

NEW SPECIES OF APHILANTHOPS FROM WESTERN NORTH AMERICA
(HYMENOPTERA, SPHECIDAE)¹

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ABSTRACT

Distinguishing characters are given for the three subgenera, *Aphilanthops*, *Clypeadon*, and *Listropygia*. New species are: *A. (L.) bechteli*, California; *A. (C.) haigi*, Arizona, New Mexico, and Texas; *A. (C.) dreisbachi*,

Oklahoma, Texas, and Mexico; *A. (C.) sculleni*, Arizona, Colorado, Texas, Chihuahua; and *A. (C.) californica*, California.

The North American Philanthine genus, *Aphilanthops* Patton, was last revised by Dunning (1898). It contains about a dozen species in three subgenera, *Aphilanthops* s.s., *Clypeadon* Patton, and *Listropygia* Bohart, described below as new. Males of *Aphilanthops* s.s. have sternites which are nearly flat and dense hair toward the apex of the fourth sternite. The female has the clypeus toothed and the pygidium unspecialized. *Clypeadon* males have nearly flat sternites and little hair on the fourth. The female has the clypeal apex entire, and the pygidium is an enlarged, scoop-shaped structure opposed by the greatly prolonged and divided sixth sternite, each lobe being entire. *Listropygia* males have sternites III-VII concave and densely hairy. The female has a scoop-shaped and knobbed pygidium opposed by the distally notched lobes of the sixth sternite.

Members of all three subgenera use ants in provisioning their nests, winged forms of *Formica* having been recorded for *Aphilanthops*, and workers of *Pogonomyrmex* for *Clypeadon* and *Listropygia*.

Examination of several major collections has resulted in the finding of several new species. Holotypes of these will be placed in the California Academy of Sciences, and paratypes will be placed as far as possible in the following collections: U. S. National Museum; Oregon State College, University of California at Berkeley (California Insect Survey), Davis, and Riverside (Citrus Experiment Station); Cornell University; American Museum of Natural History; Museum of Comparative Zoology at Harvard; Los Angeles County Museum; University of Kansas; University of Arizona, and the private collections of R. R. Dreisbach and G. R. Ferguson.

Keys, figures, and notes on synonymy and distribution will be given in a later paper.

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Listropygia Bohart, new subgenus

(Name derived from *Listron*, or shovel, and *pyge*, or pygidium.)

Type species: *Aphilanthops bechteli*, Bohart.

Male.—Antenna capitate, sternites III–VII concave and densely hairy, sternite VIII strongly convex and slightly ridged longitudinally along middle.

Female.—Clypeus with an entire apical rim, tergite VI scoop-shaped with a prominent medio-apical knob, sternite VI divided by a median slit into lateral lobes each of which has a sharp distal notch.

Aphilanthops (Listropygia) bechteli, new species

Male.—Body length 8.0 mm., length of forewing 6.0 mm. Black, red and white. Red are: mandible tip, femora apically, tibiae mostly, tarsi entirely, tergites I–IV except for white spots, sternite II and most of III–IV. White are: narrow, broken, transverse band across pronotal collar, pronotal lobe partly, tegula, spot on post-tegula, costa, band across postscutellum, knee spots, four spots subapically across tergites II–V, those on V very small. Flagellum and wing veins brownish. Wings clear, median cell of forewing nearly asetose, other cells almost so. Puncturation irregular, punctures fairly close on vertex, separated by polished areas on mesonotum and scutellum, close on propodeum and pleuron, moderate in size on tergites and mostly spaced a little more than a puncture diameter apart. Dense, long, coarse, silvery pubescence on face (a thick beard), facial area between eyes and including ocelli longer than broad, least interocular distance narrower than eye height, and about twice length of first flagellar segment, clypeus ending in two blunt teeth, first flagellar segment six times as long as broad, last four antennal segments forming a capitate club, ocellar triangle separated by about one-third its breadth from compound eye; propodeum rough above but not longitudinally grooved, fore tarsal comb well-developed and whitish; sternites III–VII concave, VIII convex, greatly thickened distally, and with a median longitudinal carina.

Female.—Body length 8.5–9.5 mm., length of forewing 6.7–7.5 mm. About as in male except as follows: ground color of tergite V, base of VI, and sternites II–VI red. Basal white spot on mandible, four white spots on tergite I, those on II–VI more or less connected to form irregular bands, V with a median trapezoidal spot. Facial pubescence dense but not forming a beard, and absent from convex, polished center of clypeus. Setulae of wing membrane a little better developed in all cells than in male, a scattered few toward apex of median cell of forewing. Antenna clubbed, but less obviously so than in male; ocellar triangle about one-half its breadth from compound eye; fore tarsal comb light brown. Pygidium mostly dark brown, rather sharply rounded laterally,

broadly depressed discally, median lobe strongly produced into a knob; lobe of sternite VI with an apical notch.

Holotype male (Calif. Acad. Sci.), Borrego Valley, San Diego Co., California, sand dunes, April 18, 1957 (R. M. Bohart). Paratypes (all from California), 2 male topotypes, April 27–30, 1954 (M. Wasbauer); 22 female topotypes, April 18–20, 1957 (R. C. Bechtel, R. M. Bohart, R. W. Bushing, H. R. Moffitt); 1 female, 5 miles east of Edom, Riverside Co., April 10, 1937 (P. H. Timberlake); 1 male, 33 miles east of Desert Center, Riverside Co., April 27, 1955 (A. Menke, L. Stange); 34 males, 20 females, Thousand Palms, Riverside Co., April 7–23, 1955 (W. R. Mason, J. D. Martin, W. R. Richards); 1 female, same locality, April 10, 1937 (P. H. Timberlake); 1 female, Hopkins Well, Riverside Co., April 29, 1952 (J. G. Rozen); 1 pair, Fish Creek Mts., Imperial Co., April 20, 1955 (W. R. Richards).

The clubbed male antennae, distinctive markings, narrowed frons, knobbed female pygidium, notched lobes of the sixth sternite in the female, and many other features make this a remarkable species. Several paratopotype females were collected with large red *Pogonomyrmex* workers as prey.

The species is named for R. C. Bechtel in recognition of his interest in the study of western aculeate Hymenoptera.

Aphilanthops (Clypeadon) haigi, new species

Male.—Body length 11.0 mm., length of forewing 8.0 mm. Black, marked with ivory yellow as follows: transverse subapical clypeal spot (broken medially in some paratypes), extending across middle one-half of clypeal breadth; pronotal collar, spot on pronotal lobe and on tegula and posttegula, costa basally, upper mesopleural spot, postscutellar band, femora distally, outer basal two-thirds of fore and mid tibiae, one-half of hind tibia, broad subapical bands on tergites I–V, those on I–II constricted medially, that on VI constricted submedially, four minute spots across sternite III. Puncturation moderately coarse and close, a large polished spot behind eye above, a small one beside lateral ocellus, a large somewhat longitudinal raised one behind ocellar triangle; mesonotum irregularly punctured, some punctures close and others separated by two or more diameters; tergites closely punctate. Facial pubescence dense, coarse, silvery, appressed; a tuft of brownish, spatulate setae from clypeus laterally; head posteriorly and beneath with long outstanding silvery hair; pleura, propodeum, femora, and thoracic sterna with somewhat sparse, long, silvery hair; that on remainder of body mostly shorter; sternites V–VII with erect fulvous hair. Wings lightly stained in apical cell, median cell bare toward base, with scattered long setulae otherwise. Head a little broader than long, facial area between eyes and including

ocelli nearly quadrate, least interocular distance fully three times length of first flagellar segment; clypeus ending in three small, somewhat blunt teeth; antenna not clubbed, first flagellar segment about four times as long as broad and a little longer than two following combined; ocellar triangle separated by nearly its breadth from compound eye; propodeum above with a well-marked, cross-striate groove; fore tarsal comb moderate, yellowish.

Female.—About as in male except as follows: Body length 15.0 mm., length of forewing 10.0 mm. Clypeus with a transverse ivory mark all across, pale spot on scape, outer surfaces of tibiae mostly yellow, brownish distally, first three tergites with transverse lateral spots, pygidium and corresponding sternites reddish brown, other sternites dark. No fulvous hair on sternites; fore tarsal comb with broad brown setae; clypeus nearly flat, apical lip rounded out; least interocular distance about 1.3 times eye height; vertical slope of tergite I polished; pygidium somewhat angularly rounded laterally, deflected upward and concave without lobe at median apex.

Holotype male (Calif. Acad. Sci.), Sonoita, Arizona, Sept. 6, 1957 (T. R. Haig). Paratypes, 44 males, 31 females from Arizona as follows: Sonoita, Painted Desert area, Patagonia, Mescal, Greaterville, Douglas area, Willcox, Huachuca Mts., Baboquivari Mts., Santa Rita Mts., Atacosa Mts., Apache, Duquesne, Phoenix, Pearce area, Nogales area, St. David, Cameron, and Canelo. This material was collected during the months of July to October by T. R. Haig, H. A. Scullen, R. H. Beamer et al., P. A. Readio, F. G. Werner, G. D. Butler, A. D. Telford, J. D. Hall, M. Cazier, C. D. MacNeill, O. C. Poling, E. E. Gilbert, R. Schrammel, E. E. Kenaga, R. R. Dreisbach, P. H. Timberlake, and R. M. Bohart. Metatypes are 3 males and 2 females from New Mexico as follows: Madrid (V. E. Romney), Santa Fe (G. D. Butler), and Rio Puerco (A. T. McClay); and 1 female from El Paso, Texas (R. W. Strandtmann).

This is the only known species of the subgenus in which the female pygidium is impressed rather than lobate at its median apex. In the male the black mandible and submedian or median spots on the clypeus are unusual. In both sexes the well developed vertex hump provides an additional distinguishing character from its close ally, *dreisbachi*. The species is named for T. R. Haig, an energetic collector of Hymenoptera.

***Aphilanthops (Clypeadon) dreisbachi*, new species**

Agreeing with description of *haigi* except as follows:

Male.—Mandible, scape and legs extensively red, clypeus all black. Additional ivory-yellow spots on propleura, prescutellar fold of mesonotum, lateral angle of propodeum, sternite II; irregular bands on sternites III–IV. Leg markings are: ivory knee spots, a separate subapical

posterior spot on fore and mid tibia. Tergites I–V mostly ivory, VI with three small spots. Median raised area behind ocelli weakly developed, covered with large scattered punctures.

Female.—Clypeus all black, scape red; markings otherwise about as in male except for absence of subapical marks on femora and division of bands on tergites I–III into large, transverse pairs of spots. Sternites I–V all dark; pygidium dark red, broadly and somewhat angularly rounded laterally, median lobe present but faint.

Holotype male (Calif. Acad. Sci.), Davis Mts., Jeff Davis Co., Texas, June 27, 1942 (H. A. Scullen). Paratypes, 6 males, 5 females from Texas as follows: Davis Mts. and Alpine, June and July (H. A. Scullen); 41 males, 43 females from Durango, Mexico, June to August as follows: near Durango (H. A. Scullen), San Juan del Rio (H. E. Evans, on *Baccharis*), Nombre de Dios (H. E. Evans), 8 miles south of Canutillo (H. E. Evans), and Yerbanis (R. Schrammel); 15 males, 13 females from Chihuahua, Mexico, August to October as follows: Chihuahua (H. A. Scullen, R. F. Smith), 82 miles south of Juarez (H. A. Scullen), Jiminez (H. E. Evans), Hidalgo d. Parral (H. A. Scullen), and Camargo (H. A. Scullen). I have also seen material from Canyon, Colorado, Beaver Co., Oklahoma and the following Mexican States: Zacatecas, Jalisco, Nayarit, Queretaro, and San Luis Potosi.

The red legs, undeveloped vertex hump, weakly lobed female pygidium, and all black clypeus distinguish the species from *haigi*. In general body markings it is close to *taurula* Cockerell, but the latter has a lateral clypeal spot and a pair of discal horns on the female clypeus. The species is named for R. R. Dreisbach who first called my attention to it and whose prodigious collecting in this country and Mexico has greatly furthered studies in aculeate Hymenoptera.

***Aphilanthops (Clypeadon) sculleni*, new species**

Male.—Body length 8.5 mm., length of forewing 6 mm. Black, marked with ivory-yellow as follows: mandible basally, clypeus except tentorial spot, scape in front, pronotal collar and lobe, tegula mostly, posttegula partly, spots on scutellum and prescutellar fold, postscutellum, small propodeal spots, upper mesopleural spot, fore coxa mostly; other coxae spotted, femora distally, tibiae externally, transverse spots on tergites I–IV, band on V, lateral spots on sternites II–III. Reddish brown are: mandible distally, flagellum beneath, spots on femora and tibiae, tarsi, wing veins partly. Puncturation mostly moderate and close, small shiny spots present around tentorial pits, between hind ocelli, medianly behind them, and a large smooth area adjacent to and behind eye above. Mesonotum closely and rather evenly punctate, tergites with punctures moderate and well separated. Facial pubescence dense, coarse, silvery, appressed, a tuft of thin and pale, spatulate setae laterally

from clypeus. Pleura, propodeum, femora, and thoracic sterna with silvery hair (very sparse on femora); sternites V-VII with tufts of erect whitish hair, that on V sharply divided medially. Wings lightly stained in apical cell, median cell rather evenly and moderately setose except for asetose base. Head about as broad as long, facial area between eyes and including ocelli a little longer than broad, least interocular distance about 2.7 times length of first flagellar segment, clypeus ending in three small teeth, first flagellar segment about three times as long as broad, a little longer than two following combined, ocellar triangle separated by about three-fourths its breadth from compound eye; propodeum above with an indistinctly cross-striated groove, fore tarsal comb dull silvery, well developed.

Female.—Length of body 9.0 mm., length of forewing 7.0 mm. Red, marked with ivory-white as follows: upper mesopleural spot, dull spots at base of wing, postscutellar band, apical line on trochanters, outer spots on basal four-fifths of mid and hind tibiae, sublateral ovate spots on tergites I-V. Puncturation moderate and mostly close on head and thorax, very sparse on polished abdomen. Pubescence and wings about as in male. Ocellar triangle a little more than its breadth from compound eye; vertex a little shiny but not tuberculate, area behind eyes above sparsely punctate but not so smooth as in male; clypeus nearly flat; least interocular distance four times length of first flagellar segment; pygidium smoothly rounded laterally, with a moderately developed median lobe.

Holotype male (Calif. Acad. Sci.), Willcox, Arizona, July 9, 1955, on *Wislizenia* (G. D. Butler, F. G. Werner). Paratypes, 17 males, 3 females, same data as type; 1 male topotype, July 31, 1957 (G. D. Butler), 8 male topotypes, August 3, 1955 (R. R. Dreisbach), 2 males, 7 miles S.E. of Pearce, Arizona, July 30, 1957 (G. D. Butler); 1 female, Gila Valley, Arizona, July 29, 1933 (Parker); 1 male, Douglas, Arizona, August 8, 1955 (R. R. Dreisbach), 1 female, St. Charles River, Colorado, July 27, 1948 (C. H. and D. Martin); 3 females, 10-10 miles east of El Paso, Texas, July 13, 1942 (H. A. Scullen); 1 female, Fabens, Texas, October 14, 1943 (R. W. Strandtmann); 1 female, Samalayuca, Chihuahua, Mexico, June 24, 1947 (G. M. Bradt).

The nearly impunctured abdomen and the completely red ground color of the female are outstanding features in the genus. The male is superficially like *laticinctus* (except for the face) and a polished area adjacent to the upper inner eye corner. The species is named for H. A. Scullen who has contributed so much to our knowledge of the related tribe Cercerini, and who has kindly made available to me his extensive collection of *Aphilanthops*.

***Aphilanthops (Clypeadon) californica*, new species**

Male.—Description as in *sculleni* except as

follows: markings distinctly yellow, clypeus dark basally, scutellum and coxae dark (not in all paratypes), tibiae mostly yellow, tergites I-V banded, VI with median spot, sternites II-IV with divided bands. Tentorial pits without obvious shiny spots; vertex without special smooth areas, this and mesonotum closely and moderately punctured, tergites with finer punctures which are well separated on IV-VI, surface subshining. Pubescence darkening on last few sternites, not very thick nor sharply divided on V. Wings light-brown stained, especially in apical cell. Least interocular distance 3.2 times length of first flagellar segment which is about as long as two following segments combined.

Female.—About as in male except as follows: propodeal spot large, bands on tergites I and II sometimes narrowly divided; femora sometimes brownish or reddish toward base. Pubescence of face with a yellowish tint; no fulvous hair on sternites; fore tarsal comb with broad brown setae; clypeus nearly flat, apical lip rounded out, pygidium broadly rounded laterally, medioapically with a small, obtusely rounded lobe.

Holotype male (Calif. Acad. Sci.), Davis, Yolo Co., California, Sept. 9, 1955 (R. C. Bechtel). Paratypes (all from California), 35 males, 28 females, May to October, Davis, Sacramento, Antioch, Santa Cruz Mts. (Santa Cruz Co.), Jamesburg, San Lucas, Fresno, Black Lake Canyon (San Luis Obispo Co.), Lompoc, Saticoy, Kern County Park (Kern Co.), Shafter, Claremont, Colton, Riverside, Huntington Park, East Highlands (San Bernardino Co.), Santa Ana Wash (San Bernardino Co.), Castaic, and Jacumba. Collectors of this material were R. C. Bechtel, A. A. Grigarick, E. I. Schlinger, A. D. Telford, R. K. Washino, L. W. Isaak, R. M. Bohart, L. W. Quate, D. W. Craik, J. E. Gillaspay, J. Russell, J. C. Hall, J. C. Bradley, A. Bauman, P. H. Timberlake, G. R. Pilate, G. A. Kaloostian, C. F. Baker, and H. H. Keifer. Metatypes are 16 males and 8 females from Tule Lake and MacDoel, Siskiyou Co., California, August, on *Chrysothamnus* (G. R. Ferguson, J. Schuh). These specimens are darker than the type series and some of the females have extensively red legs. Two of the seven females have restricted red markings on the two basal abdominal tergites.

In most respects this species is similar to *laticinctus* Cresson. The principal differences are the finer puncturation of the tergites, the obviously stained wings, and usually the absence of red on the abdomen of the female. Possibly, *californica* may prove to be a subspecies of *laticinctus* but in the Riverside area of California the two forms occur together without apparent intergrades.

REFERENCE CITED

- Dunning, S. N. 1898. Monograph of the species of *Aphilanthops* inhabiting boreal America. Trans. Amer. Ent. Soc. 25: 19-26.