SYNONYMICAL NOTES AND NEW SPECIES OF PSEUDOMETHOCA AND DASYMUTILLA (MUTILLIDAE: HYMENOPTERA)[1]

CLARENCE E. MICKEL,
University of Minnesota,
Saint Paul, Minn.

A great number of specimens of Mutillidae come to me every year from interested collectors in the United States. The new species described herein and the synonymical notes offered here are the result of studying large collections made by Professor P. W. Fattig, Emory University, Georgia, Mr. Stanley Mulaik, Edinburg, Texas, Commander C. H. Dammers, Riverside, California, and Mr. F. H. Parker, Globe, Arizona.

Genus **Pseudomethoca** Ashmead

Pseudomethoca fattigi n. sp.

Female.—Ferruginous, except the antennae, femora distally, tibiae, tarsi, broad, sinuate margin of second tergite, and third and fourth tergites, all blackish; head and thorax above clothed with moderately thick, short, recumbent, glittering, ferruginous golden pubescence; distal margin of first and second tergites with a fringe of pale, glittering hairs on the median third; third and fourth tergites clothed throughout with pale, glittering pubescence; fifth tergite with the median third pale pubescent, the lateral thirds golden pubescent; last tergite clothed laterally and anteriorly with golden pubescence; pygidial area weakly defined laterally, the pygidium glabrous, impunctate; head quadrate, slightly broader than the thorax, not toothed nor spined beneath; humeral angles prominent, strongly angulate. Length, 8.5 mm.

Head ferruginous, quadrate, the front and vertex clothed with moderately thick, short, recumbent, glittering, ferruginous, golden pubescence and sparse, erect, ferruginous hairs, the remainder of the head clothed with pale, glittering pubescence; mandibles edentate at the tip and with a strong, blunt tooth within near the tip; clypeus with a median, depressed area at the anterior margin, the area glabrous, impunctate, its posterior margin broadly arcuate; distance between the antennal tubercles equal to the transverse diameter of one of them; scape punctate and clothed with sparse, pale, glittering hairs; first segment of flagellum about one and one-fourth times as long as the second; antennal scrobes strongly carinate above; front and vertex with

[1]Paper No. 1566 of the Scientific Journal Series of the Minnesota Agricultural Experiment Station.

small, dense punctures throughout, the genae with the punctures larger and more or less separated; posterior margin of genae defined by a strong carina extending from the postero-lateral angles to the anterior portion of the gular carina with which it unites forming a slight tubercle; head without teeth or spines beneath or at the postero-lateral angles, the latter rounded; distance between the posterior margin of the eyes and the postero-lateral angles equal to the greatest diameter of the eyes; relative widths of head and thorax, 4.4–4.9.

Thorax entirely ferruginous, the dorsum clothed with thin, short, recumbent, glittering, ferruginous golden pubescence and sparse, erect, dark ferruginous hairs, the pleural areas only slightly pale pubescent; humeral angles prominent, strongly angulate, even slightly dentate; lateral margins of dorsum and propodeum irregularly serrate; thorax broadest slightly behind the anterior spiracles, strongly constricted at the propodeal spiracles, the relative widths at humeral angles, greatest width, propodeal spiracles and posterior face of propodeum, 3.7–3.9–2.8–3.2; dorsum of thorax with moderate, dense punctures merging into the reticulate, posterior face of propodeum; scutellar scale entirely absent; propleurae with small, close punctures and sparse, pale pubescence; mesopleura micropunctate and with pale micropubescence; a short, vertical carina on the mesopleurae extending upward from the anterior margin of the coxal cavity; metapleurae and sides of propodeum mostly glabrous, impunctate, except the ventral part of the metapleurae pale micropubescent.

Abdomen ferruginous, except a broad, sinuate band at the distal margin of the second tergite, and the third and fourth tergites entirely, black; first tergite finely punctate, the punctures sparse on most of the tergite, becoming dense towards the posterior margin, the tergite clothed with sparse, appressed, ferruginous golden pubescence and scattered, erect hairs, the latter pale laterally, dark medially, and the median third of the distal fringe of the tergite of pale, glittering hairs; second tergite with small punctures, distinct anteriorly, posteriorly and laterally, dense on the disk; second tergite clothed with sparse, recumbent, black pubescence, except towards the lateral margins and the median third of the distal fringe pale and glittering, and a pair of large, somewhat transverse spots of sparse, ferruginous golden pubescence immediately anterior to the sinuate, black band; tergites three to five finely punctate, clothed with pale, glittering pubescence, except the lateral thirds of the fifth with ferruginous golden pubescence; last tergite laterally and anteriorly with ferruginous golden pubescence; pygidial area glabrous, impunctate, weakly defined laterally by carinae; all the sternites clothed with pale, glittering pubescence; first sternite without a median, longitudinal carina; second sternite with moderate, distinct punctures, the latter sparse anteriorly, becoming close on the posterior half; sternites three to five with small, close punctures at the posterior margin; last sternite with small punctures.

Legs ferruginous, except the dorsal and distal areas of the femora, the dorsal areas of the tibiae, and the tarsi entirely, black, clothed with sparse, pale pubescence; calcaria pale.

Holotype. Female, Atlanta, Georgia, August 11, 1934 (P. W. Fattig), in University of Minnesota collection.

Paratype. Female, Yonah Mt., Georgia, June 29, 1935 (P. W. Fattig), in P. W. Fattig collection.

The large, quadrate head, constricted thorax, and large, sessile, first abdominal segment associates this species with *frigida* although the head is not dentate nor spinose beneath and the postero-lateral angles of the head are not distinctly carinate; the brilliant, ferruginous golden pubsecence of the head and thorax, the glabrous pygidium, and the form of the thorax will serve to distinguish it at once from all other species of this genus occurring in North America north of Mexico. The paratype is considerably smaller than the holotype, length 6.5 mm,, and has the femora and tibiae more extensively black; in other respects it is identical with the holotype.

Pseudomethoca quadrinotata n. sp.

Female.—Entirely ferruginous, except the second tergite with a pair of small, very pale yellow spots at the anterior margin separated by a distance about twice their transverse diameter, and a pair of moderately large, whitish spots on the posterior half separated by slightly less than their transverse diameter; head quadrate, slightly broader than the thorax, the front and vertex clothed with thick, appressed, golden pubescence, the remainder of the head with appressed, pale pubescence; mandibles edentate at the tip, a small tooth within near the tip, and a large, blunt tooth within two-thirds the distance from the base to the tip; antennal tubercles widely separated; first segment of flagellum long, equal in length to segments two to four united; antennal scrobes carinate above; front, vertex and genae with small, dense, distinct punctures; genae defined posteriorly by a delicate carina; gular margin sharply angulate anteriorly, the angle elevated into a glabrous tubercle; distance between the posterior margin of the eyes and the postero-lateral angles equal to one and three-tenths times their greatest diameter; thorax subpyriform, distinctly broader than long, widest anteriorly, and constricted anterior to the propodeal spiracles; dorsum of thorax with moderate, dense, confluent punctures and clothed with sparse, black pubescence; dorsum and posterior face of propodeum punctato-reticulate, clothed with sparse, pale pubescence; scutellar scale entirely absent; pleural areas glabrous, impunctate, except the propleural area densely punctate, and all inconspicuously clothed with pale micropubescence, except the sides of propodeum almost entirely bare; lateral margins of first tergite with a large, blunt tubercle posteriorly; first tergite clothed with sparse, pale pubescence, the posterior marginal band of pale pubescence interrupted medially with black; second tergite with small, close to dense punctures, with four pale, integumental spots as described above and clothed with sparse, black pubescence, except the integumental spots with pale pubescence, and the lateral fourths of tergite

with pale pubescence, the pale pubescence of the lateral fourths and the posterior spots confluent; posterior, marginal, pubescent band of second tergite black, except the lateral sixths pale; tergites three to five finely punctured, clothed with sparse, appressed, pale pubescence and scattered, erect, black hairs; pygidial area not margined laterally, obscurely granulate, the tergite clothed for the most part with sparse, black pubescence; all the sternites with very sparse, pale pubescence, the second with moderate, separated punctures; legs including the spines entirely ferruginous, sparsely clothed with pale hairs; calcaria pale. Length, 8 mm.

Holotype.—Female, Tucson, Arizona, July 12, 1937 (D. J. and J. N. Knull), in Ohio State University collection.

Similar to *fattigi* in the pygidial area not being margined laterally, but differs greatly from *fattigi* in the long, first flagellar segment, the four pale, integumental maculations of the second tergite, the conspicuous tubercle posteriorly on the lateral margins of the first tergite, the slender mandibles with a conspicuous, inner tooth beyond the middle, and the obscurely granulate pygidium. These characters with the conspicuous yellow golden pubescence of the head greatly facilitate the recognition of *quadrinotata*.

Pseudomethoca praeclara (Blake)

1886. *Sphaerophthalma praeclara* Blake, Trans. Amer. Ent. Soc., vol. 13, p. 252. female.
1899. *Mutilla aegaeon* Fox, Trans. Amer. Ent. Soc., vol. 25, p. 229, male. (New Synonymy.)
1915. *Nomiaephagus acuum* Cockerell, Entomologist, vol. 48, p. 250, female.
1924. *Pseudomethoca praeclara* Mickel, Proc. U. S. Nat. Mus., vol. 64, Art. 15, p. 20, female.
1924. *Pseudomethoca aegaeon* Mickel, Proc. U. S. Nat. Mus., vol. 64, Art. 15, p. 45, male.
1935. *Pseudomethoca praeclara* Mickel, Trans. Amer. Ent. Soc., vol. 61, p. 394, female.

Commander C. H. Dammers, Riverside, California, sent me three males of *aegaeon* Fox which he states came to trapped females of *praeclara* Blake at San Felipe, San Diego, California. I think there can be no doubt that *aegaeon* is the male sex of *praeclara* Blake and therefore cite the above synonymy.

Pseudomethoca mulaiki n. sp.

Female.—Entirely ferruginous, except the flagellum blackish and the second tergite with a pair of tiny, obscure, yellow spots at the extreme anterior margin separated by approximately half the width of the tergite, and a pair of posterior, oblique, moderately large, ovate, pale yellow spots separated by a distance equal to their transverse

diameter; mandibles edentate at the tip and without distinct teeth within; antennal tubercles separated by a distance approximately equal to their own diameter; antennal scrobes distinctly carinate above; distance between the posterior margin of the eyes and the postero-lateral angles of the head equal to the greatest diameter of the eyes; genae defined posteriorly by a distinct, sharp carina; genae not at all dentate; front, vertex and genae with moderate, dense punctures; front and vertex clothed with sparse, very dark ferruginous, almost black pubescence; genae with sparse, pale pubescence; head slightly wider than the thorax, the relative widths, 3.9–3.6; thorax as long as broad, widest at the anterior spiracles and constricted at the propodeal spiracles; humeral angles distinct but not prominent; lateral margins of mesonotal area each with a pair of short, distinct teeth; dorsum of thorax with moderately large, dense punctures becoming reticulato-punctate on the dorsum of propodeum and anterior portion of posterior face of propodeum, the remainder of the posterior face with sparse, small punctures; propleural area with moderate, distinct punctures, and with the anterior margin defined by a distinct carina; mesopleurae with a carinate ridge extending from the anterior, mesonotal tooth to a point in front of the middle coxae, the mesopleurae, metapleurae and sides of propodeum all glabrous, and the latter with a few, small, scattered punctures posteriorly; lateral margins of posterior face of propodeum denticulate; scutellar scale entirely absent; dorsum of thorax clothed with sparse, blackish pubescence; the posterior face of propodeum with sparse, long, pale hairs, and the pleural areas with very fine, short, pale pubescence; abdomen clothed with pale pubescence, and each tergite with a pale, posterior marginal fringe, except as follows: pale, posterior marginal band of first tergite interrupted medially with black, the black portion occupying the median third; second tergite clothed with sparse, black pubescence and with a black, posterior marginal fringe, except the lateral fourths of the fringe pale; lateral fourths of second tergite with sparse, pale pubescence, a transverse, arcuate band of sparse, pale pubescence posteriorly, connecting and including the posterior, pale yellow spots; the tiny, anterior, yellow spots with sparse, pale pubescence; second tergite with moderately large punctures, distinct at the sides, close posteriorly, and very dense and deep anteriorly; pygidial area distinct, finely, transversely rugose; second sternite with moderate, close punctures; legs clothed with sparse, pale pubescence; calcaria pale. Length, 10 mm.

Holotype. Female, N. E. Cameron County, Texas, off Bird Island, July 19, 1934 (S. Mulaik), in University of Minnesota collection.

Related to *oceola* (Blake), but easily recognized and distinguished from other species in the genus occurring in North America north of Mexico by the pair of posterior, pale yellow spots on the second tergite which are connected and included in a transverse, arcuate band of sparse, pale pubescence.

Genus **Dasymutilla** Ashmead

Group **Quadriguttata**

Dasymutilla mutata (Blake)

1871. *Mutilla mutata* Blake, Trans. Amer. Ent. Soc., vol. 3, p. 247, female.
1879. *Mutilla mutata* Blake, Trans. Amer. Ent. Soc., vol. 7, p. 245, female.
1886. *Sphaerophthalma mutata* Blake, Trans. Amer. Ent. Soc., vol. 13, p. 241, female.
1897. *Mutilla mutata* Dalle Torre, Cat. Hymen., vol. 8, p. 65, female.
1899. *Mutilla cypris* Fox, Trans. Amer. Ent. Soc., vol. 25, p. 240, female (in part).
1912. *Dasymutilla allardi* Rohwer, Proc. U. S. Nat. Mus., vol. 41, p. 463, female. (New synonymy.)
1916. *Dasymutilla* (*Dasymutilla*) *cypris* Bradley, Trans. Amer. Ent. Soc., vol. 42, p. 326 (in part).
1921. *Dasymutilla allardi* Banks, Ann. Ent. Soc. Amer., vol. 14, p. 25, female.
1922. *Dasymutilla allardi* Rau, Trans. Acad. Sci., St. Louis, vol. 24, p. 6, female.
1928. *Dasymutilla cypris* Mickel, Bull. 143, U. S. Nat. Mus., p. 165, female (in part).
1928. *Dasymutilla allardi* Mickel, Bull. 143, U. S. Nat. Mus., p. 166, female.

Type. Female, Maryland, in collection of American Entomological Society, Philadelphia. The type of *allardi* is in the United States National Museum.

The type of *mutata* Blake has recently been re-examined and found to be identical with the species known as *allardi* Rohwer, and not a synonym of *cypris* Blake as stated by Fox and myself. Since the name *mutata* has priority it must be re-established as the correct name for the species heretofore known as *allardi* Rohwer.

Dasymutilla mediatoria n. sp.

Female.—Ferruginous, the antennae, legs and posterior abdominal segments piceous to black; postero-lateral angles of head tuberculate; posterior margin of head distinctly convex; second tergite with a pair of anterior and a pair of posterior, pale ferruginous spots; fringe at posterior margin of first tergite mostly black, but pale laterally; fringe at posterior margin of second and third tergites mostly black, but each with a pale pubescent spot medially and also pale laterally; longitudinal striae of pygidium not extending to the posterior margin. Length, 12 mm.

Head ferruginous, the antennae and mandibles piceous to black; mandibles edentate, apparently not toothed within; clypeus with a sharp, sinuate, transverse carina posteriorly; antennal tubercles approximate; antennal scrobes not carinate above; front and vertex with large, dense, confluent punctures and clothed with sparse, recumbent, ferruginous pubescence; genae with moderate, contiguous punctures and clothed with sparse, pale, glittering pubescence; postero-lateral angles bearing an oblique, elongate, subparallel-sided, glabrous tubercle directed outward toward the eyes; posterior margin of head convex; relative widths of head and thorax, 4.5–4.9.

Thorax entirely ferruginous, the dorsum clothed with sparse, recumbent, ferruginous, coarse pubescence, the sides with sparse, pale, glittering, fine pubescence; thorax widest at anterior spiracles; relative widths of thorax at humeral angles, anterior spiracles, midway between anterior and posterior spiracles, just anterior to the latter, at posterior spiracles and at scutellar scale, 4.0–4.9–4.9–4.1–4.3–3.5; dorsum of thorax with large, dense, confluent punctures; scutellar scale present and well developed; mesonotal-scutellar ridge well developed just anterior and lateral to scutellar scale; dorsum, and posterior face of propodeum anteriorly, coarsely, confluently punctate, approaching asperate; anterior margin of propleurae carinate, the latter with large, dense, confluent punctures; mesopleurae micropunctate anteriorly, with coarse, confluent punctures posteriorly; ventral half of metapleurae with moderate, distinct punctures, the dorsal half micropunctate; sides of propodeum with moderately large, distinct, contiguous punctures.

Abdomen ferruginous, except third, fourth, fifth and last segments piceous to black; second tergite with four pale ferruginous spots, the anterior pair circular or nearly so, the posterior pair slightly transverse, subrectangular; posterior fringe of first tergite black, except lateral fifths pale; second tergite clothed with sparse, black pubescence, except the pale spots clothed with sparse, pale ferruginous pubescence, and areas of tergite laterad of pale spots with sparse, pale, glittering pubescence; posterior fringes of second and third tergites black, except each with a median, pale spot, and also the lateral sixths pale; fourth and fifth tergites clothed entirely with pale, glittering pubescence; pygidial area longitudinally striate, the striae not extending to the posterior margin, the posterior fourth of the pygidial area glabrous, unsculptured; first sternite with a median, longitudinal carina on the anterior half; second sternite with large, distinct, close punctures; sternites three to five moderately, densely punctate posteriorly; all the sternites clothed with sparse, pale, glittering pubescence, the posterior fringes of the sternites also pale.

Legs piceous to black, sparsely clothed with pale, glittering pubescence; calcaria ferruginous.

Holotype. Female, Cleveland, Georgia, June 18, 1936 (P. W. Fattig), in University of Minnesota collection.

Paratypes. Female, Cleveland, Georgia, June 18, 1936 (P. W. Fattig); female, Cleveland, Georgia, June 20, 1936 (P. W. Fattig); two females, Yonah Mt., Georgia, June 20, 1936 (P. W. Fattig); female, Yonah Mt., Georgia, June 29, 1935 (P. W. Fattig); female, Yonah Mt., Georgia, July 12, 1934 (P. W. Fattig); female, Yonah Mt., Georgia, July 15, 1934 (P. W. Fattig); female, Yonah Mt., Georgia, August 5, 1934 (P. W. Fattig); female, Head River, Georgia, June 27, 1937 (P. W. Fattig); four females, Head River, Georgia, July 13, 1937 (P. W. Fattig); female, Head River, Georgia, July 30, 1937 (P. W. Fattig); female, Head River, Georgia, August 4, 1937 (P. W.

Fattig); female, Head River, Georgia, August 5, 1936 (P. W. Fattig); female, Head River, Georgia, August 23, 1937 (H. G. Forester); two females, Cloudland, Georgia, August 4, 1937 (P. W. Fattig); female, Sitton's Gulch, Georgia, July 24, 1936 (P. W. Fattig); female, Sitton's Gulch, Georgia, August 15, 1936 (P. W. Fattig); female, Augusta, Georgia, July 2, 1937 (P. W. Fattig); female, Georgia; female, DeFuniak Springs, Florida, October 17–19; female, Lucedale, Mississippi, June 22, 1932 (H. Dietrich). Paratypes in P. W. Fattig and University of Minnesota collections.

Mediatoria is related to *mutata* Blake and *interrupta* Banks. It resembles *mutata* in general coloration and in having the posterior fourth of the pygidium glabrous and unsculptured, the striae of the pygidium not extending to the posterior margin. It differs from *mutata* in having the posterior fringes of the first three tergites mostly black, that of the first having the lateral fifths pale, and those of the second and third having the lateral sixths as well as a median spot pale. *Mutata* has the posterior fringes of the first three tergites entirely pale, except those of the second and third narrowly interrupted with black. *Interrupta* differs from *mediatoria* in having the striae of the pygidium complete to the posterior margin, and in having the posterior fringes of all the tergites usually entirely pale.

The key to the species of *Dasymutilla* (Mickel, Ann. Ent. Soc. Amer., vol. 29, pp. 31 and 32, 1936) may be modified to include *mediatoria*, and the nomenclature changed for *mutata* as follows:

43. Posterior margin of head slightly but distinctly concave, somewhat sinuate, the postero-lateral angles very prominent ..... **cypris** (Blake)
Posterior margin of head distinctly convex, the postero-lateral angles somewhat prominent 44
44. Striae of pygidium complete, reaching the posterior margin 45
Striae of pygidium not reaching the posterior margin, the posterior fourth of pygidium glabrous, unsculptured 45.5
45. Posterior fringes of first three abdominal tergites almost entirely, or entirely pale ..... **interrupta** Banks
Posterior fringes of first three abdominal tergites almost entirely black, the third tergite clothed entirely (except narrow, lateral margins pale) with black pubescence ..... **alesia** Banks
45.5. Posterior fringes of first three abdominal tergites entirely pale, except those of the second and third narrowly interrupted medially with black ..... **mutata** (Blake)
Posterior fringes of first three tergites almost entirely black, the lateral fifths of the first pale, and the lateral sixths as well as a median spot of the second and third pale ..... **mediatoria** n. sp.

Group ——?

Dasymutilla fasciventris n. sp.

Male.—Black, except the first and second abdominal segments and legs, ferruginous; front, vertex, scutellum, and fourth and fifth abdominal tergites clothed with long, thick, more or less appressed, glittering, pale pubescence; mesonotum, posterior margin of second tergite, and third and sixth tergites entirely, clothed with black pubescence; second sternite with an anterior, median, elongate pit densely filled with pale pubescence; wings fuscous, the anterior wings with a median, subhyaline area extending to the costal margin. Length, 14 mm.

Head black, clothed with pale, more or less appressed, glittering pubescence, thick on the front and vertex; mandibles slender, edentate at the tip and with two small teeth within near the tip; clypeus densely punctate, the anterior margin bidentate medially; scape strongly bicarinate beneath, finely, closely punctate and clothed with pale, glittering pubescence; first segment of flagellum slightly shorter than the second when viewed from beneath, but the two approximately equal in length when viewed from above; antennal scrobes carinate above; puncturation of front and vertex concealed by the pubescence; genae with moderate, shallow, close punctures; relative widths of head and thorax at the tegulae, 4.0–5.2.

Thorax entirely black, clothed with pale, sparse, glittering pubescence, that on the pronotum, scutellum, and anterior margin of dorsum of propodeum thick, except the mesonotum black pubescent; pronotum, mesonotum and scutellum densely punctate, the puncturation largely concealed by the pubescence; dorsum and posterior face of propodeum distinctly reticulate, the median, enclosed space of dorsum of propodeum elongate, small and inconspicuous; humeral angles rounded; propleurae with feeble, fine punctures and scattered, moderate punctures; mesopleurae with moderate to large, close but distinct punctures, the latter largest medially; metapleurae glabrous, impunctate, except ventrally with close, moderate punctures; sides of propodeum reticulate like remainder of propodeum; mesosternum with a prominent, sharp, oblique carina in front of each middle coxae; tegulae with scattered, moderate punctures and sparse, black pubescence throughout.

Abdomen black, except the first and second segments and the third sternite ferruginous, and the disk of the second tergite yellow; first and second segments, except the posterior margin of the second, and posterior fringes of sternites two to four, clothed with pale, glittering pubescence; posterior margin of second tergite, third tergite entirely, sixth tergite and pygidial tergite, all clothed with thick, black pubescence; fourth and fifth tergites with dense, more or less appressed, pale, glittering pubescence; first segment strongly nodose, the first tergite with large, close, more or less confluent punctures; disk of second tergite (yellow area) with moderate distinct, separated punctures, the latter becoming larger and closer towards the lateral and posterior margins; broad, posterior margin of second tergite black and clothed with black pubescence; puncturation of remaining tergites concealed by the pubescence; posterior margin of pygidial tergite without a fringe of

hairs; first sternite with a median, longitudinal carina on the anterior three-fourths; second sternite with large, close punctures, the latter sparser medially, and with a large, elongate pit densely filled with pale hairs situated on the mid-line anterior of the transverse median line, thus distinctly basal in position; sternites three to six with small punctures towards the posterior margin; fifth, sixth and last sternites with sparse, black pubescence.

Wings fuscous, with a subhyaline area covering cells R+1st R_1, R_5 and parts of 2nd R_1+R_2, M_4 and 1st M_2; cell 2nd R_1+R_2 obliquely truncate at the apex; cell R_4 and vein M_2 practically obsolete; vein M_3+_4 received by cell R_5 about one-third the distance from base to apex.

Legs entirely ferruginous, except the anterior tarsi entirely, and the intermediate and posterior tarsi distally, infuscated; legs clothed with pale pubescence, except the intermediate and posterior tibiae above, and the tips of the intermediate and posterior femora above with fuscous to black hairs; calcaria ferruginous.

Holotype. Male, Globe, Arizona, May 12, 1934 (F. H. Parker), in collection of University of Minnesota.

This species differs from any other male of this genus described from North America north of Mexico in the fasciate abdomen and ferruginous legs; the yellow color of the disk of the second tergite, black pubescent, posterior margin of second tergite, entire third tergite black, and the pale pubescent fourth and fifth tergites give the abdomen a trifasciate appearance, while the black mesonotum appears as a transverse black band on the thorax. The relationship of this species to other males is obscure and at the present time it cannot be placed in any of the groups established in my 1928 paper (Bull. 143, U. S. National Museum).

HANDBOOK OF MICROSCOPICAL TECHNIQUE FOR WORKERS IN ANIMAL AND PLANT TISSUES, edited by C. E. McClung; 82 illustrations, second edition, pages i-xvii and 1-698. 1937. Published by Paul B. Hoeber, Inc., (Medical book dept. of Harper and Bros.). Price $8.00.

While having had to purchase our own copy of the above work we feel that the attention of entomologists should be called to the "second edition, revised and enlarged" of "McClung."

"Among the additions are a complete, new dioxan technique for paraffin sections, directions for free hand manipulations of living material, methods for staining *boutons terminaux*, an account of the fused quartz rod method of illuminating living structure, a description of the microincineration method, a presentation of the centrifuge microscope and a description of fluorescent microscopy. The increase in the number of pages from 495 to 698 is an indication of the extent of new material added. * * * Particularly the index has been much improved."

—C. H. K.