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ADDITIONS TO THE CYCLOPODIINAE. PART I

(Diptera : Nycteribiidae)[1]

By T. C. Maa[2]

Abstract: Seven species and subspecies are described as new: *Leptocyclopodia* (*Oncoposthia*) *laminata*, Celebes; *L.* (*Leptocyclopodia*) *villosa*, Celebes; *L.* (*L.*) *thaii*, Thailand; *L.* (*L.*) *analis*, Celebes; *Cyclopodia garrula*, Philippines; *C. planipyga*, New Hebrides; *C. macracantha longiseta*, Bougainville I. In addition, the ♀ of *L.* (*L.*) *brachythrinax* Theod. is described for the first time, a new key to species of *Cyclopodia pembertoni* group is presented, and *C. kalyania* Choudhuri & Mitra 1965 is suppressed as a synonym of *C. sykesii* Wwd.

The following notes comprise the first installment supplementary to my earlier paper "Partial revision of the Cyclopodiinae" (1966, *Pacif. Ins.* **8**: 648-685). Introductory remarks of that paper are applicable here too. The accompanying drawings were kindly prepared by Mr. C. T. Lin, Miss S. M. Kwang and Miss P. Y. Hu. Type series of the novelties here described, unless otherwise stated, are in Bishop Museum.

Subgenus **Oncoposthia** Maa

By the shape and setoseness (or spinoseness) of ♂ clasper and relative number of posterior marginal setae of ♀ tergite 2, this subgenus can easily be divided into 2 species-groups, one represented by *laminata* n. sp. and *planiseta* Maa while another, by the remaining species. More species of the subgenus are expected to be found on *Dobsonia crenulata* K. And. (Halmahera group), *D. minor* Dobs. (New Guinea) and *D. remota* Cabrera (Trobriand). Previously unrecorded specimens of known *Oncoposthia* are as follows.

L. (*O.*) *macrura macrura* Speis. 2♂♂, 3♀♀, Wau, NE New Guinea, ex *Dobsonia* sp., BBM 24587, 24597, 24609, VIII.1965, P. Shanahan. 1♀, Soputa R., SE New Guinea, ex pteropodid BBM 24609, VI.1966, Shanahan. 1♂ (Sydney Mus.), Bulolo Valley, 1937, C. Gunther.

1. Partial report of a grant to Bishop Museum from the United States National Institutes of Health (AI-01723-10).

2. B. P. Bishop Museum, Honolulu, Hawaii 96819.

L. (*O.*) *zelotypa* Maa 4♂♂, 1♀ (Leiden Mus.), no locality, "op *Cephalotes peroni*", probably from Indonesia. *Cephalotes* is a synonym of *Dobsonia.*

Leptocyclopodia (**Oncoposthia**) **laminata** Maa, new species Fig. 1, 4, 15–20, 29, 33, 65.

Material. 1♂, 1♀. NE CELEBES: Pedamaran, 1200 m, ex bat #11, IV.1966, J. H. Tikupadang. Holotype ♀ (BISHOP 7566), partly dissected, on slides.

Habitats. Apparently confined to Celebes. Host undetermined, possibly *Dobsonia exoleta* K. And. which is endemic to Celebes.

Affinities. This new species is quite outstanding and differs from all its congeners in having the huge multi-bristled basal lobe of claspers, short broad genital deckplate and weakly curved aedeagus (in profile) in ♂ and the huge anal segment, presence of dorsodiscal patch (rather than apical groups) of abdominal bristles and submedian plates for sternite 5 in ♀. Insofar as these characters are concerned, *laminata* is apparently the most generalized form of the subgenus at present known. It stands most closely to *L. planiseta* Maa of New Britain but is easily separable from the latter species by, in addition to the aforementioned characters, the deep anterior notch of synsternite 1+2, presence of

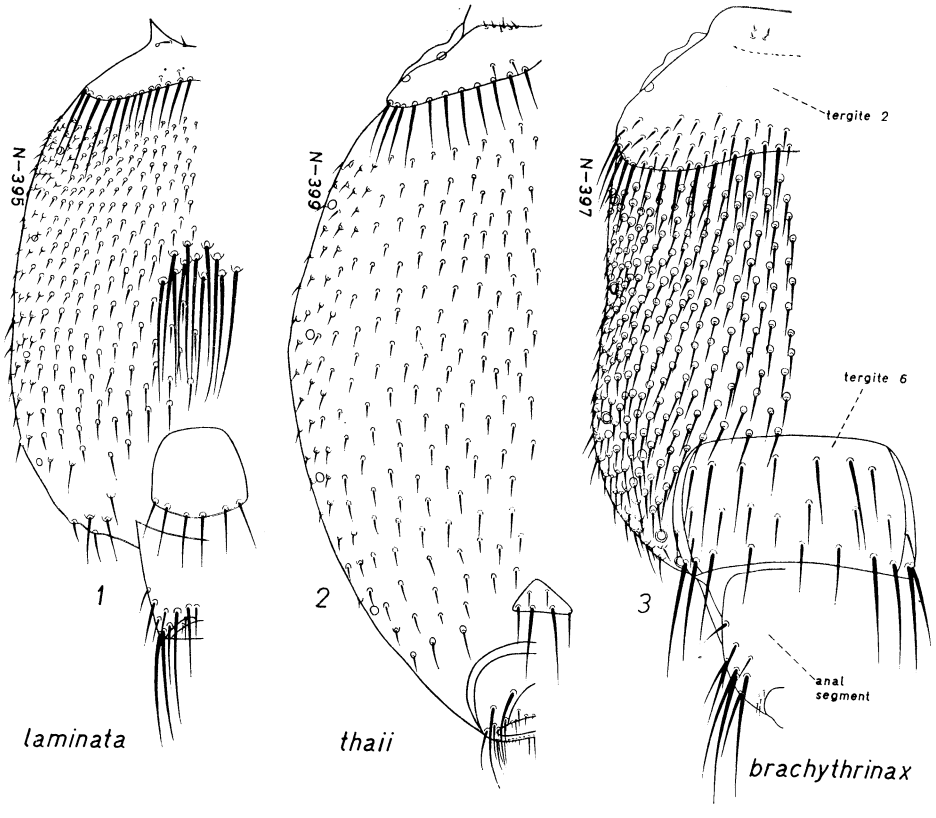

Fig. 1–3. *Leptocyclopodia* species, ♀ abdomens, dorsal.

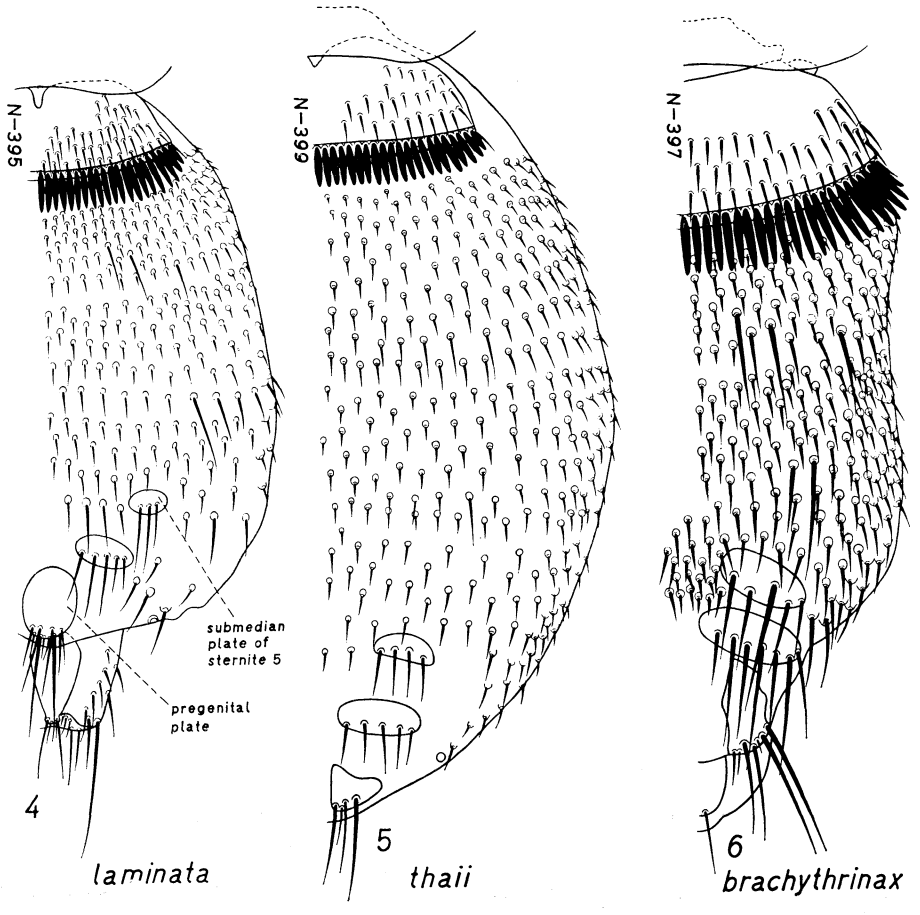

Fig. 4–6. *Leptocyclopodia* species, ♀ abdomens, ventral.

strong preapical spines on tergite 1, less setose ♂ anal segment, much longer ♂ synsternite 5+6, details of ♂ genitalia and smaller ♀ tergite 6 and pregenital plate. From other members of the subgenus, it can also be recognized by the presence of strong pointed setae arranged along nearly full length of ventrolateral margin of claspers, rather than long blunt parallel teeth arranged near apices. The presence of a distinct lamina on inner margin of claspers is unusual, if not unique, for the entire family. For this, the name *laminata* is given.

Description. Slender, brown. Length ♂ 4.0 mm, ♀ 4.2 mm. Head capsule in dorsal view 3/4 as wide as long, dorsal surface bare except 2 setae on anterior margin, gena with 9± marginal setae, the one on anteroventral corner noticeably stouter than remainder. Palpus 2/3 as long as its terminal bristle. Labella ca 1.5(♂) or 2(♀)× as long as theca. Thorax with 3–5 notopleural setae in single series; ctenidium composed of 15± teeth. Thoracic venter 45×49; metasternum anteromedially forming 100± degree angle, surface uniformly setose, posterior margin gently concave, its median section lacking distinct premarginal setal fringe. Legs fairly long, with

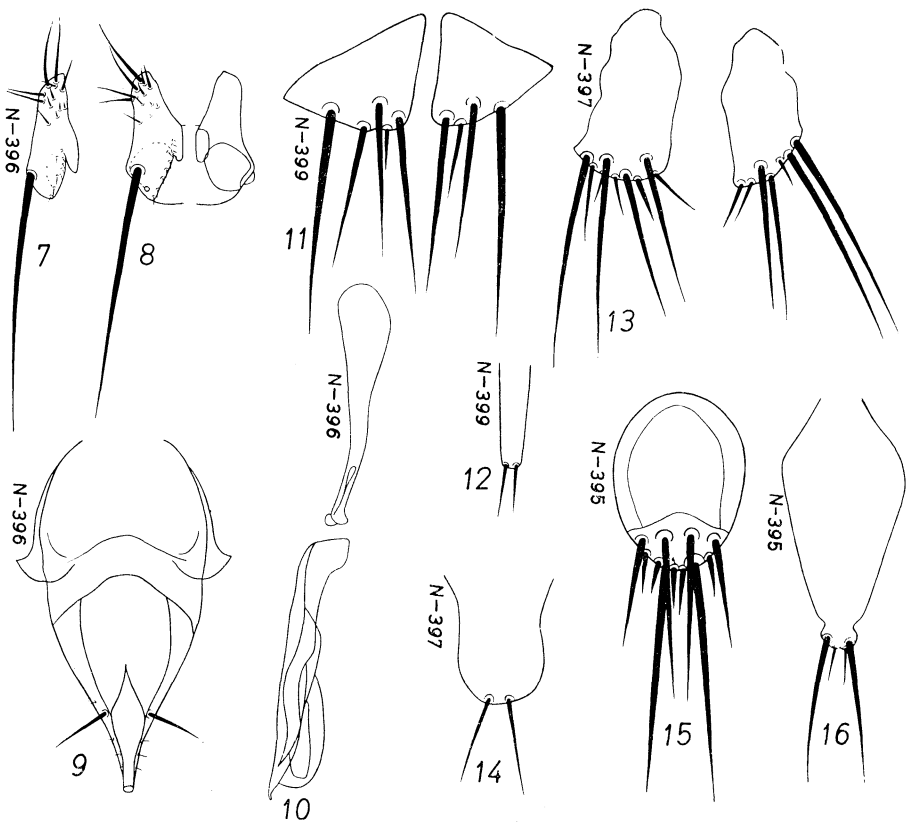

Fig. 7–16. *Leptocyclopodia* species, terminalia. 7–8, *L.* (*L.*) *brachythrinax* Theod., claspers, lateral, ventral and dorsal; 9–10, same, phallobase plus basal arc and aedeagus; 11, *L.* (*L.*) *thaii* n. sp., ♀ pregenital plate; 12, same, ♀ infra-anal plate; 13–14, *L.* (*L.*) *brachythrinax* Theod., ♀ pregenital and infra-anal plates; 15–16, *L.* (*Oncoposthia*) *laminata* n. sp., ♀ pregenital and infra-anal plates.

shorter denser setae than in *planiseta*; coxa 1; much shorter (25 : 49) than femur 1; femur and tibia 2 in profile 53×18 and 50×11 respectively; relative lengths of femur, tibia and basitarsus 3 as 50 : 48 : 33; distance from tibial base to 1st pale ring slightly shorter than distance from 3rd pale ring to tibial apex; basitarsus 3 ca 2.5× as long as its succeeding tarsomeres together, with 20± pale rings.

Abdomen of ♂ (fig. 29, 33) with long sparse setae. Tergite 1 at each side with anterior row of 4 spinules and preapical row of 4 strong spines, lateral corner with 1 strong seta. Tergite 2 with a few irregularly arranged preapical setae and complete posterior fringe of spines. Tergites 3–6 with similar fringes, surface of tergites 3–5 with 1–2 rows of preapical setae, surface of tergite 6 bare. Anterior margin of tergite 3 convex, that of following tergites weakly concave; posterior margin of tergite 3 more strongly convex than in tergite 4; relative median lengths of these tergites 10.5 : 9 : 9.5 : 4.5. Laterite 1 bare. Anal segment longer than wide, slightly narrowed apicad, dorsal surface largely bare. Synsternite 1+2 posteriorly with 3–4 setal rows, anterior margin deeply notched at middle; ctenidium composed of 45± teeth which are longer, more slender than in *planiseta*. Sternites 3 with 3 (at lateral area becoming 4) rows of regular-

ly, densely arranged setae on surface; posterior margin straight, with complete fringe of dense spines. Sternite 4 similar but setae on surface more irregularly arranged and posterior margin concave. Synsternite 5+6 discally bare, laterally with irregularly arranged setae, and at each side with 4–5 strong preapical bristles; posterior margin straight, fringed with sparse spines. Venter of anal segment largely bare; anterior margin slightly produced at middle; inner margin gently wavy, with triangular depression bordered by curved pale line near anterior end for reception of clasper. Clasper (fig. 17–18) in ventral (exterior) view very weakly curved, bearing column of strong setae on outer margin and 3 strong bristles on basal lobe, inner margin with long narrow lamina near apex; basal lobe huge; apex subacute, decurved in lateral view. Ae-

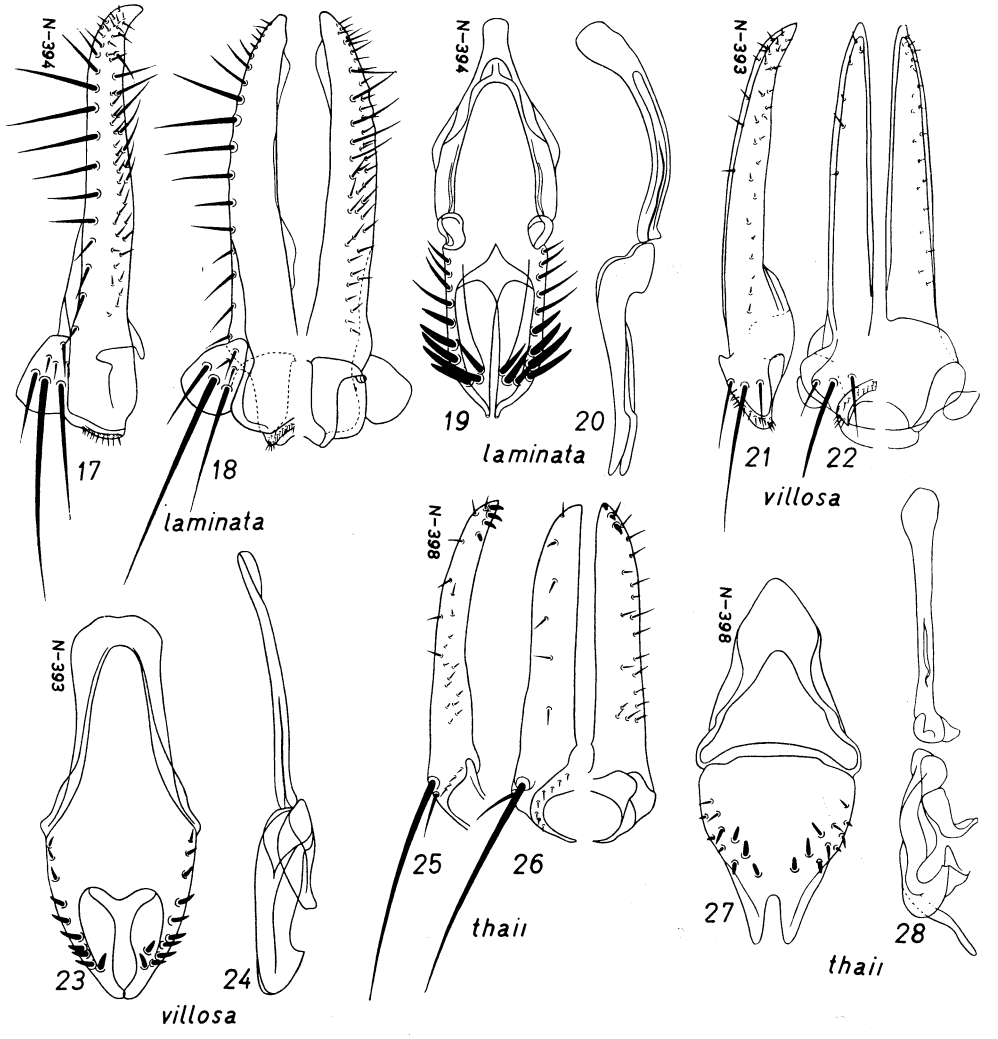

Fig. 17–28. *Leptocyclopodia* species, ♂ claspers in lateral view (17, 21, 25), and in ventral and dorsal views (18, 22, 26), phallobases plus basal arcs (19, 23, 27), and aedeagi (20, 24, 28).

deagus (fig. 20) in profile curved at base, nearly straight at apex, ca as long as basal apodeme. Phallobase (fig. 19) gently upcurved at apex, with stronger spines than in *planiseta*; paramere (fig. 65) fused with phallobase, elongate, posteriorly straight, anteriorly much narrower and distinctly curved; basal arc fused with phallobase, subtriangular, with long anterior hook; deck plate (fig. 33) broad, lyre-shaped, anteriorly roundly sinuate, anterior lobe short.

Abdomen of ♀ (fig. 1, 4) with moderately robust setae. Segments 1–2 similar to that in ♂, posterior fringe of tergite 2 composed of 25± bristles. Dorsal membranous area discally with patch of 12± long bristles, setae on anterior part short, gradually becoming longer on approaching anal segment. Tergite 6 small, subquadrate, surface bare, medially paler, posteriorly fringed with 6 setae, laterally not flanked by long bristles. Anal segment long, large, in dorsal view as long as wide, posteriorly slightly narrowed and adorned with 1–2 rows of bristles. Ventral membranous area similarly setose as dorsal area, but lacking long bristles, sternites 3–5 each with few long setae near posterior margin; sternite 5 represented by 4 setal rows and pair of small submedian plates each bearing 3 setae; sternite 6 represented by pair of larger submedian plates laterally flanked by 2 setal rows. Pregenital plate (fig. 15) small, broadly elliptical, bearing many

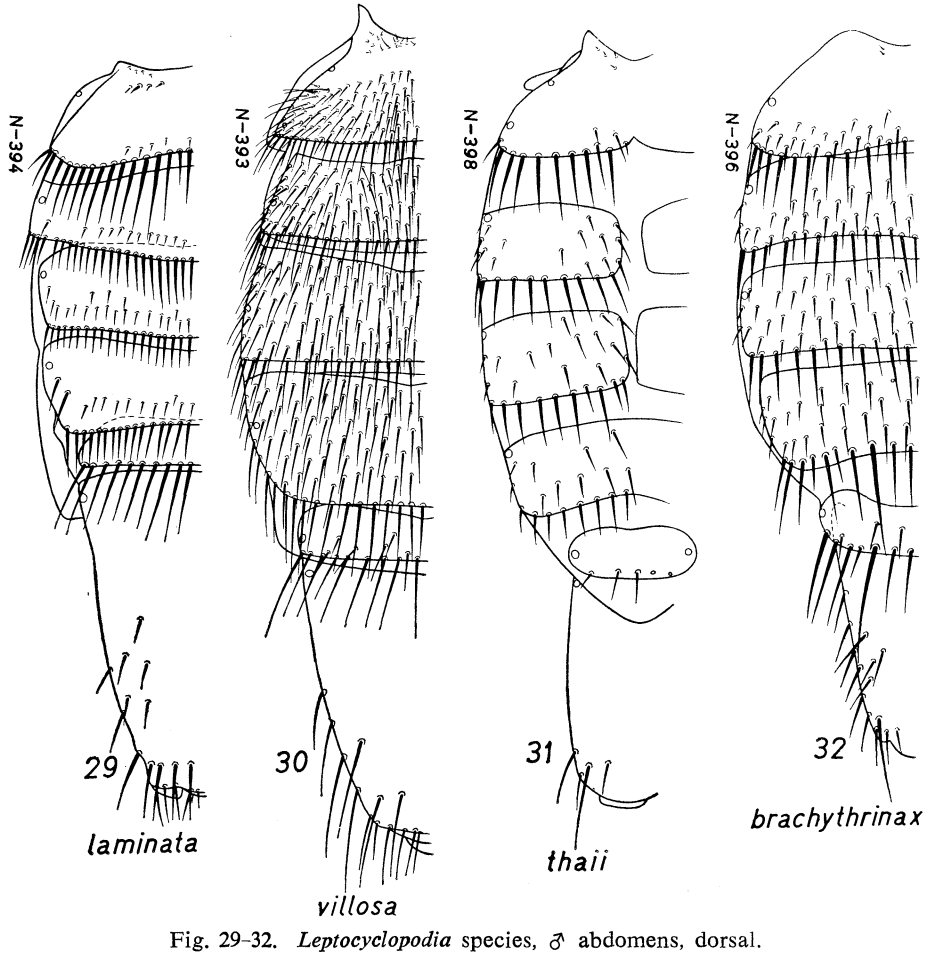

Fig. 29–32. *Leptocyclopodia* species, ♂ abdomens, dorsal.

setae on and near posterior margin; infra-anal plate (fig. 16) large, obovate, with 1 pair each of strong and small setae; anal ring ventrally enlarged to form pair of setose pieces flanking infra-anal plate.

Subgenus **Leptocyclopodia** s. str.

As redefined by me (1966: 669), this subgenus can be further divided into 3 species-groups:

(a) Simulans group. Clasper lacking heavy spines near apex; aedeagus wholly or nearly wholly sclerotized, often with a preapical tooth; ♀ pregenital plate (sternite 7) small, entire. 7 species: *analis* n. sp., Celebes; *simulans* Theod., Philippines; *ferrisiana* Maa, Celebes; *villosa* n. sp., Celebes; *pilosipectus* Maa, Philippines; *schizopyga* Maa, Borneo; *cheirogaster* Maa, Malaya, Java. The last species is atypical for the group.

(b) Obliqua group. Clasper lacking heavy spines near apex; aedeagus sclerotized ventrally and dorsolaterally, membranous along median lines of dorsal and lateral surfaces; ♀ pregenital plate moderately large, divided at middle. 2 species: *obliqua* Theod., Malaya, Borneo; *brachythrinax* Theod., Malaya (?), Borneo.

(c) Ferrarii group. Clasper with a series of heavy curved spines on dorsal (inner) surface near apex; aedeagus weakly sclerotized laterally, membranous dorsally and ventrally, sclerotized part with a series of minute teeth near apex; ♀ pregenital plate large, divided at middle. 4 species: *ferrarii* Rndn., Ceylon, India, east to Hong Kong and the Philippines; *palawanensis* Theod., Palawan; *thaii* n. sp., Thailand; *brevicula* Maa, Mindanao.

Leptocyclopodia (Leptocyclopodia) analis Maa, new species Fig. 57, 59, 61, 63, 71.

Material. 1♂, 2♀♀. NE CELEBES: Pedamaran, 1200 m, ex bat #11 (126.—.20.17), VI.1966, J. H. Tikupadang. Holotype ♀ (BISHOP 7567), partly dissected, on slides.

Habitats. Apparently confined to Celebes and adjacent islets. Host bat undetermined yet. By implication of the host relationship of its close relative *simulans* of the Philippines (host: *Ptenochirus*), the host of *analis* is most probably a relative of *Ptenochirus* (the genus *Ptenochirus* is unknown in Celebes). The type series of *analis*, when received, was found in association with *L.* (*Oncoposthia*) *laminata* and *L.* (*L.*) *villosa* n. spp. in a same vial. This is obviously a result of contamination or mixing-up.

Affinities. At first glance, *analis* was considered a subspecies of *simulans* and differed only in details of abdominal chaetotaxy. A closer examination revealed structural differences in thoracic sternal plate and ♂ genitalia. It is therefore rated as a full species.

Description. Differing from *simulans* (characters of which given in parentheses) in following points. Size slightly smaller, length of body ♂ 2.7 mm (3.0±), ♀ 2.9 mm. Setae more or less longer, stouter and slightly more numerous. Theca slightly shorter than (as long as) labella. Mesosternum at each side with 4–5 (7–8) oblique setal rows; metasternum slightly narrower than (as wide as) mesosternum, posterior margin (fig. 71) almost straight (distinctly concave). Abdomen of ♂ (fig. 61, 63): Tergite 2 with 15± (25±) strong setae on posterior margin; marginal setae of tergite 6 similar in length to (distinctly longer than) those of tergites 3–5; longest setae on anal segment hardly longer (distinctly longer) than those on tergite 2; anal segment shorter, broader in proportion. Sternites 3 and 4 with 22 and 19 strong setae on posterior margins respectively. Phallobase shorter, broader in proportion, less strongly recurved at apex, with 10±

spines-setae of varied length and robustness at each side. Basal arc shorter; deck plate slightly broader and aedeagus slightly longer in proportion. Abdomen of ♀ (fig. 57, 59): Tergite 2 with very few preapical setae and only 16± posterior marginal bristles; tergite 6 with only small setae; anal segment shorter and with shorter setae. Setae on ventral membranous area noticeably shorter, finer, for example, those of first rows of sternites 3 and 4 not or hardly longer than width of their respective basal papillae.

Leptocyclopodia (Leptocyclopodia) simulans Theodor Fig. 56, 58, 60, 62, 70.

The ♂♀ abdomens of this species are here partly illustrated for comparison with *analis* n. sp. The figures are drawn each to same scale as its counterpart of *analis*, and

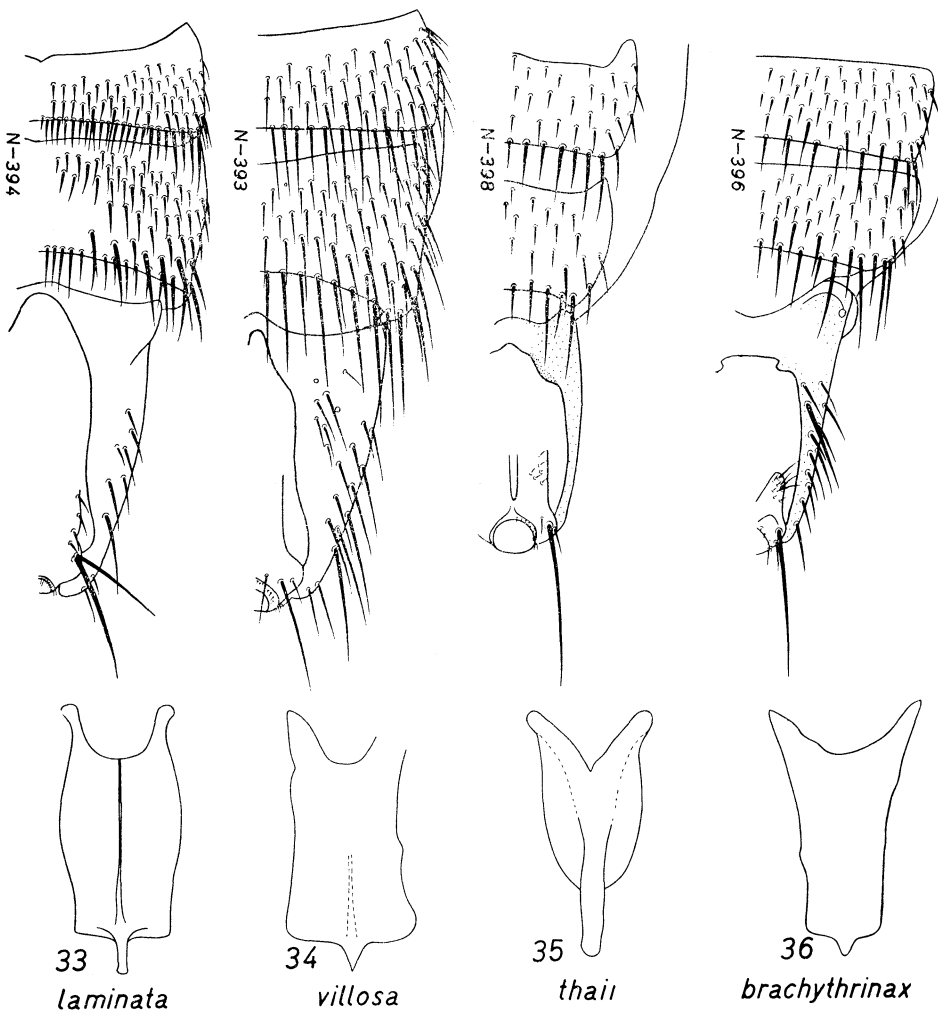

Fig. 33-36. *Leptocyclopodia* apicies, ♂ abdominal apicies (ventral view) and genital deck-plates.

are based on material from Mindanao: Mt Mayo.

Leptocyclopodia (Leptocyclopodia) villosa Maa, new species Fig. 21-24, 30, 34, 66.

Material. 2♂♂. NE CELEBES: Pedamaran, 1200 m, ex bat #11 (126.—.20.17), IV.1966, R. Straatman & J. H. Tikupadang. Holotype ♂ (BISHOP 7568), partly dissected, on slides.

Habitats. Probably confined to Celebes. Host bat undetermined; by implying the host relationship of its relative *pilosipectus* it might be *Harpionycteris whiteheadi celebensis* Miller & Hollister.

Affinities. Although the ♀ sex is yet to be discovered, this new species, as suggested by its name, can immediately be distinguished from all its known congeners by the richly setose tergites. In other respects, *villosa* is apparently a close relative of *L. pilosipectus* Maa of the Philippines (Mindanao) from which it differs in having bare vertex, tergite 1 (posterior part) and laterite 1, less richly setose mesopleurites, less deeply notched synsternite 1+2, more slender clasper (in profile), broader and anteriorly strongly bilobed genital deck-plate and much broader and preapically hooked aedeagus (in profile). The last character brings *villosa* toward *L. simulans* Theod. of the Philippines. But otherwise the affinities of the former species with *simulans* are clearly less evident than with *pilosipectus*. For the inclusion of *villosa*, the first couplet of my (1966) key to species of the subgenus will have to be slightly modified by using the above-mentioned characters.

Description. ♂. Dark brown. Length 3.2 mm. Head capsule in dorsal view as long as wide, with only 2 setae on anterior margin, laterally with only 4 setae on genal margin, elsewhere bare. Palpus slightly shorter than its terminal bristle. Labella as long as theca. Thorax with patch of 20-25 setae on each mesopleurite; 4-6 notopleural setae in 1-2 series; ctenidium composed of 16± teeth; plate bearing haltere groove sharply angulate at outer posterior corner. Thoracic venter 31×34. Metasternum anteromedially forming 90± degree angle; surface uniformly setose, setae of hindmost row hardly more densely arranged than elsewhere of the sclerite. Legs short, rather robust; coxa 1 much shorter (16 : 27) than femur 1; femur and tibia 2 in profile 31×11 and 29×8 respectively; relative lengths of femur, tibia and basitarsus 3 as 32 : 29 : 21; basitarsus 3 just 2× as long as its succeeding tarsomeres together, with 11± pale rings.

Abdomen of ♂ (fig. 30, 34) dorsally densely setose. Tergite 1 with 13± pairs of discal spinules, no setae and bristles on posterior margin and lateral corner. Tergites 2-6 with uniformly fine dense setae on surface and complete fringe of long fine setae (not bristles) along posterior margins; setae on surface of tergite 6 in 1-2 rows. Relative median lengths of tergites 3-6 as 6 : 8 : 10.5 : 3.5; posterior margins of tergites 3-4 straight. Anal segment slightly longer than wide, gently narrowed apicad, anterior margin straight, dorsal surface largely bare, with few setae near and along lateral and posterior margins. Laterite 1 bare. Synsternite 1+2 anteriorly shallowly notched at middle, posteriorly with 3 setal rows; ctenidium composed of 36-38 teeth. Sternites 3-4 each with fringed straight posterior margin and with 3 setal rows on surface; synsternite 5+6 similar but with longer setae on surface and strongly concave posterior margin, its posterolateral corner broadly rounded; relative median lengths of these sternites 6.5 : 7.5 : 9. Venter of anal segment with gently evenly curved inner margin and few setae on surface. Clasper (fig. 21-22) long, slender, in ventral view straight, gently tapering apicad, with very few setae at apical 1/2; in lateral view, very gently curved; apex sharp. Aedeagus (fig. 24) 2/3 as long as basal apodeme, in profile broad, nearly straight, with preapical hook. Phallobase (fig. 23) with 10± heavy spines at each side, apex slightly upcurved; basal arc broad, fairly long; paramere as in fig. 66; deck plate (fig. 34) evenly broad, anteriorly roundly sinuate. ♀ unknown.

Leptocyclopodia (Leptocyclopodia) pilosipectus Maa, 1966

The following typographical errors in the original description are to be corrected: The thoracic venter was 41×47 rather than 47×41; tergite 1 bears 4–5 pairs of discal spinules, no setae at lateral corner; tergite 2 with a few irregularly arranged preapical setae and complete posterior fringe of spines; tergites 3–6 with similar posterior fringes. The head capsule in dorsal view is ca 4/5 as wide as long. The following fresh specimens were received recently, 2♂♂, 2♀♀, Mindanao, Davao Prov., Mt Mayo, Limot Mati, 1800–2100 m, ex *Harpionycteris whiteheadi* (M 8355, 9213), VI.1965, D. S. Rabor.

Leptocyclopodia (Leptocyclopodia) schizopyga Maa, 1966

The type host of this species was kindly determined by Lord Medway of the University of Malaya as *Aethalops alecto* Thos. Since this bat occurs in Malaya, Sumatra and Borneo, *schizopyga* is expected to be found in the former 2 countries too. Besides the type series, I have also briefly examined in Prof. O. Theodor's collection a few specimens also from Borneo ex *A. alecto*. In those specimens, the color pattern is strikingly beautiful, the darkened markings are nearly purplish.

Leptocyclopodia (Leptocyclopodia) obliqua Theodor, 1959

The ♀ pregenital plate (sternite 7) was originally described as consisting of 2 elliptical sclerites and the infra-anal plate (anal sclerite), as small, elliptical and with 6 short setae; the former was illustrated (Theodor 1959: 290, fig. 62) as an entire, posteriorly bilobed sclerite. In the 6♀♀ at hand, the pregenital plate is clearly divided at middle whereas the infra-anal plate is longitudinally linear, ca 1.5× as long as pregenital plate and bears at posterior end 2–4 small setae in 1 or 2 rows. The anterior margin of synsternite 1+2 in this species is deeply notched at middle.

Leptocyclopodia (Leptocyclopodia) brachythrinax Theodor, 1959 Fig. 3, 6–10, 13–14, 32, 36, 68.

Material. 2♂♂, 1♀, "ex bat B", no other details, received from Inst. Med. Res. Malaya, probably collected in Malaya.

Habitats. This rare outstanding species was previously known only from 2♂♂ (Theodor 1959, Maa 1966) from Sabah and Sarawak respectively. Host unknown but I suspect it is *Dyacopterus spadiceus* Thos. of Sumatra, Borneo and Malaya since *Dyacopterus* is the only pteropodid genus in these countries which lacks previous records of any nycteribiids.

Affinities. Following the discovery of the ♀, we are now able to go a little further in discussing the relationship of this and other species. In both sexes, *brachythrinax* appears to be fairly isolated. The ♂ is unique in the genus in having rudimentary, strongly spined claspers, scantly but longly setose phallobase and prominent basal process on inner margin of anal segment (venter) (fig. 36) whereas the ♀, in having huge multiseriately setose tergite 6, dense setal patch between submedian plates of sternite 5 and elongate sidepieces of pregenital plate. In chaetotaxy of head capsule, it is similar to *obliqua* Theod. of Malaya but differs in having 4, rather 2 strong setae on anterodorsal margin. The details of aedeagus, phallobase, basal arc and deck plate are somewhat close to those of *cheirogaster* Maa of Malaya and Java, *schizopyga* Maa of Borneo and *obliqua* as well,

but the synsternite 5+6, which is short and posteriorly straight, is different in outline. The size and arrangement of ♀ apical abdominal sclerites are relatively closer to that of *obliqua* than to *cheirogaster* and *schizopyga*. In short, *brachythrinax* seems to stand comparative close to *obliqua* than to any other congeners, notwithstanding its rudimentary claspers are similar to that of *schizopyga*. The ♂ is here illustrated in fig. 7–10, 32, 36 and 68 for comparison. The ♀ runs in my (1966) key to *simulans* in couplet 13 which may be revised by replacing "13a" for "*simulans*" and to which a new couplet may be added:

13a (13). Tergite 6 unusually large, wider than anal segment, with 3 setal rows on surface; submedian plates of sternite 5 slightly smaller than that of sternite 6, and interspaced by patch of dense short setae; pregenital plate widely divided at middle; infra-anal plate ca as wide as side-piece of pregenital plate..... **brachythrinax**

Tergite 6 much narrower than anal segment, with single setal row on hind margin; submedian plates of sternite 5 ca 1/6 as large in size as that of sternite 6, and interspaced by single row of long setae; pregenital plate entire; infra-anal plate exceedingly narrow..... **simulans**

Description. ♀ (previously undescribed). Length (engorged, on slide) 2.5 mm. Head capsule in dorsal view hardly longer than wide; setae on genal margin, particularly 1 pair on ventromedian line and 2 pairs near bases of palpi, distinctly longer, stouter than on surface of genae. Legs short, fairly robust; coxa 1 much shorter (15 : 23) than femur 1; femur and tibia 2 in profile 28×12 and 25×8 respectively; relative lengths of femur, tibia and basitarsus 3 as 28 : 25 : 17; distance from tibial base to 1st pale ring subequal to that from 3rd pale ring to tibial apex; basitarsus 3 ca 2× as long as its succeeding tarsomeres together, with 8± pale rings. Abdomen (fig. 3, 6) fairly evenly setose. Tergite 1 as in ♂; tergite 2 laterally with 3 rows of premarginal setae, posteriorly fringed with 30± bristles. Dorsal membranous area bearing uniformly short setae. Tergite 6 unusually large, transverse, quadrate, bearing 3 rows of long setae, setae of lateral sections of hindmost row replaced by bristles. Anal segment also large, anterior 2/3 evenly wide, posterior 1/3 distinctly narrowed apicad and richly setose. Synsternite 1+2 as in ♂ but teeth of ctenidium relatively longer. Setae on ventral membranous area not even in length, anterior ones short (shorter than on dorsal membranous area), gradually becoming longer on approaching abdominal apex; several long setae on and near posterior margins of sternites 3 and 4. Submedian plates of sternite 5 short, broad, each with uniseriate long setae, median interspace of these plates occupied by patch of dense short setae; submedian plates of sternite 6 similar but no interspacing setal patch. Pregenital plate (fig. 13) widely divided at middle, each side-piece ca 2× as long as wide, posteriorly with 4 bristles and 3–5 setae. Infra-anal plate (fig. 14) large, with 2 apical setae.

Leptocyclopodia (**Leptocyclopodia**) **thaii** Maa, new species Fig. 2, 5, 11, 12, 25–28, 31, 35, 67.

Material. 1♂, 2♀♀. THAILAND: Chiengmai, Doi Phahompok, 2000 m, ex *Sphaerias blanfordi* (M 92), XII.1965, Ben King. Holotype ♀ (BISHOP 7569) partly dissected, on slides.

Habitats. Probably confined to *Sphaerias blanfordi* Thos. and distributed within the range of this host bat, i.e. mountains of upper Burma and northern Thailand. The genus *Sphaerias* Miller was placed by K. Andersen (1912, *Cat. Chiroptera* **1**: 671) near the end of Pteropodinae and between *Penthetor* K. And. and *Nyctimene* Borkh.; by Simpson (1945, *Bull. Amer. Mus. Nat. Hist.* **85**: 54), near the beginning of Pteropodidae and immediately

next to *Cynopterus* F. Cuvier; and by Ellerman et al. (1951, *Checklist Pal. & Indian Mammals*: 100), at the end of Pteropodinae and next to *Cynopterus* and *Megaerops*. Since *Penthetor* and *Nyctimene* have quite different nycteribiid-parasites, and since *L. thaii* stands very closely to *L. ferrarii* (hosts: *Cynopterus*, less often *Megaerops*), *L. palawanensis* (host: *Cynopterus*) and *L. brevicula* (host: *Ptenochirus*), the implication of the hypothesis of host-parasite evolutionary parallelism supports the view of Simpson et al., but not of K. Andersen, regarding the arrangement of these bat genera.

Affinities. As mentioned above, this new species is a very close relative of *ferrarii* Rndn., *palawanensis* Theod. and *brevicula* Maa. It is chiefly characterized by the relatively shorter head capsule, much shorter labella, nearly uniform setae on ♀ abdominal membranous area and very small ♀ apical abdominal sclerites, short phallobase and basal arc and longly lobed genital deckplate. Comparatively, *thaii* and *brevicula* have the closest affinities. The former can easily be separated by the characters enumerated above and particularly by the anteriorly notched synsternite 1+2. Incidently, both *thaii* and *brevicula* are found on the borderline rather than the center of geographical range of the widely distributed *ferrarii*. They may have resulted from comparatively recent insular (*brevicula*) and high mountain (*thaii*) isolation-diversification. In my (1966) key to species of the subgenus, both sexes of *thaii* run to *ferrarii* in couplets 8 and 15 for ♀ and ♂ respectively. For the inclusion of the new species, those couplets may be slightly modified by using the characters discussed above.

Description. Brown. Length ♂ 2.7 mm, ♀ 3.0 mm. Head capsule in dorsal view only about as long as wide, with 2 setae on anterior margin, ventrally with 5-6 marginal setae on gena, elsewhere bare. Palpus nearly as long as its terminal bristle. Labella only 1/2 as long as theca. Thorax with 3, rarely 2 notopleural setae; ctenidium composed of 14-17 teeth. Thoracic venter 30×33. Metasternum anteromedially forming 90± degree angle; surface uniformly setose but setae of median section of hindmost row (lining slightly before hind margin) more densely arranged; hind margin hardly convex. Legs short, with short setae; coxa 1 much shorter (17 : 30) than femur 1; femur and tibia 2 in profile 33×11 and 31×7 respectively; relative lengths of femur, tibia and basitarsus 3 as 33 : 31 : 19; distance from tibial base to 1st pale ring subequal to distance from 3rd pale ring to tibial apex; basitarsus 3 less than 2× as long as its succeeding tarsomeres together, with 6± poorly defined pale rings.

Abdomen of ♂ (fig. 31, 35) very sparsely setose. Tergite 1 discally with 3-4 pairs of spinules, elsewhere bare; tergites 2-6 each fringed posteriorly with sparse strong setae, setae fringing tergites 5-6 weaker than that fringing 2-4. Tergite 2 entire, surface bare except single row of 3-4 preapical setae; tergites 3 and 4 interrupted at middle, surface with some setae largely at median area; tergite 5 entire, with few setae on surface; tergite 6 small, surface bare. Posterior margins of tergites 3-4 straight; relative lengths of tergites 3-6 as 6 : 6 : 6 : 4. Anal segment 2/3 as wide as long, moderately tapering apicad at apical 1/2, anterior margin deeply concave, dorsal surface largely bare, with few setae at posterolateral corners. Laterite 1 bare. Synsternite 1+2 anteriorly deeply notched at middle, posteromedian area with 2-3 setal rows; ctenidium composed of 31 teeth. Bristles forming posterior fringes of sternites not uniform, stronger and denser on sternite 3, stronger and sparser on 4, finer and sparser on 5+6; median area of these sternites with ca 5, 3 and 3 setal rows respectively, setae on anterior part of sternite 3 very short and fine. Posterior margin of sternite 3 straight, of 4 and 5+6 gently concave; posterolateral corners of sternites 4 and 5+6 broadly rounded, hardly produced; relative median lengths of sternites 3, 4 and 5+6 as 6 : 6.5 : 7.5. Venter of anal segment bare, its inner margin strongly curved to form conspicuous inward process at base. Clasper (fig. 25-26) fairly short, broad, straight, sparsely setose in ventral view, not widened preapically; slender, gently curved, with 4 heavy apical

spines in lateral view. Aedeagus (fig. 28) slightly shorter than basal apodeme, very complicated in profile. Phallobase (fig. 27) with 10± sharp and blunt spines at each side, apex strongly bilobed; basal arc moderately long; paramere (fig. 67) elongate, lanceolate. Genital deck plate (fig. 35) moderately long, anteriorly deeply notched, posteriorly with long median lobe.

Abdomen of ♀ (fig. 2, 5) with fine short setae. Segments 1–2 similar to that in ♂. Setae on membranous area fairly uniform in length and robustness, no bristles on dorsodiscal part, no bristles flanking tergite 6 and sternite 5. Tergite 6, anal segment, and sternites 5–7 all small, short, fairly finely setose; side-piece of pregenital plate (fig. 11) about as long as wide; infra-anal plate (fig. 12) very narrow, long, with pair of small setae.

Leptocyclopodia (**Leptocyclopodia**) **brevicula** Maa, 1966

This species was originally based on 4♂♂, 1♀. Additional specimens (44♂♂, 24♀♀) are now available. They were all collected in Mindanao: Davao Prov., Mt Mayo, Limot Mati, 1800–2100 m, ex *Ptenochirus jagori*, V–VI.1965, D. S. Rabor. Of the 49 field numbers involved, 23 were found in association with *L.* (*L.*) *simulans* and 35 were each represented by single specimen of *brevicula*, 9 by 2 specimens each and 5 by 3 specimens each. Thus the high ratio of ♂ sex and low population density per infested bat were very significant. From the same locality, same dates and same collector, there were 54 ♂♂, 68 ♀♀ of *simulans*, with highest population density of 5 specimens per infested bat. Apparently *simulans* and *brevicula* coexist on *Ptenochirus jagori* which provides a rare case of 2 congeneric nycteribiids coexisting on the same host bat. It is also apparent that *brevicula* is confined to the higher altitude where it is dominated by *simulans*; in the lower altitude, *brevicula* is entirely replaced by *simulans*. The following points may be added to the original description: Labella ca 2/3 as long as theca which is larger in proportion than in *ferrarii* and *palawanensis*. Venter of ♂ anal segment with very significant (poorly defined in *ferrarii* etc.) subbasal lobe on inner margin, mesal margin of this lobe thickened and upraised; ♀ tergite 6 not flanked by long setae, sternite 5 flanked by setae which are not or hardly longer than those on disc of abdominal venter, pregenital plate more or less clearly divided at middle (less significant in teneral specimens), anal segment slightly shorter than wide.

Cyclopodia sykesii (Westwood, 1834)

=*Cyclopodia kalyania* Choudhuri & Mitra, 1965, *Proc. Zool. Soc. Calcutta* **18**: 63, fig. 1–8, ♂♀. **New synonymy.**

C. kalyania was based originally upon 5♂♂, 6♀♀, W Bengal: Nadia Distr., Haringhata, said to have been off *Pipistrellus ceylonicus* Kelaart (Vespertilionidae). It was not included in my (1966) paper. The holo- and allotypes were said to have been deposited in the Zool. Surv. India, Calcutta but I could not locate them while visiting that institute in Aug. 1966. Rather recently a copy of the original description was made available through the courtesy of Dr K. R. P. Singh of Poona. At my first glance of the description and drawings, *kalyania* was seemingly a distinct species, and characterized by the scanty setae on vertex (Choudhuri et al., fig. 1A), thoracic venter (fig. 2, *vs*), ♂ tergites and sternites (fig. 4A, 5) and ♀ abdominal membranous area (fig. 7–8), presence of heavy blunt spines on surface (and on hind margin as well) of ♀ pregenital plate (fig. 7), unequal-sized facets of eyes (fig. 1) and "cylindrical" spurs underneath apical tarsomeres

(fig. 3). It soon became quite obvious, after checking specimens of *sykesii* and the literature cited by those describers, that *kalyania* is a synonym of *sykesii*. Also apparent are (a) that the description was based upon single ♂ and single ♀ rather than the entire type series since hardly anything was mentioned regarding intraspecific variation of the measurements, setal numbers etc.; (b) that the comparison by the describers regarding the ptilinium, eyes, labella and ♂♀ terminalia was made not with actual authentical specimens of *sykesii* but solely with descriptions and illustrations by Jobling (1928, *Parasitology* **20**: 254–272, 4 fig., pl. 14–16) and Hiregaudar et al. (1956, *Agra Univ. J. Res. Sci.* **5**: 47–51, fig. 65–71); (c) that as evidenced by the absence of basal bristles on ♂ claspers (fig. 4B) as well as the irregularity of setation of tergites 4–6 (fig. 5), many or most of the setae were advertently or inadvertently omitted in the drawings; (d) that the heavy spines seemingly on surface of ♀ pregenital plate were actually on part of anal segment overlapped (superimposed) by pregenital plate. The unequal-sized ocular facets, the cylindrical (rather than pointed) apicitarsal spurs and the absence of basal rings of ocular facets, as emphasized by the describers, might have resulted from technical errors in mounting and observing. As I can see from the description, there are no structural peculiarities in the ptilinium, ♂ genitalia, ♀ pregenital plate and ♀ spiracle-number as claimed by the describers. Jobling (l. c.) described the labella of *sykesii* as having 6 prestomal and 2 inner teeth and Hiregaudar et al (l.c.), the abdominal ctenidium as having 40 teeth while Choudhuri et al, the labella with "more than" 6 prestomal teeth and the ctenidium with 33 teeth. Both numbers can never be trusted as absolutely constant within a species, and actually *sykesii* usually has 32± abdominal teeth (Theodor 1959: 249). *Kalyania* was presumed by its describers to be "at once distinguished" from *sykesii* by having facets ("ocelli") of each eye to be unequal in size and devoid of basal rings, more than 6 prestomal teeth, never more than 35 abdominal ctenidial teeth ("lanceolate tubercles"), 5 pairs of spiracles on ♀ abdominal membranous area and structural peculiarities in ptilinium, ♂ genitalia and ♀ pregenital plate. But none of these points can make *kalyania* decidedly different from *sykesii*. Even if *kalyania* could stand as a distinct species, it clearly belongs to the Sykesii group which is confined to *Pteropus* bats. The only *Pteropus* in Peninsular India is *Pt. giganteus* Brünnich, a proven host of *C. sykesii*. This almost certainly rules out the possibility of a second species of the Sykesii group on *Pt. giganteus* in India. The occurrence of *Cyclopodia* and related flies on any Microchiroptera is so unlikely that the original host record of *kalyania* as ex *Pipistrellus* must be considered incorrect.

Cyclopodia Pembertoni group

By the structure of ♂ synsternite 5+6 and ♀ pregenital plate, this group can readily be divided into 4 subgroups typified by *aspinosa* Maa, *ligula* Maa, *macracantha* Theod. and *pembertoni* Scott respectively. More species of the group are expected to be found in Celebes, Bismarck Archip. and New Caledonia. In my (1966) key to species, couplet 7, the word *ligula* is an error for *aspinosa*. A new key follows.

1. ♂: Hind margin of synsternite 5+6 entirely lined with uniformly long fine bristles; lateral membrane of abdominal segments 3–5 densely setose; lower (exterior) margin of clasper in profile suddenly curved at 45± degrees at a point on basal 1/3. ♀: Abdominal membranous area with patch of 50± short heavy spines on dorsal disc,

elsewhere uniformly covered with short fine setae; pregenital plate entire, simple, posterior 1/2 entirely bare besides marginal spines; tergite 2 posteriorly fringed with exceedingly short setae except at extreme lateral sections. New Guinea.....**aspinosa** Maa

♂: Hind margin of synsternite 5+6 lined with 7–30 peglike spines or very long truncated teeth in addition to some bristles; lateral membrane entirely bare; basal 1/2 of clasper in profile practically straight along lower margin. ♀: Abdominal membranous area and pregenital plate not as described above; tergite 2 (except in *m. macracantha*) posteriorly fringed with long or moderately long bristles 2

2 (1). Surface of haltere groove weakly convex at outer half, never forming conspicuous sublateral swelling; labella either as long as or shorter than theca. ♂ synsternite 5+6 posteromedially produced into upraised tonguelike process bearing 7–15 peglike spines; ♀ pregenital plate completely or incompletely interrupted at middle and with ordinary setae both covering surface and fringing hind margin 3

Surface of haltere groove quite uneven in height, outer half suddenly strongly swelling up and partially overlapping haltere; labella at least 1.5× as long as theca; ♂ synsternite 5+6 normal, lacking such process; ♀ pregenital plate entire, posteriorly somewhat comblike, fringed with heavy blunt spines 4

3 (2). Head capsule with patch of 50± setae in 3–5 rows between eyes; tergite 1 with 40± discal spinules, its lateral corners setose; dorsum of ♂ anal segment uniformly covered with dense setae; ♂ synsternite 5+6 ca 2× as long as sternite 4, its tonguelike process very strongly produced and upraised and bearing 13–15 spines; ♀ abdominal membranous area uniformly covered with dense fine short setae; ♀ pregenital plate ca 2× as wide as long, completely interrupted at middle. New Guinea..... **ligula** Maa

Head capsule with 12± setae (in 2 closely arranged rows) on and near anterodorsal margin between eyes; tergite 1 with 6–14 discal spinules, its lateral corner bare; dorsum of ♂ anal segment sparsely setose at lateral and extensively bare at median part; ♂ synsternite 5+6 slightly longer (11 : 8) than sternite 4, its tonguelike process (fig. 38) moderately produced and upraised and bearing 7–8 spines; ♀ abdominal membranous area dorsomedially with many long bristles, laterally and ventrally with moderately long setae; ♀ pregenital plate about as long as wide, incompletely interrupted at middle. Philippines..... **garrula** n. sp.

4 (2). Head capsule dorsally with patch of 30± setae (in 3–4 rows) between eyes; 6–10 notopleural setae forming small patch; ♂ synsternite 5+6 posteriorly with 25± exceedingly long, evenly robust, apically truncate teeth; ♂ clasper very long and slender; ♀ abdominal membranous area dorsally with discal patch of long bristles (some or rarely all of these bristles may be replaced by strong, moderately long spines) and a posterior row of 8± long bristles, these bristles each arising from much enlarged and heavily sclerotized basal papilla; ♀ pregenital plate nearly 2× as long as wide, anteriorly angular 5

Head capsule dorsally with only a pair of setae on anterior margin; 2, rarely 3 notopleural setae in single row; ♂ synsternite 5+6 posteriorly with 10± short peglike spines; ♂ clasper (fig. 48) moderately long, fairly robust; ♀ abdominal membranous area dorsally with fine setae all arising from uniform, rather small basal papillae, no bristles as described above, setae on anterior part short, gradually becoming longer on approaching anal segment; ♀ pregenital plate either transverse or as long as wide, anteriorly subtruncate 6

5 (4). ♂: Minor setae fringing median section of posterior margin of tergite 2–4 (fig. 55) ca 3× as long as interspace of setal bases and distinctly longer, stouter than setae on surface of these tergites. ♀: Setae fringing median section of tergite 2 (fig. 53) slightly shorter than those fringing lateral section and ca 4× or more as long as

those near disc of abdominal dorsum; lateral membranous area of abdomen (fig. 64) with 4–5 long stout bristles at each side at level of spiracle 6. Western Solomon Is. (Bougainville) ..... **macracantha longiseta** n. subsp.

♂: These minor setae (fig. 54) ca 1.0–1.5× as long as interspace of setal bases and hardly longer, stouter than setae on surface of these tergites. ♀: Setae fringing median section of tergite 2 (fig. 52) markedly shorter than those fringing lateral section and not or hardly longer than those near disc of abdominal dorsum; lateral membranous area of abdomen lacking such bristles. Eastern Solomon Is. .... **macracantha macracantha** Theod.

6 (4). ♂ (fig. 46): Posterior fringes of tergites 2 and 3 composed of ca 30 and 36 bristles respectively, fringe of tergite 5 not interrupted at middle, anal segment shorter, broader in proportion. ♀: Pregenital plate transverse, simple, lacking erect horn-like process; venter of anal segment strongly setose at anterolateral corners; anterior rows of setae on dorsum of abdominal membranous area virtually straight. New Hebrides ..... **planipyga** n. sp

♂: Posterior fringes of tergites 2 and 3 composed of ca 40 and 45 bristles respectively, fringe of tergite 5 interrupted at middle, anal segment relatively longer, narrower. ♀: Pregenital plate about as long as wide, discally with horn-like, erect, strongly projecting process; venter of anal segment bare at its anterolateral corners; median part of anterior rows of setae on dorsum of abdominal membranous area distributing much forward than submedian and lateral parts. Fiji Is., Samoan Is.....**pembertoni** Scott

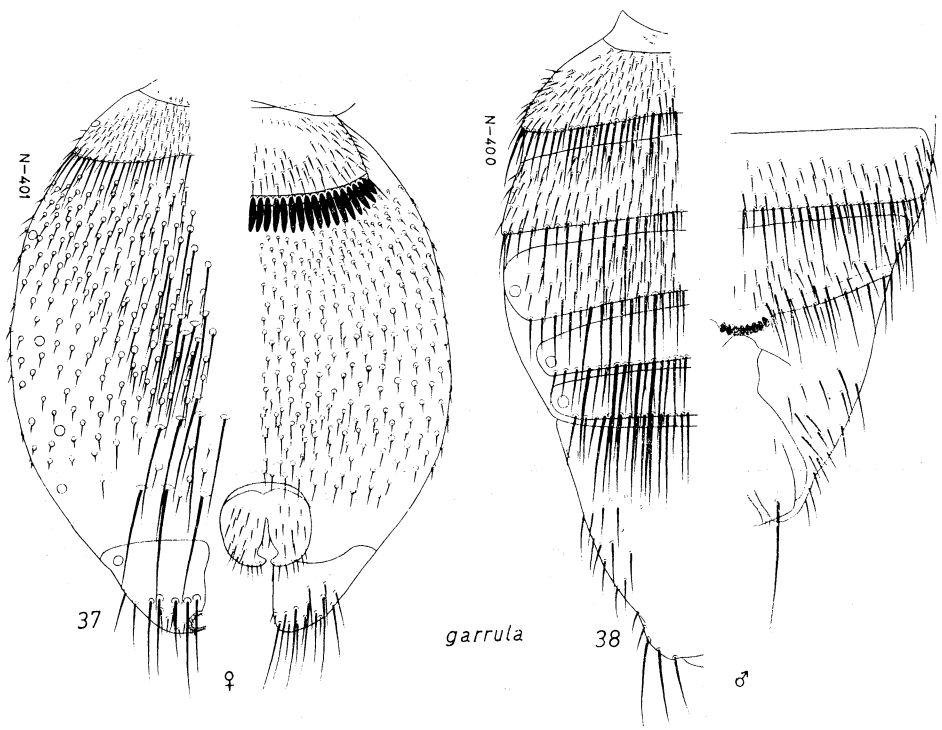

Fig. 37–38. *Cyclopodia garrula* n. sp., ♀ and ♂ abdomens, dorsal and ventral views.

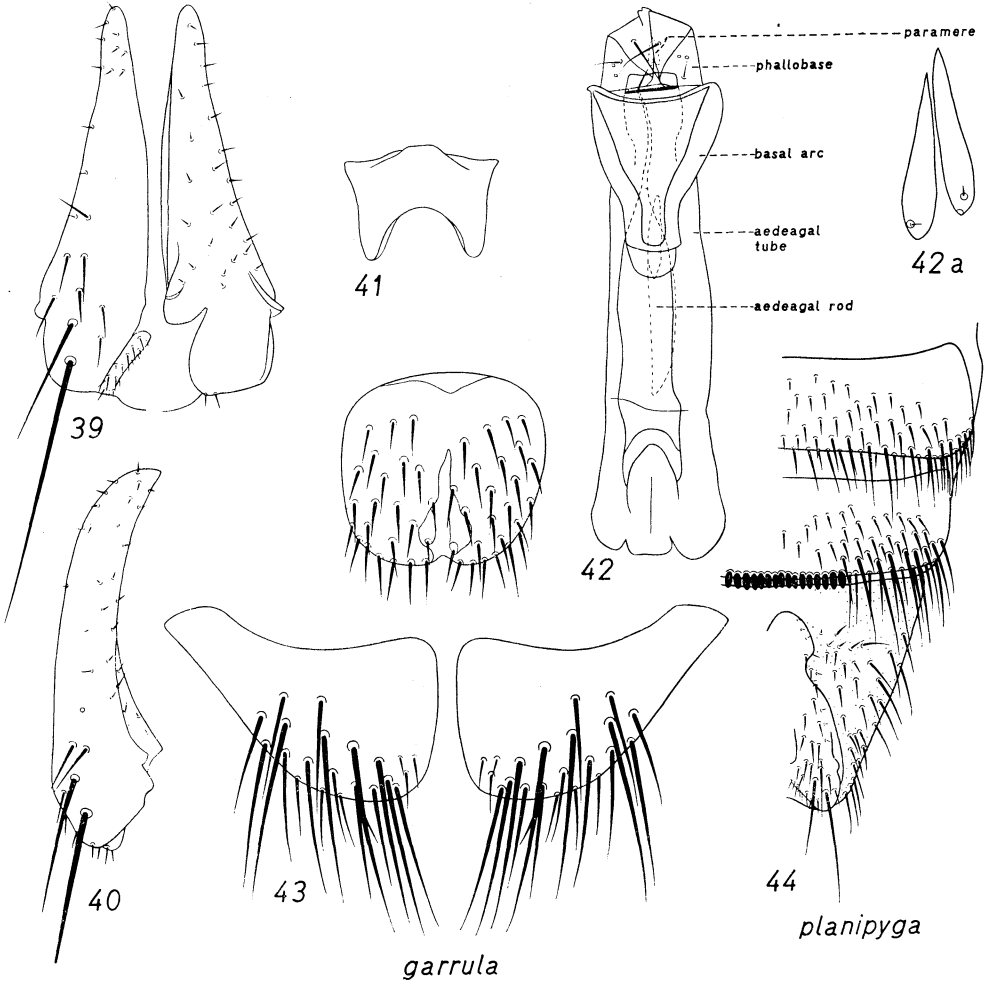

Fig. 39–43. *Cyclopodia garrula* n. sp., ♂ clasper (39–40) in ventral, dorsal and lateral views, ♂ genital deckplate (41), internal ♂ genital organ (42), and ♀ pregenital plate plus anal segment (43). 44, *C. planipyga* n. sp., ♂ abdominal apex, ventral.

Cyclopodia ligula Maa, 1966

Additional material. NEW GUINEA: 3♂♂, Big Wau Creek, ex *Nyctimene*, BBM 24599, 24613, VIII. 1965, P. Shanahan. 1♀, Wau, ex *Nyctimene*, BBM 24585, Shanahan; 1♂, *id*, *Dobsonia*, BBM 24588. 2♂♂, 1♀, BBM 23601, no other data. The single *Dobsonia* record might be a straggler or misidentification of the host.

Cyclopodia garrula Maa, new species Fig. 37–43.

Material. 2♂♂, 1♀. PHILIPPINES: 1♂, 1♀, Mindanao, Davao Prov., Mt Mayo Peak, Mati, 1700–2000 m, ex *Harpionycteris* (M 9231),VI.1965, D. S. Rabor; 1♂, *id*, Mt Mayo, Limot Mati, M 8355. Holotype ♀ (BISHOP 7570), partly dissected, on slides.

Habitats. Apparently confined to the Philippines and to *Harpionycteris wh. whiteheadi* Thos. which also serves as host of *Leptocyclopodia* (*Leptocyclopodia*) *pilosipectus* Maa. The genus *Harpionycteris* Thos. is monotypic and is endemic to the Philippines and Celebes. A subspecies of *garrula*, or even a full species related to it, is expected to occur in Celebes ex *H. whiteheadi celebensis* Miller et Hollister.

Affinities. A member of the Pembertoni group, closely similar to *C. ligula* Maa of New Guinea in having densely setose tergite 2 in both sexes, tonguelike process of ♂ synsternite 5+6 and seta-fringed ♀ pregenital plate. Readily recognizable from *ligula* by much smaller size, less setoseness (head capsule, tergite 1 and ♂ anal segment), and particularly by less produced tonguelike process of ♂ synsternite 5+6 and presence of long bristles on ♀ abdominal dorsum. As in *ligula*, the ♀ pregenital plate and to a less extent, the ♂ synsternite 5+6 are features showing affinities toward the Inflatipes group. The name (*garrulus*, Latin, babbling, chattering, talkative) is given in allusion to the tonguelike process.

Description. Moderately robust, dark reddish brown. Length ♂ 2.8–3.3 mm, ♀ 3.5 mm. Head capsule as long as wide, with 12± setae (in 2 closely arranged rows) on and near anterodorsal margin, 10± (in single row) along genal margin, no dorsodiscal setae; anterodorsal margin almost straight. Eye fairly large, interdistance of facets slightly smaller than diameter of a facet. Palpus much shorter than its terminal bristle and slightly so than head capsule. Labella subequal in length to theca. Thorax with 2, rarely 3 notopleural setae; ctenidium composed of 23± teeth; coxopleurite subtriangular, 2/3 as wide as long, surface with scattered setae, posterior fringe inconspicuous. Haltere groove partly closed by narrow mesal flap, strongly produced at outer posterior corner (not so in *ligula*), gently concave at inner and gently convex at outer half of surface, lacking sublateral swelling found in *pembertoni*, *planipyga*, *macracantha* and *aspinosa*. Thoracic venter 40×45. Metasternum anteromedially forming 90± degree angle; surface uniformly setose; posterior margin gently concave, fringed with setae. Legs rather slender, with slightly denser setae on femora than in *ligula*; coxa 1 shorter (26 : 41) than femur 1; femur and tibia 2 in profile 42×13 and 49×8 respectively; relative lengths of femur, tibia and basitarsus 3 as 52 : 50 : 27; distance from tibial base to 1st pale ring much shorter than (in *ligula*, about as long as) distance from 3rd pale ring to tibial apex; basitarsus 3 ca 2× as long as its succeeding tarsomeres together, with 14± pale rings.

Abdomen of ♂ (fig. 38) with long, moderately dense setae on surface. Tergite 1 with 3–7 pairs of spinules, lateral corner bare. Tergites 2–6 fringed posteriorly with uniformly long bristles which are distinctly sparser on tergites 3–4 than on remaining tergites; surface of tergite 2 uniformly covered with dense setae, that of tergites 3–4 sparsely so, that of tergites 5–6 bare; relative median lengths of tergites 3–6 as 9 : 7 : 6 : 5. Anal segment about as long as wide at base, weakly tapering apicad, dorsum broadly bare at middle, sparsely setose at sides. Laterite 1 and lateral membrane of segments 3–5 bare. Synsternite 1+2 anteriorly straight, not notched at middle, posterior part of surface with 2–3 setal rows; ctenidium composed of 34–36 teeth. Sternites 3–4 densely fringed with bristles on posterior margin, median part of surface of these 2 sternites with 5–6 and 3 setal rows respectively, setae of hindmost rows ca 2×as long as those of anterior rows. Synsternite 5+6 with scattered setae over surface, with loosely arranged bristles (at lateral part) and fine setae (at submedian part) fringing posterior margin; tonguelike process weakly produced and upraised, bearing 7–8 short blunt teeth. Relative median lengths of these sternites 8.5 : 8 : 11. Venter of anal segment sparsely setose; anterior margin evenly, moderately deeply concave; subbasal lobe on inner margin hardly produced mesad, anteriorly bordered by strong oblique ridge, posteriorly subangulate. Clasper (fig. 39–40) straight, sparsely setose, 3.5× as long as wide and very strongly tapering apicad in ventral view, gently curved and apically pointed in lateral view. Genitalia (fig. 41, 42, 42a) with lanceolate paramere; phallobase short, traversed

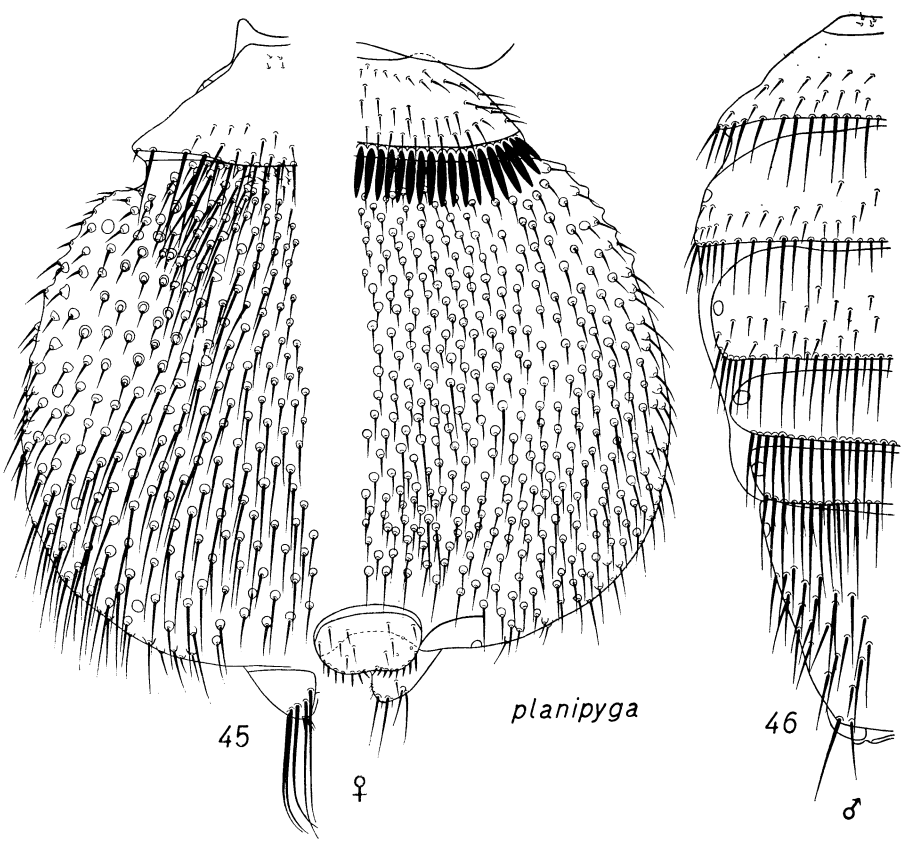

Fig. 45–46. *Cyclopodia planipyga* n. sp., ♀ abdomen (dorsal and ventral) and ♂ abdomen (dorsal).

at each side by pale oblique lines, with 4± pairs of fairly long setulae; apical hook short; basal arc with rather short anterior lobe; aedeagal rod apically membranous, pigmented part 0.45 mm long, about as long as spinulose part of aedeagal tube; spinules of aedeagal tube rather sparse, exceedingly fine; deck plate moderately strongly bilobed.

Abdomen of ♀ (fig. 37) rather sparsely setose. Tergite 2 with weaker posterior fringe than in ♂. Membranous area unevenly setose, setae on dorsomedian part replaced by long bristles and those on anterior part of venter distinctly finer, shorter (otherwise ventral membranous area fairly uniform in setoseness). Spiracles 0.05 mm in diameter. Anal segment large, enclosing spiracle 7 (not so in *ligula*), its side-pieces triangular in outline both in dorsal and ventral views, rather richly setose posteriorly, bare at anterior part of venter (fig. 43). Pregenital plate (fig. 43) nearly as long as wide, posteriorly interrupted at middle, surface and posterior margin rather evenly setose, no blunt marginal spines.

Cyclopodia planipyga Maa, new species Fig. 44–51, 69.

Material. 2♂♂, 2♀♀. NEW HEBRIDES: 1♀ (holotype), Tanna, ex *Notopteris mac-*

donaldi (K 53299), A. F. Lockhart Bell; 2♂♂, 1♀ (incl. allotype ♂), *id*, K 56803-805, J. M. Nicoll; all received from Austral. Mus. Holotype ♀ (BISHOP 7571), allotype ♂ in Bishop Mus.; 3 paratypes in Austral. Mus., Sydney.

Habitats. Apparently confined to the New Hebrides and to *Notopteris macdonaldi* Gray. A third species of this species complex is expected to be found in New Caledonia on *Notopteris neocaledonica* Trouess.

Affinities. Closely related to *C. pembertoni* which is parasitic on *N. macdonaldi* in the Fiji Is. and on (?) *Pteropus samoensis* Peale in the Samoa Is. Immediately distinguishable from *pembertoni*, as the name *planipyga* suggests, by the simple ♀ pregenital plate. The ♂ differs chiefly in details of abdominal chaetotaxy.

Description. Differing from *pembertoni* in the following points. Size slightly smaller; body length ♂ 3.7 mm, ♀ 3.0–3.7 mm; thoracic venter ♂ 42×45, ♀ 44×47. Abdomen of ♂ (fig. 44,

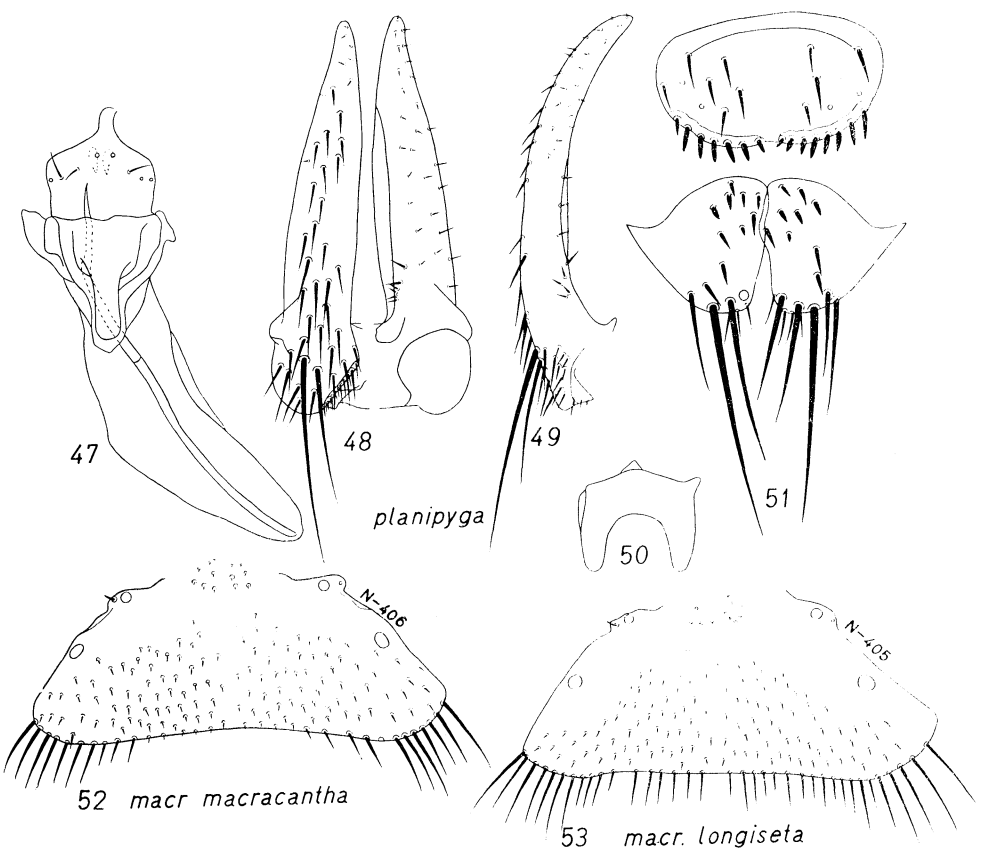

Fig. 47–51. *Cyclopodia planipyga* n. sp., internal ♂ genital organ (47), ♂ clasper (48–49) in ventral, dorsal and lateral views, ♂ genital deck-plate (50) and ♀ pregenital plate plus anal segment (51); 52–53, *C. macracantha macracantha* Theod. and *C. m. longiseta* n. subsp., ♀ tergites 1–2, with fig. 52 more enlarged than fig. 53.

46): Posterior fringes of tergites 2–4 composed of much fewer but comparatively stouter setae; fringe of tergite 5 not, that of tergite 6 hardly interrupted at middle; surface of tergites 3–4 with fewer setae, that of tergite 5 either entirely bare (in allotype) or with very scattered setae. Ctenidium composed of 34 teeth (in allotype). Anal segment shorter, broader in proportion; subbasal lobe on inner margin of venter mesally more broadly rounded (in *pembertoni*, rather narrowly rounded). Clasper (fig. 48–49) comparatively broader. Deckplate as in fig. 50; phallobase and paramere (fig. 47, 69) with fewer setae; aedeagal rod 0.9 mm long, lacking membranous area at apex; aedeagal tube bare at basal 1/3. Abdomen of ♀ (fig. 45): Dorsal setae at level of spiracle 3 uneven in length and robustness, those on median area distinctly shorter, finer than on submedian area and anteriorly distributing to same level as latter (in *pembertoni*,

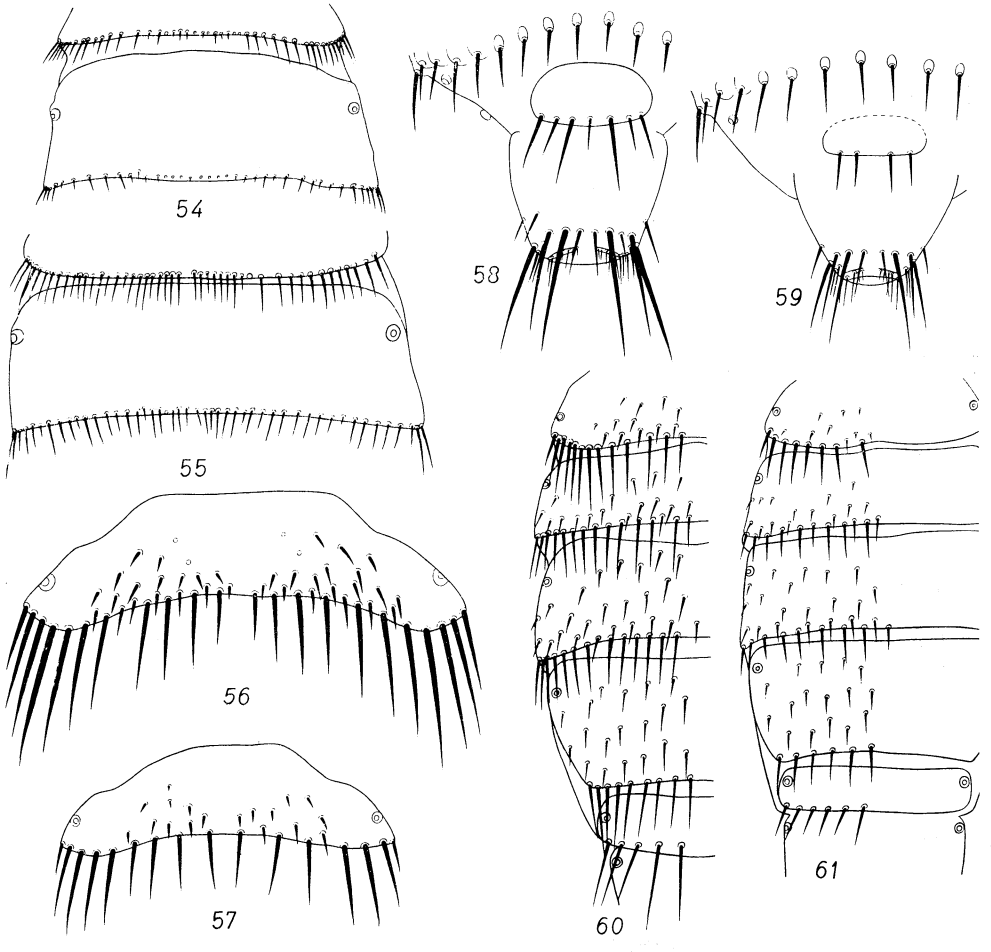

Fig. 54–55. *Cyclopodia macracantha* subspp., ♂ tergites 2–3, posterior fringes, omitting setae on tergal surface, 54, *m. macracantha* Theod.; 55, *m. longiseta* n. subsp. 56–61. *Leptocyclopodia simulans* Theod. (56, 58, 60) and *L. analis* n. sp. (57, 59, 61), ♀ tergite 2 (56–57), ♀ abdominal apices, dorsal (58–59) and ♂ abdomens, dorsal (60–61). Figures each drawn to same scale as its counterpart, such as fig. 54 vs 55 and fig. 60 vs 61.

median setose area anteriorly much surpassing level of submedian setose area, and submedian setae not or hardly longer, stouter than median setae at same level). Side-piece of anal segment (fig. 51) dorsally triangular in outline, ventrally with short strong setae at base (in *pembertoni*, trapezoidal, lacking such setae). Pregenital plate (fig. 51) transverse, lacking erect horn-like process, surface sparsely setose, posteriorly fringed by moderately sharp teeth.

Cyclopodia macracantha macracantha Theodor, 1959 Fig. 52, 54.

In 3 of the 7 ♂♂ at hand from Malaita, St George and Guadalcanal, the tergite 4 is fringed by several long bristles in addition to short setae; whereas in the other 4 (2 from Guadalcanal, 1 each from Kolombangara and Fauro), there are no such bristles. And in all the 6♀♀ at hand, there are no small patches of bristles on lateral abdominal area at level of spiracle 6 which I consider to be a useful subspecific character. Fig. 29(♂) and 33(♀) respectively and the record from Bougainville in the original description seem referable to the new subspecies. Fig. 52 and 54 in this paper are based upon a ♀ from Nini Creek, Guadalcanal and ♂ from Toumoa, Fauro respectively. Previously unrecorded specimens of this species are: 1♂, St George I., ex flying fox, H. S. Heffernan; 1♀, Guadalcanal, Lavoro Pltn., ex *Pteropus woodfordi*, 1923, C. E. Hart: both specimens were received from Austral. Mus., Sydney.

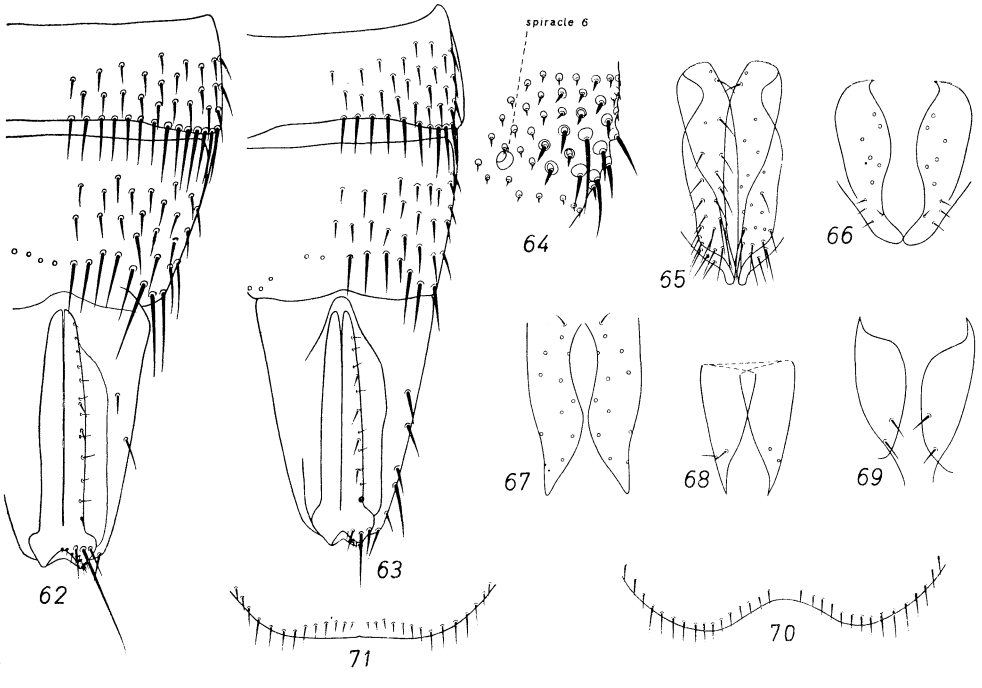

Fig. 62–63. *Leptocyclopodia simulans* Theod. (62) and *L. analis* n. sp. (63), ♂ abdominal apices, ventral, drawn to same scale. 64. *Cyclopodia macracantha longiseta* n. subsp., ♀, setae at vicinity of abdominal spiracle 6. 65–69. Parameres, drawn to different scales, 65, *Leptocyclopodia laminata* n. sp.; 66, *L. villosa* n. sp.; 67, *L. thaii* n. sp.; 68, *L. brachythrinax* Theod.; 69, *Cyclopodia planipyga* n. sp. 70–71. *L. simulans* (70) and *L. analis* (71), ♀ thoracic sternal plates, hind margins.

Cyclopodia macracantha longiseta Maa, new subspecies. Fig. 53, 55, 64.

Material. 1♂, 1♀. Holotype ♀ (BISHOP 7572) and allotype ♂, in Bishop Mus. SOLOMON IS.: 1♀, Bougainville, ex *Pteralopex atrata anceps* (M 6497), J. B. Poncelet; 1 ♂, *id*, ex *Pteropus* ? sp. (M 6280); both received from Austral. Mus., Sydney.

Habitats. Most probably confined to western or northern Solomon Is. whereas the nominotypical subspecies, to eastern or southern Solomon Is. (Malaita, Florida I., Guadalcanal, St George, Kolombangara, Fauro).

Affinities. Closely related to the typical subspecies but size noticeably larger, setae longer, stouter and more numerous. In the original description of *macracantha*, 2♂♂, 2♀♀ were recorded from Cape Torokino, Bougainville. These are probably referable to the new subspecies.

Description. Differing from typical subspecies (characters of which in parentheses) in the following points: size larger, length of body, ♂ in alcohol 5.0 mm (4.0–4.5 mm); of thorax, ♂ 1.8 mm, ♀ 2.1 mm. Head capsule with more numerous setae between eyes. Thoracic setae distinctly longer, stouter. Legs more robust in proportion. Abdomen of ♂ (fig. 55): setae fringing median section of posterior margins of tergites 2–4 ca 3×(1.0–1.5×) as long as interspace of setal bases and distinctly longer, stouter (hardly longer and stouter) than setae on surface of those tergites. Abdomen of ♀ (fig. 53): setae fringing median section of posterior margin of tergite 2 ca 4× or more as long as (hardly longer than) those near disc of abdominal dorsum; lateral membranous area (fig. 64) with 4–5 long stout bristles at each side at level of spiracle 6 (uniformly setose, no such bristles).