

NOTES ON NEOTROPICAL TABANIDAE (DIPTERA)
XIII. THE GENUS *DIACHLORUS* O. S.¹

G. B. FAIRCHILD

Department of Entomology and Nematology,
University of Florida, Gainesville, Florida

ABSTRACT

A key is given to the 23 species of *Diachlorus* O. S. (Diptera: Tabanidae). *D. pechumani* n. sp., *D. xynus*, n. sp., and *D. aitkeni* n. sp. are described. The male of *D. bicinctus* is described, and taxonomic notes on other species are given.

This genus of small but easily recognized biting flies was characterized most recently by Fairchild (1969), and the species were listed with synonymy and distribution (Fairchild 1971). The only key to the species, however, appeared over 40 years ago (Kröber 1928) and was far from satisfactory. Most of the species have been illustrated at various times, notably by Lutz (1913) who figured 13 species in color, and Kröber (1928) who gave rather rough figures of the head characters of 15 species.

It is the purpose of the present communication to furnish a key for the determination of the known species, to describe 3 new species and the hitherto unknown male of another, and to indulge in brief comments on certain species of questionable status. I have available for this purpose specimens of 16 of the 20 described species and have seen the type specimens of all species.

It is to be noted that Kröber (1928) misidentified 2 species in his review. His *D. ochraceus* Macq. is *D. fuscistigma* Lutz and his *D. fuscistigma* Lutz is probably *D. jobbinsi* Fchld., though his figure of antennae is distorted.

Key to *Diachlorus* females.

1. Subcallus bare and shiny. Largely shiny black species. Apical dark wing patch a vertical band which leaves apex hyaline 2
- 1'. Subcallus pollinose. Apical dark wing patch present, faint, or absent; if outwardly dilute, then abdomen not largely black 4
2. Subcallus with a median silvery pollinose streak. Fore tibiae wholly black and black-haired. Subapical dark wing band narrower, concave outwardly. Abdomen wholly shiny black, occasionally with faint sparsely pale-haired median triangles on tergites 2-5. (Northern S. America; Trinidad) *scutellatus* Macq.
- 2'. Subcallus entirely bare and shiny. Fore tibiae basally white and white-haired. Subapical dark wing band straight or convex outwardly 3
3. Frons about 2.5 times as high as basal width. Abdomen with a middorsal yellow integumental stripe, or vestige thereof. Tergites 2 and often 3 yellowish or brown laterally. Frontal callus, subcallus and palpi yellowish brown. All femora yellowish to brown,

¹Florida Agricultural Experiment Station Journal Series No. 4505.

- the hind pair often with subapical brown band. (Bahia to Mato Grosso, Brazil) *neivai* Lutz
- 3.' Frons about 3.5 times as high as basal width, abdomen wholly shiny black. Frontal callus black, subcallus black or brown, palpi yellow to black, largely pale-haired. All femora black. (Para, Brazil to E. Peru) *xynus* n. sp.
4. (1) Antennal scape longer than basal plate. Abdomen black, the first two tergites with conspicuous white transverse bands. Mesonotum black, shiny, with small pale triangles connected to the yellow-haired notopleural lobes. Scutellum yellow pollinose and yellow-haired. Wing with broad dark costal band to apex, a narrow dark band covering crossveins at ends of basal cells and small clouds on fork of third vein. (N. E. South America) *bicinctus* Fab.
- 4.' Antennal scape shorter than basal plate. Abdomen rarely black; if so, then otherwise marked. If wing with costal band, then lacking band at ends of basal cells 5
5. Frons about 3.6 times as high as basal width, distinctly narrower at vertex, the callus drop-shaped. Antennae unusually long and slender, markedly longer than frons, the style as long or longer than basal plate, the third segment about 3 times length of scape. Abdomen dull yellowish with a pair of sublateral blackish stripes covering tergites 2 to 6, the median yellowish stripe wider than the black. Fore and hind legs mainly brown to black, mid legs wholly pale. Apical wing spot dilute, brownish, often fading out in cell 4th R (Brazil) *bivittatus* Wied.
- 5.' Without the above combination of characters 6
6. Frons narrower, over 3.5 times as high as basal width, generally parallel sided or widened in the middle (rarely narrowed above) 7
- 6.' Frons broader, not over about 2.5 times as high as basal width, nearly always narrowed above 14
7. Mesonotum and scutellum essentially unicolorous, without prominent stripes, both pollinose. Stigma dark brown to blackish 8
- 7.' Mesonotum with a prominent pattern of dark shiny stripes, or dark with pale pollinose stripes and margins. Scutellum shiny. Stigma pale yellow. Apical spot intensely black, filling wing apex 9
8. Median yellow-haired abdominal stripe broad, at least 1/3 width of abdomen, often appearing as a series of broadly overlapping triangles. Distal ends of basal cells distinctly brown-bordered and often brown streaks in first basal and base of first posterior cells. (N. Jersey U.S. to Costa Rica) *ferrugatus* Fab.
- 8.' Median yellow-haired abdominal stripe narrow, often indistinct, not over 1/4 width of abdomen on tergites 2 to 4, occasionally wider on posterior tergites. Wings without dark clouds except apical patch. (Northern S. America) *fuscistigma* Lutz
9. (7) Black shiny areas of mesonotum do not include a pair of anterolateral oval spots above pronotal lobes. Median pale stripe on mesonotum widened at level of wing insertions. Frons about 4.5 times as high as basal width. Scutellum yellow margined. (Panama to Amazon basin) *curvipes* Fab.

- 9.' Black shiny areas of mesonotum include a pair of antero-lateral oval spots or streaks above pronotal lobes 10
10. Abdomen with a pair of prominent black integumental dorso-lateral stripes from first through third tergites; tergites 4 to 7 black with broad middorsal yellow-haired triangles. Apical wing patch rather dilute, not obvious much posterior to vein M1. Frons about 5 times as high as basal width. Scutellum black at base. (E. Peru) *pechumani* n. sp.
- 10.' Abdomen without prominent black integumental dorsolateral stripes, at most with faint black spots on tergites 2 to 4, and stronger spots on tergites 5-7 11
11. Abdomen with faint blackish spots dorsolaterally on tergites 2 to 4, and small shiny black spots on tergites 5-7. A pair of diffuse broad black-haired stripes extends from tergite 2 to 4, becoming narrower posteriorly. Apical wing patch as in *pechumani*, but frons slightly narrower and scutellum wholly yellow. (Para, Brazil) *aikeni* n. sp.
- 11.' Abdomen otherwise. Scutellum at least dark at base 12
12. Median yellow stripe of mesonotum hair-fine, the antero-lateral spots well separated from rest of dark pattern. Tergites 6 and 7 of abdomen sharply black and black-haired. Frons about 5 times as high as basal width. Scutellum broadly yellow-margined. (Costa Rica to Ecuador and Surinam) *jobbinsi* Fchld.
- 12.' Antero-lateral spots not or barely separated from rest of dark pattern 13
13. Frons very narrow, about 7 times as high as basal width. Dark mesonotal pattern extensive, the yellow pollinose areas reduced to a fine median and a pair of broader dorso-lateral stripes, the latter reaching only to level of wing insertions. Apical wing patch extensive and intense, reaching along hind border to anal cell. Scutellum wholly dark. (Rio de Janeiro, Brazil) *varipes* Rond.
- 13.' Frons broader, less than 5 times as high as basal width. Median pollinose stripe of mesonotum absent, the antero-lateral stripes broader, wing as in *varipes*. Scutellum dark or yellow-margined. (E. Ecuador to Para, Brazil) *nuneztovari* Fchld.
14. (6) Abdomen with a large prominent black median integumental spot on second tergite. Inner margin of dark apical wing patch proximal to fork of third vein 15
- 14.' Abdomen otherwise. Apical wing patch distal to fork of third vein, often faint 16
15. Apical wing patch complete, extensive and intense, its proximal border curved inward, nearly reaching end of discal cell. (Northern S. America) *podagricus* Fab.
- 15.' Apical spot a broad vertical band, leaving apex of wing hyaline, its proximal border straight. (South Central Brazil) .. *fascipennis* Lutz
16. Mesonotum dark with at most a slender median pale line and margins and scutellum pale-haired. Abdomen with pale-haired hind marginal bands widened into low median triangles 17
- 16.' Mesonotum with a pattern of dark shiny areas separated by 3

- pale pollinose stripes. Abdomen with a median pale-haired stripe or series of connected triangles 18
17. Mesonotum with a slender pale-haired median stripe; sides, posterior margin and scutellum also pale-haired. Abdomen largely black, the hind margins of all tergites pale, yellow-haired and with small median yellow-haired triangles. Sides of first 2 tergites with yellowish patches. (Minas Gerais, Brazil) *altivagus* Lutz
- 17.' Mesonotum without median stripe. Abdomen shining light yellow-brown, with anterior parts of tergites darkened dorsolaterally. Hind margins of all tergites pale margined, with median triangles and pale hairs. (Brazil) *glaber* Wied.
18. Shiny black areas of undenuded mesonotum consisting of a pair of inverted comma-shaped marks nearly meeting in median line just anterior to scutellum. Abdomen light yellow on first 3 tergites, the succeeding tergites each with a dorsolateral pair of black patches on anterior border. Each tergite with a yellow-haired median triangle reaching anterior border and broad yellow-haired hind margins. Wings with but a faint trace of apical spot in marginal and submarginal cells. (S. Central Brazil)
..... *immaculatus* Wied.
- 18.' Black pattern of mesonotum more extensive. Abdomen otherwise .. 19
19. Black mesonotal pattern consisting of 4 dorsal stripes, the outer pair curved dorsad and joining before scutellum. Abdomen light yellow-brown, tergite 2 with golden yellow midstripe, tergites 3 to 5 with a gradually darkening and more distinct dark midstripe, and 3 to 6 with lateral brown streaks. Femora yellow, except tips of fore and hind pair. Wing as in *distinctus*. (Bahia, Brazil)
..... *afflictus* Wied.
- 19.' Abdomen without median dark stripe 20
20. Abdomen with a broad diffuse middorsal yellow-haired stripe, widening on posterior tergites. Apical wing spot dilute but well defined, its proximal border sharp, straight, to fork of third vein. Mesonotum on disk shiny black with 3 greyish pollinose stripes, the margins and scutellum yellow-haired. Palpi dark brown to blackish, shiny. (S. E. Brazil) *distinctus* Lutz
- 20.' Abdomen with a narrow, even yellow-haired middorsal stripe. Apical wing spot dilute and diffuse, seldom reaching fork of third vein. Median pale stripe of mesonotum broader than laterals, usually yellow-haired 21
21. All femora brown or blackish, at least darker than tibiae of mid pair. Abdomen largely brown to blackish. (S. Brazil, Paraguay, Argentina) *flavitaenia* Lutz
- 21.' All femora yellow. Abdomen generally extensively yellow 22
22. Abdomen yellow to yellowish brown, with a pair of diffuse dark integumental spots on tergite 2, and tergites 4-6 generally darkened. (S. Brazil, Bolivia, E. Ecuador) *bimaculatus* Wied.
- 22.' Abdomen yellow, with more or less distinct dark patches or triangles on extreme sides of tergites 4 to 6. (Venezuela, Ecuador, Colombia) *anduzei* Stone

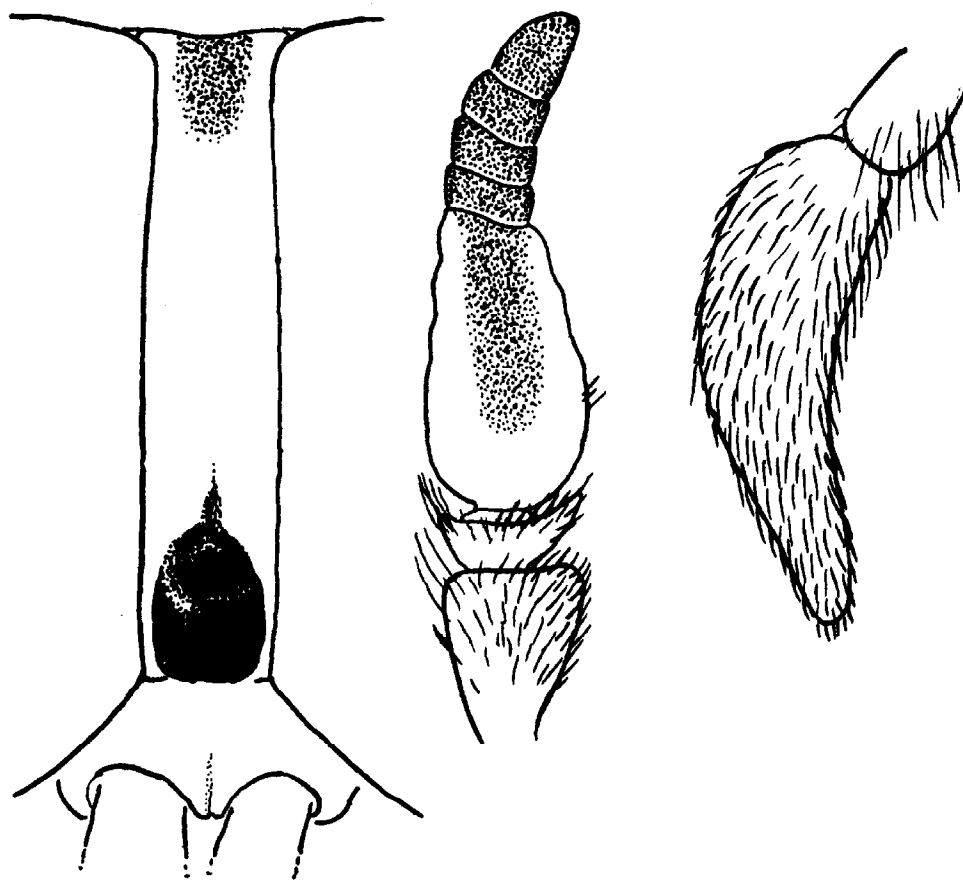


Fig. 1. *Diachlorus pechumani* n. sp. ♀ Frons, antenna, palpus. Holotype.

Diachlorus pechumani n. sp.
(Fig. 1)

A relatively large species with narrow frons, striped thorax, yellow abdomen with a pair of dorsolateral black stripes and clear wings with a well-marked apical spot.

Female. Length 9.5 mm., of wing 8.5 mm. Eyes bare. Frons, antenna and palpus as figured. Frons light golden yellow pollinose, callus black, minutely rugose, flattened above. Vertex with a black subshiny patch, without tubercle or vestiges of ocelli. Subcallus shiny golden pollinose. Frontoclypeus inflated, black and shiny. Tentorial pits black and shiny. Genae yellowish grey pollinose, beard sparse, yellowish. First and second antennal segments dark yellow, pale yellow-haired. Third segment with plate and most of style yellow on inner aspect, outer aspect of plate shows a broad black stripe and style is wholly black, as figured. First palpal segment yellow, second black, subshiny, both wholly golden yellow-haired. Proboscis black, the labella large and membranous.

Mesonotum black and shiny with yellow pollinose markings as follows: a slender median stripe reaching scutellum, a pair of broader dorsolateral stripes tapering out at or slightly before level of wing bases, each bearing

a branch to the yellow and yellow pollinose notopleural lobes. Lateral and posterior margins yellow pollinose. Scutellum dark at base, the margins broadly yellow. Mesonotum and scutellum with sparse golden hairs. Pronotal lobes yellow. Mesopleuron and mesosternum black, the former pearly pollinose, the latter grey pollinose. Fore coxae yellow, mid and hind coxae partly brown. Fore femora yellow, blackish at apex, wholly yellow-haired. Mid femora entirely yellow and yellow-haired. Hind femora mainly yellow and yellow-haired, but somewhat dusky and black-haired on apical third. Fore tibiae somewhat inflated, black and black-haired. Mid tibiae pale yellow, whitish yellow-haired. Hind tibiae basally whitish, apically brown, yellowish-haired except for sparse black hairs on outer aspect of terminal half. Fore tarsi black, mid and hind tarsi with basitarsi whitish, remainder dark yellow. Wings with venation normal, glass clear, the stigma yellowish, costal cell faintly yellow tinted, the apex beyond fork of third vein with a brown cloud filling apex and extending in very dilute form as far as apex of third posterior cell.

Abdomen above yellow with 2 broad black dorsolateral stripes extending from first to middle of fourth tergite, fifth to seventh tergites with broad black dorsolateral triangles, their apices close to hind margins of segments. Hind margins of tergites 3 to 7 yellow. Extreme sides of tergites 2-3 black, 1 wholly yellow, while on 4-7 the dorsolateral black extends to margin. The yellow median stripe is broad, fairly even on tergites 1-3, but of contiguous triangles on remainder. Yellow areas are yellow-haired, black areas black-haired, except that narrow lateral black margins of tergites 2-3 are yellow haired. Pollinosity is evident and yellow on yellow parts, sparse or absent on black parts, so that these are somewhat shiny. Beneath the abdomen is shiny, yellowish on first 2 segments, darkening to black on fourth and beyond, all sparsely yellow-haired.

Holotype ♀, Quince Mil, Cuzco, Peru, 2450 ft elevation, 1-3 Sept. 1962. L. E. Peña coll. In Coll. L. L. Pechuman, for whom the species is named.

Paratypes: 1 ♀, same data, in Coll. G. B. F. through courtesy of Dr. Pechuman. 2 ♀, same locality 13-31 Aug. 1962, 780 m. el. L. E. Peña coll. in Canadian National Collection.

This species is not similar to any other in the genus except *aitkeni* n. sp. It combines features such as narrow frons and apical wing spot characteristic of *curvipes* and related species, with black shiny palpi and striped abdomen found in *bimaculatus* and *bivittatus*. It disagrees in several respects with the brief description of *Silvius nubipennis* Rond., an unrecognized name probably referable to *Diachlorus* and said to have been collected on the Rio Napo, perhaps in modern Peru.

A single poorly preserved ♀ from Iquitos, Peru, 27 March 1923, H. Bassler coll. in the American Museum of Natural History, on loan through Dr. C. B. Philip, seems to be a variant of this species. It is considerably darker, the lateral dark abdominal stripes broader, reaching lateral borders of tergites, and all femora extensively darkened. The head structures and thoracic and wing patterns appear the same.

Diachlorus aitkeni n. sp.

A moderate-sized species with narrow frons, striped thorax, yellow abdomen with small black spots dorsolaterally on posterior segments and

dorsolateral stripes of dark hair. Wings clear with small but distinct apical black spot.

Female. Length 9 mm., of wing 7 mm. Eyes bare, the pattern in life differing from *curvipes* by having an isolated dark tear-shaped mark in middle of eye. Head structures as figured for *D. pechumani* except frons slightly narrower, antennae and palpi slightly more slender. Coloration of pollinose areas as in *pechumani*; callus and frontoclypeus shiny black, as are tentorial pits. Genae grey, beard sparse, whitish. Antennae colored as in *pechumani*. All of first and basal third of second palpal segment yellow, remainder black, pollinose, largely pale-haired except at tip, which is black-haired.

Mesonotum as in *pechumani* except that black shiny areas less extensive, the yellow pollinose areas broader, and scutellum wholly yellow. Pleura as in *pechumani*. Legs as in *pechumani*, except hind femora wholly yellow. Wings as in *pechumani*. Abdomen yellow, the extensive black shiny stripes of *pechumani* represented by small dark spots dorsolaterally on tergites 2-4, and large black shiny triangles on tergites 5-7. Vestiture is of yellow hairs, except for broad diffuse dorsolateral stripes of black hairs, broadest on tergite 2. There are also small black shiny patches on lateral margins of tergite 5, while the black triangles on tergites 6 and 7 extend to the lateral margins. Beneath the abdomen is clear yellow and yellow-haired on sternites 2-5, 6 and 7 are dusky, largely black-haired.

Holotype ♀, A.P.E.G. Forest, Belem, Pará, Brazil, 3 Aug. 1970, T. H. G. Aitken and Toda colls. Taken at midday at 10 ms in forest canopy.

Paratypes, 39 ♀, same locality and collectors, June (6), July (8), and Aug. (9), 1970, all taken in forest canopy from 10 to 35 m above ground level.

Holotype and 9 paratypes to be deposited in U.S.N.M., remaining paratypes in Colls. T. H. G. Aitken, Canadian National Collection, L. L. Pechuman, C. B. Philip, and the author through courtesy of the collectors. Paratypes will also be deposited in Brazil by Dr. Aitken. Named in honor of Dr. Thomas H. G. Aitken, who first noted its distinctiveness.

The paratypes range in size from 8 to 6.5 mm in wing length, while the dorsolateral dark stripes may be slightly more marked than in the type to barely evident.

This species is structurally almost indistinguishable from *pechumani*, but is paler, lacking the prominent shiny black abdominal stripes of that species. Further canopy collecting may show that it is but a geographic race, but its appearance is so distinct, and the collecting localities are so widely separated, that specific status seems warranted.

The appearance of a new species in a locality so well collected as Belem seems due to its highly arboreal habits, although it is possible that specimens have been previously taken but confused with *curvipes*, which it superficially resembles. Dr. Aitken (in litt. 1970) noted that it was different from *curvipes* in a number of respects, including eye pattern, and was strictly arboreal, while *curvipes* was never taken in the canopy.

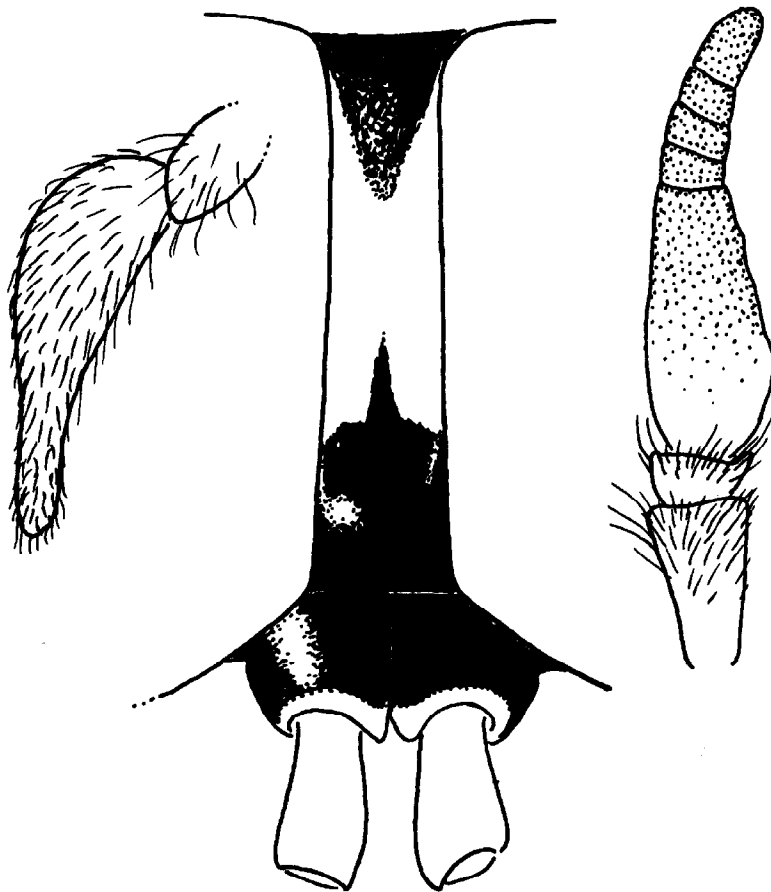


Fig. 2. *Diachlorus xynus* n. sp. ♀ Frons, antenna, palpus. Paratype. Surinam.

Diachlorus xynus n. sp.
(Fig. 2)

Female. Length 7 mm., of wing 6 mm. Frons, antennae and palpi as figured. Very similar in appearance to *D. scutellatus* Macq. (Fig. 3) from which it differs in slightly broader frons, more protuberant subcallus which lacks the median strip of silvery pollinosity found in that species, basally white fore tibiae and hind tibiae only slightly dusky at apex rather than 1/3 to 1/2 black. The subapical dark wing band is also slightly wider. From *D. neivai* Lutz *xynus* differs in slightly narrower frons, black femora, and in lacking any trace of a middorsal yellowish abdominal stripe.

Holotype ♀, Quincemil, Depto, Cuzco, Peru, 2450 ft elevation, Aug. 1962, L. E. Pena, coll. In Coll. L. L. Pechuman.

Paratypes, 27 ♀, same locality as holotype, Aug., Sept., 1962.; 1 ♀, Finca Barbascal, Int. Meta, Colombia, Jan. 1965, J. Esslinger coll.; 1 ♀, Surinam, Coppename, Kalebaskreek, attacking man, 25 Oct. 1945, D. C. Geijskes coll.; 1 ♀, Belem, Pará, Brazil, 25 Aug. 1968, IPEAN, in car, Aitken and Toda colls. Paratypes in Canadian National Collection and in collections of L. L. Pechuman, T. H. G. Aitken, C. B. Philip, and the author.

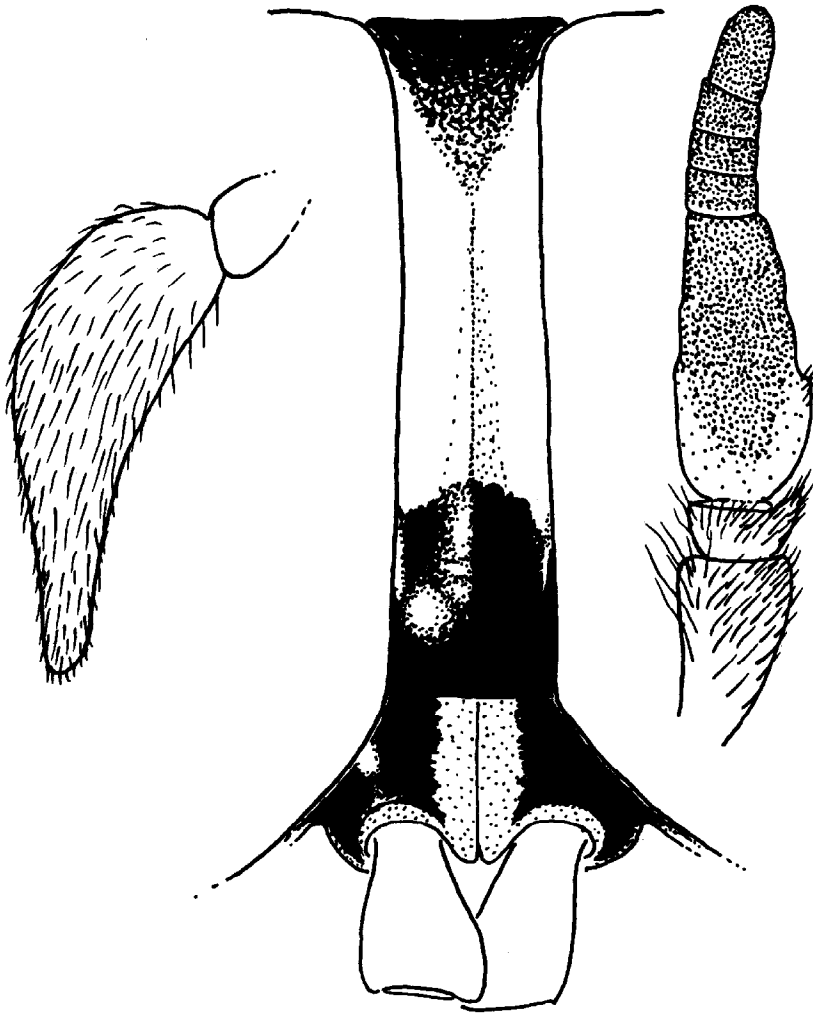


Fig. 3. *Diachlorus scutellatus* (Macq.) ♀ Frons, antenna, palpus. Homotype. Guyana.

Dr. Aitken will also deposit paratypes in Brazil.

The Peruvian specimens are slightly larger with a stronger spot at end of discal cell.

The almost completely intermediate structure and color of this species between *scutellatus* and *neivai* raises questions as to the rank to be given it. A paratype of *neivai* from Bahia, Brazil has the median abdominal stripe reduced to a small pale integumental spot on tergite 2, though there is a complete, though sparse, pale-haired stripe, while a specimen from Matto Grosso has the stripe broad and conspicuous. It is therefore possible that *xynus* is a northern form or representative of *neivai*. The taking of a long series of *scutellatus* in the forest canopy at Belem, Pará, by Aitken and Toda indicates that both species occur in the same locality, while the absence of *xynus* in canopy collections suggest that the two species may be ecologically separated.

I have seen *scutellatus* from Guyana and Trinidad, and the type was

from Cayenne. Dr. L. Tsacas kindly re-compared specimens of both species with the type in Paris, and found it to agree with what is here called *scutellatus*. The record of *scutellatus* from Peru in my catalogue (Fairchild 1971) is erroneous, based on specimens of *xynus*.

Diachlorus bicinctus Fab.

Male. Color and pattern as in the female. Eyes bare, facets very slightly larger in the middle of the eye, but eye not noticeably larger than in female, nor any line of demarkation evident. Eyes separated by a deep narrow groove bearing recumbent setae within. Frontal triangle extending about 1/3 distance from subcallus to vertex. Vertex with a small hirsute tubercle extending to eye level. Palpi much as in female, but shinier, more inflated and slightly shorter. Antennae slightly more slender than in female. 2 ♂, Republiek, Suriname, Sept. 1963, D. C. Geijskes coll. This species, in both sexes, is rather different from the remainder of the genus, possibly due to its resemblance to a small Vespid wasp, but since it is the type of the genus, separating it even at the subgeneric level would unduly upset the nomenclature.

The *bimaculatus* group

The 5 nominal species belonging to this group, *bimaculatus*, *afflictus*, *flavitaenia*, *distinctus*, and *anduzei* have been difficult to separate, and I suspect that with ample material from a wider range of localities, some or all may prove to be geographical races or even mere color varieties, as seems to be the case with *distinctus* var *catharinensis* Lutz, omitted here but discussed elsewhere (Fairchild 1961, p. 211). There are no firm structural differences, and I have had to use color characters, and those mostly of degree, to separate them. *Afflictus* Wied from Bahia may be different, as although I have seen the type, I have no specimens before me and too inadequate notes on the type.

D. glaber Wied and *D. altivagus* Lutz

Kröber (1928) expressed doubt as to the distinctness of these 2 species, although Lutz (1913) when describing *altivagus* maintained their distinctness but failed to point out differences. I have seen the types of both, but most negligently failed to draw *altivagus*, so am dependent on the figures and descriptions in the literature to separate them. The matter is further confused by the possibility that the lectotype of *glaber* in Frankfurt and the specimen in Berlin, which I believe are the same species, represent a species different from the one in Vienna. Kröber described both Frankfurt and Vienna specimens, but probably figured the one in Vienna, as he believed the Frankfurt specimen to be teneral. His figure differs quite a little from mine (Fairchild 1967) of the Berlin specimen, and his descriptions of the 2 specimens he studied also differ in some details. In separating the 2 species in the key I have used Lutz description and figure of *altivagus* and Kröber's (1928) description of the Frankfurt specimen of *glaber*.

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