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ON SOME ORIENTAL AND PACIFIC TABANINAE
(Diptera : Tabanidae)

By I. M. Mackerras

QUEENSLAND INSTITUTE OF MEDICAL RESEARCH, BRISBANE, AUSTRALIA

ABSTRACT

In the Diachlorini, *Tabanotelum* Oldr., *Lissimodes* Mack. (nom. nov. for *Neotabanus* Ric. nec Lutz), *Lissimas* End., *Chalybosoma* Oldr. and *Chasmia* End. (syn. *Chasmiella* End.) are reduced to subgenera of *Cydistomyia*. *C. pechumani* Philip, Philippines, is allotted to the subgenus *Lissimas*; *Silvius celebensis* Sch. Stek., Celebes, is transferred to the subgenus *Cydistomyia*; and *C.* (*Cydistomyia*) *grenieri* Mack. & Rag., New Caledonia, to *Dasybasis* (*Protodasyommia*).

In the Tabanini, *Pseudobolbodimyia*, n. subgen. of *Tabanus*, is proposed for *Neobolbodimyia argentata* Szil. (type species) and *N. laticornis* Sch. Stek., both from Celebes.

Four new species are described: *Tabanus gilingilensis*, ♀, from New Ireland; *Cydistomyia* (*Tabanotelum*) *primitiva*, ♀♂, and *secunda*, ♂, from India; *Dasybasis* (*Protodasyommia*) *rageaui*, ♀, from New Caledonia.

C. (*Cydistomyia*) *nana* Mack. & Rag., described from Solomon Is., is recorded from New Britain, and *C.* (*Parabolbodimyia*) *veitchi* (Bezzi), described from Fiji, is recorded from New Hebrides.

INTRODUCTION

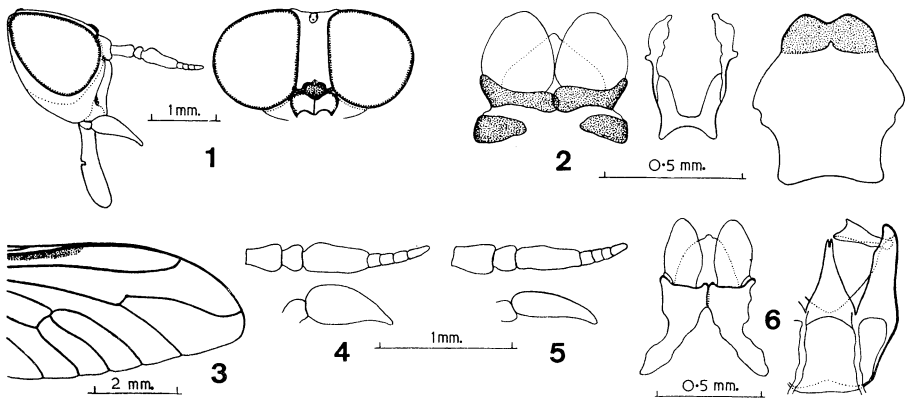
This paper is limited to some descriptions and records that need to be taken into account in any study of the origins and distribution of Pacific Tabanidae. The species are therefore arranged in geographical groups. Those of New Guinea are omitted, because they are being treated more fully in a separate paper. Formal taxonomic citations are also omitted, but relevant papers are included in the references at the end.

I am indebted to Dr. L. L. Pechuman, Lockport, New York, Dr. C. B. Philip, Rocky Mountain Laboratory, Montana, U. S. A., Dr. J. Rageau, Institut Français D'Océanie, Paris, Dr. J. L. Gressitt, Bishop Museum, Honolulu, Mr. H. Oldroyd, British Museum (Natural History), London and Professor Fritz Peus, Zoologisches Museum, Berlin, for the opportunity to examine the material that is reviewed here.

INDIA

The two species described below are the first Diachlorini to be recorded from the Indian peninsula and are amongst the most primitive members of the tribe that have so far been studied. They conform to *Tabanotelum* Oldr. in general appearance and in having unusually long wings, with the tip of M_4 beyond apex of abdomen, unusually long cell R_4 and tendency to occurrence of an appendix on vein R_4. They differ in having well-de-

veloped ocellar tubercles bearing rudimentary ocelli and in the wider frons and differently shaped callus of the only ♀ known. Nevertheless, they may be most conveniently included in *Tabanotelum*, which is reduced to subgeneric status in *Cydistomyia*, because the type species from Mauritius and these two from India are difficult to separate supraspecifically from some slender species of *Cydistomyia* that occur in New Guinea and the western Pacific. Whether the eastern forms should be transferred to *Tabanotelum* or retained in the subgenus *Cydistomyia* may be left open at the present stage.



Figs. 1–6. *Cydistomyia*, subgenus *Tabanotelum*: 1, 2, *primitiva*, n. sp., ♀, head and genitalia; 3, 4, 6, ♂ of same, wing, antenna and palp, genitalia; 5, *secunda*, n. sp., antenna and palp of ♂.

Cydistomyia (Tabanotelum) primitiva Mackerras, n. sp. Figs. 1–4, 6.

Holotype ♀, from Pulney Hills, Kodaikanal, 2200 m, India, VI–1953, P. S. Nathan, and allotype ♂, with same data, except that collected in May, in the collection of Dr. L. L. Pechuman, Lockport, New York. Paratype ♂, with same data, in the British Museum (Natural History). The ♀ is somewhat crumpled and damaged, but it has been made the holotype, as ♂♂ of Tabanidae are notoriously deficient in specific characters.

A long-bodied, rather bare, brown species, with vague brown spots on cross-veins of wing, and banded abdomen. Length 11 mm. To be distinguished from *jactum* Oldr. by the presence of a well-developed ocellar tubercle, wide frons and short callus in ♀, and pattern of wings and abdomen.

Female (Figs. 1, 2). *Head*: Eyes dark brown, without indication of banding in unrelaxed specimen, bare. Frons medium, index 3, slightly diverging, with brownish tomentum and inconspicuous brown hairs; ocellar tubercle prominent, with rudiments of 3 ocelli; callus short, transverse, irregular above, shining brown below. Subcallus prominent, sharply marked off from frons and parafacials, darker brown than them in certain lights, tomentose, with a narrow, shining brown margin laterally and below, without hairs. Parafacials and face yellowish fawn-brown, with yellow hairs; tentorial pits round and deep. Antennae brown; segments 1 and 2 with brownish fawn tomentum and brown hairs; 3 darkening distally, becoming blackish on style. Palpi bright yellowish brown, with bristly yellow hairs. Proboscis short and soft. Beard sparse, creamy yellow.

Thorax: Scutum and scutellum brown, with vague darker markings in median and

sublateral areas (possibly due to discoloration), lighter lateral margins and cream pronotal lobes. Hairs sparse, dull yellowish mixed with a few dark ones, black on notopleural lobes, and not obviously differentiated above and behind wing-root or on margin of scutellum. Pleura brown, somewhat darker on mesopleural convexity, with predominantly dull yellowish cream hairs.

Legs: Brown, darkening somewhat on fore tibiae and all tarsi; hairs dull yellowish basally on femora, brown elsewhere.

Wings: Faintly greyish, with brown stigma and veins, yellowish brown costal cell, and indications of small darker clouds at fork of R_{4+5}, apex of discal cell and apex of basal cells. Vein R_4 angulate and somewhat thickened at bend, but without definite appendix.

Abdomen: Tergite 1 yellowish, a little darker basally, and with dull yellowish hairs; remaining tergites dark brown, with broad yellowish fawn apical bands which are produced into well-defined median triangles; hairs dark brown on the darker parts, dull yellow on the paler bands and triangles; lateral margins inturned, but apparently without pale fringe. Venter yellowish at base; remainder dark brown, with broad pale apical bands to sternites, and predominantly yellowish cream hairs, except for some dark ones on darker parts of sternites. Genitalia with sternite 8 relatively long and narrow, the cerci having a somewhat tent-like appearance in the intact specimen as in *jactum*.

Male (Figs. 3, 4, 6). The 2 ♂♂ are in better condition than the ♀, and their general appearance is quite like Oldroyd's illustration (1954, fig. 52). Eyes slightly wider than thorax, closely approximated in midline, with short, sparse, inconspicuous hairs on the enlarged, red-brown, central and upper facets, which are marked off clearly from the small, black, lower and lateral facets. Ocellar tubercle prominent, triangular, with vestiges of 3 ocelli. Frontal triangle and subcallus brown; parafacials greyish (somewhat discolored); face sunken, brown. Antennae paler basally than in ♀, so that the blackish style is more contrasting. Palpi fawn, with cream hairs.

Thorax, legs, and wings as in ♀, but thorax with longer hairs, and wings with the small brownish clouds better defined. Abdomen elongate-conical, with the ground color of tergites 2–4 not as dark as in ♀, and the paler median triangles less contrasting, but tending to fuse into an indefinite vitta. The venter is similar and not as strongly banded as in the ♀. Genitalia normal for tribe.

DISTRIBUTION: India, Pulney Hills, 2000 m, V, VI, Nathan.

Cydistomyia (Tabanotelum) secunda Mackerras, n. sp. Fig. 5.

Holotype ♂, from Pulney Hills, Kodaikanal, 2200 m, India, VI–1953, P. S. Nathan, in the collection of Dr. L. L. Pechuman, Lockport, New York. Two paratype ♂♂ with same data, one in United States National Museum, the other in the British Museum (Natural History).

It is generally undesirable to describe new species from ♂♂ only, but the three of this species examined can be distinguished clearly from the two of *primitiva*, and the ♀♀, when discovered, should not be diffcult to recognize.

Male (Fig. 5). Differs from *primitiva* in smaller size (length 7–8 mm), relatively uniform facets of eyes, differently shaped antennae and palpi, darker legs, more diffusely brownish wings, and the median pale triangles on abdominal tergites 1 to 5 being fused to form a clearly defined yellowish vitta.

Head: Eyes dark brown, with medium-sized facets which merge into somewhat smaller lower and lateral ones. Ocellar tubercle and ocelli conspicuous. Frontal triangle grey; subcallus light yellowish fawn; face more greyish than in *primitiva*. Antennae with segment 1 longer, basal plate of 3 narrower and style shorter and thicker than in *primitiva*; palpi narrower and more greyish.

Thorax: Scutum and scutellum dark brown, paler on margins, with dull creamy yellow hairs. Pleura light fawn to greyish, with dull yellowish cream hairs.

Legs: Dark brown with dark brown hairs, the mid tibiae a little paler than the other segments.

Wings: Diffusely brown, darker in costal cell and radial area, with a tendency to pallor in centers of cells, but no indication of small darker clouds; stigma and anterior veins dark brown, posterior veins lighter brown; venation as in *primitiva*.

Abdomen: Dark brown, with narrow, yellowish fawn apical bands on tergites 2–7, a broad, more definitely yellowish median vitta which fades on tergite 6, and yellowish lateral margins; hairs dark brown on the darker parts, light golden on all the paler areas. Venter with sternites 1 and 2 yellowish, 2 with a variable brown cloud; remainder dark brown, with yellowish fawn apical bands; hairs brownish black on most of darker parts, light golden elsewhere. Genitalia as in *primitiva*.

DISTRIBUTION: India, Pulney Hills, 2000 m, V, Nathan.

Ceylon

Genus **Cydistomyia** Taylor

Subgenus **Lissimodes** Mackerras, nom. nov.

Neotabanus Ricardo, 1911, nec Lutz, 1909. Originally monotypic for *Neotabanus ceylonicus* Ricardo, 1911, Ceylon.

Dr. Alan Stone, U. S. National Museum, has informed me that Lutz's 1909 name must be accepted as nomenclaturally available, so a new name will be needed for Miss Ricardo's genus, if it is to be retained. I have examined both the included species, *ceylonicus* Ric. and *minor* Oldr. (also from Ceylon), in the British Museum, and have come to the conclusion that, although they fall within the broad genus *Cydistomyia*, they represent a distinct line of evolution, and cannot be included in any of the other subgenera into which it is now divided.

Lissimodes differs from the remaining subgenera of *Cydistomyia*, and resembles *Udenocera* Ric., in having small subepaulets bearing a few setulae, rather like those of *Haematopota*. The ♀♀ differ also from the subgenera with unmodified antennae (cf. Oldroyd, 1949, fig. 2c) in having entirely dark or shiny fronts without clearly defined callus. An ocellar tubercle is lacking in both sexes, the subcallus is pouting and shining, the face variably shining, and the terminal abdominal segments of the ♀ are dorsoventrally compressed.

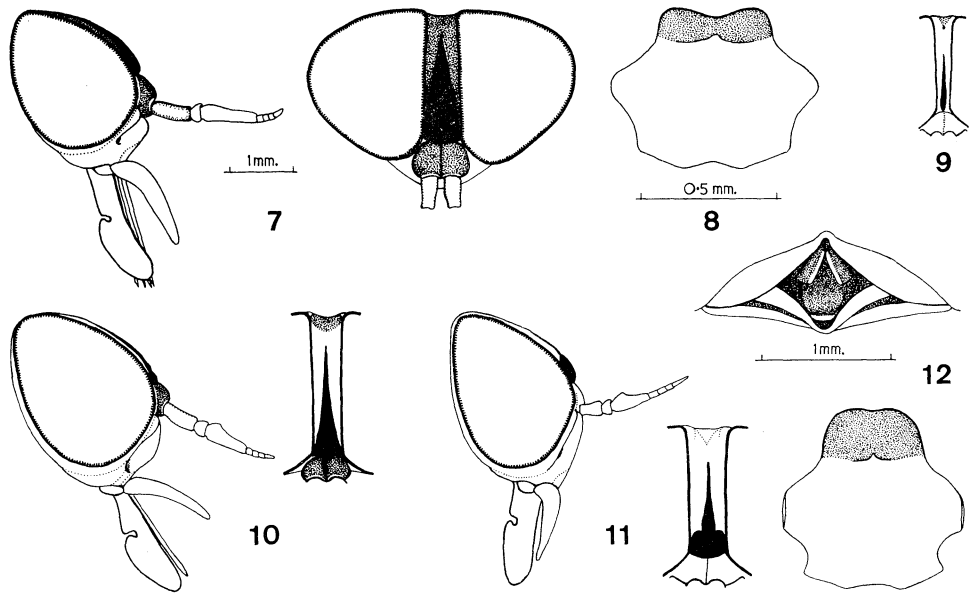
The rearrangement of the Oriental-Pacific Diachlorini, other than *Dasybasis*, set out below is incomplete, in that it does not take account of the African genera established by Oldroyd (1954), but it expresses the varying degrees of divergence that have developed in the series more accurately than treating all the segregates as of generic value.

Udenocera Ricardo, 1904	–	Ceylon
Paracanthocera Enderlein, 1923	–	Moluccas; N. Queensland
Neobolbodimyia Ricardo, 1913	–	New Guinea; Moluccas
Japenoides Oldroyd, 1949	–	New Guinea
Cydistomyia (*Tabanotelum* Oldroyd, 1949)	–	Mauritius; India; ?Papuan-Pacific
(*Lissimodes* Mackerras, 1962)	–	Ceylon
(*Lissimas* Enderlein, 1922)	–	Moluccas; Philippines
(*Parabolbodimyia* Mackerras and Rageau, 1958)	–	Papuan-Pacific
(*Chalybosoma* Oldroyd, 1949)	–	New Guinea; ?Australia
(*Chasmia* Enderlein, 1922)	–	New Guinea
(*Cydistomyia* Taylor, 1919)	–	Sumatra, Sunda Strait; Philippines; Moluccas; Papuan-Pacific; Australia

Indonesia and Philippines

Genus **Paracanthocera** Enderlein

The type species, *australis* (Ric.), is from north Queensland. Oldroyd (1949) noted



Figs. 7–12. *Cydistomyia*, subgenera *Lissimas* and *Cydistomyia*: 7, 8, *C.* (*L.*) *fenestrata* (End.), head and sternite 8 of ♀; 9, *C.* (*C.*) *celebensis* (Sch. Stek.), frons of ♀; 10, *C.* (*L.*) *pechumani* Philip, head and frons of ♀; 11, *C.* (*C.*) *longirostris* (Sch. Stek.), head and frons of ♀; 12, end view of terminal abdominal segments and sternite 8 of same. Upper left-hand scale for all heads and fronts; upper right-hand scale for both sternites.

that *Chrysops parallelus* Walk., from Batchian, was probably congeneric with it, and examination of the types in the British Museum has strengthened the opinion that they are closely related. They appear to represent the limit of known divergence on the line of evolution that is indicated by the subgenus *Lissimas*, just as *Udenocera* represents the limit on the line indicated by *Lissimodes*.

Genus **Cydistomyia** Taylor

Subgenus **Lissimas** Enderlein Figs. 7–8, 10.

The type ♀ of the type species, *L. fenestratus* End., from Toli Toli, N. Celebes, XI, XII–1895, H. Fruhstorfer, was received for study through the kindness of Professor Peus. It proved to possess distinctive features of the same order of magnitude as, but different in kind from, those of the subgenus *Parabolbodimyia*, and it is therefore most appropriately treated as a subgenus of *Cydistomyia*.

Female (Figs. 7, 8, 10). Medium-sized, rather slender species, with relatively long antennae. Eyes bare, without indication of banding. Occiput slightly hollow, no post-ocular rim. Frons of medium width, index 4–5, more or less tomentose, with conspicuous, elongate-triangular, shining callus; vertexal triangle inconspicuous, with or without trace of a median ocellar spot. Subcallus somewhat bulging, sharply marked off from parafacials, shining; parafacials and face tomentose, tentorial pits deep. Antennae relatively long and slender; segment 1 about 2× as long as wide, slightly shining. Palpi slender, of normal diochlorine form. Proboscis short and stout, labella large. Wings with more or less brown infuscation (definite pattern in *fenestrata*); subepaulets bare; vein sc setulose above and below; R_4 with variable short appendix; cells R_5 and M_3 widely open, Cu_2 closed near margin. Terminal abdominal segments dorsoventrally compressed; sternite 8 and gonopophyses wide.

The subgenus also includes *Cydistomyia pechumani* Philip (Fig. 10), from the Philippines, which is closely related to *fenestrata*, and possibly *Lissimas moestus* Szil., N. Celebes, which was inadequately described from a single ♂.

Subgenus **Cydistomyia** Taylor

Cydistomyia (Cydistomyia) longirostris (Schuurmans Stekhoven) Figs. 11–12.

Philip (1959) has already shown that this species is a *Cydistomyia*, and the following notes are based on one of his Philippine ♀♀. It is a medium-sized (13 mm), rather long-bodied, greyish brown species, with a relatively wide frons (index 3), long antennae, plump palpi (Fig. 11), long appendix to vein R_4 and an elongate-conical abdomen, which is somewhat compressed apically so that the cerci have a tent-like appearance in end view, although the gonopophyses are only moderately narrow and not acuminate distally (Fig. 12). This degree of lateral compression of the tip of the abdomen seems to be not uncommon in the Ethiopian-Oriental-Papuan Diachlorini, but more extreme forms (cf. Mackerras, 1959, figs. 1, 2) are commonly associated in other groups with a habit of breeding in sand, so it may not have any particular phylogenetic significance. Apart from its distribution (Nias I. south of Sumatra, Sebesi I. in Sunda Strait, and Busanga I. in the

Philippines), this species is of unusual interest because it would fit equally well among African *Amanella* or Papuan *Cydistomyia* and because it represents a group from which both the subgenera *Lissimas* and *Parabolbodimyia* might have evolved.

Of the other Philippine species described by Philip, *pechumani* has been transferred above to the subgenus *Lissimas*, *parasol*, and presumably *insol*, are quite close to *longirostris*, *frontalis* and *abava* correspond rather with the section of *Amanella* that has short antennae, and only *absol* seems to be at all close to the Papuan *sol* (Sch. Stek.). He also transferred *auriventer* Sch. Stek., described from a ♂ from Sebesi I. in Sunda Strait, to *Cydistomyia* after examining the type, and it is possible that other species described by Schuurmans Stekhoven (1926) from the same area may belong here.

Cydistomyia (Cydistomyia) celebensis (Schuurmans Stekhoven) Fig. 9.

The identification is based on a ♀ from Toli Toli, N. Celebes, XI, XII–1895, H. Fruhstorfer, received from the British Museum, which agrees very well with Schuurmans Stekhoven's (1932a) description, and has already been noted by Philip (1959) as being a *Cydistomyia*. It is a small (9 mm), slender, yellow-brown species with unbanded eyes (relaxed), narrow, converging frons (Fig. 9), well-defined vertexal triangle and small ocellar tubercle, long, narrow callus, narrowly shining rims to the tentorial pits, slender palpi, prominent notopleural lobes and parallel-sided abdomen with depressed terminal segments. Antennal segments 3 missing, but Schuurmans Stekhoven's description suggests that they are of medium length.

It is close to *sylvioides* (Walk.) ♀ and *insurgens* (Walk.) ♂, the types of which were seen in the British Museum. These three may be taken as representatives of a rather widely distributed group of small species which is distinguished from the subgenus *Tabanotelum* by the shorter wings, with normally short and wide cell R_4, and by generally having shorter antennae, and from subgenus *Chasmia* (in which I would include *Chasmiella*) by the narrower, parallel-sided body, differently shaped callus and closed cell Cu_2. There is overlapping in individual characters, but the three groups can generally be distinguished fairly readily. The normally rotund little species of *Chasmia* are rather distinctive and appear to be confined to New Guinea.

The Diachlorini so far known from the Moluccan division are listed below. Philip (personal communication) has examined the type ♀ of *erythrocephala* and noted that it has bare subepaulets, but is otherwise remarkably like northern *Atylotus*; its precise systematic position is obscure. Two of Schuurmans Stekhoven's (1932a; 1932b) species, *inaequannulatus* from Halmaheira and *tenuis* from Aru Is., described from single ♂♂ may also be Diachlorini, but cannot be classified without examination of the types.

Species	Island group	Other distribution
Paracanthocera parallela (Walk.)	Batchian	—
Neobolbodimyia nigra Ric.	Aru Is.	New Guinea
Cydistomyia (*Lissimas*) *fenestrata* End.	Celebes	—
? *moesta* Szil.	Celebes	—
(*Cydistomyia*) *celebensis* (Sch. Stek.)	Celebes	—
insurgens (Walk.)	Batchian	—
sol (Sch. Stek.)	Aru Is.	New Guinea
sylvioides (Walk.)	Misol	—

Dasybasis caesia (Walk.)	Aru Is.	Northern Australia; New Guinea
? *erythrocephala* (Wulp)	Halmaheira	—

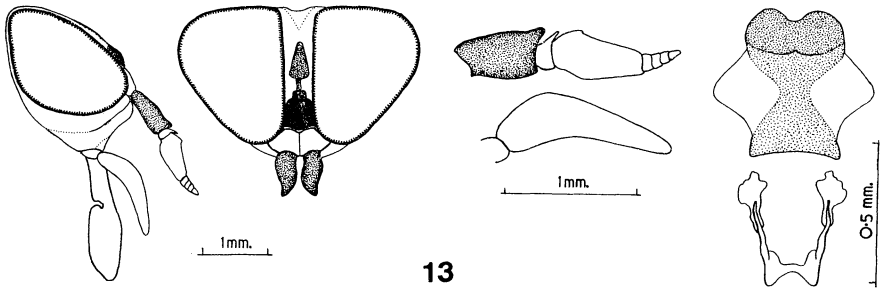


Fig. 13. *Tabanus* (*Pseudobolbodimyia*) *argentatus* (Szil.), ♀, head, antenna and palp, sternite 8 and furca.

Genus **Tabanus** Linnaeus

Subgenus **Pseudobolbodimyia** Mackerras, n. subgen. Fig. 13.

Type species. – *Neobolbodimyia argentata* Szilàdy, 1926, Celebes, by present designation.

The subgenus is proposed for two species, *argentatus* (Szil.) and *laticornis* (Sch. Stek.), both from South Celebes and both erroneously included in the genus *Neobolbodimyia* by the original authors. The type species is a typical member of the Tabanini, but the unusual shape of its head and its antennal characters set it sufficiently apart to warrant subgeneric recognition, although it apparently represents a purely local development.

Female (Fig. 13). Rather small species (10–12mm). Head triangular in face view, somewhat flattened in profile; occiput strongly curved, hollow; no postocular rim. Eyes bare; no sign of banding on a relaxed specimen. Frons tomentose, of medium width (index 4–5), slightly converging; vertex hollow in center; vertexal triangle faintly indicated; no ocellar tubercle; callus in 2 parts joined by an isthmus, lower part bulging and more shining than remainder. Subcallus small, tomentose; parafacials medium; face rather flat; tentorial pits small but deep. Antennae: segment 1 considerably enlarged, nearly 2× as long as wide, bare and shining; 2 short, with dorsal tooth; 3 relatively short and wide, with short, plump, 4-annulate style. Palpi not as wide basally as is usual in the tribe. Thorax and abdomen more pollinose and hairy than in typical *Tabanus*; thoracic spiracles with well-developed lips. Fore tibiae slightly swollen, curved. Wing with subepaulet setulose; vein sc setulose above and below; R_4 angulate, with short appendix; cell R_5 widely open. Genitalia: sternite 8 with lateral wings less strongly chitinized than hour-glass-shaped central part; tergites 9 and 10, furca and caudal ends of spermathecal ducts normal.

Two ♀♀ from Toli Toli, N. Celebes, XI, XII, were received from Mr. Oldroyd and found to agree very well with Szilàdy's (1926, p. 8, fig. 4) description and figure. *T.* (*P.*) *laticornis* (Schuurmans Stekhoven, 1926, p. 136, fig. 58) is evidently closely related.

New Britain

Cydistomyia (Cydistomyia) nana Mackerras & Rageau

This small species was described from Bougainville, and a ♀ from Keravat, at 30 m, 2–IV–1956, E. J. Ford, in the Bishop Museum, provides the first record of a tabanid from New Britain. It differs from the original specimens in being more uniformly grey in color, with the antennal plate brighter, femora darker basally, the costal cell and anterior part of radial cell darker, and a longer appendix to R_4. Most of the differences could be due to the specimen being fresher than the others and there is little doubt that it is conspecific with them.

New Ireland

Tabanus gilingilensis Mackerras, n. sp. Figs. 14, 18.

Holotype ♀, from Gilingil Plantation, SW New Ireland, at 2 m, 4–VII–1956, J. L. Gressitt, in the Bishop Museum, Honolulu.

A striking, large-medium, rather shining, black species with entirely black frons, light yellowish antennae, darkly but irregularly clouded wings and narrow pale bands on abdominal tergites. Length 15 mm. It stands sharply apart from, and cannot be readily compared with, any of the previously described species from New Guinea and Melanesia. Its relationships are obscure.

Female (Figs. 14, 18). *Head*: Eyes rounded, bare, blue-green (relaxed), with a broad, oblique, green-bordered, purplish band extending from level of body of callus nearly to lateral margin. Frons medium (index 5), converging, entirely shining black, with scattered, short, inconspicuous black hairs; vertexal triangle scarcely differentiated; callus clearly visible as a raised, polished black oblong filling the whole width of lower part of frons and a linear extension which fades above into a median frontal keel. Subcallus small, tomentose, fawn-yellow, without hairs; parafacials and face ashy grey, with darker reflections; hairs black, mixed with a few white ones on face. Antennae conspicuously pale against the dark body; segments 1 and 2 bright yellowish brown, with black hairs; 3 with orange-brown plate, darkening on style. Palpi stout basally, acuminate apically, blackish, with some ashy reflections and the ground color obscured by black hairs. Beard brownish black.

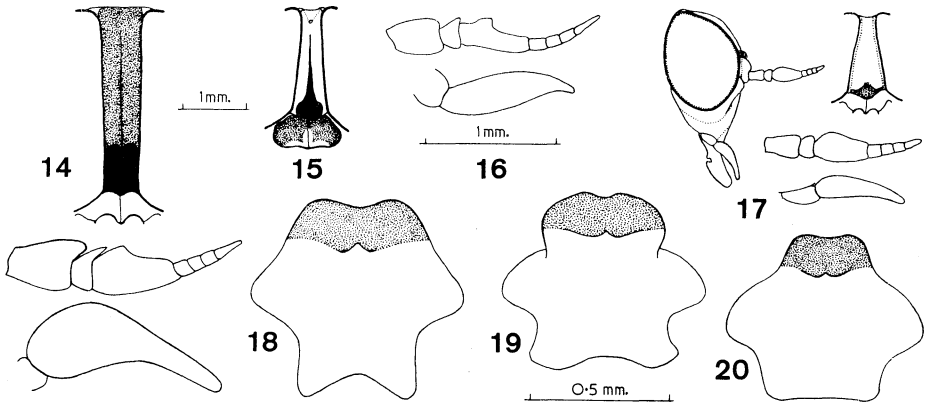
Thorax: Scutum, including notopleural lobes, and scutellum shining blackish brown, with a thin greyish overlay that gives paler reflections at the margins in certain lights; hairs black except for a small whitish postalar tuft, inconspicuous on disc, strong on notopleural lobes. Pleura ashy grey with greyish cream hairs, much darker and with mixture of dark hairs on upper mesopleural convexity.

Legs: Black, except for bright brown, rather contrasting basal 1/2–2/3 of tibiae; hairs black.

Wings: Deeply browned, especially anteriorly, with paler areas in basal cells, discal cell, extensively in cell R_4 and tending to reduce the brown to shadows along the veins in the posterior part of the wing; stigma little darker than adjacent ground color; veins dark brown; R_4 strongly curved with short appendix.

Abdomen: Shining brownish black; with narrow, apical, pale greyish bands widening slightly in midline on tergites 1–4 and a narrow median basal greyish patch on tergite 2; hairs black, except for some inconspicuous cream ones on paler areas and more strongly on lateral corners of tergites 2–4. Venter shining black, black-haired, with conspicuous, ashy, white-haired apical bands on sternites 2–4. Fifth and subsequent segments entirely dark with black hairs dorsally and ventrally; apical segments depressed; sternite 8 as in Fig. 18.

DISTRIBUTION: New Ireland, Gilingil Plantation, VII–1956, Gressitt; known only from the type.



Figs. 14–20. Pacific species: 14, *Tabanus gilingilensis*, n. sp., ♀, frons, antenna and palp; 15, *Cydistomyia* (*Parabolbodimyia*) *veitchi* (Bezzi), frons of ♀ from New Hebrides; 16, *Dasybasis* (*Protodasyommia*) *grenieri* (Mack. & Rag.), ♂, antenna and palp; 17, *D.* (*P.*) *rageaui*, n. sp., ♀, head, frons, antenna and palp; 18–20, sternites 8 of ♀♀ of, respectively, *T. gilingilensis*, *T. expulsus expulsus* Walk. and *C.* (*P.*) *veitchi* from New Hebrides. Upper left-hand scale for the 3 fronts and head; upper center scale for the 3 sets of antennae and palpi.

Solomon Islands

The only addition to the species of this area is a ♂ *Cydistomyia* from Kieta, Bougainville, 17–VI–1960, H. A. Standfast. It is a medium-sized (12 mm), moderately robust, brown species, with slender antennae, dark legs, the wings suffused with brown in the costal and radial areas and the first three abdominal segments bright yellowish brown, contrasting with the blackish apical segments both dorsally and ventrally. It does not correspond to any female hitherto recorded from the arc, but it is generally unsatisfactory to establish new species on single males, and it must therefore be left unnamed.

New Hebrides

Tabanus expulsus expulsus Walk. Fig. 19.

Two ♀♀ from Anatom, Anelgauhat, 14–II–1959, J. Rageau, are the first known to

have been collected since the original type series. Their fresh condition accentuates the differences from the Fijian race noted by Mackerras and Rageau (1958) and strengthens the suspicion then raised that the two forms may be sibling species rather than subspecies. The pattern of the eyes (relaxed) was not recorded in the earlier paper. It is similar to that of the Fijian race and consists of two narrow, purple-brown, green-bordered bands on a blue-green ground, the top band level with the body of the callus, the lower one about the level of the antennae. Sternite 8 is shown in Fig. 19.

Cydistomyia (Parabolbodimyia) veitchi (Bezzi) Figs. 15, 20.

Three ♀♀ from Tanna, Lenakel, 13–II–1959, J. Rageau, represent the second species of the family to be found in the New Hebrides. They differ from the typical race from Fiji in being smaller (12–13 mm), less robust – more like *ratcliffei* from the Solomon Is. in build – and in having the ocellar tubercle less conspicuous, the callus more swollen below and sharply tapering above (Fig. 15), a more definite but variable shining patch in the center of the face and the wings more extensively darkened with clearer areas in the centers of the cells in one of the specimens. The eyes (relaxed) are green with the characteristic single purple-brown band of other members of the subgenus. The genitalia (sternite 8 in Fig. 20) are similar to those of the typical race.

This form may be a distinct subspecies, but it is not desirable to name it until larger series are available for comparison.

New Caledonia

Recognition of two species of *Dasybasis* (*Protodasyommia*) has shown that there must have been a pathway, perhaps early in the Pleistocene, open for a limited amount of northward migration from New Zealand, although it was apparently not available for southward movement of more tropically adapted Tabanidae.

Cydistomyia (Cydistomyia) lifuensis (Bigot)

Cydistomyia (Cydistomyia) massali Mackerras and Rageau, 1958.

The authors did not receive galley-proofs of this paper and what was intended as an alteration in name appeared merely as a footnote. Consequently, their name must rank as a synonym and will not be available for future use.

Dasybasis (Protodasyommia) grenieri (Mack. & Rag.), New Combination Fig. 16.

A ♂ from Montagne des Sources, 17–XI–1957, J. Rageau, appears to belong to this species. It is a moderately slender, hairy insect, 13 mm long, which differs from the ♀ in having the costal cell of the wing conspicuously darkened and the stigma longer.

Eyes wide, of typical *Dasybasis* form, brown, with long dense brown hairs; central facets little larger than and not differentiated from the lower and lateral facets. Ocellar tubercle small but prominent, reaching level of eyes, without detectable ocelli; postocular margin with a strong fringe of brown hairs. Frontal triangle, subcallus, parafacials and face whitish suffused with grey, subcallus and lateral part of parafacials with strong black hairs, medial part of parafacials with dense white hairs; parafacials wide and bulging strongly, face sunken. Antennae (Fig. 16) more slender than in ♀: segments 1 and 2

with grey tomentum and black hairs; 3 black, brownish at base. Palpi fawn-grey with black hairs.

Scutum dark brown with brown and golden hairs. Pleura pale grey; pleural hairs and beard long, dense, white. Legs black except for rather contrasting brown on basal 2/3 or more of tibiae. Abdomen conical, dark brown, paler laterally, and with narrow fawn apical margins to all visible tergites; hairs dark brown on disc, long silky white laterally. Venter pale creamy grey, variably darkened on discs of sternites, and with silky white hairs; sternite 7 entirely pale grey.

Discovery of the male has confirmed a suspicion, raised by the finely hairy eyes and relatively hairy parafacials and face of the female, that this species really belongs to the genus *Dasybasis*. It is, indeed, an almost normal member of the *sarpa* group of the subgenus *Protodasyommia*, which has been known hitherto only from New Zealand (Mackerras, 1957).

Dasybasis (Protodasyommia) rageaui Mackerras, n. sp. Fig. 17.

Holotype ♀, from Montagne des Sources, New Caledonia, 13–III–1957, J. Rageau, in Muséum National d'Histoire Naturelle, Paris.

This species was received too late for inclusion in the revision by Mackerras and Rageau (1958). It is small, and dark brown, with relatively wide, diverging frons, transverse callus, blackish antennal segment 3, entirely brown legs, long brownish wings and brown, narrowly banded abdomen. Length 8 mm. It is abundantly distinct from the small species of *Cydistomyia* recorded from the area and the obvious relationships of the ♂ of *grenieri* described above led to its comparison with the *truncata* group of *Dasybasis* (*Protodasyommia*) with which it was found to agree very well.

Female (Fig. 17). *Head*: Eyes deep brown, apparently unbanded, bare. Frons medium (index 3), strongly diverging, with dark brown tomentum and short, inconspicuous black hairs; vertexal triangle and ocellar tubercle not differentiated; callus shining dark brown, transverse, suboval, drawn out laterally nearly to corners of eyes, somewhat irregular above. Subcallus dark brown tomentose, without hairs; parafacials and face more greyish brown with relatively long and dense brown hairs; the parafacials wide and the tentorial pits deep; the profile is very like that of the New Zealand *D.* (*P.*) *transversa* (Walk.). Antennae: segments 1 and 2 bright brown with brown hairs; 3 with a small, semilunar, bright brown patch at extreme base, remainder and style deep to blackish brown. Palpi brown, darkening apically, with relatively long brown hairs. Beard brown.

Thorax: Scutum and scutellum dark brown, somewhat lighter and with traces of median and dorsocentral vittae anteriorly. Hairs inconspicuous erect black and appressed pale golden with some longer pale golden ones at hind margins of scutum and scutellum; notopleural hairs brown; supra- and postalar tufts inconspicuous. Pleura brown, somewhat paler below, with brown hairs.

Legs: Femora and tibiae almost uniformly brown, with brown hairs; tarsi somewhat darker.

Wings: Long, tip of M_4 about level with apex of abdomen; faintly brown with darker costal cell and stigma; veins brown; R_4 strongly curved but without appendix.

Abdomen: Dark brown with conspicuous, light fawn-brown apical bands of almost uniform width, but slightly expanded in middle on all tergites; indications of median

blackish patches on 2nd and 3rd; hairs dark brown on disc, rather sparse creamy golden (possibly rubbed) on pale bands. Venter similar to dorsum, but the pale apical bands wider, more conspicuous, not expanded in middle and with dark as well as pale hairs. Terminal segments somewhat compressed; genitalia not dissected.

DISTRIBUTION: New Caledonia, Montagne des Sources, III, Rageau; known only from the type.

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