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NEW NORTH AMERICAN BEES OF THE GENUS DUFOUREA

(Hymenoptera: Halictidae)

PART II

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This is the second of a series of papers describing new *Dufourea*. Subsequent papers will comprise a revision of the North American species which will include illustrations of the bees described in the present series.

As stated in the previous paper, holotypes and allotypes will be deposited in the California Academy of Sciences and paratypes will be placed in the following collections, besides the author's: U. S. National Museum; University of California Citrus Experiment Station, Riverside; American Museum of Natural History, New York. Additional paratypes, when available, will be furnished to other collections upon request.

Dufourea cuprea n. sp.

Male.—Length about 7 mm., length of anterior wing 5.2 mm.; pubescence largely pale, considerable dark hair on head; integument very dark with dark blue, bronze reflections; body moderately elongate. *Head*: Face slightly over four-fifths as long as broad; eyes with inner margins nearly parallel, converging slightly at the bottom, their length about five-sevenths the distance between them at antennal insertion; face, viewed directly from in front, with distance between lateral ocelli slightly more than twice that from one to posterior vertex margin; distance from antennal socket to clypeus nearly as great as socket diameter; clypeus short, with long, white, reclining pubescence, basal fringe composed of more erect black hairs, the whole not completely concealing integument; supra-clypeal area with prostrate, sparse, white hair medially, long, erect, black hair on lateral margin; hair between antennal sockets, on frons, scape long, dark grey to blackish; frons coarsely, unevenly punctured, very sparsely so in small areas just anterior to median and laterad to posterior ocellus but more dense along inner eye margins where punctures average about or less than one puncture width apart; area laterad to posterior ocellus slightly depressed; antennae of moderate length, not reaching beyond tegulae; scape over twice as long as broad; flagellum black, slightly clavate, glabrous except for usual, uniform, microscopic pubescence, segments mostly about as long as broad, entirely roughened, second no longer than first or third, first about two-thirds as broad as last; maxilla with stipes shorter than hind tibia, no longer than eye; galea three times as long as broad, two-thirds as long as stipes, pointed apically; maxillary palpus a little over half as long as stipes, first segment nearly half as broad as long, about as long as second, as long as third, fourth, sixth combined; sixth one-third its length longer than third or fourth, three times as

long as fifth which is as broad as long; labial palpus as long as first two maxillary palpal segments together, first segment five times as long as broad, longer than next three together, a little longer than first maxillary, last segment two-thirds the second, three times the third which is as broad as long. *Thorax*: Mesoscutum unevenly punctured, closely, rather finely so anteriorly where punctures average less than one puncture width apart, coarsely, a little more separately on posterior two-thirds and on mesoscutellum where punctures average about or less than one width apart; mesonotal surface rather sparsely covered with long, dark hair and denser but less conspicuous short, white pubescence; wings clear, with decided yellowish tinge, first recurrent vein contiguous with first transverse cubital; posterior wing with six to eight hamuli; legs not conspicuously modified; fore tibia slightly swollen, half as broad as long; mid tibia with no accessory bristles terminally; hind tibia a little over three times as long as broad, densely pubescent on outer side of apical third, with hairs no longer than tibial width; fore metatarsus three, mid four, hind less than three times as long as broad; second to fourth fore tarsal segments broader than long, those of mid, hind legs longer than broad. *Propodeum*: Enclosure rather sparsely covered with very coarse, wavy carinae presenting an irregularly wrinkled appearance; straight line drawn transversely through middle of enclosure cutting fifteen to twenty carinae. *Abdomen*: Tergites finely, sparsely, but distinctly punctured, first with punctures of summit separated on the average by two or more of their diameters, next two with punctures slightly closer basally but similarly sparse apically; punctures tending to be arranged in transverse rows beyond first tergite; impressed apical tergite borders appear dark brown to nearly black; tergal pubescence rather abundant, forming brownish, scarcely distinguishable hair bands laterally; apical tergite with broad, median longitudinal glabrous area; median hair of tergites largely dark; third, fourth sternites each with a pair of sub-lateral hooklets which are short, broad, with oblique bases reaching nearly to segment apices; fourth with slight median apical lobe bearing a few scattered, dark hairs; fifth with glabrous, shiny concavity and emarginate apically, except for a median, flat, triangular projection which is approximately equilateral and one-third as long as sternite proper; sixth with strongly depressed, polished, glabrous, median, longitudinal area, half as broad basally as sternite, sharply narrowing apically to merge with median, apical projection which is as thick as broad, four times as long as broad, nearly as long as sternite proper, with a glabrous, concave summit and nearly parallel sides for the basal three-fourths; posterior arms of seventh very broad, flat, the portions not concealed by basal flaps forming nearly equilateral triangles, the inner margins with short bristles or stiff hairs; apical projection of eighth parallel sided on basal two-thirds, narrowed apically to half the basal breadth.

Female.—Length about 7 mm., length of anterior wing 5 mm.; pubescence mostly pale, with some brown facial and abdominal hair; integument black with very dark blue and copperish metallic tints; body robust. *Head*: Face four-fifths as long as broad; eyes diverging below, their length about five-sevenths the distance between them at antennal insertion; face, viewed directly from in front, with distance

between posterior ocelli more than twice as great as from one of them to vertex margin; distance from antennal socket to clypeus about half socket diameter, clypeus evenly, coarsely, sparsely punctured; facial hair mostly sooty brown; frons closely, moderately coarsely punctured, the punctures usually not contiguous but much less than one puncture width apart; antennae black. *Thorax*: Mesonotum moderately coarsely, densely punctured, punctures averaging less than one puncture width apart except at middle, its surface sparsely covered with short, pale brown to white pubescence interspersed with a few long brownish hairs; fore tibial bristles testaceous; tibial scopa moderately dense, pale brownish, slightly recumbent; mid tibial spur twelve times as long as broad, testaceous, becoming darker on apical half; with ten or fewer large, distinct teeth along apical two-thirds, numerous tiny, very fine, indistinct teeth along basal third, the larger teeth contiguous at their bases and little longer than broad. *Propodeum*: Enclosure coarsely, irregularly carinate throughout, the carinae bending outward sharply posteriorly. *Abdomen*: Tergum shining purplish black, with very dark brown apical tergite borders, uniformly, moderately densely but finely punctured, the punctures fairly distinct but usually setigerous, those of middle of first tergite, bases of second and third little more than their diameters apart; tergal pubescence sparse, mostly dark, hardly longer on tergite apices than elsewhere; anal fimbria dark ferruginous; apical tergite with distinct median carina.

Holotype: Wawona, Yosemite National Park, California, May 21, 1938, from *Gilia* (R. M. Bohart). *Allotype*: Same as for holotype. *Paratypes*: 4 females, 7 males, same data as for holotype; 1 male, Indian Flat, Mariposa Co., Calif., from *Gilia* (R. M. Bohart); 7 males, 2 females, Alta, Eldorado Co., Calif., April, 1947 (R. M. Bohart).

Some variation occurs in the regularity of propodeal carination in this species. The carinae are always coarse and irregular but occasionally traceable from anterior to posterior end.

Cuprea is related to *mulleri* (Ckll.), and *nemophile* (Mich.) but may be readily separated by the dark color and simple legs.

***Dufourea trochantera* n. sp.**

Male.—Length about 8 mm., length of anterior wing 5 mm.; pubescence almost entirely pale; integument black with faint bluish and copperish reflections on head; body slightly elongate when abdomen is extended. *Head*: Face slightly broader than long; eyes converging below, their length nearly equal to distance between them at antennal insertion; face as viewed directly from in front with distance between posterior ocelli no greater than from one of them to vertex margin; area between posterior margin of posterior ocellus and upper margin of eye slightly depressed; distance from antennal socket to clypeus slightly greater than socket diameter; clypeus with abundant, semi-erect hair, short on apical margin, becoming longer toward base, remainder white except for basal fringe of dark hairs which do not conceal integument; supra-clypeal area with dense, reclining, white pubescence; inner eye margins at region of antennal insertion with long, erect, greyish hair; outer eye margins with a few long dark hairs extending around to form sparse, shorter pubescence on frons at the middle, the cheeks and frons

otherwise with white hair; frons dull, coarsely, closely punctured, the punctures nearly contiguous anterior to median ocellus, more separate posteriorly with inter-punctural areas usually roughened; antennae of moderate length, reaching beyond tegulae, with flagellum not at all clavate, dark brown in color, the segments as viewed from above, except second and last, about as broad as long, the second only slightly longer than first, the first five each with from three to five yellowish brown hairs which are as long as flagellar width and have their apical thirds strongly bent towards flagellar apex; scape swollen, more than half as broad as long, with long black hair on inner side, short, dense, white hair on outer and under sides; maxilla with stipes considerably shorter than posterior tibia, slightly shorter than eye; galea slightly less than three times as long as broad, half as long as stipes, sharply pointed apically; maxillary palpus about three-fourths as long as stipes, extending less than three segments beyond galea, the first segment not more than three times as long as broad, slightly shorter than second, both together about as long as next four together of which the middle two are each two-thirds as long as either third or last segment; labial palpus about as long as galea; first segment six or more times as long as broad, distinctly longer than second which is twice the last which is twice the third. *Thorax*: Mesoscutum rather coarsely, unevenly punctured, the anterior part densely, the median part sparsely with punctures separated usually by two or more of their diameters; mesoscutellum uniformly, rather densely punctured; surface of mesonotum with sparse, short white pubescence and a few long dark hairs; wings clear with a yellowish stain, the second transverse cubital vein separated from second recurrent by half its own length; legs rather conspicuously swollen, otherwise modified; fore trochanter produced inwardly into a spine-like process longer than broad; fore femur almost two-thirds as broad as long; fore metatarsus with basal width of the stridulus nearly twice that of segment apex; third, fourth fore tarsal segments produced inwardly, twice as broad as long; mid legs nearly normal, the metatarsus about four times as long as broad, the third, fourth segments nearly twice as broad as long; hind trochanter with under side strongly produced into a sharply carinate ridge, causing the segment to be over twice as broad as long; hind femur quite swollen, two thirds as broad as long; hind tibia arcuate, one-third as broad as long, pubescence of outer side short, sparse, fine, that of inner side forming a ridge of long white hairs, longer than tibial width; hind metatarsus polished, expanded, two-thirds as broad as long, second segment about twice as broad as long, third, fourth slightly broader than long. *Propodeum*: Enclosure coarsely, rather evenly carinate throughout, the carinae strongly diverging posteriorly. *Abdomen*: Tergites distinctly punctured, the punctures mostly not setigerous, separated by little more than one of their diameters on densest areas, a little more separate on summit of first tergite; posterior tergite borders testaceous; hair bands long, white, especially fourth, fifth; apical tergite with longitudinal, median, roughened, glabrous area; third, fourth sternites each with a pair of sub-lateral tubercles one-third the way from apex to base; fourth polished, impunctate, glabrous on concave ventral surface, terminating in a sharply pointed, flat, sparsely pubescent, median apical projection which

is longer than broad, over half as long as sternite proper at mid line; sixth with strongly depressed, median, longitudinal, glabrous, impunctate area, nearly as broad as long on sternite proper but extending apically as the median concavity of an apical spine-like process which is three times as long as broad, sharply pointed, laterally carinate; posterior arms of seventh as broad basally as their underlying basal flaps and each forming, where not hidden by the flaps, an isosceles triangle, the longest side being the lateral margin of the arm whose inner margin is beset with short bristles becoming long hairs apically; apical projection of eighth broad basally, tapering posteriorly to form a laterally compressed digit no broader than the carina of the base.

Female.—Length about 8 mm., length of anterior wing 5 mm.; pubescence almost wholly pale; integument black with distinct bluish tint on face, very faint purplish copper tint on mesoscutum. *Head*: Face about seven-eighths as long as broad; inner margins of eyes approximately parallel, eye length about six-sevenths the distance between them at level of antennal insertion; as viewed directly from in front, distance from posterior ocelli to margin of vertex a little over half as great as distance between them; clypeus evenly, coarsely, and sparsely punctate with sparse white pubescence and basal fringe of brownish hairs; frons bare except for long, sparse, brown hairs, closely and rather coarsely punctured, the punctures nearly contiguous. *Thorax*: Posterior elevated portion of pronotum short laterally, nearly absent medially; mesoscutum rather densely covered with very short pubescence which nearly obscures integument as viewed from the side and is interspersed with a few long brownish hairs; tibial scopa dense, recumbent, white, slightly brownish on top; mid tibial spur about ten times as long as broad, slightly arcuate, smoothly tapering to a point apically, with about nine teeth, the apical six separated by more than their lengths, apical one equidistant from nearest tooth and spur's apex. *Propodeum*: Enclosure coarsely and irregularly carinate throughout. *Abdomen*: First three tergites distinctly punctured, first one medially, next two basally with punctures separated by little or no more than one puncture width; all tergites except first and last with distinct, complete, white hair bands; abdominal pubescence brownish except in hair bands and anal fimbria where it is ferruginous with an orange tinge; apical tergite with median longitudinal carina. *Holotype* and *allotype*: Mammoth Lakes, Mono Co., California, elevation 9000 ft., July 22, 1936, (G. E., R. M. Bohart). *Paratypes*: 1 male, 1 female, same place as holotype, July 26, 1933, (R. M., G. E. Bohart); 2 males, Big Flat, Coffee Creek, Trinity Co., Calif., June 20, 1934, (G. E. Bohart); 1 male, Weott, Humboldt Co., Calif., June 3, 1936, (E. C. Van Dyke); 1 male, 1 female, Goldlake, Sierra Co., Calif., July 14, 1921, (C. L. Fox); 2 males, 4 females, Lake Tahoe, Eldorado Co., Calif., June 19, 1936, (R. M. Bohart); 1 male, Yosemite Valley, Mariposa Co., Calif., July 8, 1921, (E. C. Van Dyke); 1 male, Mill Valley, Marin Co., Calif., May 2, 1936, (C. L. Fox); 1 female, El Portal, Mariposa Co., Calif., May 18, 1938 (R. M. Bohart); 1 male, 2 females, Giant Forest, Tulare Co., Calif., July 21, 1923, (C. L. Fox); 1 female, Mono Lake, Mono Co., Calif., (G. E. Bohart); 15 males, Mineral King, Tulare Co., Calif., on *Phacelia*, (R. M. Bohart); 4 females, 1 male, McKenzie Ridge, Lane Co., Oregon,

July 20, 1909, (J. C. Bridwell); 1 male, Timberline Lodge, Mt. Hood, Oregon, July 23, 1937, (E. C. Van Dyke); 11 males, 8 females, Jenny Lake, Grand Teton Nat. Park, Wyoming, June, 1941, on *Phacelia*, (G. E. Bohart); 4 males, 6 females, Logan, Utah, June 12, 1947, on *Phacelia*, (G. E. Bohart); Three females collected by the author on Bogacheil Mtn., Mt. Olympus Nat. Park, Wash., August 4, 1938, on *Phacelia*, are apparently *trochantera* but are a little darker than usual in color.

The series from which this species was determined shows slight variations in number of antennal hairs, in length of the process of the fifth sternite, and in degree of metallic color on the face. The females vary somewhat in size and as to amount of abdominal pubescence and completeness of hair bands.

This is related to *mulleri* (Ckll.) from which it can be separated by the produced trochanter of the male. No constant character with which to distinguish the females was discovered.

Dufourea vandykei n. sp.

Male.—Length about 9 mm., length of anterior wing 5.2 mm.; pubescence wholly pale; integument black, without tinge of blue, green, or copper; body elongate. *Head*: Face a little less than five-sixths as long as broad; eyes very slightly diverging below, their length about three-fourths the distance between them at antennal insertion; face, viewed directly from in front, with distance from lateral ocelli to vertex margin about two-thirds the distance between them; distance from antennal socket to clypeus nearly two-thirds socket diameter; clypeus concealed by dense, white, reclining hair tuft, extending beyond clypeus for distance equal to clypeal length; supra-clypeal area also concealed, its lateral margins with hair becoming long, grey, more erect; punctures of frons rather coarse, dense, separated by less than one puncture width except along inner eye margins, and near ocelli; antenna of moderate length, not reaching beyond tegula; scape swollen, three-fifths as broad as long; flagellar segments, seen from above, slightly longer than broad, the second somewhat longer than first or third, two-thirds as broad as long, the first four entirely black, roughened; entire flagellum with a single row of thick, white, sensory hairs, bent at right angles near their middles, a little shorter than flagellar width, usually two in number per segment, six on first, four on second, third; maxilla with stipes shorter than hind tibia, no longer than eye; galea three times as long as broad, pointed apically; maxillary palpus three-fourths as long as stipes, first segment three times as long as broad, as long as second, one-third its length longer than last, nearly twice as long as any of others; labial palpus only half as long as mentum, first segment about seven times as long as broad, distinctly longer than second maxillary, as long as next three labial together which are sub-equal. *Thorax*: Mesoscutum rather dull, moderately coarsely, closely punctured, punctures averaging a little more than one puncture width apart, surface moderately densely clothed with long, white hair; wings clear with slight yellowish tinge, first transverse cubital vein offset from first recurrent by half its own length; posterior wing with eight hamuli; legs not conspicuously modified; fore femur swollen along its outer side, half as broad as long, nearly

as thick as broad, with but few scattered hairs; mid tibia with short, rather close hair; hind tibia slightly broadened subapically, two-sevenths as broad as long, with pubescence shorter than tibial breadth; metatarsi each about four times as long as broad; succeeding segments as long as or longer than broad. *Propodeum*: Enclosure shining, sparsely, rather coarsely, evenly carinate, the carinae not attaining posterior margin of enclosure, about twenty in number. *Abdomen*: Tergites coarsely, closely punctured, summit of first, apical thirds of others with punctures somewhat more than one puncture width apart, tergite bases more closely punctate; impressed apical tergite borders clear, nearly colorless; tergal pubescence scanty, forming weak hair bands laterally, pale at centers of tergites; apical tergite with narrow, longitudinal, median, glabrous line; depressed areas of sternites strongly defined; second with sub-lateral, sub-apical swellings; third, fourth each with a pair of sublateral, apical hooklets and a dense apical pubescent band; fifth transversely swollen along the apical margin which is evenly emarginate; sixth with a broad, raised, median longitudinal, testaceous, minutely pubescent area, as broad as long, with lateral margins converging strongly towards a flame-shaped apical projection, which is nearly concealed by a long, dense, white hair tuft; posterior arms of seventh very broad, flat, rounded apically, with apical yellow hair tufts half as long as arms; terminal projection of eighth basally broadened, narrowest at middle, becoming imperceptibly broader at apex where it is one-fourth as broad as base.

Femåle.—Length about 8 mm., length of anterior wing 5.1 mm.; pubescence wholly pale; integument black as in male; body robust. *Head*: Face four-fifths as long as broad; eyes approximately parallel, very slightly divergent below, their length three-fourths as great as the distance between them at antennal insertion; face, viewed directly from in front, with distance between posterior ocelli over twice that from one to vertex margin; distance from antennal socket to clypeus about half socket diameter, distance between sockets over twice as great as their diameters; clypeus short, covered with white pubescence, with about twenty large, scattered punctures; hairs of frons almost all white, surface coarsely, moderately densely punctured, but separated by at least one of their diameters along inner eye margins and a broad band in front of ocellar triangle; antennal flagellum dull brown above on apical six segments. *Thorax*: Posterior lateral angle of pronotum with dense white hair pad; mesoscutum moderately finely, rather sparsely punctured, punctures of densest areas along anterior margin separated by about one puncture width, of remainder by two or three; mesonotum sparsely covered with short, fine hairs interspersed with fewer long, pale ones; terminal bristles of fore, mid tibiae testaceous; mid tibial spur testaceous, straight, evenly tapered to a point, with about nine fairly prominent teeth on apical half, numerous very fine ones on basal half; tibial scopa rather sparse, pale with greyish hairs on dorsal margin. *Propodeum*: Enclosure shining, posterior third smooth, remainder with about twenty coarse, straight carinae with clearly visible interspaces. *Abdomen*: Tergites well punctured, summit of first, basal halves of others with punctures separated by about or little more than one puncture width; impressed, apical tergite borders pale testaceous:

pubescence of first four tergites short, scanty, forming sparse hair bands laterally, covering rather denser ones under tergite borders; median hair of fifth tergite brown; anal fimbria testaceous.

Holotype, allotype, 20 male paratypes: Westgard Pass, Inyo Co., Calif., June 3, 1937, from *Sphaeralcea ambigua* (J. W. Johnson, N. W. Frazier, E. C. Van Dyke, C. D. Michener). Other *paratypes* include: 2 males, 3 females, near Kearsarge, Inyo Co., Calif., May 25, 1937 (E. C. Van Dyke); 2 males, Lone Pine, Inyo Co., Calif., and one male, Keeler, Inyo Co., May 22, 1937 (E. Gehrhardt); 2 males, Mazourka Canyon, Inyo Co., Calif., elevation 6000 feet, on *Sphaeralcea ambigua*, May 23, 1937; 1 male, Chocolate Mountains, Riverside Co., Calif., April 4, 1937 (E. G. Linsley); 1 male, Yermo, Calif., April 4, 1940 (Evernham).

The specimens in this series vary somewhat as to density of punctation and as to hair color which tends to become yellowish on some.

This species has no close relatives. Probable affinities can be traced to the *echinocacti* Timb. group. It differs strongly, however, in the possession of sternal hooklets, lack of leg modifications, and a broad head.

Dufourea pectinipes n. sp.

Male.—Length about 6 mm., length of anterior wing 4 mm.; pubescence white except for some brown clypeal hair; integument dark with bluish, greenish reflections; body elongate. *Head:* Face distinctly longer than broad; eyes converging slightly below, distance between them at antennal insertion a little greater than their length; face, viewed directly from in front, with distance between lateral ocelli about twice that from one to posterior vertex margin; distance from antennal socket to clypeus nearly as great as socket diameter; clypeus nearly half as long as broad, with mixed brown, white sparse hairs, not concealing integument; frons well rounded, rather strongly bluish, non-reticulate, mostly with punctures much less than one puncture width apart; antenna long, reaching beyond tegula, flagellar segments smoky dark brown to black, without distinct rows of sensory hairs, the second segment somewhat longer than first, a little shorter than third, the first three wholly roughened, elevated above on apical halves; scape a little more than twice as long as broad; maxilla with stipes slightly longer than hind tibia; galea nearly as long as stipes, over five times as long as broad; maxillary palpus as long as stipes, not quite attaining tip of labial, first segment four times as long as broad, subequal to fourth, slightly longer than fifth or sixth, three-fourths second or third which are half as long as second labial; labial palpus longer than mentum, first segment eight times as long as broad, equal to second, twice the third, nearly four times the fourth. *Thorax:* Mesoscutum coarsely, moderately closely punctate, punctures on average separated by distinctly less than one puncture width, no closer laterally except on anterior margin; area between punctures shining, non-reticulate; surface of mesonotum with short, sparse, pale pubescence; wings clear but somewhat yellowish, with dark veins, the first transverse cubital vein contiguous with first recurrent; posterior wing with five to six hamuli; legs somewhat deformed, modified; fore tibia slightly swollen, with broad, prominent terminal

hooklet directed at right angles to tibial axis; mid tibia swollen, its greatest breadth somewhat beyond middle where it is half as broad as long, its apex with two concealed, short, dorsal bristles, a long curved median hooklet, a ventral clump of five or more stout, yellowish bristles; hind tibia nearly four times as long as broad, outer surface shining, very sparsely haired; fore, hind metatarsi four times as long as broad, mid one three times; second to fourth fore tarsal segments broader than long. *Propodeum*: Enclosure closely, slightly irregularly carinate, becoming smooth on apical lateral corner; imaginary line drawn transversely through center cutting about thirty carinae. *Abdomen*: First three tergites rather strongly punctured, punctures separated by little less than one of their diameters on summit of first, anterior halves of second, third; abdominal pubescence brown, very short, sparse, not forming distinct hair bands; apical impressed tergite borders testaceous to clear; third sternite with low, lateral swelling but no distinct hooklet; fourth with sub-apical, sub-lateral hooklet and with apical margin evenly convex between lateral emarginations; fifth with low, unthickened, median swelling on apical half; sixth with broad, median, longitudinal, glabrous, convex, pale band, defined laterally by groove, the band extending apically to form a broadly flame-shaped, pointed projection, about equal in length to band of sternite proper, the projection not crowned with dense hair tuft except at apex, the lateral margins with long hairs; seventh with posterior arms as broad basally as their basal ventral flaps, tapering evenly from bases to narrow, apical, diagonal truncations, the apical portions slightly thickened, with long apical hairs becoming short along lateral margins; apical projections of eighth basally broadened, narrowest at middle, expanding almost imperceptibly towards apex which is one-third basal breadth.

Female.—Length about 5 mm.; length of anterior wing 3.7 mm.; pubescence brownish to whitish; integument dark with dark blue metallic reflections (some violet on abdomen); body robust. *Head*: Face slightly longer than broad; inner eye margins parallel; eye length as great as distance between them; face viewed from front with post-ocellar distance less than ocellar diameter; area laterad, posterior to posterior ocellus well rounded; distance from antennal socket to clypeus about equal to socket diameter; clypeus one-half as long as hind metatarsus, with semi-erect brown hair; frons closely, coarsely punctured, the punctures much closer than one puncture width apart, even close to ocelli; flagellum dull yellowish brown above on last eight segments; galea beyond maxillary palpus as long as hind tibia, maxillary palpus somewhat longer. *Thorax*: Dorsal surface closely, coarsely punctured as the frons; pubescence rather short, erect, gray to brownish; fore and mid tibiae each with an outer apical fringe of curved testaceous spines; hind wing with six hamuli. *Propodeum*: Enclosure closely, coarsely, somewhat irregularly carinate, a straight line drawn transversely across the middle cutting about twenty-five carinae. *Abdomen*: Tergites uniformly, rather strongly punctured, the first with punctures of disk averaging from one to two puncture widths apart; apical tergite borders pale testaceous, not at all hidden by sparse, testaceous hair fringes; anal fimbria testaceous.

Holotype and 2 male *paratypes*: Tuolumne Co., California, elevation

3500 feet, June 9, 1938, from *Mimulus layneae*, (R. M. Bohart). *Allotype*: Oakhurst, Madera Co., California, May 19, 1942, from *Mimulus*. Two male *paratypes*: Shingletown, Shasta Co., Calif., June 2, 1941, from *Mimulus*, (C. D. Michener).

One of the paratypes and the allotype have a distinct offset between the first transverse cubital and first recurrent veins. The males are otherwise quite similar.

The male of this species resembles *D. versatilis* Bridwell in many details and must be related in spite of the fact that *versatilis* was described as a separate genus (*Mimulapis*) and has generally been separated by later authors. The female resembles *versatilis* somewhat (particularly in the mouthparts) but also seems to be related to *D. bernardina* (Michener), from which it can be distinguished at once on the basis of its long galea, glossa, and palpi.

Dufourea longiceps n. sp.

Male.—Length about 7 mm., length of anterior wing 4.9 mm.; pubescence almost entirely white; integument black without tinge of blue, green, or copper; body elongate. *Head*: Face five sixths as broad as long; eyes converging slightly below, distance between them at antennal insertion a little less than eye length; face, as viewed directly from in front, with space between posterior ocelli about twice that from one to posterior vertex margin; distance from antennal socket to clypeus distinctly greater than socket diameter; face of clypeus markedly convex, crowned with long, white, reclining pubescence, continuing on supraclypeal area, bounded laterally by fringe of long, dark, brown hair; frons above antennal scapes with long sparse hair, its surface non-reticulate, coarsely, moderately densely punctured, punctures separated on average by more than one puncture width along inner eye margins and laterad to posterior ocelli, about or somewhat closer than one width otherwise; antenna long, reaching beyond mesoscutum, flagellum almost imperceptibly clavate, first segment four-fifths as broad as last, slightly longer than broad, three-fourths as long as second which is no longer than succeeding segments which are each two-thirds as broad as long seen from above; flagellum yellow above and on outer side beyond middle of first segment, the segments glabrous except for usual uniform microscopic pubescence, with rough areas on upper surface beyond second segment confined to small, raised, apical rings; scape nearly three times as long as broad with mostly long, white hairs, few short dark ones; maxilla with stipes slightly longer than hind tibia, one-third its length longer than eye; galea three times as long as broad, less than half as long as stipes, narrowly rounded apically; maxillary palpus nine tenths as long as stipes, first segment four times as long as broad, two thirds as long as second, little longer than any of remaining segments which are subequal; labial palpus about three fourths as long as stipes, first segment nearly ten times as long as broad, as long as next three combined, the last two subequal, each two thirds as long as second. *Thorax*: Mesoscutum coarsely, rather uniformly punctate, punctures mostly about one width apart; punctures of mesoscutellum a little more separate; mesonotum covered with moderately long, sparse white pubescence, some shorter hair, especially laterally; wings clear hyaline,

practically without greyish or yellowish tinge, veins, stigma nearly black, first transverse cubital vein separated from first recurrent by its own length; legs not conspicuously modified; mid tibia with two stout, testaceous bristles on apical fourth of posterior margin in addition to normal tibial bristle; fore metatarsus beyond stridulus, mid metatarsus at least four times as long as broad, succeeding segments longer than broad; hind tibia over four times as long as broad, densely covered, especially apically, with white pubescence no longer than tibial width; hind metatarsus broadened, about half as broad as long, succeeding segment produced posteriorly, as broad as long, remaining segments longer than broad. *Propodeum*: Enclosure strongly, closely, somewhat irregularly carinate, straight transverse line drawn through middle cutting about twenty-five carinae, the vertical posterior portion thrown into transverse carinae. *Abdomen*: Tergites with uniformly spaced, coarse punctures, those of first four averaging a little more than one puncture width apart; apical impressed margins of tergites apically clear on first three, mostly dark on others; tergal pubescence scattered, sparse, forming distinct hair bands only laterally, that of middles of third to fifth; tergites dark; third and fourth sternites each with a pair of sub-lateral, small, blunt, scarcely curved hooklets, distant from apical margin, second to fifth approximately truncate apically; sixth with a median, longitudinal, raised, impunctate, glabrous area on basal third, its sides converging posteriorly, its surface elevating on posterior half of segment to form a glabrous, thorn-like ridge, dropping abruptly from its apex posteriorly just before sternite apex which bears a minute raised point; posterior arms of seventh broad basally, less than twice as long as their basal ventral flaps, their apices sharply pointed, with short hairs, their inner margins straight; apical projection of eighth with long, lateral hair fringe, narrowest part one third the distance from apex where it is half as broad as at apex or base.

Female.—Length about 7 mm., length of anterior wing 5 mm.; pubescence largely pale; integument black as in male; body rather robust. *Head*: Face longer than broad by distance behind ocelli; inner eye margins approximately parallel, distance between them at antennal insertion a little greater than eye length; median ocellus distinctly posterior to eye; face, as viewed directly from in front, with distance between lateral ocelli about twice that from one of them to posterior margin of vertex; clypeus produced, strongly convex, with a few scattered punctures of large and small size, with basal fringe of black hairs which continue along sides of supra-clypeal area, inner eye margins, surface of frons; middle of supra-clypeal area, antennal scapes, interscapal area with mostly pale hair; frons rather coarsely punctured, the punctures sparse along inner eye margins, about one puncture width apart over rest of frons, except latero-posteriorly where they are more close, coarse; antennal flagellum dull yellowish brown above on apical three fourths. *Thorax*: Elevated posterior portion of pronotum distinct laterally but almost obsolete medially; mesoscutum coarsely, uniformly punctate, the punctures mostly separated by about one of their diameters; mesoscutellar punctures more separate medially; mesonotum sparsely covered with mostly dark brown to black, short and moderately long hairs; apical bristles of fore, mid tibiae testaceous, frequently with

black tips; mid tibial spur testaceous, straight, about fifteen times as long as broad, the basal half without distinct teeth, the apical half with only about five teeth which are reclining, rather fine; tibial scopa rather dense, arising from tibia at more than a fifty degree angle, white except for coarser, shorter, darker hairs at base and along upper margin. *Propodeum*: Enclosure completely, rather coarsely, closely, evenly carinate, the median carinae tending to converge posteriorly, the posterior margin with several transverse carinae; a straight line drawn through middle of enclosure cutting about twenty carinae. *Abdomen*: Tergites rather coarsely punctured, punctures of first, apical halves of next two mostly two of their diameters apart, those of basal fourth of second, third closer but finer; tergal pubescence very sparse, hair bands generally confined to lateral margins or to bases of tergites; pubescence at middle of tergites mostly short, dark; anal fimbria dark sooty brown.

Holotype.—Wildrose Canyon, Panamint Mts., Inyo Co., Calif., May 27, 1937, from *Phacelia*, (C. D. Michener). *Allotype* and one *paratype* female: Same as for holotype.

This can be placed with the same group as *novae-angliae* (Robt.) and *monardae* (Vier.) but is not very close to either of them. It is easily separated by its mostly pale pubescence, yellow antennae, colorless wings, and absence of lateral swellings on the sixth sternite of the male.

Dufourea afasciata n. sp.

Male.—Length about 12 mm., length of anterior wing 8 mm.; pubescence mostly pale on head, thorax, mostly black on abdomen; integument jet black with no tinge of blue, green, or copper. *Head*: Face distinctly longer than broad; eyes converging slightly below, distance between them at antennal insertion slightly less than eye length; face, viewed directly from in front, with distance between posterior ocelli no greater than from one of them to posterior vertex margin; frons between eyes and between posterior ocellus and upper eye margin depressed; distance from antennal socket to clypeus greater than socket diameter; clypeus with abundant, long, semi-depressed, yellowish white hair not entirely concealing integument; supra-clypeal area strongly convex, carinate medially; frons between eye, scape with abundant long, fine, pale hairs; frons moderately finely, unevenly punctate, the punctures very fine, close just anterior to impunctate area in front of ocelli, coarser, separated by a puncture width along inner margins of eyes, very sparse just posterior and laterad to lateral ocellus; interpunctural areas mostly reticulate, otherwise roughened; antenna very long, reaching beyond base of abdomen, the flagellar segments yellow above and on outer side, swollen sub-apically, glabrous except for usual uniform, microscopic pubescence, over twice as long as broad, the last shorter than any except first, the second three times as long as broad, unswollen, the first black, only slightly longer than broad as seen from above; maxilla with stipes distinctly longer than hind tibia or eye; galea over four times as long as broad, over half as long as stipes, rounded apically; maxillary palpus longer than stipes, the first segment nearly half as broad as long, about two-thirds as long as second which is slightly longer than third, one-fourth its length longer than fourth or

fifth, about as long as sixth; labial palpus with segment one about six times as long as broad, one-fourth its length longer than second or third, twice as long as fourth, as long as second maxillary palpal segment. *Thorax*: Mesonotum rather dull, moderately closely, coarsely punctured, the punctures, except at middle, mostly somewhat less than one puncture width apart, surface densely clothed with greyish white, mostly long hairs which partially conceal the integument even from dorsal view; mesepisternum densely clothed with long pale hairs; wings clear, with rather strong tinge of smoky yellow; first transverse cubital vein offset from first recurrent by less than half its own length; posterior wing with about fourteen hamuli; legs greatly swollen and modified; coxae, trochanters normal; fore femur slightly swollen sub-basally on inner side; mid femur with inner side tremendously enlarged, causing the segment to be shaped like a semicircular glabrous plate; hind femur swollen, strongly concave beneath, inner margin of the concavity forming a high, sharply carinate ridge which is produced backward toward the coxa as a long, flat, spine-like process; fore tibia greatly swollen, two-thirds as broad as long, its posterior margin with a deep, sub-apical, semi-circular notch cradling proximal end of tibial spur which is produced proximally, distally; mid tibia with a strong hump near the middle of its outer ventral side, the hump as broad as long, bounded distally by a large, semi-circular notch close to tibial apex which overhangs metatarsus; mid tibial spur four times as long as broad; hind tibia two-thirds as broad as long, its dorsal margin sharply carinate, its ventral outer side near base with a compact row of long, dense black hairs which extend distally onto base of a long, curved, spinular process, bounded distally by a compact row of long white hairs; fore metatarsus nearly half as broad as long; mid metatarsus one-third as broad as long, its outer side polished, glabrous, its margins curved, twisted; hind metatarsus greatly expanded, about three times as long as fore one, nearly half as broad as long, its outer side concave, obscured by fine, exceedingly dense, pale hair becoming coarse, black on dorsal margin; second to fourth fore tarsal segments considerably broader than long. *Propodeum*: Horizontal portion of enclosure twice as long as metanotum, strongly but evenly carinate, the carinae mostly separating anteriorly, their number on the median half more than forty. *Abdomen*: Tergites entirely black, pubescence coarse, black, not forming hair bands; on tergites four to six, mostly pale, but fine on one to three; tergal punctures entirely setigerous, uniformly, rather densely covering surface, except for posterior borders; fourth sternite depressed medially, densely hairy laterally, with a broad, flat, truncate lobe at apex bearing a short terminal hair fringe; fifth reduced to a transverse band with a strong, median transverse fold, the sub-lateral apical margin with a pair of hooklets modified into broad, flat, tooth-like structures; sixth with a broad, median, slightly elevated, shining area, extending apically to form a transverse roughened ridge which is bounded apically by the flat, depressed, broad base of an apically thickened, raised sternal projection twice as long as its greatest breadth; posterior arms of seventh obsolete, replaced by their greatly enlarged, thickened, ventral basal flaps, apical projection of eighth about five times as long as broad, medially carinate, broader sub-apically than apically, with lateral

margins densely haired, those of sub-apex bearing long, backward curled, golden pile.

Female.—Length about 11 mm., length of anterior wing 7.5 mm.; pubescence black except for dorsum of thorax; integument jet black; body moderately robust. *Head*: Face slightly longer than broad; inner eye margins nearly parallel, distance between them at antennal insertion about as great as eye length; face, viewed directly from in front with distance between posterior ocelli a little greater than from one to posterior vertex margin; distance from antennal socket to clypeus equal to socket diameter; clypeus rather long, truncate apically, with a few large scattered punctures; supra-clypeal area with a strong, median longitudinal ridge, very finely punctured; frons unevenly, rather finely punctate, very closely, nearly contiguously punctate medially but coarsely, sparsely so along inner eye margins; antennal flagellum black. *Thorax*: Elevated posterior portion of pronotum nearly as prominent medially as laterally; mesoscutum dull, closely, rather coarsely punctate anteriorly, more sparsely medially and posteriorly, punctures mostly about one puncture width apart, the inter-punctural areas distinctly reticulate; mesoscutellum sparsely punctate, the punctures mostly two or more of their diameters apart; mesonotum with surface densely covered by long, greyish white pubescence nearly concealing integument; terminal hooklets of fore, mid tibiae black, stout; mid tibial spur ferruginous, straight, a little more than six times as long as broad, with over twenty teeth on apical three-fourths; tibial scopa coarse, jet black, dense, concealing integument. *Propodeum*: Horizontal portion of enclosure twice as long as metanotum, strongly but evenly, rather closely carinate, a straight line drawn transversely from center of enclosure cutting at least twenty carinae. *Abdomen*: Tergum finely reticulate, entirely jet black, punctures obsolete or minute, setigerous; pubescence of last four tergites coarse, black, of first two somewhat finer, partially pale; white hair bands confined to bases of segments, scarcely visible even with abdomen extended; anal fimbria black; apical tergite with strong median carina.

Holotype: Shasta Springs, Shasta Co., Calif., June 16, 1920, (C. L. Fox); *Allotype*: Prospect, Oregon, June 20, 1924, (C. L. Fox); *Paratypes*: 3 males, 3 females, Trinity Co., Calif., May 16 to 18, 1934, from *Trifolium*, (G. E. Bohart); 3 males and 1 female, same data (E. C. Van Dyke); 1 male, Hanson's Resort, Jefferson Co., Oregon, July 29, 1929, (E. C. Van Dyke).

Despite the grotesque characters of this species, available specimens show no significant variation.

This belongs with *D. spinifera* (Viereck) in an aberrant group called *Cryptohalictoides* by Viereck. The female lacks the conspicuous white abdominal hair bands characteristic of *D. spinifera* and the male differs in details of the fore and hind tibiae. Both sexes have more finely carinate propodea.

Dufourea dentipes n. sp.

Male.—Length about 12 mm., length of anterior wing 7.5 mm.; pubescence mostly black; integument almost entirely jet black with occasional very faint reflections of blue or copper on head; body robust.

Head: Face a little over three-fourths as long as broad; eyes strongly diverging below, their length two-thirds the distance between them at antennal insertion; face, viewed directly from in front, with distance between posterior ocelli no greater than from one of them to posterior margin of vertex; posterior ocelli cut by imaginary line drawn between upper eye margins; distance from antennal socket to clypeus about half socket diameter; clypeus sparsely pubescent, with mostly black hairs basally, mixed black, white apically, surface closely punctured, the apical margin strongly convex; supra-clypeal area with a low tubercle near clypeal margin just laterad to antennal socket; frons moderately finely, closely punctured, punctures anterior to ocelli mostly separated by much less than one puncture width, those in concave area lateral to ocelli and behind median ocellus sometimes separated by one or more puncture widths; interpunctural areas reticulate; antennae of moderate length, about reaching tegulae; flagellum black, slightly clavate, three-fourths as broad at base as at apex, all segments longer than broad but only slightly so except second, last; outer, under side of flagellar segments three to eight each with a row of black hairs, never more than ten in number per segment, bent at their middles, the longest two-thirds flagellar width, those of segments seven, eight short, inconspicuous; scape at least three times as long as broad; maxilla with stipes shorter than hind tibia, no longer than eye; galea three times as long as broad, rounded apically; maxillary palpus extending two segments beyond galea, about half as long as stipes, the first segment two and one-half times as long as broad, as long as second, about twice as long as any of remaining; labial palpus as long as first four maxillary palpal segments together, the first six times as long as broad, over twice as long as second, first two as long as first two maxillary palpal segments, last two together three-fourths as long as first. *Thorax:* Mesoscutum evenly, rather finely, closely punctured, the punctures nearly contiguous and interpunctural areas roughened, surface rather densely pubescent with numerous short pale hairs obscured by long black ones; wings rather strongly stained with grey, yellow, the first transverse cubital vein nearly contiguous with first recurrent; legs somewhat swollen, modified; fore metatarsus, tibia with numerous short white hairs in addition to the long black ones; apical tooth of mid tibia short, straight, blunt; second, third tarsal segments of fore leg about as long as broad, fourth broader than long; hind trochanter with inner side produced subapically into a rounded hump, causing the segments to be slightly broader than long; hind femur swollen but not broadened; hind tibia considerably broadened, with subapical ventral tooth, the segment a little less than three times as long as broad, its pubescence nowhere more than half as long as tibial breadth; hind metatarsus nearly four times as long as broad, following segment nearly twice as long as broad, the penultimate as broad as long. *Propodeum:* Enclosure dull, minutely wrinkled, appearing granular, the wrinkles transverse on posterior margin. *Abdomen:* Tergites strongly reticulate but nearly impunctate, the punctures separated by many puncture widths and generally setigerous; apical tergite borders black; bases of tergites, when exposed, with short white hair fringes; apical tergite with well differentiated, median, glabrous, wrinkled area encompassing entire tergite breadth on apical

half, its terminus weakly emarginate; second sternite broadly swollen just basad to middle; third, fourth with rather strongly convex apical margins, sharp, inwardly directed, prostrate hooklets sub-laterally about one-third distance from apex to base; fifth nearly truncate apically; sixth with median, shining, glabrous, depressed, triangular area situated at base of broad, elevated, median area of sternite, with surface bearing dense, short pubescence, its sides rounding in sharply at sub-apex of sternite proper, then extending posteriorly to form a bi-lobed, flat, but laterally carinate, projection which is broader than long, nearly as long as middle of sternite proper; posterior arms of seventh slightly narrower basally than their basal ventral flaps, broadly rounded apically, provided with lateral hair tufts; apical projection of eighth basally broadened, narrowest along middle half, broadened apically to twice narrowest width, not more than one-fourth basal width.

Female.—Length about 10 mm., length of anterior wing 7.5 mm.; pubescence almost entirely black; integument entirely jet black; body robust. *Head*: Face three-fourths as long as broad, eyes diverging below, their length three-fourths the distance between them at antennal insertion; face, as viewed directly from in front, with distance between posterior ocelli no greater than from one to posterior vertex margin; distance from antennal socket to clypeus about half socket diameter; anterior margin of clypeus strongly rounded, surface coarsely punctured, punctures averaging about one of their diameters apart, sub-lateral basal corner with triangular, impunctate, brownish callosity; labrum with polished disk sharply pointed apically; supra-clypeal area, cheeks with few short whitish hairs; frons moderately coarsely, quite densely punctured, punctures nearly contiguous except along lower, inner eye margins and on slightly concave area laterad to posterior ocelli where they are more separate; interpunctural areas reticulate; antennal flagellum black. *Thorax*: Posterior lateral angle of pronotum with pale pubescence; mesoscutum densely, uniformly punctured, punctures rather fine, separated by much less than one puncture width, occasionally sub-contiguous, surface with marginal greyish pubescence, otherwise with complete but sparse, long black pubescence; apical bristles of fore, mid femora black or fumose; mid tibial spur about ten times as long as broad, straight, entirely dark reddish brown, with twelve teeth, basal three very small, apical three broad, separated by more than their lengths; tibial scopa dense, coarse, black, appressed. *Propodeum*: Enclosure satiny, entirely covered with minute longitudinal carinae; imaginary line drawn through middle cutting nearly one hundred. *Abdomen*: Tergites reticulate, nearly impunctate, the punctures fine, setigerous, separated by many puncture widths according to density of pubescence; impressed apical tergite borders black; elevated bases of tergites, when extended, with very short but complete white hair fringes, tergal pubescence otherwise black, not forming hair bands; anal fimbria black.

Holotype: Hasting's Natural History Reservation, Santa Lucia Mts., Jamesburg, Monterey Co., Calif., May 24, 1938, (C. D. Michener). *Allotype*: Bass Lake, Madera Co., Calif., June 9, 1937, (B. E. White). *Paratypes*: 23 males, 5 females, same place as holotype, May 14, 22, 24, 25, 1938, from *Calochortus*, *Stachys*, (C. D. Michener); 2 males, same

locality as allotype, June 8, 1938, (Carl T. Sierra); 1 female, Santa Paula, Ventura Co., Calif., May 22, 1936; 1 male, Mt. Hamilton, Santa Clara Co., Calif., April 26, 1913, (J. C. Bridwell); 1 female, Marsh Creek Springs, Contra Costa Co., Calif., May 12, 1937, (G. E. Bohart); 2 males, Northfork, Madera Co., Calif., June 7, 1933, (B. E. White); 1 male, Mokelumne Hill, Calaveras Co., Calif., March 5, 1893, (J. C. Bridwell); 1 female, Palo Alto, Calif., May 19, 1940, (E. S. Ross).

There is no significant variation in the type series. In some specimens the propodeum appears granulose unless examined carefully. This is a very distinct species, probably belonging to the *maura* (Ckll.) group which includes *dilatipes* Bohart, *campanulae* (Ckll.), and probably *calochorti* (Ckll.). The male can be easily recognized by its sixth sternite which has a bilobed process and by the tooth on the hind tibia.

Dufourea dilatipes n. sp.

Male.—Length about 9 mm.; length of anterior wing 7 mm.; integument intensely jet black, dull, reticulate; pubescence mostly black to dark brown; body robust. *Head*: Face thirteen-fifteenths as long as broad; eyes strongly divergent below, their length less than two-thirds the distance between them at antennal insertions; face, viewed from in front, with postocellar distance greater than distance between posterior ocelli; area laterad to posterior ocelli depressed; distance from antennal socket to clypeus two-thirds socket diameter; clypeus nearly flat, gently rounded at apical margin, punctured as frons, covered with erect black hair but with pale brown ones on margin; punctures of frons in general less than one puncture width apart but much sparser in areas in front of and laterad to ocelli and behind eyes; antenna short, not reaching beyond tegula, black to dark brown; scape two and one-half times as long as broad; flagellum with underside, especially basal half, with numerous straight pale hairs, not confined to rows, about one-fourth as long as flagellar width, thirty or more on basal segments; maxilla with stipes as long as hind tibia; galea two-fifths as broad as long; maxillary palpus four-sevenths as long as stipes, the first segment nearly half as broad as long, as long as second, one-fourth its length longer than any of remaining segments; labial palpus slightly longer than first four maxillary palpal segments, the first about twice as long as second which is a little longer than third or fourth. *Thorax*: Mesoscutum rather finely punctured, the marginal areas with punctures from one to two puncture widths apart, the central disk shining, with punctures from three to five widths apart; mesoscutal pubescence long, dark brown, erect; mesoscutellar and mesepisternal pubescence hoary from some angles; wings slightly yellowish, the first transverse cubital vein contiguous with first recurrent; legs expanded and especially the hind ones strongly modified; fore, mid tibiae thickened, about two-fifths as broad as long; fore metatarsus slightly more than twice as long as broad; hind trochanter produced posteriorly into triangular lobes; hind femur globose, five-eighths as broad as long; hind tibia nearly three-fourths as broad as long, broadly truncate apically, with rather short pubescence; hind metatarsus over three times as long as broad, succeeding segments as broad as long, produced posteriorly. *Propodeum*: Enclosure finely rugocarinate laterally, rather coarsely rugose medially, appearing

granular posteriorly. *Abdomen*: Tergites reticulate, with numerous very fine, setigerous punctures; tergites five and six with complete subapical hair bands; third and fourth sternites each with a pair of sublateral recurved hooklets near the apical margin; fourth with a flat, downcurved, median, apical, triangular projection; fifth deeply emarginate apically, the emargination nearly truncate; sixth with a median polished plate, broader than long and a heavy, black, rudder-like, median, apical projection, laterally clothed with long black hair; posterior arms of seventh greatly expanded and thickened apically, clothed with wooly grey-brown pubescence; posterior projection of eighth downcurved, with a heavy apical knob twice as broad as base; genitalia with gonostylus and gonocoxite slender, merged together.

Female.—Length 9 mm.; length of anterior wing 6 mm.; integument and pubescence as in male but with short basal white hair fringes on abdomen; body robust. *Head*: Shape of face as in male but more rounded in profile, with longer, less flattened clypeus, and shorter postocellar space; clypeus, median to apical tubercles, with less than 50 rather coarse punctures; facial punctation otherwise similar to male; antenna colored as in male; facial pubescence entirely black, long. *Thorax*: Punctation and pubescence similar to male; wing with first transverse cubital vein offset from first recurrent by one-third its own length; legs heavy with pubescence black basally to brown and golden on tarsi; mid tibial spur with fine close set teeth; tibial scopa dense, black. *Propodeum*: Enclosure appearing finely granular laterally and feebly, irregularly carinate medially. *Abdomen*: Tergites with numerous tiny, setigerous punctures; subapical black hair bands sparse and complete only on tergite five; tergite bases with short white hair bands, hidden medially except on tergite four which is extended; anal fimbria sooty brown to black.

Holotype, allotype, 2 male and 2 female *paratypes*: Two Medicine Lodge, Glacier National Park, Montana, July 6, 1938 (E. C. Van Dyke); 2 female and 9 male *paratypes*, Lake St. Marys, Glacier National Park, Montana, July 7 and June 1, 1938, and July 3, 1930 (all E. C. Van Dyke); 2 male and 5 female *paratypes*, Waterton Lakes Nat. Park, Alberta, July 11, 1923, (E. H. Strickland).

The type series shows variation in the propodeum, the sculpturing varying from rugose medially to feebly carinate and the lateral areas varying from finely carinate to granular. One male has considerable white hair on the clypeus.

This belongs to the *D. maura* (Ckll.) group but may be distinguished from related species in both sexes by the sculpturing of the propodeum and in the male by the peculiar leg development.