

1963

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LeBerge, Wallace E. and Michener, Charles D., "Deltoptila, A Middle American Genus of Anthophorine Bees (*Hymenoptera, Apoidea*)" (1963). *Bulletin of the University of Nebraska State Museum*. 10.
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BULLETIN OF
The University of Nebraska State Museum VOLUME 4, NUMBER 9
JULY 1963

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and
Charles D. Michener

*Deltoptila, A Middle American Genus of
Anthophorine Bees (Hymenoptera, Apoidea)*





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A B S T R A C T

Deltoptila, A Middle American Genus of
Anthophorine Bees (Hymenoptera, Apoidea)

WALLACE E. LABERGE

CHARLES D. MICHENER

A third genus in the tribe Anthophorini in the Western Hemisphere, genus *Deltoptila*, is described in this work. Previously described species included in the genus are as follows: *D. melanopyrrha* (Dours), *D. elefas* (Friese), *D. fulva* (Smith), *D. bombyformis* (Smith), *D. montezumia* (Smith), *D. aurulentocaudata* (Dours), *D. agilis* (Smith), *D. costaricensis* (Friese). New descriptions and records are given for *D. montezumia*, *D. aurulentocaudata*, *D. agilis* and *D. costaricensis*. Two new species are described: *D. afimbriata* and *D. pexata*.

CONTRIBUTION OF the Department of Entomology (No. 235), College of Agriculture, the University of Nebraska; the Department of Entomology (No. 1199), the University of Kansas, Lawrence; and the Division of Entomology of the University of Nebraska State Museum. This paper is published with the approval of the Director of the Nebraska Agricultural Experiment Station as No. 1372 of the Journal Series of the Station.

Wallace E. LaBerge¹
and
Charles D. Michener²

Deltoptila, A Middle American Genus of
Anthophorine Bees (Hymenoptera, Apoidea)

This paper makes known a new genus of Anthophorini, one of the very few genera of bees which appears to be restricted to Middle America. The genus is known from moderate to high altitudes from central Mexico to Costa Rica. It consists of rather large bees, similar in appearance to other Anthophorini but differing from previously known genera of that tribe in a number of characters.

Deltoptila is the third genus of the tribe Anthophorini in the Western Hemisphere, the other two being *Anthophora* and *Emphoropsis*. It differs from other genera of the tribe in the longer marginal cell, the shorter and more transverse vein cu-v of the hind wing, and the longer second abscissa of vein M + Cu of the hind wing in relation to both cu-v and M (terminology of Michener, 1944, Fig. 35). These are probably primitive features since they are more like those of other bees, and are sufficiently noteworthy that they cause partial breakdown or at least introduce doubt into couplets 5, 9, and 11 of the key to tribes of the Anthophorinae (Michener, 1944, p. 270).

Deltoptila also has a series of characters which show it to be more closely related to the genera *Habropoda* and *Emphoropsis* than to *Anthophora*, *Amegilla*, and their allies. These characters are: marginal cell longer than in *Anthophora* and *Amegilla*, third submarginal cell narrower on anterior than on posterior margin, often larger than second, the latter receiving first recurrent vein near

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apex; basal vein of fore wing at least slightly basal to cu-v; legs of relatively long and slender and scopa rather sparse; apical projections of male gonocoxites elongate and delicate; penis valves relatively slender and delicate.

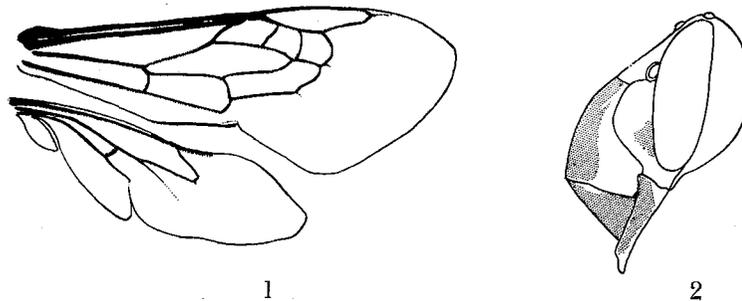
In some characters, namely the position of the first recurrent vein, the length of the marginal cell, the slenderness of the legs, the shortness and sparseness of the scopa, and especially the equilateral ocellar triangle, *Deltoptila* is more like *Habropoda* than *Emphoropsis*. This is interesting in view of the distribution of *Habropoda* from southern and eastern Europe to China and southern Africa (see Popov, 1948a), southeast to Java (Lieftinck, 1944, although the Indomalayan members of the group are perhaps generically distinct, see Lieftinck, 1956). That the nearest relatives of these bees should be in Middle America is an unusual finding. (The *Habropoda* used for comparative purposes is from Formosa.)

Deltoptila also possesses some unusual features of its own, particularly associated with the enormous proboscis which even in repose reaches the hind coxae. The greatly protuberant clypeus and the long genal areas are related to the elongate proboscis. The male genitalia and hidden sterna of *Deltoptila* differ from those of related forms (see Lieftinck, 1944; Popov, 1948b; Mitchell, 1962, for drawings of genitalia and sterna of *Habropoda* and *Emphoropsis*) but until more comprehensive studies have been made, particularly of *Habropoda*, one cannot be sure which of these differences will be of generic value.

Deltoptila, new genus

Type species: *Habropoda montezumia* Smith, 1879.

Bees of the tribe Anthophorini (*sensu* Michener, 1944) are characterized by the following features: Inner margins of eyes, at least lower parts of them, diverging below; clypeus enormously protuberant (Fig. 1) so that, seen in side view, lower anterior surface is



FIGS. 1-2. The wings and lateral view of the head (hairs and antennae removed) of *Deltoptila montezumia* (Smith).

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in front of lower inner orbits by a distance well over width of eye; ocelli in equilateral triangle; malar area about half as long as wide to as long as wide; labrum broader than long to about as long as broad, margin not thickened; mandible with one subapical tooth; proboscis reaching (not quite in *costaricensis*) hind coxae in repose; galea much longer than head; first segment of labial palpus 4.5 to 7 times as long as second; maxillary palpus as long as stipes or nearly so, second segment longest and half as long or more as segments three to six together. Stigma as usual in Anthophorini; marginal cell longer than distance from apex to wing tip, free part of marginal cell nearly as long as rest of cell (Fig. 2); first submarginal cell shorter than second and third together (measured on posterior margins), second slightly larger to slightly smaller than third which is narrowed toward marginal cell; first recurrent vein near end of second submarginal cell; basal vein basal to cu-v; hind wing with vein cu-v approximately transverse, about two-thirds as long as second abscissa of M + Cu which is half as long as vein M or less. Legs slender, elongate, coxae not spined, scopa rather short and sparse, its hairs simple or essentially so; claws of male cleft, of female with inner tooth; arolia present; basitibial plate of female distinct, apex rounded, of male not or poorly defined anteriorly, apex pointed. Penis valves of male not greatly thickened, not bent inward; gonocoxite with leaflike, setose, apicodorsal projection and slender apicoventral projection; spatha large, transverse, apical margin broadly emarginate, not produced apically in the middle; seventh metasomal sternum of male with disc longer than broad, delicate, finely pubescent, narrowed basally, usually emarginate apically; eighth sternum of male narrowed medially, not or scarcely emarginate apically.

Included Species

It is not always possible to determine from old descriptions which Middle American species described as *Anthophora* may, in reality, belong to *Deltoptila*. In addition to the species which we have seen and which are included in the keys, the following appear to belong in this genus:

1. *Deltoptila melanopyrrha* (Dours), new combination
Anthophora melanopyrrha Dours, 1869, Mém. Soc. Linnéene Nord France, 2:90 [Mexico].
Podalirius melanopyrrhus; Dalla Torre, 1896, Catalogus Hymenopterorum, 10:276.
Habropoda melanopyrrha; Patton, 1879, Bull. U. S. Geol. Geogr. Surv. of Territories, 5:479.
Emphoropsis melanopyrrha; Cockerell, 1906, Trans. Amer. Ent. Soc., 32:100.

2. *Deltoptila elefas* (Friese), new combination
Anthophora elefas Friese, 1916, Stettiner Ent. Zeitung, 77:334
[Mexico].
Emphoropsis elefas; Lutz and Cockerell, 1920, Bull. Amer.
Mus. Nat. Hist., 42:589.
3. *Deltoptila fulva* (Smith), new combination
Habropoda fulva Smith, 1879, Descriptions of New Species of
Hymenoptera in the Collection of the British Museum,
p. 119 [Guatemala].
Podalirius fulvus; Dalla Torre, 1896, Catalogus Hymenop-
terorum, 10:269.
Emphoropsis fulva; Cockerell, 1904, Canadian Ent., 36:302.
4. *Deltoptila bombyformis* (Smith), new combination
Habropoda bombyformis Smith, 1879, Descriptions of New
Species of Hymenoptera in the Collection of the British
Museum, p. 119 [Mexico].
Habropoda bombiformis; Dalla Torre, 1896, Catalogus Hy-
menopterorum, 10:261 (emendation or error).
Podalirius bremiformis Dalla Torre, 1896, Catalogus Hymen-
opterorum, 10:261 (unnecessary new name).
Emphoropsis bombyformis; Cockerell, 1904, Canadian Ent.,
36:302.

Anthophora pluto Dours (1869) was placed tentatively in *Habropoda* by Patton (1879). The basis for this placement is not clear to us but it suggests that *pluto* is a *Deltoptila* and there is nothing in the description to indicate that this is not the case. The placement of *Anthophora albiceps* Friese (1916) in *Emphoropsis* by Lutz and Cockerell (1920) suggests that it is a *Deltoptila* but the description of the flat clypeus excludes this generic placement. It probably is an *Anthophora*.

In the synonymies above and under the species described below, purely catalogue references, such as are given by Cockerell (1906) and Lutz and Cockerell (1920), are omitted unless new generic combinations are involved.

The keys which follow are based entirely on the species available to us. The forms listed above which have not been seen by us are omitted. Cockerell (1904) gave a key to five species including two (*fulva* and *bombyformis*) not represented in our material.

KEY TO THE AVAILABLE FEMALES OF *Deltoptila*

1. Terga 2-4 with distinct pale apical pubescent fasciae;
thoracic hairs chiefly pale-colored.....*montezumia*
Terga 2-4 without distinct pale apical pubescent fasciae;
thoracic hairs chiefly or entirely black.....*aurulentocaudata*

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KEY TO THE AVAILABLE MALES OF *Deltoptila*

1. Terga distinctly punctate, surfaces moderately shiny; sternum 7 with apex cordate.....2.
Terga impunctate or only obscurely so, surfaces opaque, dulled by fine tessellation; sternum 7 not cordate, if emarginate apically, only shallowly so.....3.
- 2.(1) Labrum as long as broad or longer; terga with vestiture black; sternum 7 with few hairs dorsally.....*pexata*
Labrum distinctly shorter than broad; terga with pale vestiture present, although sparse; sternum 7 with abundant minute hairs dorsally.....*costaricensis*
- 3(1). Abdomen red, terga broadly hyaline apically; sternum 7 shallowly emarginate apically.....*agilis*
Abdomen black, terga narrowly or not at all hyaline apically; sternum 7 entire.....4.
- 4(3). Thoracic hairs ochraceous to fox-red; terga with apical pale pubescent fasciae; sternum 7 dorsally with hairs all minute.....*montezumia*
Thoracic hairs black or, if ochraceous, then terga without distinct pale pubescent fasciae; sternum 7 with long hairs dorsally at least mediolaterally.....5.
- 5(4). Thoracic hairs entirely black; terga with weak pale apical fasciae; sternum 8 with median hair patches of 10 to 12 hairs.....*aurulentocaudata*
Thoracic hairs ochraceous; terga without pale apical fasciae; sternum 8 with median hair patches of 5 to 7 hairs.....*afimbriata*

Deltoptila montezumia (SMITH), NEW COMBINATION

Habropoda montezumia Smith, 1879, Descriptions of New Species of Hymenoptera in the Collection of the British Museum, p. 118.

Podalirius montezumius; Dalla Torre, 1896, Catalogus Hymenopterorum, 10:277.

Emphoropsis montezumia; Cockerell, 1904, Canadian Ent., 36:302.

This species is distinguished by the ochraceous to pale fulvous thoracic hairs and the distinct pale fimbriae on terga 2 to 4.

Female. Length, 15-16 mm.; width, 5.0-5.5 mm.; wing length (including tegulae), 10-11 mm. Integument black; wing membranes hyaline, only slightly infumate. Labrum almost as long as broad; maxillary palpal ratio about 1.0:2.5:2.0:1.8:1.0:0.7. Lateral ocelli slightly nearer to median ocellus than to each other. First flagellar

segment 3 times as long as second segment which is slightly shorter than third. Clypeal punctures coarse, slightly elongated, surface slightly dulled by fine shagreening; supraclypeal area with minute punctures, surface dulled by dense shagreening; vertex shiny, with scattered punctures laterally and more densely punctate in ocellar triangle. Thorax with minute, shallow punctures, barely discernible in many areas, surfaces opaque, dulled by dense tessellation. Metasomal terga with minute, sparse punctures, surfaces opaque, dulled by exceedingly fine tessellations; sterna coarsely punctate, moderately shiny, surfaces somewhat dulled by reticular shagreening; pygidial plate V-shaped with rounded apex.

Hairs of head and thorax generally ochraceous but becoming dark ochraceous or reddened on upper surface of thorax; vertex with long brown hairs; mesoscutum in one specimen with long dull brown hairs mixed with the pale. Metasomal tergum 1 with abundant ochraceous hairs; terga 2-4 with sparse black spinelike hairs and sparse appressed ochraceous to brown hairs basally and with complete apical fimbriae of long appressed ochraceous hairs, reddened somewhat in a few specimens, especially on terga 1 and 2; terga 5 and 6 with long brown hairs; sterna with long, pale ochraceous, suberect to erect hairs apically, with sparse, appressed to subappressed, pale hairs basally. Legs with hairs pale ochraceous to white except as follows: inner surfaces hind tibiae, basitibial plates, inner surfaces tarsi, and apex of middle tibiae dark brown.

Male. Length, 13.5-15.0 mm.; width, 4.5-5.0 mm.; wing length, 9.0-10.5 mm. Integument black except as follows: mandible cream-colored except reddish tip; labrum cream-colored except laterobasal angles dark brown and narrow apical margin black; clypeus cream-colored except elongate black maculae at tentorial pits and black lateral surfaces; face on either side of clypeus with a triangular cream-colored macula; antennal scape cream-colored below; hind tibial spurs yellowish; wing membranes hyaline, only slightly infumate; metasomal terga with narrow hyaline apical margins, often slightly reddened basad of hyaline margins.

Structure and sculpturing as in female except as follows: labrum about as long as broad; maxillary palpal ratio about 1.0:2.5:2.3:1.7:1.2:0.5; second flagellar segment subequal to third and equal to slightly more than two-thirds of first segment. Penis valve long, apical process attenuate; gonostylus short, half as long or less than penis valve (measured from mediolateral process to apex); gonocoxite with mediodorsal margin not much rounded. Spatha long medially, almost triangular in outline but apical margin broadly emarginate. Volsella vestige a slender splinter. Sternum 7 with ven-

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tral surface with minute hairs covering apical half, apical margin rounded, broadest width near apex equals more than half width at apodemes. Sternum 8 with narrowest width (or waist) located about near middle of sternum (omitting basal apodeme), apical broad area as wide or wider than breadth at lateral apodemes; with a few hairs apicomediaally (Figs. 3-6).

Vestiture as in female except as follows: terga 5-7 with abundant, long, appressed to subappressed, pale ochraceous to white hairs, leg hairs pale ochraceous to white except inner surfaces basitarsi dark reddish brown.

Specimens. Two females and two males from 15.5 miles east of Toluca, México, México (9,000 feet alt.), July 6, 1961; two females and one male, Atlacomulco, México, México (8,000 feet alt.), August 18, 1954; three females and seven males, Atlacomulco, México, México (8,500 feet alt.), August 17, 1954; one female and two males, West slope of Cortéz Pass, México, México (9,000 feet alt.), July 13, 1954; three males, 13 miles northwest of Jalapa, Veracruz, México (6,600 feet alt.), June 29, 1952, on *Cuphea aequipetala*; two males, 22 miles north of Toluca, México, México (8,500 feet alt.), August 17, 1954; one male, one female, 16 miles east of Toluca, México, México (9,500 feet alt.), July 31, 1962. This material was all taken by University of Kansas Mexican Expeditions.

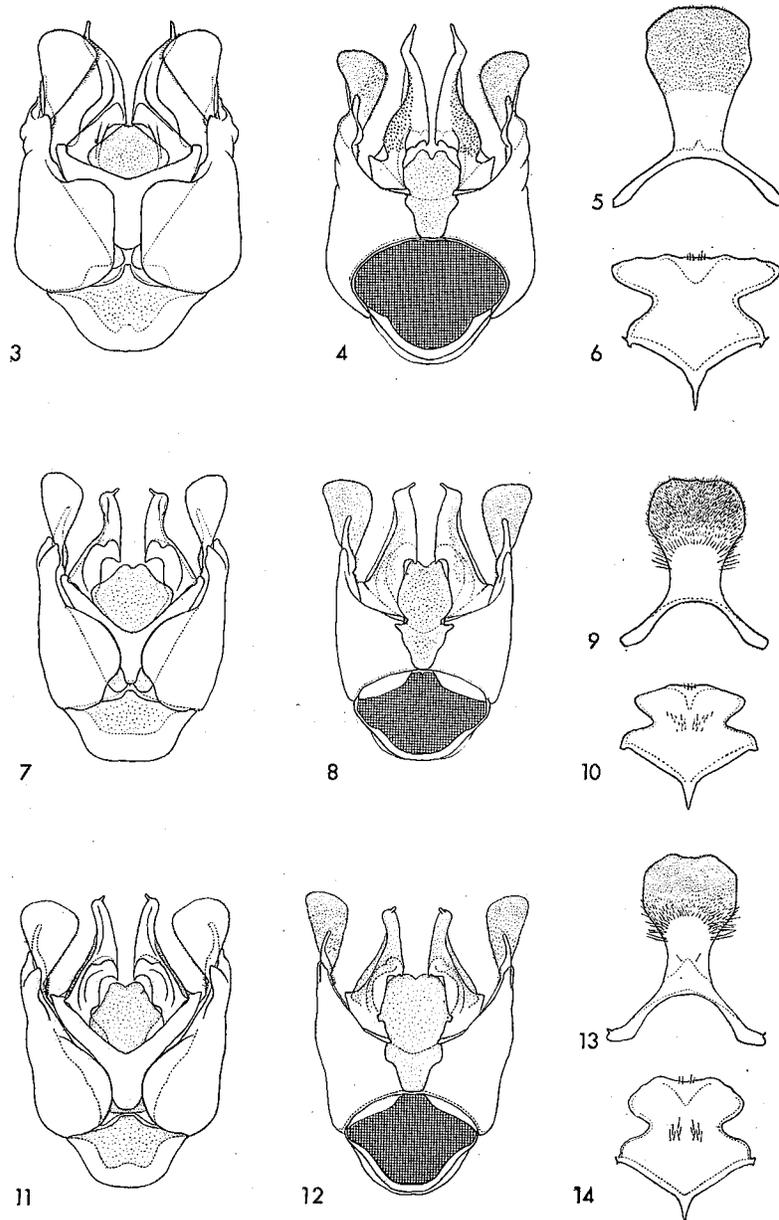
Remarks. The type locality is Oaxaca; it is not clear whether this means the city or elsewhere in the state.

Most of the records for this species are from higher altitudes than those for other species; it occurs in the cool coniferous forests of the southern part of the Mexican Plateau.

Deltoptila afimbriata, NEW SPECIES

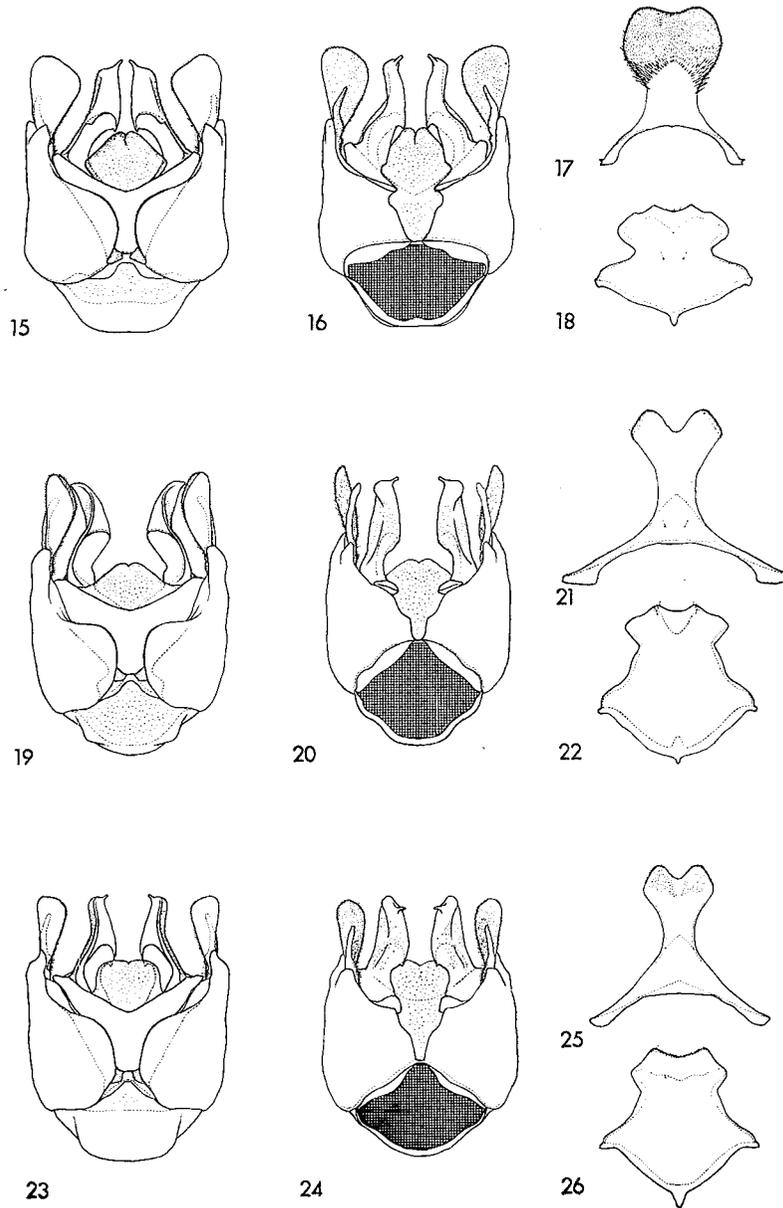
This species is similar in appearance to *D. montezumia*, but can be distinguished by the lack of pale fimbriae on terga 2-4, the dark leg and facial pubescence, and by the lateral ocelli being placed as near to the median ocellus as to each other (forming an equilateral triangle).

Male. Length, 13 mm.; width, 4.5 mm.; wing length, 9.5 mm. Integument black except as follows: mandibles, labrum, clypeus, face and antennal scapes with cream-colored markings as in *montezumia*; terga with slightly broader hyaline margins than in *montezumia*; hind tibial spurs reddish brown; wing membranes hyaline, only slightly infumate. Structure and sculpturing as in *montezumia* except as follows: maxillary palpal ratio about 1.0:2.3:2.0:1.5:1.0:0.6; lateral ocelli separated from median ocellus by same length as from each other. Terminalia as in *montezumia* except as follows:



FIGS. 3-14. Dorsal and ventral views of the genital capsules, and ventral views of sterna seven and eight of the following species of *Deltoptila*: *D. montezumia* (Smith) (3-6), *D. afimbriata*, n. sp. (7-10), *D. aurulentocaudata* (Dours) (11-14).

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FIGS. 15-26. Dorsal and ventral views of the genital capsules, and ventral views of sternite seven and eight of the following species of *Deltoptila*: *D. agilis* (Smith) (15-18), *D. pexata*, n. sp. (19-22), *D. costaricensis* (Friese) (23-26).

penis valve with apical process short; gonostylus more than half as long as penis valve; gonocoxite with mediodorsal margin rounded; spatha V-shaped; sternum 7 with hairs near base of hairy area long, directed laterally; sternum 8 with broadest width near apex distinctly less than width at lateral apodemes, with patch of 10 to 12 short hairs medially at level of waist (Figs. 7 to 10).

Hairs of head mostly dark brown; face below ocelli with dense short white pubescence; labrum and lateral parts of clypeus with short subappressed pale hairs; genal areas with white hairs with dark brown intermixed. Thorax with hairs pale ochraceous below to fulvous above; mesoscutum with a few brown hairs postero-medially. Tergum 1 with abundant ochraceous hairs; terga 2-7 with dark brown vestiture except terga 5-7 with sparse, appressed, silvery hairs mixed with the dark especially apically; terga without distinct pale fimbriae; sternal hairs dark brown except sternum 1 white and sterna 2-5 with short subappressed pale hairs fringing apices. Legs with hairs dark brown to black except distitarsi yellowish and inner surfaces basitarsi reddish brown.

Type Material. Holotype male from 13 miles northwest of Jalapa, Veracruz, México (6,600 feet alt.), June 29, 1952, on *Cuphea aequipetala*, taken by a University of Kansas Mexican Expedition. The type is deposited in the Snow Entomological Museum of the University of Kansas.

Deltoptila aurulentocaudata (Dours), NEW COMBINATION

Anthophora aurulento-caudata Dours, 1869, Mém. Soc. Linnéene Nord France, 2:92.

Habropoda terminata Smith, 1879, Descriptions of New Species of Hymenoptera in the Collection of the British Museum, p. 119 (new synonym).

Habropoda aurulentocaudata; Patton, 1879, Bull. U. S. Geol. Geogr. Surv. of the Territories, 5:479.

Podalirius aureolentocaudatus; Dalla Torre, 1896, Catalogus Hymenopterorum, 10:258 (emendation).

Podalirius habropodoides Dalla Torre, 1896, Catalogus Hymenopterorum, 10:271 (new name for *terminata*).

Emphoropsis terminata; Cockerell, 1904, Canadian Ent., 36:302.

Emphoropsis aurulentocaudata; Cockerell, 1906, Trans. Amer. Ent. Soc., 32:100.

Deltoptila aurulentocaudata can be distinguished by the vestiture being almost entirely black (exceptions being the white scopal hairs of the female and the golden hairs of the terminal metasomal segments of both sexes). The female is further marked by having

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cream-colored maculae on the clypeus and the labrum, a character also found in *D. melanpyrrha*. In structure and sculpturing this species closely resembles both *montezumia* and *afimbriata* to which *aurulentocaudata* is closely related.

Female. Length, 12.5-15.0 mm.; width, 5.0-5.5 mm.; wing length, 10-11 mm. Integument black except as follows: labrum with narrow triangular mediobasal cream-colored macula; clypeus cream-colored except black lateral surfaces and usually with elongate black maculae at tentorial pits (in one specimen these tentorial pit marks are broadened so that the pale area has laterobasal corners black and appears trilobed); wing membranes infumate, yellowish brown; distitarsi reddened; tibial spurs dark reddish brown. Labrum about as long as broad; maxillary palpal ratio about 1.0:2.5:2.0:2:0:1.0:0.6. Lateral ocelli placed as near to each other as to median ocellus. Second flagellar segment distinctly shorter than third and equal to about one-third of first segment. Sculpturing and pygidial plate as in *montezumia*.

Hairs of head and thorax black; metasomal vestiture black except as follows: terga 4 and 5 in distal halves and tergum 6 with golden hairs; last two sterna with golden hairs at least apically. Legs with vestiture black or dark brown except as follows: distitarsi reddish yellow; tibial scopae white; inner surfaces basitarsi dark reddish brown.

Male. Length, about 12 mm.; width, 4.5-5.0 mm.; wing length, about 9 mm. Integument black except as follows: mandibles, labrum, clypeus, face and scape with cream-colored markings as in *montezumia*; tergal apices slightly reddened, not hyaline; wing membranes somewhat infumate; tibial spurs dark brown. Structure and sculpturing as in *montezumia* except as follows: maxillary palpal ratio about 0.8:2.8:2.0:1.6:1.0:0.6; labrum about as long as broad; ocelli spaced equidistantly from one another. Terminalia as in *montezumia* except as follows: penis valve with apical process short; gonostylus two-thirds as long as penis valve; gonocoxite with medio-dorsal margin rounded; spatha V-shaped; sternum 7 as in *afimbriata* but apodemes longer; sternum 8 as in *afimbriata* but medioventral patch of short hairs with 5 to 7 hairs and these slightly longer (Figs. 11-14).

Vestiture as in female except as follows: terga 2 and 3 with narrow, sparse, incomplete, apical fringes of golden hairs; terga 4-7 with golden hairs at least in apical halves; sternal hairs white apically on each sternum to golden basally; hind tibiae with outer surfaces with black hairs.

Specimens. Nine females and two males from 13 miles northwest

of Jalapa, Veracruz, México (6,600 feet alt.), on *Cuphea aequipetala*, June 29, 1953; one female, Tepexpan, México, México (6,900 feet alt.), August 12, 1954; one female, 3 miles south of Amecameca, México, México, August 13, 1954. All were taken by University of Kansas Mexican Expeditions.

Remarks. The type locality of *terminata* is Oaxaca.

It is probable that the male placed in *terminata* by Smith is another species.

Deltoptila agilis (SMITH), NEW COMBINATION

Habropoda agilis Smith, 1879, Descriptions of New Species of Hymenoptera in the Collection of the British Museum, p. 118.

Podalirius agilis; Dalla Torre, 1896, Catalogus Hymenopterorum, 10:256.

Emphoropsis agilis; Cockerell, 1904, Canadian Ent., 36:302.

This species is known only in the male sex. It resembles *D. montezumia* to which it is related, but it can be readily distinguished by the red abdomen with broadly hyaline tergal apices.

Male. Length, about 12 mm.; width, about 4.5 mm.; wing length, about 10 mm. Integument black except as follows: labrum, clypeus, face and antennal scapes with cream-colored markings as in *montezumia*; tegulae dark reddish brown; wing membranes hyaline, only slightly infumate; distitarsi reddened; tibial spurs red to brown near bases; metasomal terga red with broad hyaline apical areas only slightly yellowed; sterna reddish brown. Structure and sculpturing as in *montezumia* except as follows: labrum slightly longer than broad; maxillary palpal ratio about 0.8:2.7:1.7:2.0:0.8:0.4; ocelli spaced equidistantly from one another. Terminalia as in *montezumia* except as follows: penis valve with apical process short; gonostylus longer than half length of penis valve; gonocoxite with mediodorsal margin rounded; spatha V-shaped; sternum 7 as in *afimbriata* but apical margin shallowly emarginate medially; sternum 8 as in *afimbriata* but median patch of hairs reduced to 1 or 2 hairs (Figs. 15-18).

Vestiture pale ochraceous to ochraceous except as follows: vertex and face with abundant long dark brown hairs (short pubescence of face white); genal areas with few brown hairs mixed with the pale; femora above with brown hairs mixed with the pale; hind tibiae with inner surfaces dark brown; fore and middle tibiae and inner surfaces of basitarsi reddish to brown; distitarsi golden.

Specimens. One male from 13 miles northwest of Jalapa, Veracruz, México (6,600 feet alt.), June 29, 1953, on *Cuphea aequipetala*, collected by a University of Kansas Mexican Expedition. One male taken by J. A. Chemsak and B. J. Rannels, 9 miles east of San

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Christobál, Chiapas, México, July 30, 1957, property of the University of California, Berkeley, California. The type locality is Oaxaca (city or state?).

Deltoptila pexata, NEW SPECIES

Deltoptila pexata is known only in the male sex. This species can be separated from any of the preceding four species by its shinier and more distinctly punctate metasomal terga. In addition these males lack the pale facial maculae lateral to the clypeus and the antennae are slightly longer.

Male. Length, about 13 mm.; width, about 5 mm.; wing length, about 11 mm. Integument black except as follows: mandibles, clypeus and antennal scapes with pale markings as in *montezumia* but scape maculae narrower; lateral facial pale maculae absent; distitarsi slightly reddened; terga not hyaline apically; tibial spurs dark reddish brown; wing membranes hyaline, slightly infumate, yellowish brown. Labrum slightly longer than broad to as long as broad; maxillary palpal ratio about 1.0:2.8:2.3:2.0:1.2:0.5. Ocelli spaced equidistantly from one another. Second flagellar segment slightly shorter than third, third segment equal in length to first. Sculpturing of head and thorax as in *montezumia* but clypeal punctures smaller and less elongate. Terga with distinct round punctures separated mostly by one to two puncture widths, surfaces moderately shiny, slightly dulled by rather coarse, reticular shagreening; sternal sculpturing similar to *montezumia* but punctures smaller and closer apically and surface somewhat dulled by fine, more dense reticular shagreening. Penis valve with apical process short, mediolateral process absent; gonostylus long, as long as penis valve (measured from apex to mediolateral process); titillator narrow, less than half as wide as long, with inner surface hairy; spatha as in *montezumia*; volsella vestige large, rounded. Sternum 7 with apex deeply emarginate, cordate, with few hairs, apodemes extremely long. Sternum 8 with waist located about one-third of distance from apex to base or less, apical width less than at lateral apodemes, without dorsomedial hairs (Figs. 19-22).

Hairs of head black except genal areas with abundant white hairs mixed with the black. Thorax with ochraceous hairs laterally, posteriorly and on scutellum, metascutum and propodeum, mesoscutum with black hairs except posterolateral and anterolateral corners (near tegulae) with ochraceous hairs mixed with a few black. Tergum 1 with ochraceous hairs; terga 2-4 with black hairs; terga 5-7 with reddish brown to golden hairs; sternal hairs black except pale medially on sterna 1-3. Legs with hairs black except distitarsi red to golden and basitarsi with inner surfaces dark reddish brown.

Type Material. Holotype male and two male paratypes from 5 miles northeast of Teziutlán, Puebla, México, June 27, 1953 (4,700 feet alt.), collected by a University of Kansas Mexican Expedition. The specimens were taken at the edge of a road through the cloud forest.

The type is in the Snow Entomological Museum of the University of Kansas; a paratype is in the entomological collection of the University of Nebraska.

Deltoptila costaricensis (FRIESE), NEW COMBINATION

Anthophora costaricensis Friese, 1916, Stettiner Ent. Zeitung, 77:332.

This species is known to us only from two male specimens from Costa Rica, although Friese had both sexes. It is closely related to *D. pexata* and resembles that species in its moderately shiny and distinctly punctate metasomal terga. *D. costaricensis* can be distinguished from *pexata* by the shorter labrum and by the presence of the pale lateral facial markings.

Male. Length, about 12 mm.; width, about 5 mm.; wing length, about 10 mm. Integument black except as follows: mandibles, clypeus, face and antennal scapes with pale markings as in *montezumia*; terga narrowly hyaline apically (but more broadly so than *montezumia*) and reddened just basad of hyaline margins; distitarsi red; tegulae dark reddish brown; tibial spurs dark reddish brown; wing membranes somewhat infumate, yellowish brown. Labrum distinctly shorter than broad, length to width about as 4 is to 5; maxillary palpal ratio about 1.0:2.5:1.1:1.0:0.7:0.3. Second flagellar segment shorter than third, third segment equal to first. Sculpturing of head and thorax as in *montezumia* but clypeal punctures small, round, obscured by the dense tessellation. Terga with distinct round punctures separated mostly by one puncture width or slightly more, surfaces moderately shiny, slightly dulled by reticular shagreening; sterna as in *pexata* but shinier. Terminalia as in *pexata* except as follows: gonostylus not quite as long as penis valve; penis valve with small mediolateral process; sternum 7 with more hairs, but these extremely short; sternum 8 with more abundant but minute hairs along apical margin (Figs. 23-26).

Vestiture of head as in *pexata*. Thorax with ochraceous hairs but mesoscutum with long black hairs mixed with the pale in ratio of about 1:3, a few long black hairs laterally as well. Tergum 1 with ochraceous hairs; tergum 2 with ochraceous hairs basally and apically and with a narrow medial band of black hairs; terga 3-7 with sparse ochraceous to golden hairs (but not forming distinct fim-

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briae); sternal hairs pale ochraceous. Legs with dark brown to black hairs except distitarsi yellow to red and inner surfaces basitarsi dark reddish brown.

Specimens. Two males collected by Alvaro Wille at San Antonio de Escazú, Province of San José, Costa Rica, December 3, 1959. The type locality is San Carlos, Costa Rica.

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