

B R E V I O R A

Museum of Comparative Zoology

CAMBRIDGE, MASS.

JUNE 27, 1961

NUMBER 140

A PRELIMINARY REVIEW OF THE NEARCTIC SPECIES OF *SIEROLOMORPHA* (HYMENOPTERA)

BY HOWARD E. EVANS

In the course of collecting Bethylidae and examining material in various museums, I have encountered a good many specimens of the curious bethylid-like genus *Sierolomorpha* Ashmead. Some of these specimens are so different from the type, *ambigua*, for a long time the only known species, that it seems desirable to provide names for them. Krombein (1951, U. S. Dept. Agri. Monogr. 2, p. 748) has already pointed out that there appear to be several species in North America. The present paper does not pretend to be an exhaustive treatment of this genus. Names are provided for several of the more distinctive species, but before a definitive revision is possible more collecting must be done and more detailed studies made of structural details and their variation.

Actually, *Sierolomorpha* is not a bethylid or even especially close to the Bethylidae. Schuster (1949, Ent. Amer., 29: 124) is correct in pointing out its close similarity to certain Mutillidae and Tiphidae, and the arrangement in the Synoptic Catalog (Krombein, 1951, *op. cit.*), in which the genus is placed in a monogeneric family between the Tiphidae and Mutillidae, is probably the best that can be achieved at present. *Sierolomorpha* is related to the most primitive Scolioidea, and may not be far from the stock which gave rise to the Bethylidae. However, in virtually all structural details it stands very much closer to the Tiphidae than to the Bethylidae.

Only one species of the genus, *hospes* Perkins, has been described from outside the Nearctic region (from Hawaii). Krombein has suggested that this species may have been introduced from North America. In the collection of the U. S. National Museum there is a single male of an undescribed species from

Panama. I have seen no other specimens from outside the United States and Canada.

The most useful structures for the separation of species in this genus appear to be the antennae, especially the tyloides of the male (Figs. 1-6), the propodeum, and the first two abdominal tergites. There seems to be little variation within the genus with respect to the mandibles, clypeus, and most details of the thorax including the legs and wing venation. I have therefore made little mention of these structures in my descriptions. I have studied the male terminalia of selected specimens and found some minor variation, particularly in the volsellar cuspis. However, the differences are so slight and subtle that further study to determine the extent of individual variation did not seem warranted. I have therefore made no mention of characters of the terminalia in the keys and descriptions.

The following abbreviations are used for the museums and private individuals that supplied material for this study: AMNH, American Museum of Natural History, New York; CIS, California Insect Survey, Berkeley; CNC, Canadian National Collections, Ottawa; HKT, Henry K. Townes, Ann Arbor, Michigan; MCZ, Museum of Comparative Zoology, Cambridge, Mass.; UCD, University of California at Davis; USNM, U. S. National Museum.

Key to Species

*Females*¹

1. Abdomen with the constriction between the first two tergites strong, the first tergite with a weak to strong apical transverse depression which is longitudinally striate; propodeum with a moderately wide median groove which is irregularly margined by carinae 2
- Abdomen with the constriction between the first two tergites weak, first tergite smooth, not depressed or striate apically; propodeum with median groove absent or linear and not margined as above 3
2. Legs beyond the coxae bright yellowish-brown; basal segments of antennae suffused with light yellowish-brown; notauli strongly diverging anteriorly (Florida and Arizona to Alberta, Ontario, and Massachusetts)
canadensis (Provancher)

¹ The females of two species, *apache* and *brevicornis*, are unknown.

Legs brown except front tibiae and tarsi yellowish-brown; antennae brown, sometimes weakly suffused with paler brown on sides of basal segments; mesoscutum rather flat, notauli weakly diverging anteriorly (California, Arizona, and Colorado to Saskatchewan and Yukon)

nigrescens n. sp.

- 3. Front, pronotum, and mesopleura with strong punctures; pro- and mesonota bright rufocastaneous (Arizona) . . .

bicolor n. sp.

Front, pronotum, and mesopleura with only minute, widely spaced punctures; thorax entirely black (Georgia to Connecticut and Kansas) *similis* n. sp.

Males

- 1. Abdomen with the constriction between the first two tergites strong, the first tergite with a weak to strong apical transverse depression which is longitudinally striate; tyloides present on antennal segments seven through ten, short and rather prominently projecting (Figs. 1, 2); propodeum as in female (see couplet 1 of key to females) 2

Abdomen with the constriction between the first two tergites weak or absent, the first tergite smooth, not depressed or striate apically; tyloides not present on antennal segment seven or, if so, very long and low on segments eight and nine 3

- 2. Tibiae and tarsi mostly or entirely light yellowish-brown in most specimens; temples rather short, as seen from above much shorter than eyes (Florida and Arizona to Alberta, Ontario, and Massachusetts) . . . *canadensis* (Provancher)

Legs brown except front tibiae (sometimes also front tarsi and middle tibiae) light yellowish-brown; temples strongly developed, as seen from above nearly as wide as the eyes (California, Arizona, and Colorado to Saskatchewan and Yukon) *nigrescens* n. sp.

- 3. Antennae extremely short and compact, segment eleven about 1.2 X as long as thick, segment thirteen about 1.5 X as long as thick; tyloides present on antennal segment eleven (Fig. 3); head extremely broad, about 1.25 X as wide as high (South Carolina) *brevicornis* n. sp.

Antennae elongate, segment eleven about twice as long as thick, segment thirteen much more than twice as long as thick; tyloides not present beyond segment ten; head 1.1-1.2 X as wide as high 4

4. Ocelli distinctly enlarged (diameter of anterior ocellus about .22 X minimum width of front); tyloides present on antennal segments seven through ten (Fig. 6); front with a strong median groove in front of anterior ocellus (Arizona) *apache* n. sp.
 Ocelli not enlarged (diameter of anterior ocellus less than .2 X minimum width of front); tyloides present on segments eight through ten (Figs. 4, 5); front with a weak median impression if any 5
5. Punctures of front moderately strong; tyloides rather short (Fig. 5); middle and hind tibiae and tarsi dull brown (Arizona) ? *bicolor* n. sp.
 Punctures of front very weak; tyloides elongate (Fig. 4); all tibiae and tarsi light yellowish-brown (Georgia to Connecticut and Kansas) *similis* n. sp.

SIEROLOMORPHA BICOLOR new species

Holotype. — ♀, **ARIZONA**: Southwestern Research Station, 5 mi. W. of Portal, Cochise Co., 9 August 1959, 5400 feet elevation (H. E. Evans) [MCZ].

Description of type female. — Length 5.8 mm., length of fore wing 4.3 mm. Head black; pronotum, mesoscutum, and scutellum wholly bright rufo-castaneous; remainder of thorax and propodeum black; abdomen very dark brown, approaching black basally; mandibles light brown, darker basally and apically; clypeus suffused with reddish-brown apically; scape black, flagellum dark brown, outer side of apical segments paler; legs dark brown except front and middle tibiae and all tarsi light brown; fore wing lightly, uniformly infuscated, veins and stigma dark brown. First four antennal segments in a ratio of about 12:5:7:9, segment three 1.4 X as long as thick. Front strongly polished, punctures small but rather strong; spacing of punctures rather irregular, those on the sides being mostly rather close, often not much more than their own diameters apart, those on the middle of the front rather sparse; temples also with distinct punctures. Head subcircular in anterior view, vertex evenly rounded off a short distance above eye tops; inner orbits subparallel, minimum width of front about .9 the eye height. Ocelli small, in a broad triangle, the front angle greater than a right angle; postocellar line slightly exceeding ocello-ocular line. Thoracic dorsum strongly polished, non-alutaceous; pronotum with strong, widely spaced punctures; mesoscutum with

a very few punctures on the sides, impunctate medially. Propodeum strongly polished medio-basally, elsewhere slightly roughened by obscure punctures; median line weakly impressed. Mesopleurum polished and with well-defined punctures. First abdominal tergite without a subapical depressed and striate band, completely smooth; constriction between first and second tergites weak; abdomen rather strongly hirsute beyond segment three.

Male (assigned here tentatively). — **ARIZONA:** Cochise Stronghold, Dragoon Mts., 4850 feet elevation, oak-juniper zone, 2 July 1947 (Werner & Nutting) [Univ. Arizona].

Description of male. — Length 5 mm., length of fore wing 4.8 mm. Head and thorax entirely black, abdomen dark brown; apical half of mandibles light brown; antennae wholly dark brown; legs wholly dark brown except front tibiae and tarsi bright yellowish-brown; wings subhyaline. First four antennal segments in a ratio of about 20:8:13:20, segment three 1.5 X as long as thick, segment four 2.2 X as long as thick, this segment typical of the remaining segments except the last; segments eight through ten each with a short, rather weak longitudinal polished ridge (Fig. 5). Front polished, wholly covered with small but well-defined punctures which are separated by scarcely more than their own diameters; vertex and temples more weakly punctate; front somewhat impressed along the inner orbits and beside the posterior ocelli, faintly impressed medially. Minimum width of front approximately equal to eye height; ocelli in a broad, flat triangle, postocellar and ocello-ocular lines subequal; ocelli of moderate size, diameter of anterior ocellus .18 X minimum width of front. Pronotum short, shining and with dense, rather weak punctures. Mesonotum shining, rather sparsely and weakly punctate. Propodeum polished, impunctate, and non-alutaceous over most of its surface. Mesopleurum polished, densely but weakly punctate. First abdominal tergite smooth, without a subapical depressed and striate band.

Remarks. — The type female was taken on the ground beneath oak trees in dry, open forest. The male associated with it tentatively was apparently taken in the same type of forest and at nearly the same altitude.

SIEROLOMORPHA APACHE new species

Holotype. — ♂ **ARIZONA:** 3-5 mi. SW of Apache, Cochise Co., 8 August 1959, about 4300 feet elevation (H. E. Evans, on *Baccharis glutinosa*) [MCZ].

Description of type male.—Length 4.5 mm., length of fore wing 4.0 mm. Entire body dark brown, the head nearly black; mandibles light brown; antennae uniformly light brown; legs dark brown except tibiae and tarsi light brown, the front tibiae a rather bright yellowish-brown; wings hyaline. First four antennal segments in a ratio of about 15:9:13:17, segment three 1.6 X as long as thick, segment four 2.0 X as long as thick, segment eleven 2.1 X as long as thick; segments seven through ten each with a weak longitudinal polished ridge (Fig. 6). Front polished, with weak, scattered punctures, with a very strong median groove extending downward from the anterior ocellus; eyes large and prominent, inner orbits subparallel below; head about 1.2 X as wide as high. Minimum width of front 1.07 X eye height; ocelli large, diameter of anterior ocellus .22 X minimum width of front; postocellar line 1.15 X ocello-ocular line. Pronotum short, shining, weakly punctate. Mesonotum strongly shining, obscurely punctate. Propodeum in large part strongly polished, median area without ridges or other sculpturing except for a simple carina on the posterior third. Mesopleurum shining, obscurely punctate. Abdomen with scarcely any indication of a constriction between the first two segments either dorsally or ventrally; first tergite without an apical striate depression.

Remarks.—This striking specimen was taken on vegetation in the daytime, although the large ocelli suggest that the species may be nocturnal or crepuscular. The locality was a dry wash in an area of desert grassland.

SIEROLOMORPHA SIMILIS new species

Holotype.—♂, **MARYLAND:** Takoma Park, 22 Sept. 1945 (H. & M. Townes) [HKT].

Description of type male.—Length 4.4 mm., length of fore wing 4.1 mm. Body dark brown, head and thorax almost black; mandibles light brown; antennae uniformly dark brown; coxae dark brown, femora medium brown, paler apically, tibiae and tarsi yellowish-brown; wings lightly tinged with fuscous. First four antennal segments in a ratio of about 19:10:13:18, segment three almost twice as long as thick, segments four and eleven about 2.1 X as long as thick; tyloides in the form of low carinae on segments eight through ten, the carina on eight extending for much of the length of the segment, the others slightly shorter (Fig. 4). Front strongly polished, with small, rather evenly distributed punctures which are separated by 1-2 X their own

diameters; median line of front weakly impressed. Head 1.12 X as wide as high, subcircular in anterior view, temples only moderately developed, contracted immediately behind eyes. Inner orbits convergent below, minimum width of front subequal to eye height; ocelli of moderate size, diameter of anterior ocellus .17 X minimum width of front; postocellar line 1.1 X ocello-ocular line. Pronotum strongly shining, with a great many minute punctures. Mesoscutum strongly shining, obscurely punctate, notauli strong, nearly reaching anterior margin. Dorsal surface of propodeum shining, with a linear median groove. Mesopleurum strongly polished and nearly impunctate. First abdominal tergite polished, smooth, with no evidence of a transverse apical depression; second tergite with a narrow transverse basal impression, so that there is vague evidence of a constriction between the first two tergites.

Allotype. — ♀, Kearny, New Jersey, 9 Sept. 1935 (C. W. Funaro) [AMNH].

Description of allotype female. — Length 5.1 mm.; length of fore wing 3.6 mm. Head and thorax dark brown, abdomen medium brown; mandibles and apical half of clypeus light yellowish-brown; antennae dark brown except scape and pedicel suffused with yellowish-brown and flagellum light brown beneath; coxae brownish but legs otherwise wholly bright yellowish-brown; wings lightly tinged with fuscous. First four antennal segments in a ratio of about 23:10:11:15, segment three 1.5 X as long as thick, segment eleven 1.7 X as long as thick. Front strongly polished, punctures small and widely separated. Head subcircular in anterior view, about as wide as high; inner orbits subparallel, minimum width of front subequal to eye height. Ocelli small, in a broad triangle; postocellar line subequal to ocello-ocular line. Pronotum polished, with scattered small punctures. Mesonotum impunctate, notauli strong on posterior .8 of mesoscutum, diverging and attenuate anteriorly. Propodeum mostly smooth and shining, with a very thin median groove which posteriorly is paralleled by some irregular carinae. Mesopleurum convex, smooth and shining. Abdomen fusiform, depressed; first tergite smooth and polished, with no evidence of a transverse apical impression; second tergite barely depressed basally.

Paratypes. — **CONNECTICUT**: 1 ♀, Bank of Conn. River, East Hartford, 2 Sept. 1947 (H. E. Evans) [MCZ]; **NEW YORK**: 1 ♀, Sea Cliff, Long Island [MCZ]; **MARYLAND**: 3 ♂ ♂, Takoma Park, same data as type [MCZ, HKT]; **WEST**

VIRGINIA: 1 ♂, Shaver's Fork, Tucker Co., Oct. 1938 (G. E. Wallace) [Carnegie Mus.]; **SOUTH CAROLINA:** 1 ♂, Greenville, Oct. 1952 (L. & G. Townes) [HKT]; **GEORGIA:** 1 ♂, Macon, 1 Dec. 1923 (T. H. Hubbell) [USNM]; **KANSAS:** 3 ♂♂, Manhattan, Sept., Nov. (D. A. Wilbur, T. F. Winburn) [Kansas State Univ.].

Variation. — The two female paratypes are very similar to the allotype. The Connecticut specimen has the basal two antennal segments bright amber-colored, contrasting strongly to the flagellum; the Long Island specimen is without a head. The males show a small amount of size variation; the smallest specimen (Manhattan, Kansas) has a fore wing measuring 3.6 mm., the largest (Takoma Park, Md.) has a fore wing measuring 4.4 mm. The Kansas specimens tend to have the body (especially the abdomen) slightly paler in color, but otherwise little variation in color or body sculpture can be noted. In most specimens the postocellar line is subequal to the ocello-ocular line, and in one specimen it is somewhat shorter.

SIEROLOMORPHA BREVICORNIS new species

Holotype. — ♂, **SOUTH CAROLINA:** Greenville, 21 Sept. 1952 (L. & G. Townes) [HKT].

Description of type male. — Length 3.4 mm., length of fore wing 2.7 mm. Body dark brown, head almost black; mandibles light brown on apical half; antennae dark brown, very slightly paler beneath; legs dark brown except front tibiae and tarsi light yellowish-brown; wings hyaline. First four antennal segments in a ratio of about 12:6:7:8, segment three 1.1 X as long as thick, apical segment unusually short and thick, about 1.5 X as long as thick; tyloides present on segments nine through twelve, but rather small (Fig. 3). Front strongly polished, punctures minute, shallow; median line strongly impressed in front of anterior ocellus. Head very broad, 1.25 X as wide as high; front broad, its minimum width .61 X width of head, 1.18 X height of eye; ocelli small, diameter of anterior ocellus .14 X minimum width of front; postocellar line very slightly greater than ocello-ocular line. Vertex forming a broad, even arc above the eye tops; temples moderately developed, in dorsal view about two-thirds as wide as eye. Pro- and mesonota shining, obscurely punctate; notauli strong, complete, diverging anteriorly. Propodeum mostly smooth and polished, median line weakly grooved, ecarinate. Mesopleurum strongly shining, obscurely

punctate. Venation differing from that of other species only in having the second recurrent and second transverse cubital veins very weakly indicated and the margin cell somewhat more rounded apically. First two abdominal segments without a constriction between them, first tergite smooth and polished, without a striate depression along its apical margin.

SIEROLOMORPHA NIGRESCENS new species

Holotype. — ♂, **WASHINGTON**: Olympia [USNM].

Description of type male. — Length 4.4 mm., length of fore wing 3.7 mm. Body dark brown, almost black; mandibles light brown; antennae uniformly dark brown; legs dark brown except front tibiae bright yellowish-brown; wings lightly tinged with fuscous. First four antennal segments in a ratio of about 20:8:11:16, segment three only 1.3 X as long as thick, segment four about 1.7 X as long as thick; segments seven through ten each with a short but rather strong longitudinal ridge (Fig. 1). Front strongly polished, with minute punctures which are rather close together below, much more widely scattered above; median line of front weakly impressed. Head about 1.15 X as wide as high, rather thick, seen from above with the temples nearly as thick as the eyes, the head across the temples nearly as wide as across the eyes. Inner orbits subparallel below; minimum width of front 1.13 X height of eye; ocelli small, diameter of anterior ocellus .14 X minimum width of front; postocellar line subequal to ocello-ocular line. Pronotum strongly shining, obscurely punctate. Mesoscutum polished and nearly impunctate, with very strong notauli which diverge slightly anteriorly and do not quite reach the anterior margin. Propodeum with two median carinae between which it is somewhat grooved, disc otherwise with weak and irregular sculpturing, somewhat shining. Mesopleurum shining and with very small punctures. Abdomen with a strong constriction between the first two segments; first tergite depressed along the posterior margin, second tergite along its anterior margin, both depressions with longitudinal striations.

Allotype. — ♀, **WASHINGTON**: Seattle [USNM].

Description of allotype female. — Length 4.5 mm., length of fore wing 3 mm. Head and thorax dark brown, abdomen medium brown, somewhat darker apically; mandibles and apical half of clypeus light brown; antennae dark brown, suffused with lighter brown on the sides of the basal flagellar segments; legs dark brown except front tibiae bright yellowish-brown; wings lightly

tinged with fuscous. First four antennal segments in a ratio of about 22:9:9:13, segment three 1.2 X as long as thick. Front strongly polished, punctures minute and widely scattered. Head subcircular in anterior view, very slightly wider than high; inner orbits subparallel, minimum width of front 1.16 X height of eye. Ocelli small, in a broad triangle; postocellar line 1.1 X ocello-ocular line. Pro- and mesonota polished, obscurely punctate; notauli deeply impressed, diverging only slightly anteriorly, terminating well short of anterior margin of mesoscutum. Propodeum and mesopleurum as described for male. Abdomen fusiform, shining; first tergite with a transverse apical depression which is strongly longitudinally striate.

Paratypes. — **WASHINGTON:** 1 ♂, same data as type [USNM]; 1 ♀, Almota, 24 June 1911 [MCZ]; **IDAHO:** 1 ♂, Harvard, 24 June 1935 (J. M. Beck) [USNM]; 2 ♂♂, Moscow, June, July [USNM]; 1 ♂, Nezperce, 18 June 1935 (J. M. Beck) [USNM]; **UTAH:** 1 ♂, Uinta Co. (G. E. Wallace) [Carnegie Mus.]; **CALIFORNIA:** 1 ♂, Sagehen, nr. Hobart Mills, 21 June 1954, on *Phacelia humilis* (P. D. Hurd) [CIS]; 1 ♂, Carnelian Bay, Lake Tahoe, 17 June 1958 (R. M. Bohart) [UCD]; 4 ♂♂, Pasadena, April 1944 (K. W. Cooper) [USNM]; 1 ♂, Rio Linda, Sacramento Co., 19 May 1958 (Light trap, Jack Fowler) [UCD]; 1 ♂, Donner Pass, 1 Aug. 1948 (H., M., G. & D. Townes) [HKT]; 1 ♂, Cisco, 31 July 1948 (H., M., G. & D. Townes) [HKT]; **ARIZONA:** 1 ♂, North Rim, Grand Canyon, 29 July 1954 (H. E. Evans) [MCZ]; **COLORADO:** 1 ♀, Waldo Canyon, 30 June 1916 (W. D. Edmonston) [USNM]; **SASKATCHEWAN:** 1 ♂, Saskatoon, 30 June 1950 (A. R. Brooks) [CNC]; **ALBERTA:** 1 ♀, 30 ♂♂, Onefour, 3 June 1956 (O. Peck) [CNC]; **YUKON:** 1 ♀, Whitehorse, 4 July 1948 (Mason and Hughes) [CNC].

Variation. — The four female paratypes are very similar to the allotype in color and in all important structural details; the length of the fore wing varies from 3 to 3.6 mm. The males exhibit much size variation, the smallest (Donner Pass, Calif.) having the fore wing only 2.2 mm. long, the largest (Rio Linda, Calif.) having the fore wing 4.5 mm. long. There is little color variation except that the front tibiae are dull brown in a few specimens, while in others the middle tibiae are light yellowish-brown like the front tibiae. In most specimens the postocellar and ocello-ocular lines are subequal.

Remarks. — This species is very similar to *canadensis* and may represent no more than a western race of that species. However, there seems to be some overlap of the ranges in Arizona and in western Canada.

SIEROLOMORPHA CANADENSIS (Provancher)

Photopsis canadensis Provancher, 1888, Add. Corr. Faune Ent. Canada, Hymen., p. 410 [Type: ♂, Ottawa, Canada (Harrington)].

Sierola (?) *ambigua* Ashmead, 1893, Bull. U. S. Nat. Mus., 45: 56 [Type: ♂, Brookings, So. Dakota (Coll. Ashmead) (USNM, no. 56018)].

Mutilla tertia Dalla Torre, 1897, Cat. Hymen., 8: 91 (new name for *canadensis*, preoccupied in *Mutilla*).

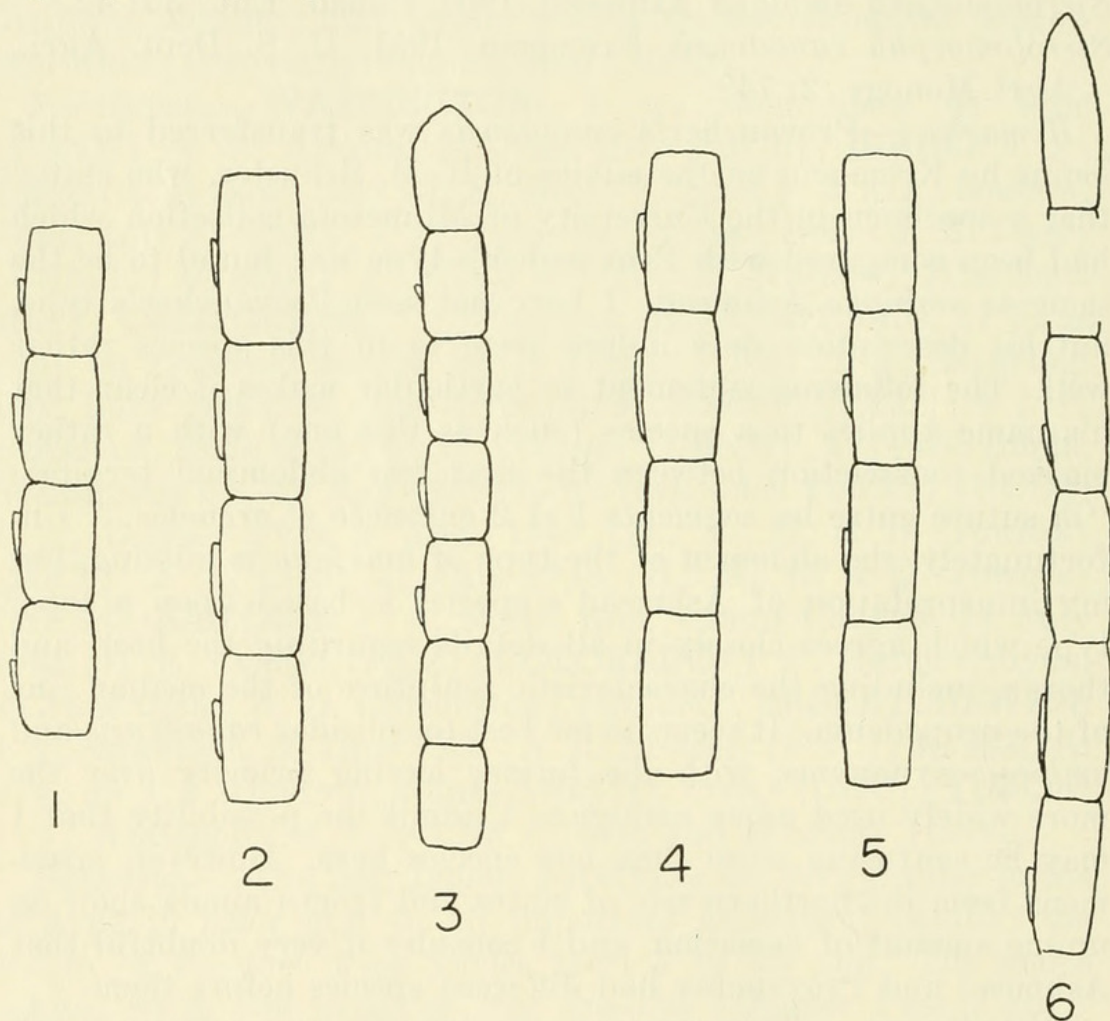
Sierolomorpha ambigua Ashmead, 1903, Canad. Ent., 35: 42.

Sierolomorpha canadensis Krombein, 1951, U. S. Dept. Agri., Agri. Monogr., 2: 749.

Remarks. — Provancher's *canadensis* was transferred to this genus by Krombein on the advice of R. M. Schuster, who stated that a specimen in the University of Minnesota collection which had been compared with Provancher's type was found to be the same as *ambigua* Ashmead. I have not seen Provancher's type, but his description does indeed seem to fit this species rather well. The following statement in particular makes it clear that his name applies to a species (such as this one) with a rather marked constriction between the first two abdominal tergites: "la suture entre les segments 1 et 2 enfoncée et crénelée." Unfortunately, the abdomen of the type of *ambigua* is missing, but my interpretation of Ashmead's species is based upon a topotype which agrees closely in all details regarding the head and thorax, including the characteristic sculpture of the median line of the propodeum. It seems to me best to consider *canadensis* and *ambigua* synonyms, with the former having priority over the more widely used name *ambigua*. I admit the possibility that I may be confusing more than one species here. However, specimens from the northern tier of states and from Canada show no undue amount of variation, and I consider it very doubtful that Ashmead and Provancher had different species before them.

Distribution. — This species occurs widely over eastern North America, ranging from Florida, Texas, and Arizona to Alberta, Ontario, and Massachusetts. I have seen specimens from the following localities: **MASSACHUSETTS:** Waltham, June; **CONNECTICUT:** Lyme, June; **NEW YORK:** Oneonta, Ithaca, Riverhead, L. I., Northwest, L. I., June-Aug.; **PENNSYLVANIA:** Hummelstown, May; **MARYLAND:** Bowie, Takoma Park, May-July; **VIRGINIA:** Rosslyn, Great Falls, Fredricksburg, May-June; **NORTH CAROLINA:** Highlands, Wallace, Pink Beds,

June-July; **GEORGIA:** Tifton, Valdosta, May; **FLORIDA:** Ormond, Osceola Co., Volusia Co., Brevard Co., Dec.-Jan.; **OHIO:** Columbus, June; **MICHIGAN:** Ann Arbor, Erie, Livingston Co., June-Aug.; **ILLINOIS:** Champaign; **IOWA:** Sioux City, Ames, June; **ALBERTA:** (no further data); **NORTH DAKOTA:** Bottineau, Aug.; **SOUTH DAKOTA:** Brookings, June-July; **KANSAS:** Lawrence, Manhattan, Pottawatomie Co., Geary Co., May-July; **LOUISIANA:** Tallulah; **TEXAS:** Sealy, Victoria, May, Nov.; **NEW MEXICO:** Mesilla Park, Sept.; **ARIZONA:** Springerville, July.



Figs. 1-6. Middle antennal segments of males of six species of *Sierolomorpha*. In each case the first segment shown (at the bottom) is segment seven. These figures are somewhat diagrammatic, as the tyloides normally form a somewhat twisted series, here shown as a straight series; furthermore, the tyloides are normally somewhat obscured by setulae, here omitted. Fig. 1 — *S. nigrescens* n. sp., segments 7-10; Fig. 2 — *S. canadensis* (Prov.), segments 7-10; Fig. 3 — *S. brevicornis* n. sp., segments 7-13; Fig. 4 — *S. similis* n. sp., segments 7-10; Fig. 5 — *S. bicolor* (?) n. sp., segments 7-10; Fig. 6 — *S. apache* n. sp., segments 7-10 and 13.



Evans, Howard E. 1961. "A preliminary review of the nearctic species of Sierolomorpha (Hymenoptera)." *Breviora* 140, 1-12.

View This Item Online: <https://www.biodiversitylibrary.org/item/22517>

Permalink: <https://www.biodiversitylibrary.org/partpdf/21413>

Holding Institution

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

Sponsored by

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.