(Pl. xlv and Pl. xlv, figs. 5-7.)

(?) *Nycteribia (Acrocholidia) oceanica* Speiser (not Bigot) Arch. Naturg., lxxvii, i, 1901, p. 41.

*Length.* 2.2 to 2.5 mm.

*Colour.* Specimens in spirit light brown. Type specimens, mounted in Canada balsam, light yellowish.

*Head* bare, with the exception of some moderately long bristles on the vertex and some shorter ones along the margins of the cheeks. Along the inner and outer sides of each maxillary palp is arranged a row of bristles, those on the outer side appearing to spring from the margin while the inner ones are nearly all placed well inside the margin. Near the bases of the first bristle of the outer row and the second bristle of the inner row at the anterior end, is a long bristle, while at the extreme end of the palp is a much longer and stouter bristle. Variation exists in the number of bristles in the rows on the palps, though the two long bristles appear to be always present though not constant in position.

*Thorax* beneath nearly as long as broad, almost flat, surface covered with minute bristles, with a median furrow widened behind and terminating in a depression. Along the hind margin is a fringe of six long bristles, three on either side of the middle line, those on the outside being the longest. Interspersed among these are smaller bristles.

The bristles on the dorsal surface in front of the halteres pits are stated by Speiser to vary in number from 12 to 13 in the male. In three males examined the bristle formula reads as follows:—

Register Number.	Left.	Right.
K48158	13	10
K48160	12	13
K48161	12	12

Five females examined show an even greater departure from the number given by Speiser, namely:—

Register Number.	Left.	Right.
K48162	12	12
K48163	11	10
K48164	9	10
K48165	14	12
K48159	13	13

Front coxa twice as long as broad, not one and a half times as stated by Speiser, covered with bristles, those on the posterior margin being longer and stouter than the others.

*Femora.* Front pair with their anterior surfaces bearing numerous short bristles, the posterior surfaces bare. Middle pair with their anterior surfaces bearing bristles, the proximal dorsal portions being almost devoid of them, while ventrally the posterior surfaces are bare. Hind pair with their anterior surfaces bearing bristles only at their distal extremities, the proximal dorsal portions being bare, though a few short dark bristles form a single row towards the posterior surface, while ventrally a row of bristles extends the length of the femur. The ring on each femur usually bears on its proximal side a row of bristles, those on the ventral aspect of the hind femora being more noticeable. From the end of each femur near its junction with the tibia spring two moderately long bristles.

*Tibiae.* Three long erect bristles spring from the upper surface of each tibia, one, the longest, situated near the base, one about the middle, and one in front of the distal end. Ventrally and towards the distal portion are three rows of bristles. In each of these, is a pair of short dark bristles, those of the last pair being larger, and extending almost as far as the apex. Anterior surfaces bare. The metatarsi appear to be half as long as the tibiae.

*Abdomen* ♂ (Dorsal aspect). (Pl. xlv.) *Basal tergite* small, trapezoidal, and bearing a number of short bristles, the anterior margin sinuate. The suture separating the tergite from the following one is not clearly defined. *Tergite 2* bearing three irregular rows of very short bristles towards the anterior margin, and densely pubescent at the posterior angles. From the posterior margin springs a series of long bristles extending to the border of the following tergite, and alternating with each pair of these is a single very short bristle. *Tergite 3* bare, except for two irregular rows of very short bristles situated about the middle of the tergite. On the posterior border the long hairs are of unequal length and interspersed with from one to three thorn bristles. *Tergite 4* bare, except for an irregular row of short hairs, and on the posterior margin the long hairs extend well beyond the posterior margin of the following tergite, while the thorn bristles towards the middle are fully twice as long as those of the other tergites. *Tergite 5* resembles the preceding. *Tergite 6* bare on the disc. On the posterior margin the long hairs are less numerous than

in the preceding tergites, while two of the most median are much longer than the others and extend more than half way down the anal segment. *Anal segment* long, bare towards the anterior margin, otherwise covered with short bristles, fairly evenly spaced and with two moderately long, erect bristles in the apical third. At the sides are erect bristles, and from each of the posterior angles spring two long bristles and three shorter ones.

(Ventral Aspect) (Pl. xlv, fig. 5). *Basal sternite* with middle line slightly furrowed, the surface with four irregular rows of short bristles. The ctenidium has about 50-60 spines. *Sternites 2 and 3* have their posterior margins beset with fairly long bristles, which vary somewhat in length, those at the sides being much longer than those in the middle. The discs bare, except for a few bristles toward the lateral margins. *Sternite 4* slightly longer than the preceding together. Hind margin curved, bearing in the middle short stout thorn-bristles arranged in two rows, one on the margin of 12, the other, in front, of 10 bristles, though these numbers are liable to considerable variation. Other bristles of different lengths extend on either side of these, and in front of the marginal series is a row of semi-erect bristles. *Anal segment* with a number of erect hairs at the sides and at the posterior end. Claspers strong, extending to the posterior margin of *sternite 4*, slightly separated, with their apices directed inwards and downwards. On the outer side of each clasper are some short slender bristles directed outwards, and towards the base are some short bristles, and one, very long and strong, directed downwards.

*Abdomen* ♀ (Dorsal aspect) (Pl. xlv., fig. 6). *Basal tergite* trapezoidal, small and not reaching to the sides of the abdomen, its hind margin deeply and widely sinuate, and bearing on either side of the groove a row of five large (sometimes four) and three small bristles, of which the most median are the longest. At the sides of the disc are short bristles, while the middle is bare. *Tergite 2* is long, and in appearance somewhat resembles that of *Nycteribia (Acrocholidia) fryeri* Scott<sup>13</sup>. It is subcordate in form and is divided longitudinally into two halves by a faint wavy line. Each side is convexly curved anteriorly and concavely sinuate posteriorly, the hind margins being acuminate produced. Each hind margin bears two long, sometimes three, stout bristles similar to those borne on the hind angles of the basal tergite, and six to seven small thorn bristles. On either side of the dividing line are some scattered short bristles, and about midway on each of the lateral borders of the tergite are three, sometimes four, longer bristles, while a few bristles spring from the anterior angles. On either side of the tergite, particularly towards its posterior end, is an area of connexival membrane bearing a number of minute bristles. Beneath the acuminate produced hind margins of the tergite, and connected on either side with the connexival membrane, is a chitinised area carrying on its rounded hind margin four to six moderately long bristles, arranged in groups of two or

<sup>13</sup> Scott—Trans. Linn. Soc., Lond. (2), Zoology, xvii, 1914, p. 164, f. 1.

three at each of the lateral angles. *Anal segment* short and tapering slightly, its surface bare. The hind margin is emarginate and from its hind angles are given off a group of two long bristles, while smaller bristles occur along the margin itself.

(Ventral Aspect) (Pl. xlv., fig. 7). The abdomen is deeply indented at the sides from the third to the fourth tergite, due to the collapse of the connexival membrane. *Basal sternite* as in the male. *Sternite 2* bears on its hind margin a series of moderately long bristles. *Sternite 3* short, its surface bare, but on the hind margin there is a series of bristles resembling those of the preceding sternite, but spaced further apart. At the sides, the sternite is not so broad as *sternite 2*, owing to the collapse of the connexival membrane as stated above. *Sternite 4* closely resembles the preceding, but is broader and bears some long hairs at the sides. *Sternite 5*, is very much longer and bears two rows of bristles, one on the hind margin resembling those of the other sternites and with one to two long bristles at the sides, while the second row is situated close in front and consists of much smaller bristles. *Subgenital plate* broad, membranous, bare, bearing towards the posterior end on the disc a row of short bristles. Between this row and the hind margin are situated two sub-erect bristles. The hind margin is rounded, with a row of fourteen bristles, the two on the outer sides being long, and resembling those at the sides of *sternite 5*. A few short bristles occur on the sides.

*Host*.—Gould's Bat, *Chalinolobus gouldi* Gray.

*Hab*.—S. Australia: Mt. Lyndhurst, 30 miles East of Farina, December, 1919, seven males and five females collected by Mr. E. Le G. Troughton, Mammalogist to the Australian Museum.

*Types*.—The holotype, allotype, and paratypes are in the Australian Museum. Four paratype males are preserved in alcohol, while the remaining eight specimens of the series are mounted in Canada balsam. Holotype, register number K.48158, Allotype, register number K.48164.

*Note*.—It is to be understood that the new name shall apply strictly to the type specimens in our collection, and not to the material on which Speiser based his description of *oceanica*. This precaution, I trust, will prevent any confusion arising in the event of Speiser's specimen later proving to be distinct from the new form with which I now associate it.

NYCTERIBIA BREVICAUDA *n. sp.*

(Pl. xlv, figs. 1-4.)

*Length* 2 to 2.3 mm.

*Colour* brownish (specimens mounted in Canada balsam), more strongly pigmented than the preceding species.

*Head* with a few long bristles on the vertex, and some shorter ones along the anterior margins of the cheeks, otherwise smooth.



*Thorax* beneath nearly as long as broad; of the three specimens measured with a micrometer rule, two males have the thorax nearly  $1\frac{1}{2}$  times as broad as long while one female has the thorax nearly  $1\frac{1}{4}$  times as broad as long. The surface is covered with minute bristles, which appear longer than in *N. falcozi*. Median longitudinal suture broadened behind the middle and terminating in a depression. Along the hind margin is a fringe of six long bristles, three on either side of the middle line, while interspersed with these are shorter ones. On the dorsal surface the bristles in front of the halteres pits vary in number. Thus in the two males and one female examined the bristle formula reads as follows:—

Register Number.	Left Side.	Right Side.	Sex.
K49848	12	12	♂
K49849	9	9	♂
K49850	13	15	♀

*Legs*.—Front coxa twice as long as broad, provided with stout bristles, otherwise the legs closely conform to those of *N. falcozi*.

*Abdomen*.—♂ (Dorsal aspect) (Pl. xlv, fig. 1). *Basal tergite* small, trapezoidal, bearing two groups of bristles one at each of the lateral angles, anterior margin sinuate. *Tergite 2* bearing two irregular rows of bristles near the anterior margin and a number of spines at the posterior angles. From the posterior margin springs a row of long bristles extending to the border of the following tergite, except at the posterior angles, where they extend only about half way to the border. Projecting between each pair of long bristles, particularly towards the centre of the border, is a single minute thorn bristle. *Tergite 3* bare. From the centre of the posterior border the long hairs extend on to the following tergite and may be interspersed with one to two thorn bristles. *Tergite 4* bare; the long bristles springing from the middle of the posterior margin are much longer than those of the preceding tergites and extend some distance beyond the margin of the following tergite. The single thorn bristles which alternate with them are twice as long as those of the other tergites. *Tergite 5* bare, with very long hairs and stout thorn bristles. *Tergite 6* bare. On the posterior margin the long hairs are less numerous; two of the most median extend almost the full length of the anal segment. *Anal segment* short, broad, the anterior half bare, the posterior half with an irregular transverse series of thorn bristles with two longer bristles, their apices directed towards one another. Laterally a number of dark thorn bristles. The posterior margin bears dorsally at each hind angle two long bristles and ventrally a single long bristle.

Ventral Aspect (Pl. xlv, fig. 2).—*Basal sternite* with the middle line slightly furrowed, the surface with four irregular rows of short bristles. Ctenidium with 50 to 60 spines. *Sternites 2* and *3* with the spines along the posterior margin of varying length, only a few reaching to the margin of the next sternite. At the posterior angles are two to three bristles which are semi-erect and curved and may be

longer than those along the margins. Surface bare except for some minute bristles at the sides. *Sternite* 4 nearly as long as the two preceding sternites. Hind margin curved and bearing in the middle short stout thorn bristles arranged in two rows, one on the margin of twelve, the other in front of eleven to twelve shorter bristles. On either side of these extend longer and finer bristles. From the posterior angles some long bristles similar to those of the preceding sternites. In front of the marginal series is a row of semi-erect bristles. *Anal segment* with a number of erect hairs at the sides and at the posterior end. Claspers strong, almost reaching to the margin of sternite 4, slightly separated, their apices directed inwards and downwards. On the outer side of each clasper are some short slender bristles directed outwards, and towards the base are some short and one very long slender bristle directed outwards. These are the pair referred to in the description of the dorsal aspect.

*Abdomen* ♀ (Dorsal aspect). (Pl. xlv, fig. 3). *Basal tergite* trapezoidal, small and not reaching to the sides of the abdomen, its hind margin widely sinuate and bearing at the hind angles 6-7 large bristles of equal length and one small bristle. At the sides of the disc are short bristles while the middle is bare. *Tergite* 2 is long and broad, and resembles in appearance that of the preceding species. It is subcordate in form and is divided longitudinally into two halves by a faint irregular line. Each side is convexly curved anteriorly and concavely sinuate posteriorly, the hind margins being acuminate produced. Each hind margin bears 3-4 long stout bristles, and in front 4 small thorn bristles. On either side of the dividing line are scattered a few short bristles, a group of bristles is situated at each of the anterior angles, while a few occur along the lateral margins. The tergite is situated well within the lateral margins of the abdomen; anteriorly the basal sternite may be seen extending on either side of the tergite, while posteriorly there is an area of connexival membrane extending at the sides and below the tergite. A series of four moderately long bristles is borne on the lateral margin of the membrane. Below the produced hind margins of the tergite is a chitinised area carrying on its rounded hind margin five suberect bristles. *Anal segment* broader than long, its surface bare. Anteriorly each side is convexly curved while the hind margin is emarginate. From each hind angle springs two long bristles and a group of small thorn bristles.

(Ventral aspect). (Pl. xlv, fig. 4). The abdomen is indented at the sides owing to the collapse of the connexival membrane. *Basal sternite* resembles that of the male, though the segment is broader and longer and the spines are arranged in more irregular rows. *Sternites* 2 and 3 are very short and are entirely covered by the spines of the ctenidium, the ends of the bristles projecting beyond the ends of the ctenidial spines. *Sternite* 4 short, its surface bare, the bristles on the hind margin resembling those of the preceding sternites but spaced farther apart. *Sternite* 5 very much longer, and with two

rows of bristles; one on the hind margin resembling those of the other sternites and with two to three long bristles at the sides, while the second row is situated on the disc at the posterior end. *Subgenital plate* resembles that of the previous species, being broad, membranous, and bare. On the disc towards the posterior end is an irregular row of short bristles. Two moderately long sub-erect bristles are situated between this row and the hind margin. The hind margin is rounded, and has a row of fourteen bristles, those in the middle being arranged in a group of eight while a pair of long bristles on either side of these resemble those at the sides of *sternite* 5. A few short bristles also occur on the sides.

*Host*.—*Nyctophilus gouldi* Tomes.

*Hab*.—N.S. Wales, Hazelbrook, Blue Mts., 12.1.1921. 2 ♂ 1 ♀, collected by Mr. L. Abrahams.

*Types*.—Holotype ♂ K49848, allotype ♀ K49850, and paratype ♂ K49849, in the collection of the Australian Museum.

The principal differences between *falcozi* and *brevicauda* are as follows:—

	<i>falcozi</i> ♀		<i>brevicauda</i> ♀	
	Large bristles.	Small bristles.	Large bristles.	Small bristles.
Basal tergite bearing at either hind angle .. .. .	4-5	3	6-7	1-3
Tergite 2 bearing on each produced hind angle .. .. .	2-3	6-7	3-4	4

*N. falcozi* ♂

Anal segment (dorsal aspect) *long*, with a number of short bristles scattered over the posterior two-thirds of the segment; others at the sides, arranged along the whole length of the segment.

*N. brevicauda* ♂

Anal segment (dorsal aspect) *short*, darkly pigmented, with a group of short dark bristles in the posterior half; others at the sides, arranged along the posterior two-thirds of the segment.

NYCTERIBIA (LISTROPODA) PARILIS Walker.

*Nycteribia parilis* Walker, Journ. Linn. Soc. Lond., Zool., v, 1861, p. 300; Speiser, Arch. Naturg., lxxvii, 1, 1901, p. 52.

? *Nycteribia (Listropodia) styliidiopsis* Speiser, in Voeltzkow, Reise in Ost-Afrika, ii, 1908, p. 200, ♂ ♀.

*Listropodia tolisima* Speiser MS. Scott, Ann. Mag. Nat. Hist., (8), xiv, 1914, p. 230, as a synonym of *parilis*.

? *Lipoptena tolisina* Muir, Bull. Mus. Zool., Harvard, liv, 1912, pp. 351-366, pl. ii (larva).

*Nycteribia (Listropodia) parilis* Scott, Ann. Mag. Nat. Hist., (8) xiv, 1914, p. 231, pl. xii, figs. 20-23 ♂ ♀.

*Distribution*.—Batchian (Moluccas); Amboyna; Australia; (? Madagascar).

Batchian, 1 ♂ (the type), collected by A. R. Wallace, host unrecorded; preserved dry in British Museum.

Amboyna, a number of males and females from *Miniopterus schreibersi*, 1908, F. Muir.

Australia, 1 ♂ preserved dry in British Museum, labelled "Australia"; presented by Mr. Tomes, 57.7; on "*Miniopterus australis*."

(Madagascar, see above, remarks on *Nycteribia stylidiopsis* Speiser). This species is not represented in the Australian Museum.

NYCTERIBIA (LISTROPODA) SARASINI Falcoz.

*Nycteribia (Listropodia) sarasini* Falcoz, Nova Caledonia, Zool., iii, 1923, p. 89, figs. 9-12.

*Distribution*.—Australia, New Caledonia, Loyalty Islands.

*Locs*.—New Caledonia; Oubatche (type locality) and Ciu, males and females on *Miniopterus australis* Tomes. Loyalty Is.: Lifou and Képénéé, males and females on the same species. Australia: Mossman, Queensland (F. Muir, Coll. No. 473). This species is also unrepresented in the Australian Museum.

Genus CYCLOPODIA Kolenati 1862.

*Cyclopodia* Kolenati, Horae Soc. Ent. Ross., ii, 1862, p. 82.

Logotype.—*Nycteribia sykesi* Westwood.

*Paracyclopodia* Scott, Parasitology, ix, No. 4, 1917, p. 608.

Haplotype.—*Nycteribia roylli* West.

Scott has separated the genus *Cyclopodia* into two subgenera, restricting *Cyclopodia* to the type *N. sykesi* Westwood<sup>14</sup>, and proposing (p. 608) *Paracyclopodia* for the type *N. roylli* Westwood<sup>15</sup>. The chief differential features appear to lie in the width of the head and elongation of the anterior coxæ. Scott does not refer either to *C. similis*<sup>16</sup> or to *C. pteropus*, which according to his diagnoses fall into *Cyclopodia* s. str.

At the same time he proposed a new genus *Tripselia*, which he regarded as related to *Cyclopodia*, for *Nycteribia (Acrocholidia) fryeri* Scott, but which does not concern us at present.

<sup>14</sup> Westwood—Trans. Zool. Soc. Lond., i, 1835, p. 288, pl. 36, figs. 1-25.

<sup>15</sup> Westwood—Loc. cit., p. 290, pl. 36, figs. 26-28.

<sup>16</sup> Speiser—Entomol. Nachr. (Karsch) xxvi, 1900, p. 292.

CYCLOPODIA (CYCLOPODIA) PTEROPUS *Rainbow*.

*Nycteribia pteropus* Rainbow, Rec. Austr. Mus., v, 1904, p. 78, pl. ix.

*Cyclopodia pteropus* Ferris, Amer. Mus. Novit., No. 110, 1924, p. 5, fig. 5.

*Localities*.—Mapoon Mission Station, mouth of Batavia River, Gulf of Carpentaria, from *Pteropus gouldi* Gray (Types); Babinda Creek, Queensland, from *Pteropus conspicillatus* Gould. To these previously recorded localities I would add three males and one female collected by me from *Pteropus poliocephalus* Temm. shot in the Botanic Gardens, Sydney, on the 13th April, 1920, and which agree in all particulars with the types of *C. pteropus*. Amongst the wealth of material recently presented to the Australian Museum by Dr. W. E. J. Paradise of H.M.A.S. Geranium, is a fine series of the Spectacled Bat, *Pteropus conspicillatus*, from the North Barnard Islands, south of Cairns, Queensland, from which I was delighted to secure nine males and ten females which are novel to our collection from this bat.

*Notes*.—In the Australian Museum collection there is a male and female Nycteribid from an unknown host collected by Dr. J. F. Illingworth at Cairns, North Queensland. These are labelled *Cyclopodia similis* Speiser, a species originally described from New Britain in 1901, but I do not know by whom they were identified. They agree in structure with the types of *Cyclopodia pteropus* Rainbow, and if their determination as *C. similis* proves accurate, Ferris's statement, "I am not at all certain that they can be definitely separated," will be shown to be correct, in which event Rainbow's species would become synonymous with *C. similis*, thus considerably extending the range of the species.

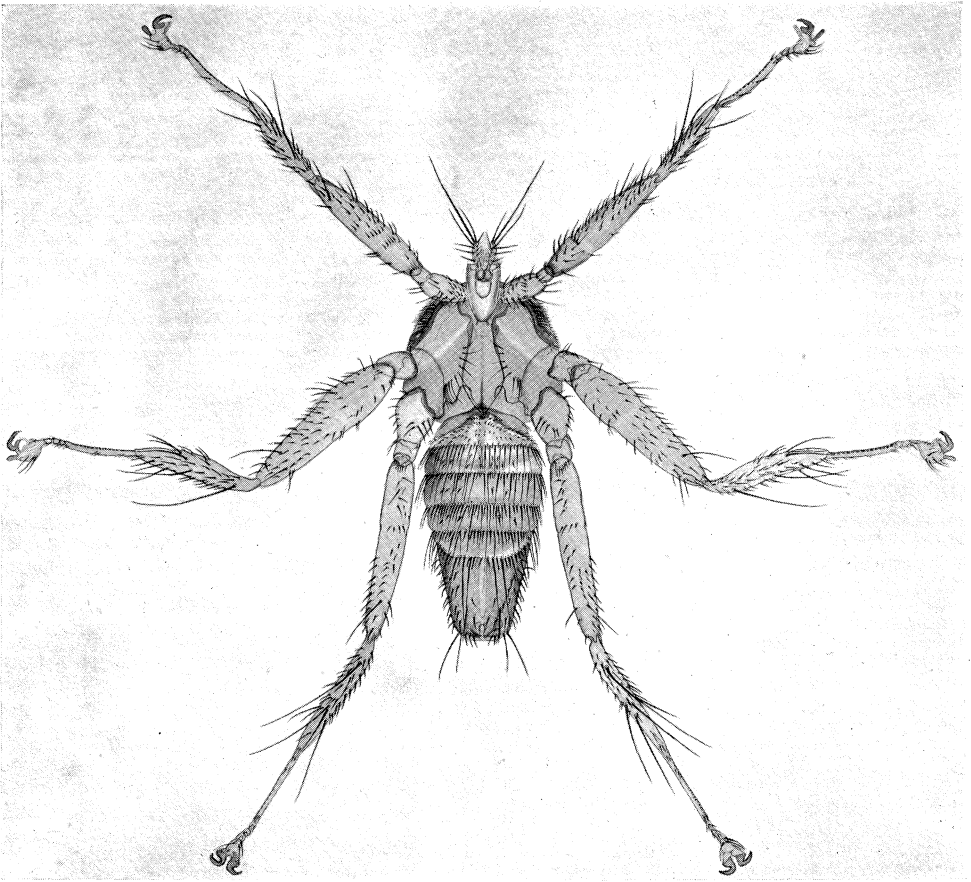
*Material examined*.—The types of *C. pteropus* Rainb., were mounted dry on a card and no single specimen was designated as holotype. Two of these specimens, a male and a female, have been cleared and mounted in Canada balsam, permitting the characters to be seen to greater advantage. The specimens from *Pteropus poliocephalus* are likewise mounted in balsam. In all the female specimens from *Pteropus gouldi* and *P. poliocephalus* examined by me, the long setæ borne at the sides of the abdomen near the apex vary in number from three to four in each group, though in Ferris's figure there are six bristles in each group. In other respects they appear to be identical.

Six specimens from the series secured by Dr. Paradise have been mounted in Canada balsam. In these the females are larger than the females from *Pteropus gouldi* and *Pteropus poliocephalus*, while the males on the contrary are smaller than the males from the other hosts. Otherwise the forms from the various hosts appear to resemble one another closely.

EXPLANATION OF PLATE XLIV.

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*Nycteribia* (*Nycteribia*) *falcozi* sp. nov. Male holotype. Dorsal view.



A. MUSGRAVE, del.

EXPANATION OF PLATE XLV.

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*Nycteribia (Nycteribia) brevicauda* sp. nov.

Fig. 1, 2. Male holotype, dorsal and ventral views of abdomen.

„ 3, 4. Female allotype, dorsal and ventral views of abdomen.

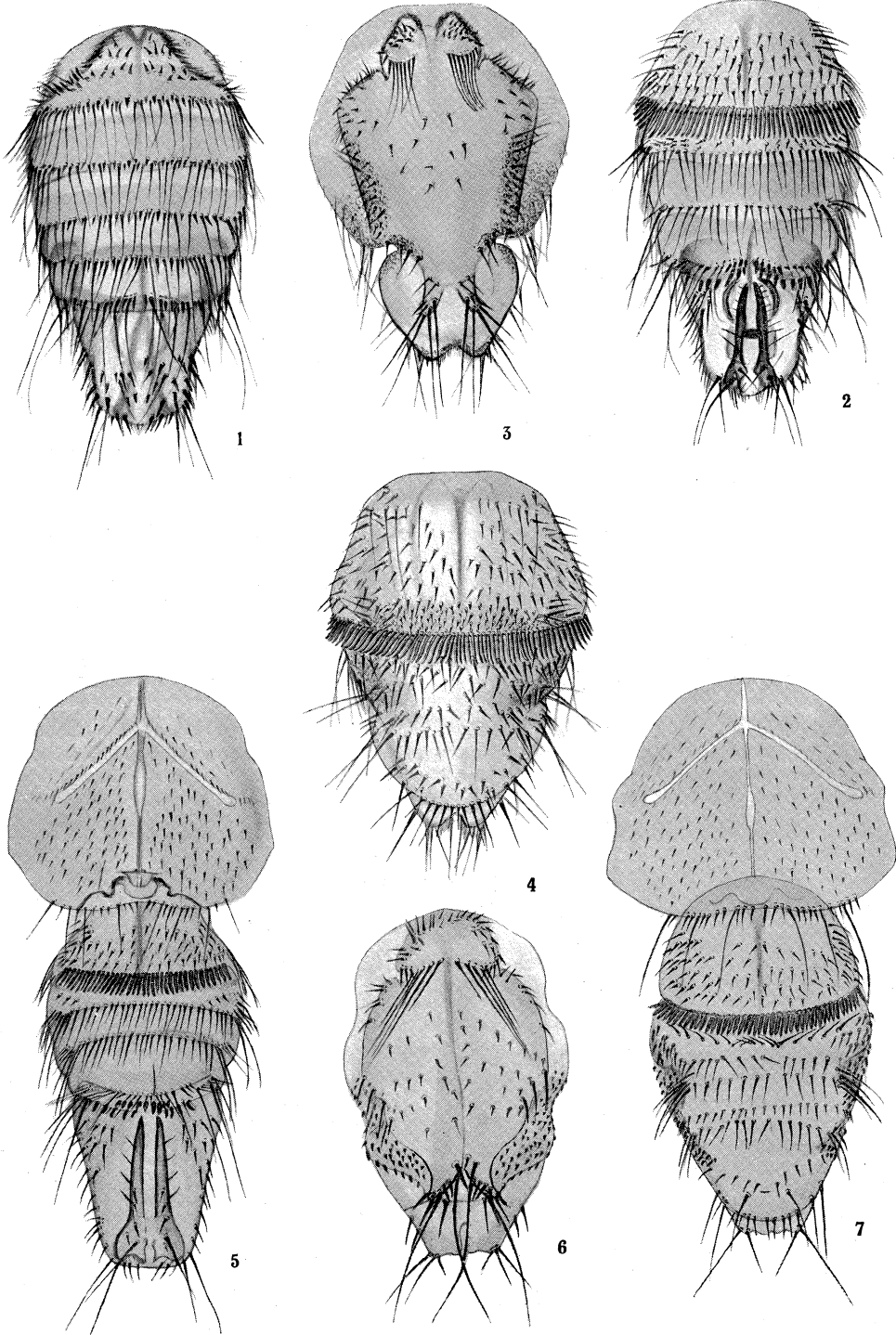
*Nycteribia (Nycteribia) falcozi* sp. nov.

Fig. 5. Male holotype, ventral view of thorax and abdomen.

„ 6. Female allotype, dorsal view of abdomen.

„ 7. Female allotype, ventral view of thorax and abdomen.





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A. MUSGRAVE (5-7), del.