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NOTES ON NEOTROPICAL TABANIDAE (DIPTERA) IV. FURTHER NEW SPECIES AND NEW RECORDS FOR PANAMA

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Abstract: Described as new are *Esenbeckia subguttata*, Panama; *Scione ablusus*, Panama; *Bolbodimyia galindoi*, Panama; *Phaeotabanus phaeopterus*, Panama, Peru; *Philipotabanus phaleropygus*, Panama; *Stenotabanus vapidus*, Panama, Colombia, Peru; *Stenotabanus* (*Brachytabanus*) *platyfrons*, Argentina; *Pseudelaphella nigribasis*; *Dichelacera* (*Dichelacera*) *amilcar*, Brasil; *Tabanus* (*Chelotabanus*) *surifer*, Panama, Colombia. New subgenera are *Philipotabanus* (*Melasmatabanus*) with *Tabanus fascipennis* Macq. 1845 as type, and *Philipotabanus* (*Mimotabanus*) with *Philipotabanus inauratus* Fchld. 1946 as type. Four additional species are added to the Panama fauna and notes on a further 10 species are given, with new synonymy.

The following notes contain descriptions of several apparently new species from Panama, mostly from the less known eastern part of the Republic, collected by field parties from the Gorgas Memorial Laboratory under the direction of Dr. Pedro Galindo. These and the several new records, also largely from the same area, bring to 136 the species now known to occur in Panama.

The non-Panamanian species included below represent interesting additions to unusual groups, or groups recently revised, or add important distributional or taxonomic information to little known species.

Esenbeckia subguttata Fairchild n. sp. Fig. 1.

A stout brown species with short slender palpi, dusky wings, abdominal segments 1 & 2 translucent with round sublateral black spots on sternites 2–3.

♀. Length 16 mm; wing 15 mm. Eyes bare, greenish black, perhaps bright green in life. Frons as figured, slightly less than 3x as high as basal width, orange-brown pollinose next to eye margins, darker below and next to indistinct reddish brown callus. Tubercle at vertex pollinose, with 3 yellow ocelli. Subcallus cinnamon brown, as are frontoclypeus and genae. Sparse long coppery hairs on sides of frontoclypeus and on genae to level of subantennal suture, beard dense, of yellowish brown hairs. Antennae orange-red, segment 1 black-haired on outside, copper-haired dorsally and mesially; segment 2 with only coppery hairs. Segment 3 as figured, only terminal 4 annuli with clearly marked sutures. Palpi very short, less than length of antennal segment 3, yellowish brown pollinose, sparsely black-haired, as figured. Proboscis brown, slender, labella very slender, not shiny sclerotized, theca subshiny sclerotized.

Mesonotum and scutellum orange-brown pollinose, with sparse orange-brown hairs. Pleura and sternum more greyish pollinose, with denser orange hairs. Wings strongly brownish hyaline, costal cell darkest. Strong appendix at fork of 3rd vein and 1st posterior cell closed and petiolate. Legs yellowish orange, orange-haired, hind femora slightly darker and with some long blackish hairs. No hind tibial fringe. Abdominal tergites 1 & 2 yellowish horn-colored, translucent, shiny, orange-coppery-haired, at least at sides. Remaining tergites mahogany brown, anterior and posterior margins obscurely blackish, shiny, mainly coppery-haired, but with some black hairs on anterior 1/3 or 1/2 of at least tergites 3 & 4, though center of dorsum of abdomen is mainly denuded. Beneath, segments 2 & 3 are light yellow, opaque, shiny, with antero-lateral round blackish integumental spots and median blackish triangles, larger on segment 3. Remaining sternites blackish, shiny. Venter mainly sparsely golden-haired, but with some black hairs in middle of at least segments 3–5.

Holotype ♀, La Zumbadora, Cerro Azul, Panama Province, Panama, 31. III. 1959. To be deposited in M. C. Z.

The species differs from the description of *diaphana* Schiner in having short, straight palpi, and in having sublateral round black spots on the abdomen beneath, *diaphana* having black transverse bands. Structurally it is close to *E. flavohirta* Bell., but can be easily separated by the translucent abdominal tergite 1, black spotted sternites and mainly red-haired abdomen.

Scione ablusus Fairchild n. sp. Fig. 2.

A brown, largely black-haired species, without conspicuous thoracic pattern and with unpatterned dusky wings.

♀. Length 15 mm; wing 13 mm. Frons about 2.3x as high as wide, slightly narrowed above, uniformly dark cinnamon brown, with moderately dense, short, erect black hairs, as figured. Subcallus cinnamon brown pollinose, without hairs, antennal sockets

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set in large oval scooped-out areas whose mesal margins are raised into sharp ridges between antennae. Frontoclypeus moderately produced, cinnamon-brown pollinose with sparse dark hairs laterally. Genae lighter brown, becoming greyish beneath light yellowish brown beard. Antennal segments 1 & 2 brown pollinose, black-haired. Segment 3 bright reddish orange, evenly tapered, the terminal annulus sharply pointed. Palpi about 2x as long as greatest width, acutely pointed, outwardly flat, dark orange brown, without strong setae. Proboscis black, wholly sclerotized and shiny, labella slender.

Mesonotum dark cinnamon brown pollinose, usual pattern barely discernible as faint lighter lines, scutellum concolorous, all black-haired except for a few yellowish hairs at extreme anterior margin of notum and brownish hairs above wing bases. Pleura and sternum pale greyish brown pollinose, with light brown hairs. Legs reddish brown, tarsi dusky. Coxae, especially fore pair, densely pale yellowish brown-haired. Femora and tibiae with mixed red and black hairs, the black hairs predominating on dorsal and posterior aspects. Wings uniformly brownish fumose, posterior cells 1 & 4 closed and petiolate, the fork of 3rd vein sharply angled but without an appreciable appendix.

Abdomen dark reddish brown in ground color, with a few irregular black freckles, clothed largely with appressed black hairs. The sides of all tergites bear inconspicuous dark red hairs, and the hind borders of tergites 2–5 have more or less red hair, widened in the middle to form indistinct median triangles. Beneath the abdomen is light orange brown, wholly pale orange-haired.

Holotype ♀, Cerro Campana, Panama Prov., Panama, 848 m, 2. VII. 1960, biting man in heavy forest. To be deposited in M. C. Z.

This species keys out in Kröber's (1930) key to *Sc. rufipes* Kröb. from Venezuela. Kröber's description is, however, meagre and unaccompanied by a figure, while the type is presumably lost, as it was in his collection in Hamburg. The present species appears to differ from *rufipes* in being darker, mainly black-haired, and without the completely golden red-haired tergites 1, 6 & 7. Kröber compares *rufipes* to his *Sc. huancabambae*, whose description is almost equally brief, but if they are structurally the same, as intimated by Kröber, with a frons 2x as high as wide, then the present species differs also in narrower frons. The type of *huancabambae* was also in Kröber's collection. From *Sc. rufescens* Ric., the only similar regional species, *ablusus* differs in smaller size, broader frons, different antennae and palpi, and in lacking the extensively golden-haired abdomen.

Pityocera (Pseudelaphella) nigribasis Fairchild, n. sp.

A small dark brown species similar to *Ps. patellicornis*, but wing bases to ends of basal cells black.

♀. Wing length 12.5 mm. Closely related to *P. (Ps.) patellicornis* Kröb. from which it differs in the following respects. Antennae more uniformly dark orange, longer, but of the same shape and structure as *patellicornis*. Frons slightly broader, much darker, dark cinnamon brown. Frontoclypeus and genae of same shape but dark rufous brown instead of yellowish grey pollinose. Palpi a little broader, apex less slender and drawn out than in *patellicornis*. Beard and vestiture of coxae, pleura and sternum orange brown. Legs orange brown and orange-rufous-haired, venter of abdomen orange-haired. Wings with venation as in *patellicornis*, but whole base, except the orange costal cell, blackish smoky. This black area fills the wing to end of basal cells, its margin reaching in a nearly straight line from apex of first basal cell to tip of anal cell, the wing beyond being completely hyaline. Dorsum of thorax and abdomen mainly black or dark rufous brown-haired, with no contrasting line of dark and light before wing base. Ground color of mesonotum dark reddish brown, pollinose, abdomen paler reddish brown. Sides of tergites with orange hairs, increasing in amount on last few tergites.

Type ♀, ex Bigot coll., without locality. In British Museum (Nat. Hist.).

The specimen is beautifully preserved and in spite of having no locality, is so distinct and so obviously related to *Ps. patellicornis* that I have felt it worthwhile to describe it.

I am of the opinion that the three genera *Pityocera*, *Elaphella*, and *Pseudelaphella* should be combined. They differ from each other only in the structure of the antennae, being very similar in all other respects, and form a series of increasing specialization from the *Fidena*-like *Pseudelaphella* to the bizarre *Pityocera*. *Pityocera* is the oldest name; the others may be retained as subgenera.

Chrysops laeta sublaeta Philip

Chrysops laeta sublaeta Philip, 1955, Ent. Medd. **27**: 72.

Further confirmation of the occurrence of this species in Panama, previously reported from Almirante (Fairchild 1953), is provided by a series of 9♀♀ from the slopes of Cerro Pirre, Darien Prov., 455 m, 27. I.—6. II. 1961. This locality is only a few km from the Colombian border. The specimens are very dark, the wing pattern intensely black and the apical spot sharp, not fading out posteriorly as in the Almirante specimen.

Dichelacera (Dichelacera) amilcar Fairchild, n. sp. Fig. 4.

A large orange brown species with diffuse wing fascia, unicolorous legs, a contrasting silvery white prescutellar band and abdomen with a dark integumental middorsal stripe or row of inverted triangles.

♀. Length 13 mm; wing 12 mm. Eye bare, green with a broad band and upper 1/3 dark (relaxed). Frons about 3x as high as basal width, nearly parallel sided, the extensively bare and shiny areas yellow, the pollinose areas orange yellow, with long, recumbent yellow and black hairs. Subcallus orange yellow pollinose. Frontoclypeus and genae orange yellow pollinose, beset with sparse long yellow hairs becoming denser posteriorly, forming a yellow beard. Antennae as figured, segments 1 & 2 yellow, yellowish orange pollinose, beset with orange to red hairs. Segment 2 reddish orange basally, darkening to a nearly black style. Palpi orange-yellow, yellow pollinose, with mixed long brown to yellow hairs. Proboscis rather short, mandibles slightly exceeding palpi, theca and labella brown, wholly sclerotized and shiny.

Mesonotum light brown pollinose, clothed with yellow hairs on anterior 1/2, copper red hairs in a broad band between wing bases, with a narrow white pollinose and silver-haired transverse band on posterior margin. Scutellum reddish brown, dark reddish-haired. Pleura light yellowish brown, yellowish-haired. Legs orange brown, yellowish to red-haired, tarsi slightly darkened. Halteres pale brown, knob yellow. Wings smoky hyaline, all veins broadly brown margined, but more intensely so along outer half of R1, R2 and fork, apex of discal cell, and apex of anal cell, so that an ill-defined diagonal fascia is present. Costal cell dark yellow, stigma narrow, yellow.

Abdomen yellowish brown in ground color, with poorly defined median darker inverted triangles on tergites 2–7. Vestiture of dense and long bright orange-yellow hairs, with a few darker hairs intermixed over the dark integumental triangles. Beneath, abdomen slightly paler, more greyish, wholly yellow-haired.

Holotype ♀, Cipo, Minas Geraes, Brazil, 20. XI, 1928, A. Vianna Martins. To be deposited in M. C. Z.

Paratypes, three ♀♀ same data. The paratypes range from 11–13 mm in length, and show considerable variation. One has the diagonal wing fascia well defined, and the whole wing proximal to the fascia dusky yellowish, of the same tone as costal cell. Another has the frons sunken above the basal callus and the pollinose areas reduced to 2 small lateral stripes. In one the antennae are wholly reddish and the dorsal tooth more acute.

This species will not key out in Fairchild & Philip (1960), but seems most nearly related to *unifasciata* Macq., from which it differs in narrower and more extensively bare frons, longer antennal tooth, and the silver-haired prescutellar band. The wings are very similar in pattern, and the species seems to form a member of the apparently related group which includes *unifasciata*, *rubricosa* Wulp, and *multiguttata* Lutz. My friend Dr. Amilcar Vianna Martins, who collected the species and to whom it is dedicated, tells me that the type locality is an isolated range of forested hills surrounded by more open country.

Acanthocera bequaerti Fairchild & Aitken

Acanthocera bequaerti Fchld. and Aitk., 1960, Ann. Ent. Soc. Amer. **53** (1): 3, fig. 2.

Two ♀♀ collected at Matta, Suriname, 15. I. 1960 by Dr. T. H. G. Aitken prove to be *bequaerti* rather than *marginalis* Wlk., so that the former is not an insular form as we had suspected.

Acanthocera costaricana Fairchild

Acanthocera costaricana Fchld., 1941, Ann. Ent. Soc. Amer. **34**(3): 647, fig. 1.—Fairchild & Philip, 1960, Studia Ent. **3**(1–4): 76.

A 2nd and better preserved specimen (Lancetilla, Tela, Honduras, 9. VII. 1953, in forest canopy, W. Hils.) enables completion of the somewhat defective original description. Antennal segment 3, as suspected, bears a strong tooth, which, however, does not reach the 1st annulus of style. Dorsal tooth and base of plate are whitish yellow, remainder of plate dusky, style black. Style somewhat over 1/2 the length of basal plate. Palpi black, black-haired, slender, not at all inflated basally, somewhat shorter than antennae. Proboscis black, labella compact, largely pollinose, but with a slender shiny sclerotized strip. Eyes without pattern, greenish bronze when fresh. Halteres ivory white; pleura brown, though with greyish white hairs. The present specimen is darker than the type, black rather than brown, perhaps because fresher, and lacks the narrow yellow-haired band on tergite 3.

The lack of eye pattern and relatively short antennal style make this a somewhat aberrant species of *Acanthocera*, pointing up the lack of clear-cut generic characters available in this section of the Diachlorini.

Stibasoma chionostigma Osten Sacken

Stibasoma chionostigma O.S., 1886, Biol. Centr. Amer., Dipt. 1: 54, pl. 1, fig. 11.—Fairchild, 1940, Ann. Ent. Soc. Amer. **33**(4): 684, Fig. 5 (full references); 1953, *op. cit.* **46**(2): 267 (in key only); 1956, Smithsonian Misc. Coll. **131**(3): 13 (type seen).

A third Panama specimen of this apparently rare species was taken at Cerro Azul, Panama Prov., 6. V.

1961. The abdomen is black, like others from Panama, but the specimen lacks most of wings and is badly denuded. One from Buenaventura, Colombia, J. Rodriguez B. coll., has the abdomen orange brown.

Bolbodimyia galindoi Fairchild, n. sp. Fig. 5

A predominantly orange-yellow insect, thorax with a middorsal black streak, abdomen black laterally, wings black and yellow.

♀. Length 13 mm; wing 11 mm. Frons about 2x as high as basal width, narrowed above, bright orange pollinose. Basal callus black, raised above eye level. Subcallus greatly inflated, wholly shiny, black with a median yellow band. Clypeus and genae pollinose, orange rufous, latter with sparse orange-red beard. Antennal segment 1 greatly inflated, nearly spherical, as wide as long, black and shiny but beset with black hairs basally. Segment 2 normal, yellowish brown pollinose and with an acute dorsal angle. Segment 3 blackish brown, paler basally, long and slender, basal plate with a strong dorsal angle; style 4 segmented, shorter than plate. Palpi curved, somewhat inflated, orange-brown, becoming dusky at apex, clothed with orange hairs basally, black apically. Eyes with characteristic pattern of the genus.

Thorax bright orange in ground color except for a broad median dorsal black streak from near the anterior margin to scutellum, clothed with bright orange-red hairs, except for black hairs on the black streak. Scutellum orange, subshiny, with rather sparse erect blackish hairs. Wings with membrane and veins basally bright orange-yellow, color extending to beyond end of subcostal vein, in a streak below R2+3, to and including crossveins at base of discal cell and apex of 2nd submarginal cell. Axillary area and hind margin to about end of Cu also orange yellow. Apex of wing from just distal of end of Sc almost to tip jet black, this color extending to R2+3 and to margin above R4, leaving an apical hyaline crescent. Behind the yellow streak in first posterior cell, the wing is blackish infuscated, or dark greyish hyaline. Legs black and black-haired, except for yellow basal halves of all femora, coxae and mid and hind basitarsi. All tibiae considerably inflated.

Abdomen orange, orange-haired, except for a pair of broad black and black-haired dorsolateral bands extending the length of the abdomen. Mesal sides of these bands are parallel, their outer sides diverging posteriorly, so that the bands are narrowest anteriorly and leave much of the sides of tergites 1–2 orange. Sternites orange and orange-haired.

Holotype ♀, Tacarcuna Yellow Fever Station, 665 m, Darien Prov., Panama, 30. VIII. 1958, P. Galindo. To be deposited in M.C.Z.

This remarkably colored species is structurally similar to *bicolor* Big. and *philipi* Stone, but differs in having frons entirely pollinose, except for the basal callus. The hyaline crescent at wing apex is extensive, as in *B. erythrocephala*. I take great pleasure in dedicating this handsome species to my colleague Pedro Galindo, who collected the unique type.

Bolbodimyia philipi Stone

Bolbodimyia philipi Stone, 1954, Ann. Ent. Soc. Amer. **47**(2): 253.

A ♂ (Plesiotype), Las Cumbres, Panama Prov., Panama, 26. XII. 1960, at light, Fairchild, is easily associated with the ♀. It differs in color only in having 6th to last tergites orange instead of black, and with a narrow touch of orange in middle of hind border of tergite 5. The eyes are holoptic, upper area of enlarged facets sharply demarcated from the small facets, occupying fully 2/3 of eye area. Eyes entirely bare and there is no vestige of a tubercle in notch at vertex. Palpi porrect, oval, falcate, wholly orange and orange-haired. Antennae are as in ♀, though segment 3 is somewhat more slender. Basicosta is bare, black, and acutely pointed.

In addition to this ♂, 3 ♀♀ have been taken since the one recorded by Stone, all from Cerro Campana, Panama Prov., 1. VI. (2) and 9. VI. (1) 1960, W. J. Hanson.

Bolbodimyia erythrocephala Bigot

Bolbodimyia erythrocephala Big., 1892, Mem. Soc. Zool. France **5**: 668.—Stone, 1954, Ann. Ent. Soc. Amer. **47**(2): 252–53.

To the material listed by Stone (1954) can be added 1♀, Cerro Campana, Panama Prov., 690 m, 22. V. 1954; 3♀♀, Tacarcuna Yellow Fever Sta., Darien Prov., 665 m, 30. VIII., 2. IX. 1958; 1♀, Cerro Mali, 1455 m, Darien Prov., V. 1963, Galindo and 3♀♀, Rio Changena, Bocas del Toro Prov., 725 m, 1. VIII. (1) and 6. IX. (2) 1961.

Stenotabanus vapidus Fairchild, n. sp. Fig. 10.

A brown species with pale abdominal bands and irregular middorsal stripe, frons quite broad and small round callus not touching the eyes.

♀, Length 10.5 mm; wing 9 mm. Eyes bare, bronzy, without bands. Frons a little less than 3x as high as basal width, brownish grey pollinose. Callus round, protuberant, shiny, dark brown, narrower than frons, with a pollinose upper triangular prolongation narrowing to a fine line reaching 1/2 way to vertex. Vertex with a small denuded tubercle, set at apex of a slender vertical shiny strip. Subcallus grey pollinose; area above antennal bases tinged yellowish. Frontoclypeus and genae pale grey pollinose, white-haired. Antennae brownish orange, basal segments

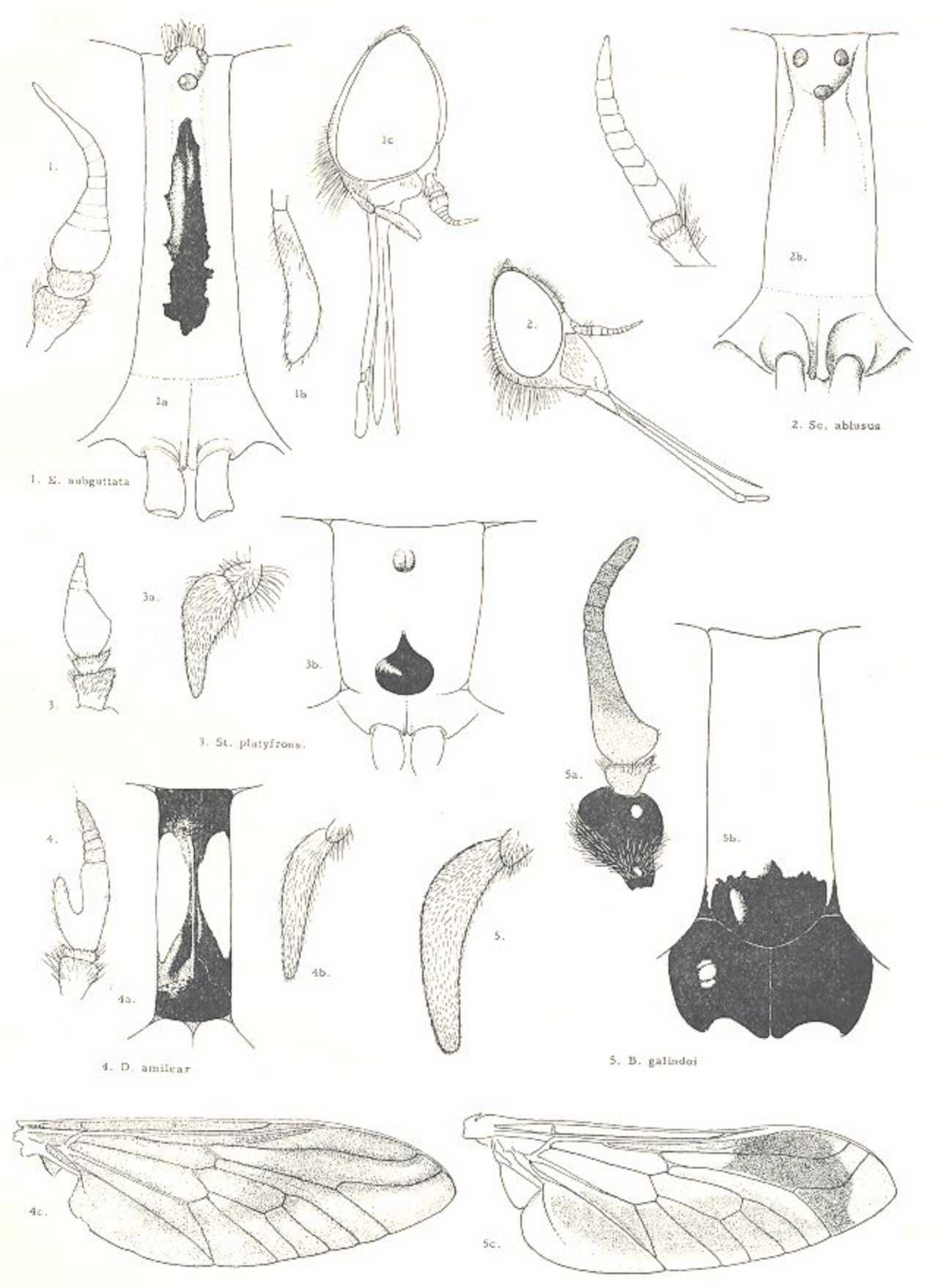

Fig. 1. *Esenbechia subguttata* n. sp. Frons, antenna, palpus and side view of head of holotype. Fig. 2. *Scione ablusus* n. sp. Frons, antenna and side view of head of holotype. Fig. 3. *Stenotabanus* (*Brachytabanus*) *platyfrons* n. sp. Antenna, palpus and frons of holotype. Fig. 4. *Dichelacera amilcar* n. sp. Antenna, frons and palpus of holotype wing of paratype. Fig. 5. *Bolbodimyia galindoi* n. sp. Palpus, antenna, frons and wing of holotype.

black-haired, basal plate of segment 3 with a strong dorsal angle. Palpi pale yellowish, grey pollinose, sparsely black-haired. Proboscis exceeding palpi, blackish; labella large and membranous.

Mesonotum dark grey, with lighter pollinosity forming indistinct stripes, sutures reddish, sparsely beset with short black hairs. Scutellum pale grey. Pleura pale grey, white-haired. Wings glass clear, stigma yellow, venation normal, no appendix on fork of 3rd vein. Basicosta acutely pointed, with about 12 black setae. Legs brown, femora darker, tibiae more yellowish. Fore femora, apical halves of fore tibiae and tips of mid and hind tibiae and all tarsi black-haired. Basal 1/2 of fore tibia and remainder of legs pale-haired, but fore tibiae more prominently bicolored than the others. No hind tibial fringe.

Abdomen dark brown, 1st and at least base of 2nd tergite paler, reddish. Hind and lateral margins of all tergites broadly pale, whitish, this color forming narrow middorsal triangles which reach forward to fore border of each segment, forming an irregular middorsal stripe. This stripe is accentuated in some lights by a silvery grey pruinosity which is more extensive than pale ground color. Hairs rather sparse, dark, except for small poorly defined patches of yellowish hairs on mid-posterior borders of most tergites. Sternites light brown, pale grey pollinose, sparsely pale-haired.

Holotype ♀, Rio Tuira Yellow Fever Station, Darien Prov., Panama, 22. II. 1958, P. Galindo. Paratypes, 1♀, Cerro Pirre, upper Rio Seteganti, Darien Prov., Panama, 455 m, light trap, 27, I. 1961, A. Quinoñes; 15♀♀, Muzo, Dept. Boyaca, Colombia, 900 m, 1936, J. Bequaert; 1♀, Tingo Maria, Peru, 670 m, V. 1947, Weyrauch. Holotype in MCZ; paratypes in MCZ and my coll.

One of the paratypes from Panama is darker than holotype, legs darker and all tibiae more strongly bicolored. The paratype from Peru is paler throughout, tergites 1 & 2 yellowish, femora but slightlyd arker than tibiae.

No close relatives of this little species seem to have been described. It is placed in *Stenotabanus* with some hesitation, due to the presence of a few setae on the basicosta, but these are much sparser than on the adjoining costa. The broad frons and round callus well separated from eye borders, unbanded eyes, and lack of unusual venational or tinctorial characters distinguish it from any described *Stenotabanus*, except *insolens* Fchld., which is otherwise quite different, and from any *Tabanus* whose descriptions are available to me.

Stenotabanus (Brachytabanus) platyfrons Fairchild, n. sp. Fig. 3.

Small pale brown species with very wide frons, small round callus, black tentorial pits; annuli of antennal style partially fused and abdomen with broad pale middorsal stripe and pale lateral margins.

♀. Length 9.5 mm; wing 9 mm. Eyes bare, light green with 3 narrow dark lines (revived). Frons broad, about 1.3x as high as basal width, wider at vertex than at base, pale yellowish grey. Callus black, protuberant, subconical, wider than high, slightly more than 1/3 width of frons. Vertex with a small raised and denuded patch. Antennae orange yellow, segment 1 rather inflated, 2nd with dorsal spine, 3rd with wide basal plate with obtuse dorsal angle. Short pointed style obscurely annulate, so that the last 2 annuli appear fused, except under careful scrutiny at high magnification. Subcallus, fronto-clypeus and genae pale yellowish grey, the last 2 sparsely pale haired. Tentorial pits deep, shiny brown within. Palpi pale, nearly white, with sparse, erect mixed black and white hairs, segments 1 & 2 strongly inflated, latter tapering to a slender point. Proboscis short, barely exceeding palpi, labella long, brown, pollinose.

Mesonotum reddish brown in ground color, yellowish grey pollinose, obscurely striped, clothed with sparse dark hairs and recumbent shiny yellow scale-like hairs. Scutellum reddish. Pleura and sternum pale grey, sparsely pale-haired. Legs orange yellow, coxae and femora sparsely pale-haired, tibiae and tarsi predominantly dark-haired, fore tibiae obscurely bicolored due to white hairs on basal 1/2. Wings hyaline, including costal cell, stigma yellow. A short appendix on fork of 3rd vein; all cells but anal widely open. Halteres with slender stem and eccentric yellow knob. Abdomen with tergite 1 pale greyish brown, 2nd to 7th dark brown with a wide middorsal pale band, and the sides broadly pale. Mesal borders of the dorsolateral dark area are straight, outer borders irregular. Each tergite has a narrow whitish hind border. Sparse pale hairs clothe the pale areas, denser black hairs the dark areas. Beneath, abdomen wholly pale and pale-haired.

Holotype ♀, labelled " R.A. (Republica Argentina) Tucuman/Dique Gadilla/16–19–I–957 (16–19. I. 1957)/ Coll. R. Golbach." On loan from C. B. Philip.

One paratype ♀ labelled " Rio Cormejo/Argentina/ Neiva clct./XI 916 " and " T-834, Inst. O. Cruz, Coleção A. Lutz." It will be returned to the Insituto Oswaldo Cruz. One paratype ♀, Jujuy, Argentina, J. Petrocchi, in M.C.Z. The paratypes are slightly smaller, length 8.5 mm, wing 8.0 mm, and frontal callus is more drop-shaped, with the small pointed upper median prolongation longer.

This species is obviously closely related to *St. (B.) longipennis* Krober, but differs in larger size, broader frons, relatively much smaller frontal callus, and wider, more angulate basal plate of antennal segment 3.

Stenotabanus (Brachytabanus) longipennis Kröber

Stenotabanus longipennis Kröber, 1930 (1929), Enc. Ent. Ser. B, Dipt., **5**: p. 125, pl. 1, fig. 23, pl. 2, figs. 7, 37; pl. 3, fig. 55, ♀; Venezuela; 1934, Rev. Ent. **4**(2): 258.

Stenotabanus (Brachytabanus) longipennis: Fairchild, 1942, Ann. Ent. Soc. Amer. **35**(3): 300, figs. 4, a,b, ♀; Panama, Colombia.—Bequaert & Renjifo, 1946, Psyche **53**(3–4): 75 Colombia.

A ♂ specimen of what appears to be this species was taken attracted to light at Las Cumbres, near Panama City, Panama, 9. VI. 1958. In general coloration it is lighter than the ♀; abdomen orange brown with a narrower, less contrasting, median pale stripe. Abdomen also markedly narrowed towards apex, slenderly conical in shape. Wings are glass clear, not tinted anteriorly as in ♀, and there is a short appendix on fork of 3rd vein on 1 wing only. Legs wholly orange yellow. Eyes bare, greatly enlarged, making the head almost 2x as wide as thorax, enlarged facets large and occupying an estimated 5/6 of total eye area, sharply demarcated from small facets. In life upper enlarged facets are yellow-green, small facets dark green with a slender dark line, fading to yellow and bronzy black respectively on drying. There is a small tubercle at vertex, deeply sunk between the eyes. Frontal triangle is peculiar in bearing a pair of round velvety black or dark brown spots which touch the eye margin on each side, but are separated by about their own diameter in middle. Fronto-clypeus has strong tentorial pits, but they are entirely pollinose, not black and shiny within as in the ♀. Antennae are pale yellow, more slender than in ♀, but showing the same fusion of terminal 2 annuli. Palpi porrect, pale yellow, inflated, but with rather sharp conical tips, clothed with long erect yellow hairs.

The lack of black tentorial pits and the 2 spots on the frontal triangle caused hesitation in associating this ♂ with *longipennis*, but no other regional species shows the fusion of last 2 antennal annuli and concordance in other characters. Another ♂ from Palmar, Dept. Puntarenas, Costa Rica, P. Allen, has been available for many years, but its lack of antennae precluded definite association.

A fresh ♀ specimen (Rio Paya, Darien Prov., Panama, 2. VII. 1958) shows eye to be glaucous green with 3 narrow reddish purple stripes, narrower than the interval between them. In addition, the upper inner corner of the eye is also reddish purple.

Stenotabanus (Aegialomyia) tobagensis Fairchild, 1959, Ann. Ent. Soc. Amer. **51**(6): 524, fig. 2, ♀.—Fairchild & Aitken, 1960, Ann. Ent. Soc. Amer. **53** (1): 6; Trinidad, Tobago.

A single ♀ of this species was taken biting man at St. George's Beach, Grenada, B. W. I., 5. V. 1958 by my friend Dr. Jorge Boshell. This appears to be the first record of a tabanid from Grenada. Callan (1952) discussed the curious absence of the family from this apparently suitable island. It is probable that species of this group will be found on beaches throughout the West Indies when searched for at the proper season. Dr. T. H. G. Aitken secured another specimen from Trinidad (Boat Line, Bush Bush Forest, Nariva Swamp, 31. VI. 1961) taken from a caiman. Three other specimens, all rather poorly preserved, are 2♀♀, Isla de Tortuga, N. coast of Venezuela, 12. X. 1959, J. Boshell, and 1♀, Turiamo, Venezuela, 9. IX. 1944, W. H. W. Komp. These seem close to *tobagensis*, but with broader frons; additional well preserved material will be necessary to decide their status. The group evidently occurs all around the Caribbean and on most of the islands.

Hemichrysops fascipennis Kröber Fig. 12.

Hemichrysops fascipennis Kröber, 1930, Zool. Anz., **88**(9–10): 237, figs. 9, 10. ♀, Colombia; 1934, Rev. Ent. **4**(2): 231.—Bequaert & Renjifo-Salcedo, 1946, Psyche **53**(1–2): 59.

Tabanus (Hemichrysops) vecordis Fairchild, 1956, Smiths. Misc. Coll., **131**(3): 16. New name for *H. fascipennis* Kröb. nec. *Tabanus fascipennis* Macq. 1845.

Hemichrysops (Hemichrysops) vecordis: Fairchild, 1961, Rev. Biol. Trop. **9**(1): 29.

Careful study of a fresh specimen from Panama (Rio Changena, Bocas del Toro Prov., 725 m, 1. IX. 1961) has caused a revision in my ideas as to the placement of this peculiar little species, and indicates that my action (1956) in renaming it was unnecessary. Although superficially similar to *Philipotabanus fascipennis* Macq., closer study of the head characters seem to warrant the retention of Kröber's name as a full genus. In comparison with *P. fascipennis* Macq., previously figured (Fairchild 1942, fig. 19), Kröber's species has a frons which is slightly widened below, slender, *Diachlorus*-like antennae with an elongate segment 1 not produced above, no dorsal spine on segment 2 and no dorsal angle on basal plate. Vertex more sunken and bears a small tubercle with well marked vestiges of 3 ocelli. Frontal callus completely flat, though black and shiny. Subcallus quite protuberant and face markedly produced, and so thinly grey pollinose as to appear quite shiny. Palpi stouter than in any species of *Philipotabanus*, while proboscis has rather small labella with a subshiny sclerotized strip. The whole insect is black, very thinly grey pruinose, so that in some lights it appears shiny black, in others quite bluish. Wings unusually long, longer than head and body, tip of abdomen at level of 5th posterior cell when wings are in resting position. Wing pattern as figured

by Kröber, wholly black except for yellowish costal cell, clear areas in apical halves of basal cells and adjoining marginal cell, and extreme base of wing. Axillary area dusky, and wing margins less intensely black. Basicosta bears 7–8 black setae, and subcosta has a row of setae below. Legs slender, with a pair of strong tibial spurs only on mid pair, and hind tibiae lack marked fringes of hairs. All legs wholly black-haired, but mid and hind femora dull yellowish, and tarsi somewhat brownish. Abdomen mainly sparsely black-haired, but with a few long white hairs on extreme sides of tergites 2 & 3. Length of wing 10 mm; body and head 8 mm.

The type in the British Museum is damaged, lacking the theca and labella of proboscis and hind legs. It differs from the present specimen in having a small sparse patch of white hairs on abdominal tergite 4. A specimen from Carillo, Costa Rica, also in B. M., has a larger, long oval tubercle at vertex and paler femora and tarsi than the type, and is also larger, though it was not measured. Krober gives the length of wing and body of the type as 8 and 6.2 mm respectively, hence also smaller than the Panama specimen.

Dissection of the genitalia of the Panama ♀ shows tergite 9 to be widely divided, reduced to small triangular plates, and caudal sections of spermathecal ducts with cup-like expansions, so there is no doubt of the genus belonging to the *Tabaninae* as defined by Mackerras (1955). In spite of some macrotrichiae on basicosta, the presence of a marked tubercle at vertex and sclerotized strips in the labella suggest placement in the *Diachlorini*.

Phaeotabanus phaeopterus Fairchild, n. sp. Figs. 8, 9.

A large black species with intensely black wings, orange-haired pleura and venter and orange legs.

♀. Length 13 mm; wing 12 mm. Eyes bare, bright emerald green in life, unicolorous. Frons about 7.5x as high as basal width, widened at vertex, thinly dark brown pollinose and with a slightly raised vestige of a tubercle at vertex. Frontal callus dark brown, much higher than wide, narrower than frons and extended above practically to vertex in a slender ridge, lower 2/3 of which is denuded and shiny. Subcallus, frontoclypeus and genae dark orange brown pollinose, latter with rich orange beard. Antennae orange brown, orange-haired, as figured. Palpi basally inflated, apically slenderly pointed, orange and orange-haired. Proboscis short, labella black, large and partly shiny sclerotized.

Mesonotum black, notopleural and humeral callosities, a pair of faint dorsolateral lines, sutural lines and scutellum reddish. Disk of mesonotum dark grey pollinose, sparsely black haired, as is scutellum. Sides rich rufus orange-haired, as are pleura and sternum. Legs orange and orange-haired, except for a black-haired fringe on hind tibiae. Wings deep black, apex from tip of R2+3 to R5 hyaline and a small hyaline area between apices of basal cells. There is also a lightening of color in center of discal cell. Abdomen dark orange brown, above wholly black-haired, beneath wholly orange-haired.

Holotype ♀, Rio Tapalices, Darien Prov., 210 m, 29. VIII. 1958, D. Fairchild.

♂. Length 13 mm; wing 11 mm. Eyes bare, enlarged upper eye facets well differentiated but poorly demarcated from lower small facets, occupying about 1/3 of total eye area. Enlarged facets bronzy, small facets greenish black in life. Vertex with a small scale-like tubercle deeply sunk between eyes. Frontal triangle, frontoclypeus and genae orange and orange pollinose, as are all hairs. Antennae orange, much more slender than in ♀. Palpi inflated, porrect, with drawn-out falcate tip, all orange and orange-haired. Proboscis with theca orange, pollinose, labella black, compact, with a broad shiny sclerotized strip at base.

Whole thorax, including mesonotum and scutellum, bright orange and densely bright orange-haired. Legs wholly orange and orange-haired. Wings black, as in ♀, but somewhat dilute, especially on posterior 1/3. Abdomen as in ♀, black above, orange below, but cerci orange haired.

Allotype ♂, Rio Tacarcuna, Darien Prov., Panama, 575 m, 12. VII. 1963, taken at light in camp, G. B. Fairchild.

Paratypes, 1♂1♀, same locality as Allotype, 16 & 20. VII. 1963, at light in camp, Fairchild. 4♀♀, Avispas, Madre de Dios, Peru, 300–400 m, 10–20. IX. 1962, L. E. Peña. Holotype and Allotype in M. C. Z., paratypes in collections of Pechuman and me.

This species seems most closely related to *P. limpidapex* Wied. from Brazil, differing in narrower frons, relatively longer antennal style and narrower basal plate, straight distal margin of wing pattern and in lacking an appendix on upper fork of 3rd vein. Fresh material of *limpidapex* has abdomen light bluish green in ground color, fading to pale brown with age, while this species has abdomen strongly orange brown with no tinge of green.

Philipotabanus nigrinubilus Fairchild 1953, Ann. Ent. Soc. Amer. **46**(2): 279, fig. 8, ♀; Panama.

Specimens of this species have been reared twice, from larvae taken under bark of fallen trees. In one case the tree had been felled no longer than 3 months but larvae matured, pupated and yielded adults without further food. One of these (Rio Changena, Bocas del Toro Prov., Panama, larva collected 28. IX. 1961, pupated 23. X. 1961, emerged 30. X. 1961) was a ♂.

Eyes holoptic, with the large facets occupying about 2/3 of eye area, sharply differentiated from small facets, but not separated from them by a sharp line. Large facets are bright orange brown in life, small facets greenish bronze. There is a small tubercle at vertex, sunk between eyes. Antennae more slender than in ♀, dorsal angle less marked. Palpi porrect, sausage shaped, grey pollinose and black-haired. It is easily associated with the ♀ on color and wing pattern, which do not differ noticeably. It is interesting to note that though collections were made at this locality from about mid August to end September, no adults of this species were taken.

Philipotabanus phalaropygus Fairchild, n. sp. Fig. 11.

A rather stout black species with a square black discal patch on wings and a prominent yellowish white triangle on tergite 4.

♀. Length 13.5 mm; wing 11.5 mm. Eyes bare, apparently unicolorous. Frons about 4.5x as high as wide, nearly parallel sided, grey pollinose, Frontal callus dark brown, nearly black, narrowed above into a slender ridge reaching nearly to vertex. Vertex with a slightly raised triangular bare patch with faint vestiges of ocelli. Subcallus brown, greyish pollinose, with numerous scattered dark grey erect hairs to margin of subcallus, becoming denser and longer on lower genae, but absent on lower part of frontoclypeus.

Antennae orange, segments 1 & 2 grey pollinose, black-haired, 3 broad, with a strong dorsal angle on basal plate; style concolorous, over 1/2 length of plate. Palpi black, rather inflated basally, blackish pollinose and black-haired. Proboscis black, pollinose, labella membranous, over 1/2 length of proboscis, mandibles and maxillae only slightly longer than palpi.

Mesonotum black, subshiny, with faint reddish sutural lines, sparsely black-haired with exception of a few orange brown hairs on anterior border and whitish hairs on pronotal lobes. Scutellum and pleura blackish, black-haired. Legs all black and black-haired, fore tibiae slightly reddish on basal 1/3. Hind tibiae with a fringe of longer hairs on outer surface. Wings with basicosta bearing scattered setae, base of costal vein grooved, venation normal, no appendix on fork of 3rd vein. Wings hyaline with a black patch below stigma including all of discal cell and extreme bases of posterior cells. Costal cell and basal halves of basal cells lighter brownish, as are anal cell and axillary area. Halteres brown basally; knob yellowish white.

Abdomen above black, rather densely black-haired except for patches of yellowish white hairs on posterolateral angles of tergites 1–3, and a large triangular patch of yellowish white hairs on hind margin of tergite 4. Pollinosity beneath lateral pale hair patches on tergite 2 and median patch on tergite 4, whitish, elsewhere blackish. Beneath the sternites are blackish, hind margins paler, those of sternites 2–4 fringed with white hairs behind.

Holotype ♀, Rio Tuira Yellow Fever Sta., Darien Prov., Panama, 24. II. 1958, in forest canopy, P. Galindo. Paratype ♀, same locality, 25. II. 1958. Paratype is the same, though slightly larger, 15 mm, but has 1 antenna broken.

This species is obviously related to *Ph. inauratus* Fchld. and *fucosus* Fchld. It forms with them a small group differing from the similarly marked *Ph. fascipennis* (Macq.) and *Ph. keenani* Fchld. in having broader frons and antennae, stouter palpi, and shorter proboscides. Resemblance in tinctorial characters to certain species of *Catachlorops*, e.g. *caloptera* Schin., is quite striking, but the structure of antennae and presence of setae on basicosta will separate them. On the other hand, there are no structural characters to separate this group from *Stenotabanus plenus* (Hine), which has also a few setae on basicosta, and remnants of a dark wing patch. An old and much denuded specimen of an undescribed species before me is indistinguishable from *plenus* structurally, but has a wing patch as extensive as *phalaropygus*, though less intensely black. The striking color characters unsupported or contradicted by structural characters make generic grouping of these flies exceedingly difficult. The following tentative arrangement may have the virtue of bringing together similar appearing species while providing names for the diverse groups.

Recently I (1961) decided on insufficient evidence, that *Hemichrysops fascipennis* Kröb. belonged to this group, but detailed study of a fresh specimen, discussed earlier in this paper, has convinced me that it does not, so that the species here discussed may be placed in *Philipotabanus*. The group in the broad sense may be defined as follows: small to medium sized flies, basicosta with sparse setae, occasionally bare. Frons of moderate width to exceedingly narrow, frontal callus club-shaped to ridge-like, narrower than frons. Proboscis long or short, labella pollinose and membranous. Palpi moderately inflated to very slender. Vertex with a bare patch or slightly raised tubercle, usually with only faint vestiges of ocelli. Antennae with segment 1 as broad as long or broader, 2nd with dorsal tooth, 3rd broad to slender, with a well-marked dorsal angle but not a long tooth or spine. Coloration variable, but wings always with a dark pattern, ranging from a slight dark area beneath stigma to almost entirely black wings. Legs slender. Eyes bare, unicolorous green, reddish or bronzy in life. ♂♂ of the few known species have enlarged eye facets sharply differentiated and demarcated from the small, and a small wedge-shaped tubercle sunk between the eyes

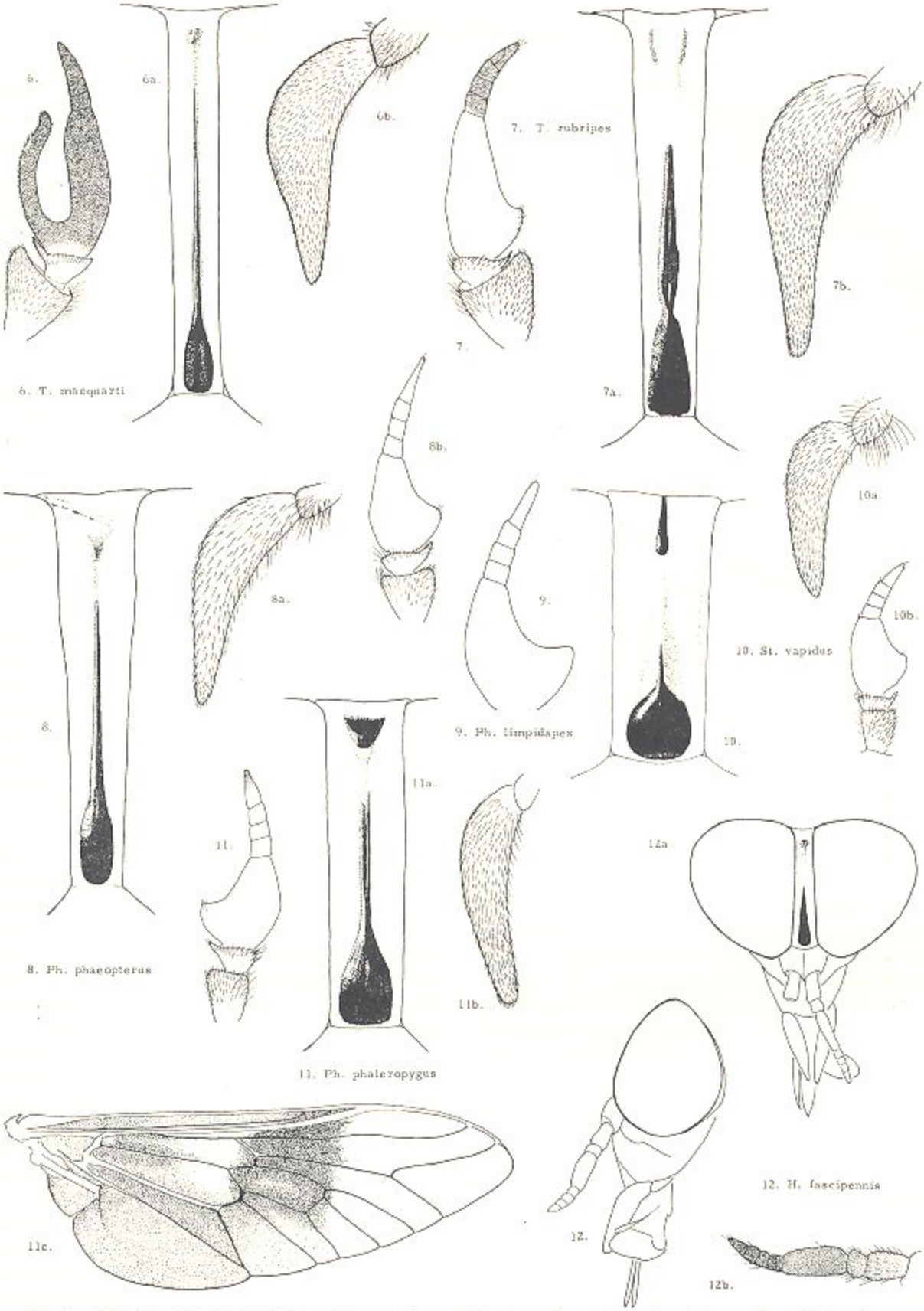

Fig. 6. *Tabanus macquarti* Schiner. Antenna, frons and palpus of specimen from Cerro Pirre, Darien Prov., Panama. Fig. 7. *Tabanus rubripes* Macq. Antenna, frons and palpus of homotype from Maracajú, Matto Grosso, Brasil. Fig. 8. *Phaeotabanus phaeopterus* n. sp. Frons palpus and antenna of holotype. Fig. 9. *Phaeotabanus limpidapex* Wied. Antenna of specimen from Itatiyaya, Rio de Janeiro, Brasil. Fig. 10. *Stenotabanus vapidus* n. sp. Frons, palpus and antenna of holotype. Fig. 11. *Philipotabanus phaleropygus* n. sp. Antenna, frons and palpus of holotype, wing of paratype. Fig. 12. *Hemichrysops fascipennis* Kröb. Side and front view of head and antenna of specimen from Rio Changena, Bocas del Toro Province, Panama.

at vertex.

The genus ranges from Amazon basin and E. Bolivia north through the Guianas, Venezuela, Colombia, and Central America to Mexico. The 3 definable subgenera are separated on combinations of structural and tinctorial characters, as follows.

Key to subgenera

1. Wings with an irregular dark pattern of variable extent which always leaves clear areas surrounding all cross-veins and fork of 3rd vein. Frons narrow to very narrow, 7–10x as high as wide. Palpi slender. Eyes bronze in life. Always rather slender, long-winged species; wings nearly as long as or equalling body length. ♂♂ with large facets of eye bare (*pallidetinctus, keenani, magnificus*) or short pilose (*ebrius*). ... **Philipotabanus**

   Wings ranging from almost wholly blackish to hyaline with a small dark area below stigma, but cross-veins at end of discal cell and fork of 3rd vein not surrounded by clear fenestra when included in dark pattern. ..... 2.

2. Slender species with frons 7x as high as wide or narrower, the palpi and antennae slender, proboscis considerably longer than palpi with small labella. Eyes bright green in life. ..... **Melasmatabanus**

   Stouter species with broader frons not over 6x as high as wide, the palpi inflated, the antennae broader, the proboscis hardly longer than palpi, the labella large. Eyes green or brick red in life, fading to greenish black. ♂♂ with large eye facets long pilose (*plenus*). ..... **Mimotabanus**

Philipotabanus Fairchild 1942 includes, besides the subgenotype *Tabanus ebrius* O.S., the following species: *tenuifasciatus* Kröb., 1930, Peru, Colombia; *pallidetinctus* Kröb., 1930, Panama; *reticulatus* Kröb., 1930, Peru, Bolivia; *magnificus* Kröb., 1930, Ecuador to Honduras; *caliginosus* Bell., 1850, Mexico; *medius* Kröb., 1934, Costa Rica, Panama; *elviae* Fchld., 1942, Panama; *kompi* Fchld., 1942, Br. Hondruas, Honduras; *nigrinubilus* Fchld., 1953, Panama, Honduras; *pterographicus* Fchld., 1942, Panama; *chrysothrix* Fchld., 1942, Panama; *enigmus* Philip, 1954, Mexico; *stigmaticalis* Kröb., 1931, Brasil, Br. Guiana, Panama. The last species is placed here on head characters and pale coloration. The wing pattern is reduced to a small faint dark patch below the stigma. I have seen material of all the species, and feel that several may prove to be but geographic races.

Melasmatabanus subg. nov. The type species is here designated as *Tabanus fascipennis* Macq., 1845, Brasil, Venezuela, Colombia, Panama. The group includes also *T. ecuadoriensis* Kröb., 1930, Ecuador; *T. (Ph.) keenani* Fchld., 1946, Panama, Colombia; *T. criton* Krob., 1931, Colombia. I have not seen specimens of *ecuadoriensis* or *criton*. The last seems near *keenani*, but has not been figured.

Mimotabanus subg. nov. The type species is here designated as *Tabanus (Philipotabanus) inauratus* Fchld., 1946, Panama. The group includes *fucosus* Fchld., 1958, Colombia; *plenus* Hine 1907, Guatemala, Panama; *phalaropygus* n. sp., Panama.

The inclusion of *plenus* Hine in this group is based on structural similarities of head, presence of sparse setae on basicosta, and remnants of a dark wing patch. Otherwise the species appears very different, with its striped thorax, red eyes in life and Sarcophagoid appearance. It is to a certain degree connected with other members of the group by an undescribed species which has a more prominent wing patch and unlined thorax. *Stenotabanus maruccii* Fchld. is also very similar, having the same mimetic appearance and setae on basicosta, but it is smaller, with small labella, slender antennae and quite different wing pattern, apparently related to *Myiotabanus sarcophagoides* Lutz.

The generic placement of the following 3 species has been subject to considerable confusion, due to misapplication of the specific names and to heavy reliance on the presence of a long dorsal tooth on the antennae as a generic character. All 3 species have setose basicosta, membranous labella and lack vestiges of ocelli, and are certainly to be placed in the *Tabanini* in my opinion. The species here identified as *macquarti* Schiner is closely similar to *T. hirtitibia* Walker which is the genotype of *Chelommia* Enderlein 1922. *Macquarti* was included in *Chelommia* by Kröber (1934) and by Barreto (1949), but placed in *Alliomma* by Bequaert and Renjifo (1946). The type of *Alliomma* Borgmeier 1934 is *Omallia thiemeana* End., an apparently closely related species. There seems, therefore, no basis on which to separate *Chelommia* and *Alliomma*.

Whether the group can be maintained as a full genus is a matter of opinion. The characters available do not seem to me to be sufficiently stable or distinctive to warrant more than subgeneric status, and even this category will be difficult to define. The only older supraspecific name available is *Chelotabanus* Lutz with *Tabanus fuscus* Wied. as type. *T. fuscus* differs from *macquarti* in having closed 1st posterior cell, shorter antennal tooth, abdomen with a series of dorsolateral light-haired spots and sublateral light-haired stripes on abdomen ventrally. I suspect that the tendency to develop a long antennal tooth has been expressed within this group of narrow-fronted Neotropical *Tabanus* to an unusual degree, leading to a condition of antennal segment 3 indistinguishable from that achieved in several separate lines of the *Diachlorini*. Within the

group, however, the degree of development of the dorsal tooth is very variable as between otherwise closely similar species, and even within what is apparently a single species.

For present purposes it is here proposed to treat the group rather broadly, including in it species which show the following combination of characters. Eyes essentially bare and unicolorous, with at most a faint median line. Frons narrow to very narrow, not less than about 7x as high as basal width, paralled sided or narrowed below. Callus narrower than frons, club-shaped to linear. Palpi rather large, neither very slender nor short and stout. Antennal segments 1 & 2 produced dorsally, 3rd with at least a strong dorso-basal angle, often produced into a curved spine which may reach 1st annulus. Proboscis without sclerotized labella. Legs generally unicolorous, or all tibiae paler than femora, rarely the fore tibiae obscurely bicolored, hind tibiae strongly fringed. Mesonotum essentially unicolorous, or very obscurely striped, sometimes with a small patch of black hairs bounded by pale hairs laterally on the posterior border, but scutellum concolorous, without central patch of black hairs. Wings hyaline to deeply colored, the 1st posterior cell petiolate, coarctate or open, with or without an appendix on fork of 3rd vein. Abdomen unicolorous or bicolored, with or without median and/or sublateral contrasting spots or stripes. I regard the narrow frons and unicolorous eyes as of equal or greater importance than the antennal structure in delimiting the group.

Thus defined, the group will include a considerable number of mostly large species, normally not less than 18 mm in body length. Of the species I have seen, I would include the following in this group. I have seen the types of those marked with an asterisk. *T. fuscus* Wied., *discus* Wied., **erebus* O.S., **basivitta* Wlk., **angustifrons* Macq., **alboater* Wlk., **melanocnemis* Barr., **senior* Wlk., **discifer* Wlk., *fortis* Fchld.=*robustus* Kröb. preoc., **hirtitibia* Wlk., *macquarti* Schin., *subruber* Bell., *thiemeana* End., **pachypalpis* Big., **peruviana* Macq., *bigoti* Bell., *brevihamus* End., **perplexus* Wlk. Some of the above are very probably synonyms, while other species which I know only from the literature will surely go into the group.

Excluded on the basis of disagreement in one or more characters are a number of fairly similar species, such as *nebulosus* De G., *importunus* Wied., **guyanensis* Macq., **rubiginipennis* Macq., **punctipleura* Hine., *olivaceiventris* Macq., **confligens* Wlk., **corone* O.S., *comosus* Stone.

If a separate name is to be used for the group, *Chelotabanus* Lutz appears to be the earliest available, with *Chelommia* End., *Alliomma* Borgm and *Gymnochela* Kröb. nec End. falling as synonyms. This arrangement, while possibly artificial, has the merit of enabling a group of similar species to be conveniently segregated from the unwidely mass of Neotropical *Tabanus* species.

Tabanus (Chelotabanus) bigoti Bellardi 1859, Sagg. Ditt. Messicana **1**: 58. Redescription of Macquart's type of *T. apicalis*, loaned by Bigot.—Osten Sacken, 1886, Biol. Centr. Amer., Insecta, Diptera **1**: 48.—Fairchild, 1942, Ann. Ent. Soc. Amer. **35**(4): 442, figs. 4, 4a, 4b, form B only; 1961, Rev. Biol. Trop., San Jose **9**(1): 38, Costa Rica.

Tabanus apicalis Macquart, 1847, Dipt. Exot. Suppl. 2, p. 20.—Fairchild, 1956, Smiths. Misc. Coll., **131** (3): 11. Not *T. apicalis* Wied. 1828.

Tabanus appretiatus Kröber, 1934, Rev. Ent. **4**(3): 306, new name for *T. apicalis* Macq.

There are other references to this name in the literature, but it is not always certain that they refer to the same species.

Macquart's description is brief and refers to a headless specimen from Mexico, ex coll. Bigot, as does Bellardi's equally brief re-description. In the British Mus. there are 2 specimens. The 1st bears a red-circled type label, a label in Macquart's hand reading "Tabanus apicalis n. sp. J. Macquart" pasted onto a Bigot label reading "Bigotii Bellardi Mexicus D. Exot.", a white handwritten label reading "Tabanus apicalis Macq.—Bigotii Bell.", a Bigot coll. B. M. accession label, and a Kröber det. label reading "Tabanus Macq." The 2nd specimen bears a yellow circled paratype label, a Bigot coll. B. M. accession label and a Kröber det. label.

The 1st specimen above is nearly perfect, only slightly dirty, and does not appear to have had its head glued on. The 2nd specimen has the thorax crushed, the head glued on, and lacks antennae. Both Macquart and Bellardi describe the specimen they studied as headless, and Bellardi states that Macquart's specimen was loaned to him by Bigot, so that there seems no doubt that both studied the same material. Bellardi states that the specimen had the 1st posterior cell open but coarctate and the fork of 3rd vein without an appendix. Macquart's description mentions the coarctate cell, but does not refer to the fork, which he would probably have done had it borne an appreciable appendix. The specimen labelled type above agrees closely with both descriptions, except for having what appears to be its own head. The paratype above, with head glued on, does not agree with either description, as it has a long appendix on fork of 3rd vein, while the coxae are brown pollinose and dark haired. In my opinion, neither of these specimens can be the specimen studied by Macquart and Bellardi, unless the type above had the head of another specimen glued on so skillfully that I failed to detect the substitution. I suspect that someone, probably Bigot, transferred

the labels from Macquart's headless specimen to another, perfect specimen, which he believed to be the same, and which does, in fact, agree closely with both descriptions.

I believe this specimen satisfies the criteria for designation of a Neotype set forth in Art. 75 of the International Code of Zoological Nomenclature, 1961, and the specimen discussed above, bearing a red-circled type label and " Tabanus apicalis n. sp. J. Macquart " in Macquart's handwriting is hereby selected as Neotype of *Tabanus apicalis* Macq. 1847 and of *Tabanus bigoti* Bellardi 1859.

This specimen was compared with and agrees closely with the specimen figured by me (1942, fig. 4) as *Tabanus bigoti* var. B. This latter also agreed with specimens in the British Museum det. as *bigoti* by Osten Sacken and Austen, from Chontales, Nicaragua and San Juan Bautista, Mexico.

The species is separable from related forms, in addition to the structural characters of the head and wings, by having the legs wholly black and black haired, except for long fringes of pale yellow hairs on posterior sides of all femora, coxae steel grey pollinose with long white hairs, as are sternum and lower pleura, frontoclypeus and genae pale steel grey, beard white or nearly so. Subcallus a little yellowish tinged, frons more yellowish. Antennae with segment 3 ranging from dull reddish to black, style always black, degree of dorsal excision varying considerably, some specimens showing a much more developed dorsal tooth than shown in my figure (1942). Frontal callus black or nearly so. Abdomen has segments 1–4 bright orange yellow, mainly bright yellow-haired, but with admixture of black hairs on anterior portions of most tergites, remainder deep black, black-haired. Rarely there is a short stub of an appendix on fork of 3rd vein in one or both wings. Eye in life brilliant blue-green, with a faint median light line, hardly visible, across the middle. In addition to the specimens in B. M. mentioned above, I have seen material from Eden and Chontales, Nicaragua, Wauchope, Limon Prov., Costa Rica, and 2 specimens from Muzo, Dept. Boyaca, Colombia. These last differ in slightly longer antennal tooth and in having a patch of yellow hairs in the middle of tergite 5. They agree more closely with Krober's description and figures of *brevihamus* End. than does a specimen of *surifer* from the same locality, but the antennae are not quite the same. In Panama the species is local, having been taken in the vicinity of Almirante, Bocas del Toro Prov. (12♀♀), La Victoria, Cerro Jefe, Panama Prov. (1♀); Ancon, C. Z. (1♀); Gamboa, C. Z. (1♀); Rio Mandinga, Intend. San Blas, (5♀♀); Cerro Azul, Panama Prov. (2♀♀). All specimens were secured in May or June, in various years.

Tabanus (Chelotabanus) macquarti Schiner Fig. 6.

Tabanus macquarti Schiner, 1868, Reise Novara, Zool. **2**. Diptera: 89, Colombia.

Alliomma macquarti: Bequaert & Renjifo-Salcedo, 1946, Psyche **53**(1–2): 72, Colombia.

Tabanus validus Hine, 1920, Ohio J. Sci. **20**: 188, ♀, Costa Rica. Not *T. validus* Wied. 1828.

Tabanus ratus Kröber, 1934, Rev. Ent., Rio **4**(3): 313. New name for *T. validus* Hine. **New synonymy.**

Gymnochela bigoti: Kröber, 1931, Zool. Anz. **96**: 50, fig. 1, Venezuela.

The specimens from Panama here reported agree very closely with Bequaert's Colombia specimens, some of which are before me, and with Schiner's very careful description. They agree with Kröber's (1931) brief description and figure of Venezuelan material, presumably Schiner's type, which he called *bigoti* Bell, but not with Surcouf's (1919) description of specimens he thought were the types of *ruber* Macq. I give here descriptions and figures of material from Panama and Colombia.

♀. Cerro Pirre, upper Rio Setiganti, Darien Prov., Panama, 455 m, 3–6. II. 1961. Length 18 mm; wing 17 mm. Eyes bare, unicolorous. Frons narrow, about 7.5x as high as basal width, nearly parallel-sided, dark yellowish grey pollinose. Callus black, club-shaped, about 1/2 width of frons at widest, narrowed above into a slender ridge reaching 2/3 distance to vertex. Vertex with raised discolored spot with vestiges of 3 reddish ocelli. Subcallus concolorous with frons, with a slight brownish tinge in the middle and scattered short pale yellowish hairs on sides. Frontoclypeus and genae pale yellowish grey, more yellowish beneath antennae and along eye borders, densely clothed with yellowish white hairs. Antennal segment 1 orange, grey pollinose, densely beset with recumbent black setae above, long yellow hairs beneath; segment 2 reddish, with black setae above, its dorsal angle produced into a long acute spine; segment 3 reddish at extreme base, otherwise black, its dorsal tooth long, curved, slender, tip slightly recurved, reaching to end of basal plate; style black, upturned, less than 1/2 length of basal plate. Palpi yellowish, whitish pollinose, beset with well-spaced short black hairs, inflated basally, apex acutely pointed. Proboscis blackish, labella long and wholly membranous.

Mesonotum dark blackish brown in ground color, with a faint slender median and pair of slender dorsolateral pale stripes, not apparent in worn material. Scutellum concolorous, but notopleural lobes paler reddish. Mesonotum and scutellum clothed with mixed black erect hairs and recumbent shiny yellow hairs, thinly greyish brown pollinose. Notopleural lobes with erect black hairs only. Small tufts of golden yellow hairs immediately before wing bases,

and on sides of mesonotum between wing bases and scutellum. Pleura brownish pollinose above, becoming steel grey towards sternum, clothed with dense long yellow to yellowish white hairs, which are mixed with some black hairs, the black hairs being most abundant just beneath the wing insertions, forming a vague dark patch.

Wings with basicosta densely black setose, costa grooved dorsally at base, costa and 1st vein (R) setose above, subcosta with a single row of setae beneath. Fork of 3rd vein with a short appendix in one wing, none in the other. First posterior cell (R4) slightly narrowed. Costal cell brownish, rest of wing moderately brownish yellow tinted, strongest in basal cells, along fore border, and longitudinal veins, with slight intensification at fork of 3rd vein, not forming a well defined spot.

Femora and coxae all black, grey pollinose, dorsally clothed with mainly black recumbent hairs, ventrally with longer silver to brassy hairs, except hind femora, which are completely bare on mesal surface, shiny towards apex. Extreme tips of fore femora ivory white, of the others only slightly reddish. Fore femora dark brown, practically black, short black-haired dorsally, densely short dark rufous-haired beneath. Fore coxae with dense long yellowish white hairs. Mid and hind tibiae dark reddish brown basally, becoming black towards apex, blackhaired except for sparse yellowish hairs ventrally on basal 1/3. Hind tibiae with a strong fringe of longer black-hairs on posterior outer aspect. All tarsi black and black-haired.

Abdomen bright reddish orange on tergites 1–4, 5th basally reddish orange, but with a vague dusky area in middle, and sides and posterior border dusky. Remaining tergites blackish. Tergites 1 & 6 with sparse greyish pruinosity, remainder subshiny. Hairs sparse, black, except for a small tuft in middle of tergite 1, narrow hind marginal bands on tergites 2–4, widened into indistinct median triangles, especially on tergite 4, and entire lateral margins of tergites 1–4, which are orange-haired. Beneath, sternites 1–4 are wholly orange, slightly grey pruinose, wholly orange-haired. Sternite 5 is black at extreme sides and there black-haired, otherwise orange and orange-haired. Sternite 6 is black and black-haired, with a narrow fringe of orange hairs on posterior margin. Sternite 7 wholly black and black-haired.

Two other specimens from same locality, 27. I. and 4. II. 1961, agree in detail, except that both lack appendices on fork of 3rd vein, and have tergite 5 more extensively reddish, with only a median dark patch.

A ♀ from Restrepo, Dept. Meta, Colombia, 1936, J. Bequaert, differs only as follows: Basal plate of antennae slightly stouter, palpi blunter, not nearly so tapered and acutely pointed, tibiae slightly paler, especially basally, though by no means bicolored or strongly contrasting with femora. Black hairs in tuft below wing insertion more numerous. Abdomen with 5th and succeeding tergites wholly black in ground color. Orange hairs forming distinct median triangles on tergites 1–5, but no complete hind-marginal bands, though a few scattered orange hairs present. Sides of tergites 1–5 entirely orange haired. Throughout, the abdominal pale hairs are lighter, more yellow, than in the Panama examples. Beneath, sternite 5 is more dusky, though mainly pale haired, sternite 6 with a few yellow hairs.

A series of additional specimens from Villavicencio, Meta, Colombia (7), Restrepo, Muzo, Colombia (2), Tingo Maria and Aguaytia, Huallaga, Peru (5), Zamora, Ecuador (3), and Wonotobo, Surinam (2), show considerable uncorrelated variation, many having dorsal tooth of antennal segment 3 slightly shorter, not recurved at apex, or abdomen more extensively red, with all variation from a series of yellow middorsal triangles to simple narrow hind-marginal bands. There is also variation in shape of palpi, from the rather acutely pointed form illustrated for Panama specimens to a more blunt shape. Color of pollinosity and hairs of beard and pleura varies from near white to yellowish grey, and the degree of infuscation of wings from greyish hyaline to strongly brown margined veins. Antennal segment 3 may be wholly black or with the basal part up to 1/2 red. Width of frons about the same in all, frontal callus black or dark brown to dark reddish basally. Sides of first 4 or 5 tergites and abdominal venter always yellow-haired, tibiae never very markedly paler than femora, 1st posterior cell always wide open, and when an appendix on fork is present, it is never longer than the vein segment between its origin and the fork.

I believe all these specimens to be conspecific and suspect that the variations noted are due partly to extrinsic factors such as age and wear, and partly to the fact that this is apparently a species of submontane forests whose habitat is discontinuous throughout its range, leading to the formation of local variant populations.

T. validus Hine appears to be the same as what is here called *macquarti* Schin. A specimen from Palmar, Costa Rica, was compared and found to agree with the holotype in U.S.N.M. in 1953. Except for smaller size, 14 mm, this specimen agrees closely with Colombian and Peruvian specimens discussed above, with base of antennal segment 3 reddish and dorsal tooth not recurved at tip.

What may be the ♂ of this species is represented by a specimen from Rio Suarez, Santander, Colombia, 11–28. VIII. 1946, L. Richter, loaned by Dr. Philip.

The antennae, wings, legs, etc. agree with Colombian ♀♀, but the abdomen is quite different. The first 4 segments are light yellow in ground color, remainder black, and all hairs, both above and below, are black, except for minute median tufts of yellow hairs on hind margins of tergites 3–4, and narrow hind-marginal bands of yellow hairs on sternites 2–4. Eyes are bare, holoptic, upper facets not enlarged nor demarcated, and a small raised tubercle at vertex. Palpi are dark reddish brown, grey pruinose, black-haired, slightly falcate.

Tabanus (Chelotabanus) surifer Fairchild, n. sp.

Tabanus bigoti var A., Fairchild, 1942, Ann. Ent. Soc. Amer. **35**(4): 442, figs. 5, 5a, 5b.

A large species with bright reddish abdomen, narrow frons, ridgelike callus, black legs, and smoky wings with a long appendix at fork of 3rd vein.

♀. Length 18 mm; wing 16 mm. Eyes bare, in life dull bronzy, without bands. Frons about 8–9 times as high as basal width, nearly parallel sided, bright orange-brown pollinose. Frontal callus reddish orange, narrower than frons, about 3x as high as wide, with a median longitudinal groove, merging above into a slender raised ridge reaching nearly to vertex. Vertex without callus, with only a small denuded area. Subcallus, frontoclypeus and genae bright orange-brown pollinose, beard reddish brown. Antennae wholly bright reddish orange, the first 2 and dorsal spine of segment 3 with dark reddish brown to black hairs. Segment 3 with unusually long basal plate, well over 2x length of style, and with a slender but short basal spine arising close to its base, as figured by me in 1942. Palpi concolorous with frontoclypeus, basally inflated but with slender apex, beset with dark reddish brown to black hairs, about as long as antennal segment 3. Proboscis concolorous with face, slightly exceeding palpi, labella wholly membranous.

Mesonotum cinnamon brown, yellowish grey pollinose, with short erect black hairs and recumbent golden hairs mixed, essentially unstriped. Notopleural and pronotal lobes and sides of mesonotum more reddish in ground color, scutellum concolorous with mesonotum. Pleura brownish black, pollinosity yellowish grey above, becoming steel grey below. Hairs long and abundant, largely dark brown to black, but inconspicuous tufts of yellow hairs below and behind wing insertions.

Wings strongly brown tinged, color more intense in costal cell, anterior 1/3 of wing and along veins. Fork of 3rd vein with a long appendix, longer than short proximal segment of R 2+3. First posterior cell broadly open; anal cell closed far from wing margin. Halteres with brown stem and yellowish knob. Legs black and black-haired, coxae grey pollinose, hind tibiae with an outer posterior fringe of longer hairs, tarsi red-haired below.

Abdomen with segments 1–4 and anterior part of 5 bright reddish orange in ground color, remaining segments blackish. Red portions of dorsum, including a median patch on tergite 5, entirely clothed with coppery orange hairs, remainder of tergite 5 and tergites 6 & 7 black-haired. Beneath, sternites 1–4 orange and orange-haired, 5th to last black and black-haired. The name is from L. *surus*, a shoot or twig, in reference to the long appendix at fork of 3rd vein.

Holotype ♀, Cerro Campana, Panama Prov., Panama, 22. V. 1955, taken in Shannon trap. To be deposited in M.C.Z.

♂. Length 17 mm; wing 13.5 mm. Eyes bare, greenish bronze in life, holoptic, upper area of enlarged facets occupying about 1/2 eye area, well differentiated and demarcated from small facets. A small wedge-shaped tubercle sunk between eyes at vertex. Antennae as in ♀, but more slender, basal plate proportionally shorter, dorsal tooth shorter and more acute. Palpi bulbous, widest distally, with a small terminal nipple. Wings, legs, color and vestiture exactly as described for ♀.

Allotype ♂, Barro Colorado I., Canal Zone, at light, 11. V. 1956, Carl W. and Marian E. Rettenmeyer.

Paratypes, 100 ♀♀ and 2 ♂♂ as follows: PANAMA: *Chiriqui Prov.*, Buena Vista, 300 m, III. 1926, L. D. Smith (1). *Bocas del Toro Prov.*, Almirante, I. IV. V. VI. VIII. (9); Rio Caña, 9. VII. 1949, biting pigs, 6 a.m. (11). *Veraguas Prov.*, Sta Fé, VII. VIII. (3). *Cocle Prov.*, El Valle, IV. V. VII (4). *Panama Prov.*, Cerro Campana, 845 m, V. VI. VII. (12); Cañito, Chorrera Dist., V. 1961 (2); Cerro Azul, including La Victoria, La Zumbadora and Cerro Jefe, IV., V. (9); Las Margaritas, Rio Mamoni, 18. III. 57 (1). *Canal Zone*, Gamboa, 22. V. 1953 (1); Candelaria Hydrographic Sta., Rio Pequeni, VIII. (9); Peluca Hydrographic Sta., Rio Boqueron, II., III. (4). *Colon Prov.*, Buena Vista, 1. IV. 1957 (1); Quebrada Bonita, 4. V. 1959 (1). *Intendencia de San Blas*, Rio Mandinga, I. IV. V. VI. VIII. (12); Pito, 20. VI. 1943 (1). *Darien Prov.*, Rio Tuira Y. F. Sta., 26. IV. 1958 (1); Cerro Pirre, 1660 m, 18. III. 1940 (1); Tacarcuna Y. F. Stations, 455–845 m, VIII. IX. 1958 (8); Rio Tacarcuna, 575 m, 12 & 20. VII. 1963, at light, 2♂♂. COLOMBIA, Choco, Rio Nimiquia, 15. VIII. 42 (3); Choco, no date (3); Muzo, Dept. Boyaca, 900 m. 1936, J. Bequaert (1).

Paratypes vary somewhat, as follows. Size ranges from a wing length of 12–17 mm, body and head length from 14–19 mm. Color of frons and face ranges to dark cinnamon brown, beard almost black, proboscis blackish, and callus dark brown. Mesonotum and scutellum range to almost black, rarely with faint

indications of stripes. Pleura may be largely black haired, subalar tufts orange brown. In old faded specimens tibiae may be somewhat reddish and hairs on legs dark red rather than black. Some specimens have small tufts of yellowish hairs on dorsal sides of last 2 pairs of femora at base. Abdomen may have more or less black hair on anterior tergites, especially dorsolaterally, but centers and lateral and posterior margins always orange-haired. Tergite 5 may occasionally lack pale hairs. Tooth on dorsal side of antennal segment 3 sometimes shorter and broader than in figure, rarely slightly longer. Figure given in 1942 was drawn from a paratype from El Valle, 13. IV. 1941, now much denuded.

In 1953 the figured paratype was found to agree quite well with specimens in the British Museum determined by Kröber as *Ommallia brevihamus* End., described from Colombia. However, the figures and description given by Kröber of Enderlein's type (1931, pp. 293–294, fig. 8) differ in important respects from any specimens I have seen. Antennae differently shaped, stouter, and with a longer dorsal spine; frons narrower; femora pale-haired behind. It is possible that the present species is no more than a form of *brevihamus*, but until the type of *brevihamus* can be restudied or unequivocal specimens secured in Colombia prove intergradation, it seems better to maintain *surifer* as distinct.

The 3 species occurring in Panama may be separated as follows:

1. Fork of 3rd vein with a long appendix. Antennal segment 3 orange to brown, dorsal spine short and erect, basal plate long and slender. Beard orange brown to blackish. Eyes dull bronzy in life. .... **surifer**

   Fork of 3rd vein without an appendix, or rarely with a short stub. Antennal segment 3 dark brown to black, style always black. Beard yellowish to white. 2

2. Antennal segment 3 with a broad dorsal angle or short erect spine. Pollinosity of face and frons steel grey, beard pale grey. Abdomen orange-haired on segments 1–4, remainder black-haired. Eyes bright blue-green in life. ..... **bigoti**

   Antennal segment 3 with a long curved dorsal spine, reaching or approaching end of basal plate. Pollinosity of face and frons yellowish white, beard straw colored. Abdomen mainly black-haired, with median orange-haired triangles on tergites 1–5 and generally with fringes of orange hairs on posterior and lateral margins of tergites 1–4. .... **macquarti**

Tabanus rubripes Macquart Fig. 7.

Tabanus rubripes Macq. 1838, Mem. Soc. Roy. Sci. Agric. Arts, Lille **1838** (2): 138; Dipt. Exot. **1**(1): 134.—Kröber, 1930, Zool. Anz. **87**(1–2): 2 (not recognized); 1934, Rev. Ent. **4**(3): 304 (subg. *Macrocormus*).—Fairchild, 1956, Smithsonian Misc. Coll., **131**(3): 27; type in Paris seen; 1961, Mem. Inst. Osw. Cruz **59**(3): 285.

Tabanus (*Lophotabanus*) *lophus* Philip, 1960, Proc. Calif. Acad. Sci., Ser. 4, **31**(3): 92. **New synonymy.**

The type of *rubripes* is in Paris, as noted previously (Fairchild 1956). It bears a white circular label reading "Sylveira Brasil 1832," a small "288" and a Macquart handwritten "Tabanus rubripes." I believe Macquart may have erred in transcribing the data, as the original description gives Cayenne, M. Sylveira, though all other Sylveira material was from Brasil. A specimen from Maracajú, Matto Grosso was compared and found to agree. Paratypes of *lophus* Philip from Villavicencio and Restrepo, in eastern Colombia, agree well with this homotype, differing so far as I can see only in being a little darker, with antennal segment 3 more dusky. There is some variation in the series before me, the wings especially varying from almost hyaline to examples with all veins quite heavily brown margined. The first posterior cell varies from slightly coarctate to closed and petiolate, but there is always a long appendix on the fork of third vein. Philip's detailed description may be supplemented by the accompanying figures.

I have seen ♀ specimens as follows: 2, Sommerfeld, 45 km E of Caaguazu, Paraguay, III. 1950, M. Hertig; 9, Maracajú, Matto Grosso, Brasil, II. III. 1937, Shannon & Lane; 6, Anapolis, Goyaz, Brasil, X-XII. 1936, Fairchild; 1, Pyrenopolis, Goyaz, Brasil, IV. 1936, Fairchild; 2, Guatapara, S. Paulo, Brazil, I. 1945, Barretto; 2, Riberirão Preto, S. Paulo, Brazil, XII. 1953, Barretto; 1, Petropolis, Rio de Janeiro, Brazil, II-III. 1938; 1, Fordlandia, Para, Brazil, XII. 1955, Damasceno; 1, Reyes, Beni, Bolivia, XII. 1956, L. E. Peña; 4, Villavicencio, Colombia, M. Bates; 1, Restrepo, Colombia, 1936, J. Bequaert. A specimen from Cerro Azul, Panama Prov., Panama, 6. V. 1961, furnishes a new record for the country and a surprisingly great extension of range. It agrees closely with Matto Grosso specimens.

Tabanus olivaceiventris Macquart, 1847, Dipt. Exot., Suppl 2: 18, ♂, Para, Brasil.—Walker, 1854, List Dipt. Brit. Mus., **5**(Suppl. 1): 200.—Hunter, 1901, Trans. Amer. Ent. Soc. **27**: 143.—Kertesz, 1908, Cat. Dipt. **3**: 267.—Surcouf & Gonzalez-Rincones, 1912, Genera Insect., Taban., p. 78.—Bequaert, 1926, Med. Rep. Hamilton Rice Exped. Amazon, Part 2: 231, 4♀♀, Belem, Para.—Stone, 1944, Bol. Ent. Venezolana **3** (3): 136, 2♀♀, Venezuela.—Bequaert & Renjifo-Salcedo, 1946, Psyche **53**(3–4): 80, ♀, ♂,

Colombia, with *imponens* Wlk. and *pulverulentus* Big. as synonyms.—Fairchild & Ortiz, 1955, Nov. Sci., Contrib. Ocas. Mus. Hist. Nat. La Salle, Caracas, Ser. Zool. (16): 4, 2♀♀, Venezuela.—Fairchild, 1956, Smithson. Mis. Coll. **131**(3): 7, type not seen. —Fairchild & Aitken, 1960, Ann. Ent. Soc. Amer. **53**(1): 7, 2♀♀, Trinidad, B.W.I.

Tabanus imponens Walker, 1857, Trans. Ent. Soc. Lond. **4**: 122, ♀, Para, Brasil.—Fairchild, 1956, Smiths. Misc. Coll. **131**(3): 19, type in B. M. seen.

Atylotus pulverulentus Bigot, 1892, Mem. Soc. Zool. France **5**: 665, ♀, Cayenne.—Fairchild, 1956, Smiths. Misc. Coll. **131**(3): 26, type in B.M. seen.

Tabanus (*Lophotabanus*) *olivaceiventris*: Kröber, 1929, Zool. Anz. **83**(5–8): 137; 1934, Rev. Ent. **4** (3): 296.

Tabanus (*Lophotabanus*) *imponens:* Kröber, 1929, Zool. Anz. **83**(5–8): 128, fig. 9, with *pulverulentus* Big. as syn.: 1934, Rev. Ent. **4**(3): 295, Colombia, Venezuela, Surinam.

Odontotabanus olivaceiventris: Lutz & Nuñez Tovar, 1928, Est. Zool. Parasit. Venezolanas, p. 56, Venezuela.

Bellardia olivaceiventris: Barretto, 1956 (1957), Rev. Brasil. Malar. **8**(1): 87, British Guiana.

A single ♀ Cerro Pirre, Darien Prov., Panama, 455 m, 5. II. 1961. This represents a new record for Panama and a considerable extension of range for the species, though the locality is only a few miles from the Colombian border. The species in life is easily recognized, being a large species with a bright green abdomen, clear wings, narrow parallel-sided frons with ridge like callus and a steel-grey thorax with a small but conspicuous tuft of black hair just before the scutellum. The green of the abdomen fades to yellowish brown after a time.

Macquart's type appears to be lost. His description states a ♂, but mention of frons and callus indicates he had a ♀. The description is very brief, does not mention the black spot before scutellum and gives the palpi as blackish, though they are white with black hairs, the feet as black and the wings as yellowish grey, though they are glass clear. In other respects the description does not disagree, and there seems no other known species from the neighborhood of Para which agrees better.

Bequaert (1926) has given a good description of the ♀. A ♂ from Paramaribo, Suriname, 23. II. 1959, P.H. van Doesburg Jr. is similar to the ♀ in color, though the abdomen is densely white-haired on the first 4–5 segments. Antennae are more slender than in the ♀, palpi porrect, long oval, slightly falcate, orange pollinose and with mixed black and white hairs. Eyes are holoptic, bare, upper facets moderately enlarged, occupying about 1/2 eye area, clearly demarcated from the small facets. There is a small tubercle sunk between the eyes at vertex.

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