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NEOTROPICAL DORILAIIDÆ (PIPUNCULIDÆ) STUDIES, PART 1 (DIPTERA)*

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This paper deals with the new species of Neotropical Dorilaidæ in the collection of the Museum of Comparative Zoölogy, Cambridge, Massachusetts. These were kindly loaned to the writer for study by Dr. Joseph C. Bequaert. The species herein described will be keyed in a monograph of the Neotropical Dorilaidæ which is being prepared.

Dorilas (Dorilas) latifrons n. sp. (Figs. 1a-b)

This species is related to *D. flavitarsis* (Williston). The species is distinguished by the broad front and narrow face of the female, the presence of well-developed flexor spines on the femora, by having the r-m crossvein at the basal third of the discal cell and the last section of the fourth vein not sinuous.

Female. Head: Front very broad, expanded in the middle, gray on the sides and with a polished black ridge running its entire length down the middle. At its widest point the front is two times wider than the ocellar triangle. Face very narrow, at its narrowest point it is about equal, in width to one eye facet. The occiput is chiefly gray brownish on the upper portion behind the vertex. The labellum and the third antennal segment are yellow, the palpi and the first two antennal segments are brown. The third segment is acute at apex (Fig. 1a). *Thorax:* Dorsum black in ground color, sides yellow brown. Mesonotum and scutellum chiefly brown pollinose, pleura gray.

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Humeri, tegulæ and halteres yellow. Propleura each with a fan of fine pale hairs. Dorso-central hairs conspicuous, marginal scutellars very short, poorly developed. *Legs*: Coxæ and femora, except for yellow apices, dark brown to black. Trochanters, tibiæ and most of tarsi yellow. Femora moderately swollen, flexor spines well developed. Tibiæ without apical spurs or spines and with no strong bristles on the swollen portion. Tarsal claws and pulvilli small, but little longer than the last subsegment of the tarsus. *Wings*: Distinctly fumose, stigma dark brown and not quite filling all of the third costal section. Third section equal in length to the fourth. The two combined are slightly longer than the fifth section. The r-m crossvein is at the basal third of the discal cell and the last section of the fourth vein is gently curved. The last section of the fifth vein is slightly longer than the m crossvein. The petiole of the cubital cell is about equal to the length of the r-m crossvein. *Abdomen*: Sides almost parallel, first three terga opaque, rather densely grayish pollinose; terga four to six subshining, rather lightly brownish dusted above, gray on the sides. First tergum with two strong hairs on each side, abdomen otherwise sparsely but conspicuously covered with short erect hairs. Hind margin of sixth tergum not excised. Venter yellowish brown. *Ovipositor*: Base subshining black, subglobose in shape and with a pair of small tubercles below. Piercer yellow, very slightly upcurved near apex, one and one-half times longer than the base and extending to about the middle of the fourth abdominal segment (Fig. 1b). *Length*: Body, 2.8 mm.; Wings, 3.0 mm.

Male unknown.

Holotype female: Whitfield Hall, Blue Mts., near 4500 ft., Jamaica, Aug. 13-20, 1934 (P. J. Darlington). Type (M.C.Z. No. 27700) returned to the Museum of Comparative Zoölogy.

***Dorilas (Eudorylas) replicatus* n. sp.**

(Figs. 2a-b)

This species is related to *D. rex* (Curran); it is best distinguished by the yellow antennæ and the differences

in the hypopygial characters. The outer harpago is two or more times longer than wide and the inner is very differently shaped than in *rex*. The processes on the sixth segment of the abdomen are also distinctive.

Male. Head: Eyes very narrowly separated on the front, nearly touching for half the length of the front. Front and face silvery gray pubescent. Mouth parts and third antennal segment bright yellow. First two antennal segments brown, ventral bristles of second as long as the segment. Third segment gently rounded below, shaped as in *D. rex* (Curran). *Thorax:* Pleura yellow brown in ground color, densely gray pollinose. Dorsum black, covered chiefly with brownish pollen. Propleura bare dorsocentral hairs very small and inconspicuous; marginal fringe of scutellum distinct but the hairs are short and fine. Humeri, tegulae and knobs of halteres dark brown to blackish. *Legs:* Coxae and femora chiefly dark brown, the latter with yellow bases and apices. Trochanters, tibiae and basal subsegments of tarsi yellow; the apical subsegments blackish. All femora silver pollinose on the posterior side and with a row of fine cilia near the upper portion of the posterior side. Flexor spines present only on the basal one-third to one-half of the middle femora, absent on the other legs. Middle coxae with a row of black bristles at apices above. Hind tibiae without strong erect bristles on the swelling. *Wings:* Very lightly fumose, stigma brown and filling all of the third costal section. Third section slightly longer than the fourth, the two combined are slightly longer than the fifth. The r-m crossvein is located at the basal third of the discal cell and the last section of the fourth vein is strongly curved. *Abdomen:* Chiefly dark brown with broad gray fasciae on apical halves of segments, these are broadly interrupted with brown in the middle. *Hypopygium:* Similar in general appearance to *D. rex* except that the apical membranous area is not so large (Fig. 2a). The outer harpago is two times longer than wide and over one-third as long as the inner harpago. The inner is greatly enlarged on apical half and also produced on inner side of basal portion (Fig. 2b). The sixth abdominal segment

is developed on the venter into two elongate processes, the larger (first) process is trifid, with two extra teeth developed near base (Fig. 2b). The ædeagus is very complex in structure and possesses numerous points and processes. Length: Body, 4.5–5.0 mm.; female, 6.0 mm. Female unknown.

Holotype male: Canal Zone, Barro Colorado, July 13, 1924 (N. Banks). One paratype male, same locality and collector, June 20, 1924.

Type (M.C.Z. No. 27711) returned to the Museum of Comparative Zoölogy. Paratype deposited in the United States National Museum Collection.

***Dorilas (Eudorylas) spinosus* n. sp.**
(Figs. 3a-c)

This species keys out near *D. stygius* n. sp. but is readily distinguished by the presence of apical spurs or spines on the femora and first two pairs of tibiæ, the long acuminate third antennal segment and bare propleura.

Female. Head: Front equal in width to the face. Upper third of the front shining black, lower portion grayish with a narrow median black line extending about one-half the length of the front. Face and most of occiput gray, upper portion of occiput blackish. Mouthparts and first two antennal segments brown, third segment yellow, long acuminate and covered with long pale pubescence (Fig. 3a). *Thorax:* Mesonotum chiefly polished black, lightly brownish in the middle and gray just inside the humeri. Scutellum subshining, lightly brownish pollinose. Pleura brownish in color, densely gray pollinose. Humeri, tegulæ and halteres yellow. Propleura bare, dorsocentral and scutellar hairs very small and inconspicuous. *Legs:* Yellow red in color except for brownish coxæ, apical subsegments of tarsi and slight discolorations at middles of hind femora. Femora slender, no flexor spines on hind pair. Middle femora each with eight to ten pairs of small flexor spines beneath, front femora with three pairs. All femora with a pale yellow apical spur-like process below (Fig. 3b), this fits into a grooved out portion of the tibia base when the leg is folded. Front

and middle tibiae each with a pair of strong apical spines below. All tibiae with a strong bristle on the outer side of the swollen portion near the middle (Fig. 3b). *Wings*: Hyaline or nearly so, stigma light brown and filling most of the third costal section. Third section slightly shorter than the fourth. The two sections combined are longer than the fifth. Crossvein r-m located at the basal one-third of the discal cell, the last section of the fourth vein straight or nearly so. *Abdomen*: First and second terga chiefly grayish pollinose, remainder of dorsum polished black, lightly grayish on the sides. First tergum with one or two strong bristles on each side, remainder of abdomen with very sparse short hairs. Sixth tergum not excised on hind margin. *Ovipositor*: Base small, black and globose from a lateral view. From above the base is seen to be divided into two lobes by a median furrow extending longitudinally down the dorsum. Piercer short and straight about as long as the base in length and extending to base of fourth abdominal segment (Fig. 3c). *Length*: 3.0 mm.; wings, 4.0 mm. Male unknown.

Holotype female: Hamburg Farm, Costa Rica, April 1 (C. W. Dodge). One paratype female: Grenada, Grand Etang, Sept., 1910 (Allen and Brues). This specimen is headless.

Type (M.C.Z., No. 27701) and paratype returned to the Museum of Comparative Zoölogy.

***Dorilas (Dorilas) stygius* n. sp.**

(Figs. 4a-c)

This species runs near *D. spinosus* n. sp. but has no apical spines on the tibiae or femora, the third antennal segment is acute below and the propleura are haired.

Male. Head: Eyes joined for a distance slightly less than the length of the frontal triangle. Front and face gray pubescent, the former shining black on the median swelling. Occiput gray on sides and below, brown to blackish above. Labellum and third antennal segment yellow, palpi and first two antennal segments brown. Second segment with long pale bristles above and below. Third segment acute (Fig. 4a). *Thorax*: Subshining

black in ground color, brownish gray pollinose on the dorsum gray on the sides. Humeri yellowish brown. Tegulae and halteres yellow. Propleura each with a fan of hairs, dorsocentral and marginal scutellar hairs small and inconspicuous. Metanotum evenly convex, without a transverse furrow. *Legs*: Chiefly yellow, coxae and apical subsegments of tarsi brown, femora with slight discolorations of brown in the middle. Hind trochanters with a dense patch of short yellow pile beneath. Middle coxae with several long curved hairs at their apices above. Femora rather slender, flexor spines well developed, these are short and black on the middle and hind pairs and long, yellow and bristle like on the first pair. Tibiae without strong erect bristles medianly. Tarsal claws and pulvilli very small, shorter than the last subsegment of the tarsus. *Wings*: Very lightly fumose, stigma pale brown and filling all of the third costal section. Crossvein r-m situated at about the basal three-sevenths of the discal cell. Last section of the fourth vein very gently curved, almost straight. Ultimate section of the fifth vein slightly shorter than the m crossvein. *Abdomen*: Chiefly polished black, first tergum entirely gray, other terga very narrowly opaque at the anterior margins. Sides of abdomen almost parallel. First tergum with three or four black bristles on each side, remainder of abdomen very sparsely haired. Sixth and seventh terga not visible from a dorsal view. *Hypopygium*: Compressed to the right, with an apical membranous area on the right side. From a dorsal view it is about three-fourths as long as the fifth abdominal segment (Fig. 4b). From a ventral view the membranous area extends to the base of the coxopodite. The coxopodite is largely black in color, the harpagones are yellow and are short, broad, densely gray pubescent and rounded at apices. *Length*: Body, 3.3 mm.; wings, 4.0 mm.

Female. Front broader than the face, shining black on the upper one-third and on frontal tubercle, remainder of front gray. Second antennal segment more yellowish than in the male. The mesonotum and scutellum are more grayish brown pollinose and the sides of the abdomen

more distinctly gray than in the male. The femora are entirely yellow. The hind margin of the sixth tergum is straight, not excised. *Ovipositor*: Base reddish brown, subelongate, slightly swollen below, upper surface of base minutely gray pubescent. Piercer yellow, short and straight, about equal to the base in length and extending to about the anterior margin of the third abdominal segment (Fig. 4c). *Length*: Body, 2.6 mm.; wings, 3.3 mm.

Holotype male: Moneague, Jamaica, Jan. 28 (W. S. Brooks). Allotype female same locality and collector, Feb.

Type (M.C.Z. No. 27702) and allotype returned to the Museum of Comparative Zoölogy.

Dorilas (Eudorylas) trinidadensis n. sp.
(Figs. 5a-c)

This species appears to be most closely related to *D. lindneri* (Collin), but eyes of the male are separated on the front. The antennæ are entirely yellow and the genital characters and wing venation are very different.

Male. Head: Eyes very narrowly separated on the front, in the median portion this separation is about one-third the width of one eye facet. Narrowed portion of the front and ocellar triangle shining black, frontal triangle and face silvery gray pubescent. Occiput chiefly gray, brownish to black pollinose on upper portions. Mouthparts and antennæ entirely yellow. Bristles of second antennal segment yellowish brown and rather strong. Third segment obtuse, rounded below (Fig. 5a). Basal portion of each arista yellow. *Thorax*: Mestonotum, scutellum and metanotum black in ground color, the latter grayish pollinose the others chiefly brownish. The hind margins of mesopleura, upper halves of pteropleura and upper margins of sternopleura are yellow, the remainder of the pleura are brown. The humeri are dark yellowish brown, the tegulæ are brown and the halteres yellow except for brownish discolorations on the knobs. The propleura are bare, the dorsocentral hairs are present but weak and the marginal hairs of the scutellum are not

well developed. *Legs*: Entirely yellow except for brownish coxæ and apical subsegments of tarsi. Femora slender, flexor spines absent, except on the middle pair. Tibiæ without apical spurs or spines and with no well-developed bristles on the outer sides. *Wings*: Hyaline or nearly so. Stigma brown, filling all of the third costal section. Third section equal in length to the fourth. The fifth section is about equal in length to the third and fourth combined. The r-m crossvein is situated near the basal fifth of the discal cell and the last section of the fourth vein (M1 + 2) is very slightly curved. *Abdomen*: Subshining black, rather lightly brown pollinose on the dorsum and gray on the sides. The side spots of the fifth tergum extend rather conspicuously onto the dorsum, the interruption between the two spots is equal to about one-third the width of the abdomen. The sides of the abdomen are almost parallel. The first tergum has a row of six to eight short dark bristles on each side, the remainder of the abdomen is rather conspicuously covered with short erect hairs. *Hypopygium*: Almost equal in length to the fifth abdominal segment and with a very large apical membranous area (Fig. 5b). The sixth and seventh terga are plainly well developed, visible from a dorsal view. From a lateral view the seventh tergum is wider than that portion of the eighth segment visible from the side (Fig. 5c). The eighth segment is dark brownish black, lightly grayish brown pollinose. The coxopodite is brownish red at the base and yellowish on apical portion. The harpagones are yellowish red in color, are rather slender and each harpago is pointed on the inner apex (Fig. 5c). *Length*: Body, 4.0 mm.; wings, 5.7 mm. Female unknown.

Holotype male: Port of Spain, Trinidad, July (W. S. Brooks).

Type (M.C.Z. No 27703) returned to the Museum of Comparative Zoölogy.

***Cephalosphæra panamænsis* n. sp.**

(Figs. 6a-d)

This species is related to *C. elegantula* (Williston), it is distinguished by the short acuminate, yellow third anten-

nal segment; the opaque abdomen and the all yellow femora.

Male. Head: Eyes joined on the front for a distance slightly greater than the length of the frontal triangle. Front and face silvery pubescent, occiput chiefly gray, lightly brownish above. Mouthparts and antennæ bright yellow, first two antennal segments slightly discolored with brown. Basal portion of the aristæ yellow. Second antennal segment with one long and two or more shorter bristles below. Third segment moderately pointed but not long acuminate below (Fig. 6b), rather densely covered with yellow pubescence. *Thorax:* Mesonotum black in ground color densely brown pollinose except for gray anterior corners. Posterior calli, scutellum and pleura brownish yellow in ground color, the scutellum is brownish dusted and the pleura gray. The humeri are bright yellow in color, the tegulæ are yellow brown. The halteres are chiefly pale yellow with the knobs slightly discolored. The propleura each have a fan of yellow hairs, the dorso-central hairs are present although weak and the scutellum has a row of moderately developed hairs on its hind margin. *Legs:* Coxæ and apical subsegments of tarsi brown, legs otherwise yellow. Femora stout, flexor spines well developed. Tibiæ without strong apical spines or spurs and with no unusually strong bristles on the outer side of the swollen portion. *Wings:* lightly brownish fumose, stigma brown and occupying all of the third costal section. Third section two times longer than the fourth and equal in length to the fifth costal section. Crossvein r-m situated at the basal third of the discal cell. The appendix on the fourth vein (M1 + 2) is one and one-half times longer than the r-m crossvein and extends nearly half way to the wing margin. The last section of the fourth vein (beyond the fork of M1 and 2) is one and two-thirds longer than the penultimate section. The last section of the fifth vein is equal to the m crossvein in length. The petiole of the cubital cell is one and one-half times longer than the r-m crossvein. *Abdomen:* Chiefly brown pollinose, very faintly subshining. First tergum entirely gray. Terga two to four gray only on the

sides. Fifth tergum with a large silvery gray spot on each side occupying posterior half of segment, these are rather narrowly separated in the middle. First tergum with four or more strong black bristles on each side. Abdomen otherwise very sparsely haired. *Hypopygium*: Asymmetrical, developed toward the right side and with an elongate membranous area at the apex (Fig. 6d). The hypopygium, from dorsal view is about equal to slightly longer than the fifth abdominal segment. The seventh tergum is poorly developed, scarcely visible from a dorsal view. The eighth tergum is brown in color, the coxopodite and harpagones are yellow brown. The harpagones are short and broad and appear to be blunt at apices. *Length*: Body, 5.2–5.5 mm.; wings, 6.7–7.5 mm.

Female: The front is entirely silvery. At its widest portion it is scarcely more than half as wide as the face just above the mouthparts. Front gradually narrowed, at the ocellar triangle it is about equal to the width of one ocellus. The coxæ are yellow and the apical subsegments of the tarsi lighter brown than in the males. The tarsal claws and pulvilli are very strongly developed especially on the front two pairs of legs, about equal in length to the last three subsegments of tarsus. Each subsegment of posterior tarsi is produced into a moderately strong spur-like projection at the apex above (Fig. 6a). The abdomen is rather clavate in shape, being widest at segments four to five. The sides of the abdomen are yellowish brown in ground color with the gray side spots as in the male. The gray markings of the fifth tergum are rather broadly joined on the hind margin and the sixth is all gray except for a small basal portion which is brown. Hind margin of sixth tergum not excised. Ovipositor base rather globose, swollen above and below. Base chiefly polished bright red, covered with white pubescence on the anterior portion. Piercer straight, yellow, about equal in length to its base and extending slightly beyond apex of the third abdominal segment (Fig. 6c). *Length*: Body, 5.0 mm.; wings, 6.0 mm.

Holotype male: Barro Colorado, Canal Zone, Panama, July 17, 1924 (N. Banks). Allotype female: Ancon,

Canal Zone, Aug. 6, 1924 (N. Banks). One paratype male, same locality and collector as type, July 16, 1924.

Type (M.C.Z. No. 27704) and allotype returned to the Museum of Comparative Zoölogy. Paratype retained temporarily in the Iowa State College collection, to be later deposited in the U. S. National Museum.

Tömösváryella tuberculata n. sp.

(Figs. 7a-d)

This species is related to *T. sachtlebeni* (Aczel). It differs by having a strong tubercle on each of the hind femora, by having the projection on the hind trochanters more broad and rounding at the apex, by having the abdomen more polished and sparsely haired and the harpagones more broad and curved on outer edges.

Male. Head: Junction of the eyes about equal to the length of the upper portion of the front. Upper portion of front shining black, lower part and face gray pubescent. Occiput gray on sides and below, subshining black above. Mouthparts and antennæ brownish yellow, third antennal segment rather long acuminate below (Fig. 7c). *Thorax:* Chiefly shining black in ground color, very lightly brownish pollinose on the dorsum, scutellum polished black. Humeri and halteres yellow, tegulæ black. Dorsocentral hairs very fine, scutellum almost bare. *Legs:* Chiefly black, apices of femora, broad apices and bases of tibiæ and the first four subsegments of tarsi yellow. Hind trochanters each with a large rounded projection at apex below. Each hind femur with a strong tubercle near base below (Fig. 7a). Femora moderately slender, first two pairs with flexor spines, hind pair with flexor bristles. Tarsal claws and pulvilli small, about as long as the last subsegment of tarsus. *Wings:* Hyaline, without a perceptible tinge of brownish. Third costal section just one-half as long as the fourth, the two combined are about one-half as long as the fifth section. Crossvein r-m situated slightly before the middle of the discal cell and last section of fourth vein very slightly curved, almost straight. *Abdomen:* Metallic black, very lightly dusted with gray. Sides slightly rounding, widest at about seg-

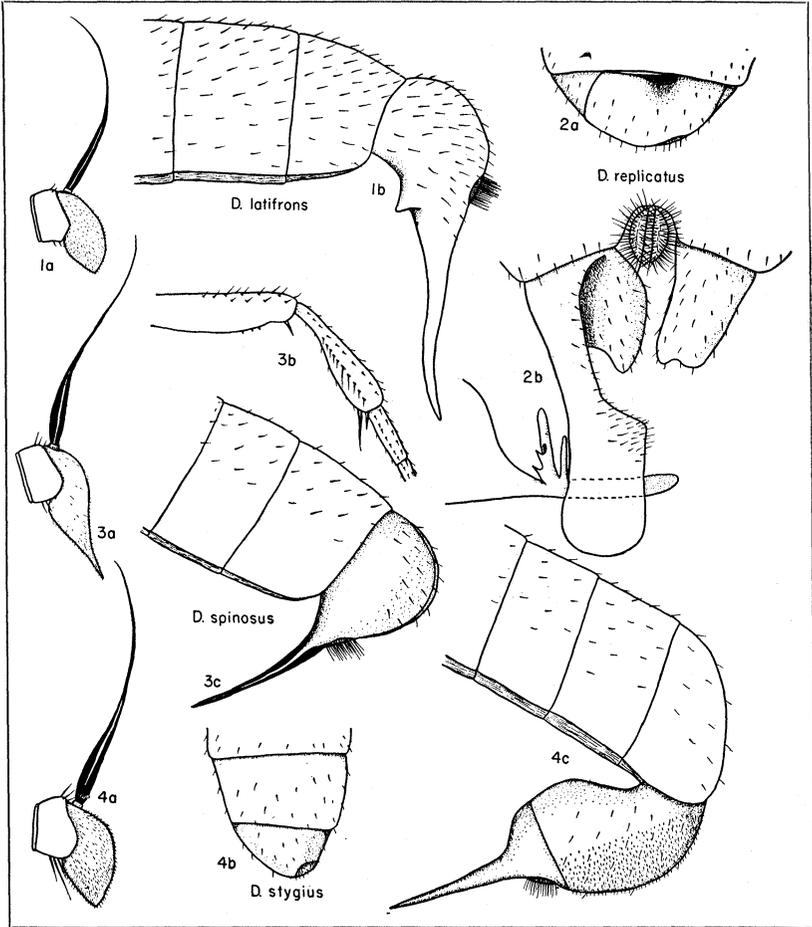
ments three to four. First tergum with a fan of five or six long dark bristles on each side, abdomen otherwise almost devoid of conspicuous hairs. Seventh tergum slightly visible from dorsal view. *Hypopygium*: About three-fourths as long as the fifth abdominal segment, with a large apical membranous area, which extends through the middle to the base on the dorsum (Fig. 7d). Hypopygium microscopically gray pubescent. From a ventral view the coxopodite is elongate, slightly longer than the sclerotized portion of the eighth segment on the right side. The harpagones are broad and curved, cupped out on the inner surfaces and pointed at inner apices (Fig. 7b). The inner harpago is the larger of the two. *Length*: Body and wings, 2.8 mm. Female unknown.

Holotype male: Soledad near Cienfuegos, Cuba, Aug. 6-20 (N. Banks). One paratype male, same data at type.

Type (M.C.Z. No. 27705) returned to the Museum of Comparative Zoölogy. The paratype has been deposited in the U. S. National Museum.

EXPLANATION OF PLATE 1

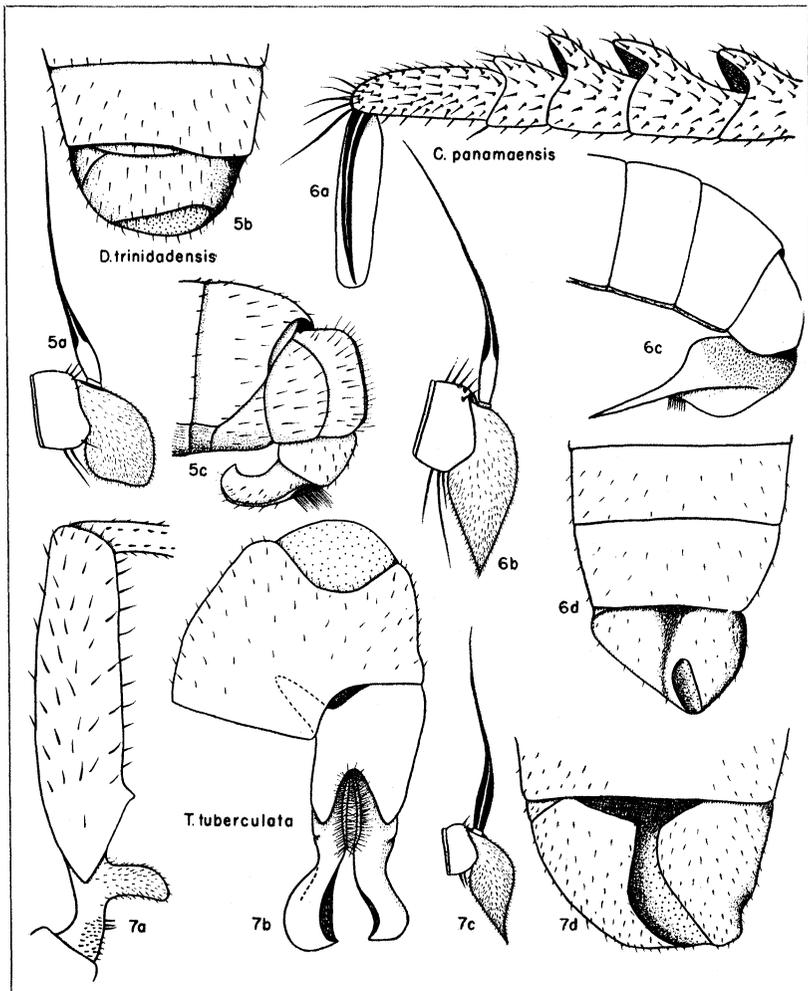
- Fig. 1. *Dorilas latifrons* n. sp.
 a. Antenna.
 b. Female abdomen, lateral.
- Fig. 2. *D. replicatus* n. sp.
 a. Male hypopygium, dorsal.
 b. Ventral of male harpagones and tip of sixth abdominal segment.
- Fig. 3. *D. spinosus* n. sp.
 a. Antenna.
 b. Front leg of female.
 c. Female abdomen, lateral.
- Fig. 4. *D. stygius* n. sp.
 a. Antenna.
 b. Male hypopygium, dorsal.
 c. Female abdomen, lateral.



HARDY—NEOTROPICAL DORILAIIDAE

EXPLANATION OF PLATE 2

- Fig. 5. *D. trinidadensis* n. sp.
a. Antenna.
b. Male hypopygium, dorsal.
c. Male hypopygium, right side.
- Fig. 6. *Cephalosphæra panamænsis* n. sp.
a. Hind tarsus, female.
b. Antenna.
c. Female abdomen, lateral.
d. Male hypopygium, dorsal.
- Fig. 7. *Tömösváryella tuberculata* n. sp.
a. Hind trochanter and femur, male.
b. Male hypopygium, ventral.
c. Antenna.
d. Male hypopygium, dorsal.



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