

NEW SPECIES OF BEES OF THE GENUS *DIADASIA*
FROM CALIFORNIA (HYMENOPTERA,
APOIDEA).

BY P. H. TIMBERLAKE,
Riverside, California.

The types of the following new species and subspecies of *Diadasia* are in the collection of the Citrus Experiment Station, Riverside, California.

***Diadasia consociata* n. sp.**

Allied to *D. nitidifrons* Ckll., but differs in being smaller and in having the basal area of propodeum polished, the hair of abdomen shorter and much more depressed. From *D. diminuta* (Cress.) it differs in having black hair at base of tergites in both sexes.

Male.— Black, the tarsi and apex of tibiae dark ferruginous, the spurs a little paler. Flagellum more or less reddish beneath. Tegulae slightly rufescent. Wings dusky hyaline, the venation almost black. Head much broader than long, the inner orbits diverging above. Third antennal joint a little shorter than 4 + 5. Middle joints of flagellum as long as wide. Clypeus and face finely, closely punctured. Nude upper part of frons and vertex polished, nearly impunctate, except middle of vertex behind the ocelli. Mesoscutum, scutellum and pleura only slightly more sparsely punctured than clypeus. Basal area of propodeum polished. Middle and hind femora and tibiae moderately incrassate. Hind tibiae with a small rounded lobe at apex beneath over insertion of spurs. Apical teeth of seventh tergite slender, spine-like, rather widely separated. Pubescence ochraceous, becoming whitish on face, on under parts and on legs, dense on face, pleura, outer side of tibiae and basitarsi, and shorter and thinner on mesonotum. Area between upper ends of eyes almost nude. Hair on inner side of hind tarsi ferruginous. Hair of abdomen subdepressed, rather dense, longer and erect on tergite 1 except at apex. Hair of disk of tergites 2 to 7 black, that at apex of 1 to 6 denser, pale ochraceous or whitish, forming a rather narrow band, somewhat broadened on middle of 2. Hair of venter light, except on segments 3 to 5, where it is fuscous, but leaving a pale apical fringe. Apex of ventrite 6 with a short dense tuft of fuscous hair, emarginate in front, or almost divided into

two tufts, the segment normally retracted so that only the hairy part is exposed by a broad rounded emargination of apical margin of preceding segment. Length, 6–8 mm.; anterior wing, 4.8–5.7 mm.

Female.—Similar to male. Antennae a little shorter, the middle joints of flagellum broader than long. Clypeus dullish, finely roughened, finely, obscurely and closely punctured, with some large punctures interspersed. Mesopleura slightly more coarsely and more sparsely punctured than mesoscutum. Pubescence more ochraceous. Hair of posterior two-thirds of mesoscutum short, appressed, rather thin and well exposing the surface. Hair of scutellum similar, but longer, dense and erect on each side. Hair of abdomen appressed, except at base of tergite 1, that on basal half of tergites 2 to 5, apical margins of 5 and on sides of 6, black. Apical band on tergites 1 to 4 pale ochraceous or whitish, broad, sharply defined anteriorly and somewhat broadened in middle on 2 to 4. Tergite 5 with light hair except at base and apex. Hair of venter mainly black and thin, but denser on two penultimate segments. Hair of legs mainly pale ochraceous, that on inner side of middle and hind basitarsi black, of front basitarsi reddish. Scopa of hind legs and hair on under side of front femora moderately dense. Length, 6.5–8 mm.; anterior wing, 5–6 mm.

Holotype male and allotype, Blythe, California, at flowers of *Lippia nodiflora*, July 15, 1938 (Timberlake). Also the following paratypes: 3 males, 54 females, taken with the types, July 15 and 16; 1 male, Blythe, Nov. 2, 1936 (C. M. Dammers); 13 females, Blythe, on *Sphaeralcea emoryi*, Nov. 22, 1936 (Timberlake); 30 males, 9 females, Blythe, at nests in ground, July 15, 1938 (Dammers); 3 males, 15 females, Blythe, Aug. 13, 1938 (G. P. Engelhardt), in U. S. National Museum; 2 males, La Posta, San Diego County, June 18, 1938 (Dammers); 1 male, near Strathmore, Tulare County, on *Centromadia pungens*, Sept. 30, 1935 (Timberlake); 1 male, Temecula, Riverside County, on *Heliotropium curassavicum*, Sept. 9, 1938 (Timberlake); 4 males, 10 females, East Whittier, Los Angeles County, on *Frankenia grandifolia*, Aug. 4, 1929 (Timberlake) and 1 female, Indian school, Pyramid Lake, Nevada, July, 1911 (J. M. Aldrich).

The following variations have been noted: The abdominal bands of the female may be narrower and even, but this is apparently due to wear. The mandibles are often reddish at the middle. Some-

times the legs and abdomen are more or less, or entirely, ferruginous in females from the type locality and the venter is more or less suffused with this color even in darker specimens. Specimens from the cismontane area have the basal area of propodeum delicately tessellate but shiny, the tegulae paler, and no black hair at base of tergite 2 in the male.

***Diadasia tuberculifrons* n. sp.**

Allied to *D. sphaeralcearum* Ckll., but easily distinguished by the larger size and the two shining rounded bosses on the frons.

Male.—Black, the tarsi rufescent, except claw joint. Mandibles reddish at middle. Apical margin of tergites 1 to 6 moderately broadly whitish hyaline. Spurs pale ferruginous. Tegulae ferruginous, with a fuscous spot at base anteriorly. Wings somewhat dusky, the veins dark, slightly tinged with reddish. Stigma, except margins, and costal vein especially toward the base, ferruginous. Head much broader than long, the inner orbits strongly divergent above. Frons with a large rounded boss on each side of middle, just in front of ocelli. Third antennal joint shorter than 4 + 5. Middle joints of flagellum hardly longer than wide. Clypeus and face finely, closely punctured. Nude part of frons and vertex polished, almost impunctate, but the thinly hairy area behind ocelli minutely punctured. Mesoscutum and scutellum shining, minutely punctured, the punctures well separated. Mesopleura slightly more strongly punctured than scutum. Basal area of propodeum polished. Middle and hind femora and tibiae moderately incrassate. Hind tibiae without a projecting lobe at apex beneath. Apical teeth of tergite 7 small, almost as long as wide, with a round sinus between them. (In Arizona paratype these teeth are coarser and closer together.) Pubescence ochraceous, whiter beneath and on legs, dense on face and abdomen. Area between upper ends of eyes nude. Hair of mesonotum, except anteriorly, and of middle and hind legs, except tibiae and basitarsi, thin. Hair of tergites appressed, no denser at the apices, but the whitened integument imparts a band-like appearance. Hair of first tergite, except on apical margin, longer and erect, as to a less degree it is also on lateral margins of following segments. Hair of venter subappressed, becoming dense on apical part of ventrite 5. Ventrite 6 with short erect pile at apex and base, that at base becoming longer on each side to form a dense tuft. Hair on inner side of front

and hind basitarsi ferruginous. Length, 6.75–8 mm.; anterior wing, 6–6.5 mm.

Female.—Similar to the male. Flagellum slightly rufescent beneath, the middle joints much broader than long. Third antennal joint equalling 4 + 5. Clypeus with a few coarser punctures interspersed. Scutellum and anterior third of mesoscutum rather closely punctured. Pubescence brighter ochraceous, especially on mesonotum and abdomen. Hair of face below antennae subappressed, soon wearing away on clypeus. Hair of scutellum and of anterior third and margins of mesoscutum rather dense, and subappressed except on anterior part of scutum. Hair of tergites uniformly dense and appressed, except that it is longer and erect at base of tergite 1. Hair of venter thin, ferruginous on the disk of segments 4 and 5, which have a dense whitish apical fringe. Hair of tergite 6, at apex of tergite 5 and on inner side of basitarsi, ferruginous. Scopa of hind legs and hair on under side of front femora moderately dense. Length, 7–8.5 mm.; anterior wing, 5.9–6.8 mm.

Described from 2 males, 20 females (holotype male, allotype and paratypes) collected at flowers of *Sphaeralcea orcutti*, near Westmoreland, Imperial County, California, May 31, 1930; and 1 male (paratype), Tolleson, Arizona, on *Sphaeralcea*, May 29, 1933 (Timberlake).

Diadasia sphaeralcearum affinis n. subsp.

Male.—Like the type of *D. sphaeralcearum* Ckll., except that the basal area of propodeum is tessellate and dullish, instead of polished. The genitalia of the two subspecies agree closely. In *affinis* the dilation of the sagittae, ending basad on each side in a strong angular projection, is preceded by a small distinct semicircular notch which makes the angular projection more prominent. In *sphaeralcearum* this notch is broader and much shallower. Sixth ventrite in both subspecies covered with thin short pile, becoming denser at base and forming on each side a dense tuft. Apex of hind tibiae beneath without a lobe over base of spurs. Length, 6.5–7.5 mm.; anterior wing, 4.8–6 mm.

Female.—Typical *sphaeralcearum* not at hand for comparison, but presumably the main difference will lie in the dull basal area of propodeum in *affinis*. *Affinis* closely resembles *D. tuberculifrons* Timb., but is smaller, less robust, lacks the two shining bosses on the frons and has the puncturation of head and thorax fine rather than minute. Punctures on pos-

terior middle of mesoscutum and on disk of scutellum rather sparse, those on anterior half of scutum stronger and closer. Length, 7–8 mm.; anterior wing, 5.5–6.3 mm.

Holotype male and allotype collected near Westmoreland, Imperial County, California, at flowers of *Sphaeralcea orcutti*, May 31, 1930 (Timberlake). Also the following paratypes: 3 males, 4 females, taken with the types; 4 males, 4 females, Tolleson, Arizona, on *Sphaeralcea*, May 28–29, 1933 (Timberlake); 1 male, 13 females, Blythe, California, Oct. 16, 1934 (C. M. Dammers); 2 males, 42 females, Blythe, Nov. 2, 1936, mostly at nests in ground (Dammers); 3 males, 6 females, Blythe, on *Sphaeralcea emoryi* and one at nest in ground, Nov. 22, 1936 (Timberlake); and 4 males, 9 females, Blythe, on *Sphaeralcea emoryi*, July 15–16, 1938 (Timberlake).

***Diadasia angusticeps* n. sp.**

By having the head as long as wide and the inner orbits hardly divergent above, this species shows similarity to *D. bituberculata* (Cress.), but is otherwise quite different. By the male genitalia it shows relationship to *D. tuberculifrons* Timb., *D. sphaeralcearum* Ckll., *D. vallicola* Timb. and *D. afflicta* (Cress.), but differs in having black hair on the disks of tergites 2 to 6 as well as in the shape of the head. The head appears to be slightly longer than wide, but measurements show that the length and width are about equal.

Male.—Black, the spurs and tarsi ferruginous. Flagellum somewhat brownish beneath. Tegulae dark castaneous. Wings dusky hyaline, the nervures fuscous, with a reddish tinge. Head as long as wide, the inner orbits very feebly divergent above. Joint 3 of antennae nearly equalling 4 + 5. Middle joints of flagellum slightly longer than wide. Head and thorax finely, closely punctured. Punctures of vertex somewhat finer, with a small impunctate space on each side, just exterior to lateral ocelli. Basal area of propodeum polished. Middle and hind femora and tibiae moderately incrassate. Hind tibiae not lobate beneath at apex, and gradually narrowing toward base from the thickest part half-way between middle and apex. Spurs weakly curved at apex. Teeth at apex of tergite 7 small, blunt, rather close together. Pubescence pale ochraceous, paler beneath, moderately long and dense on head and thorax, but area between upper ends

of eyes nearly nude. Hair on outer side of tibiae dense and subappressed. Hair of abdomen depressed, except on tergite 1, black on disk of tergites 2 to 6. Apical band on tergites 1 to 6 dense, white, moderately narrow and even, becoming slightly wider on 5 and 6. Hair of tergite 7 brown, paler at apex. Hair of venter mainly whitish. Ventricle 6 with short erect brown pile, becoming longer but not denser on each side near base. Length, 9 mm.; anterior wing, 6.8–6.9 mm.

Female.—Similar to male. Antennae shorter, the middle joints of flagellum wider than long. Clypeus considerably more coarsely, subrugosely punctured. Pubescence more ochraceous on frons and mesonotum. Hair on disk of tergites 2 to 4 and at base of 5, black or brown-black, thinner than in male, the surface well exposed and shining. Apical band on 1 to 4, white, moderately narrow, somewhat widened in middle, especially on 4. Apical band on tergite 5 broad, covering about apical half, whitish at sides, otherwise ferruginous, sometimes overlaid with pale ochraceous hairs across the middle. Hair on tergite 6 and venter ferruginous, that on inner side of tarsi a little darker. Scopa pale ochraceous, more or less tinged with brown, especially on basitarsi, rather thin, some of the hairs, including most of those on basitarsi, stiffer and not plumose. Front femora with thin long hair beneath. Length, 8–10 mm.; anterior wing, 6.8–7 mm.

Holotype male and allotype, California Hot Springs, Tulare County, California (E. R. Leach); 1 male, 10 females (paratypes) collected with the types; 2 males, 5 females (paratypes), Shasta County (E. R. Leach); and 1 female (paratype), at flowers of *Calochortus*, near Pinehurst, Sierra Nevada Mountains, 3500–4000 feet, Fresno County, June 12, 1925 (Timberlake).

(*To be continued.*)

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