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THE ICHNEUMON-FLIES OF THE GENUS BRACHYCYRTUS
KRIECHBAUMER

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ONLY four species have heretofore been referred to the genus *Brachycyrtus* Kriechbaumer, only three I believe properly so. The fourth, *Brachyeytrus* (sic!) *aporiae* (Matsumura MS.) Okamoto,¹ described in Japanese, appears to be a *Hemiteles* and to have been redescribed as *Hemiteles aporiae* by Uchida.² The three species properly referred to the genus are the European *ornatus* Kriechbaumer, the Japanese *Proterocryptus nawaii* Ashmead, transferred to *Brachycyrtus* by Roman, and the Australian *australis* Roman.

In the three new species described herein the genus is introduced for the first time as American. Apparently the genus is essentially tropical and, as the fauna of the Tropics becomes better known, will perhaps be found to be rich in species.

Exclusive of the genotype, *ornatus* Kriechbaumer, which I have not seen, the genus is divisible into three well-defined groups. The characters distinguishing these groups are not, I believe, of generic significance, although they are much more conspicuous than many characters that are universally recognized as of generic status. Such characters appear in many tropical genera and even in tropical species of genera occurring in the Temperate Zone.

¹ Hokkaido Agr. Exp. Sta., Sapporo, Japan, Rep. 12, p. 65, 1921.

² Journ. Fac. Agr. Hokkaido Imp. Univ., vol. 25, p. 343, 1930.

Heretofore nothing has been known of the host relations. A specimen of *nawai* from the Philippine Islands, however, was reared as a parasite of *Chrysopa*, and it appears reasonable to suppose that *Chrysopa* is the normal host of the genus, since in general form of head and thorax the species are similar to the species of *Chryso-poctonus*.

GENUS BRACHYCYRTUS Kriechbaumer

Brachycyrtus KRIECHBAUMER, Corresp. Blatt zool.-min. Ver. Regensburg, vol. 34, p. 161, 1880. (Genotype, *Brachycyrtus ornatus* Kriechbaumer.)

Proterocryptus ASHMEAD, Proc. U. S. Nat. Mus., vol. 30, p. 174, 1906. (Genotype, *Proterocryptus nawai* Ashmead.)

KEY TO SPECIES OF BRACHYCYRTUS

1. Malar space much reduced; occipital carina extending straight to base of mandible; epomia absent or distinct at most below; scutellum margined to apex, its fovea not limited anteriorly by a sharp carina, not foveolate; nervulus postfurcal by more than its length (American species)----- 2
- Malar space nearly or quite as long as basal width of mandible; occipital carina inflexed below and joining hypostomal carina; epomia strong and complete; scutellum margined only at base, its fovea limited anteriorly by a sharp carina, strongly foveolate; nervulus postfurcal by less than its length (Old World species)----- 4
2. Eyes deeply emarginate opposite antennae; epomia developed below; scutellar fovea narrow and deep; propodeum completely areolated, minutely punctate and densely clothed with white pubescence; second tergite with distinct elongate gastrocoeli; thorax largely ferruginous (Florida)----- pretiosus, new species
- Eyes barely emarginate; epomia absent; scutellar fovea broad and shallow; propodeum uniformly shagreened, entirely without pubescence, incompletely areolated, lateral carina largely absent; second tergite without trace of gastrocoeli; body yellow with black markings----- 3
3. Eyes distinctly convergent below; face broader than long; propodeum with all apical areas defined (Panama)-- convergens, new species
- Eyes nearly parallel; face fully as long as broad; propodeum without apical pleural areas (Panama)----- oculatus, new species
4. Discocubitus subangulate; abscissula nearly half as long as intercubitella; abdomen black with tergites margined with yellow (Japan; Philippine Islands)----- nawai (Ashmead)
- Discocubitus arcuate; abscissula about one-fourth as long as intercubitella; abdomen rufous with tergites more or less blackish basally and white apically (Australia)----- australis Roman

The genotype, *ornatus* Kriechbaumer, is not included in the key because none of the group characters of the first couplet is mentioned in any description that I have seen. The species, however, is distinct from all others in its generally black body with much less extensive yellow markings.

BRACHYCYRTUS PRETIOSUS, new species

FIGURE 1

This species is the only known representative of a group that, in its deeply emarginate eyes, deep scutellar fovea, and completely areolated propodeum, is more similar to the Old World group than to the other American group; but from the former it is amply distinct by the characters of the first couplet of the foregoing key.

Female.—Length 6.0 mm; antenna 4.5 mm; ovipositor sheath 1.0 mm.

Head polished, from above distinctly less than half as thick as broad; temples almost perpendicular, weakly convex; ocellar triangle weakly transverse; head in front view slightly broader than long, eyes together comprising almost exactly two-thirds of its total width; eyes very deeply, subtriangularly emarginate; face parallel-sided, as long as broad, distinctly narrower than frons, in profile strongly convex, weakly and sparsely punctate; clypeus nearly twice as broad as long, narrowly truncate at apex; malar space barely half basal

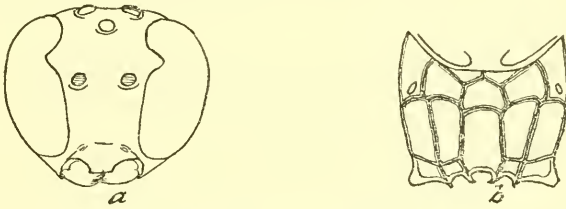


FIGURE 1.—*Brachycyrtus pretiosus*, new species: a, Head; b, propodeum.

width of mandible; occipital carina straight below and joining hypostomal carina immediately behind base of mandible; antennae 29-jointed, basal joint of flagellum hardly four times as long as thick, not nearly twice as long as second, subapical joints twice as thick as first joint.

Thorax as deep as long, polished, mesoscutum and propodeum obscurely punctate, scutellum more distinctly so; epomia developed in lower half; prepectal carina extending about halfway up anterior margin of mesopleurum; mesopleural scrobe diverging only slightly from posterior margin; notauli entirely absent; scutellum broader than long, weakly convex, margined to apex, its fovea very deep and narrow but not limited anteriorly by a distinct carina; propodeum densely clothed with rather long white pubescence, completely areolated, areola as broad as long, rounded anteriorly, costulae not far before apex. Intercubitus more than half as long as space between it and second recurrent; nervulus postfurcal by a little more than its length; abscissula fully three-fourths as long as intercubitella.

Abdomen shining, finely punctate and with short white pubescence; first tergite virtually glabrous and sparsely punctate; second tergite nearly as long as first, fully three times as long as broad at base, with distinct elongate oblique gastrocoeli; spiracles distinctly behind middle, tergites 2-6 with broad transparent epipleura; ovipositor sheath about as long as first tergite.

Head and abdomen black and yellow, thorax largely ferruginous; yellow markings as follows: Broad complete orbital rings, face, clypeus, mandibles, palpi, underside of scape, and pedicel; broad anterior and humeral margins of pronotum, triangular spots in positions of notauli, scutellum, and postscutellum; broad subapical bands on tergites 1-6, those on 4-6 divided medially, apical lateral margin of tergite 7, and entire venter. Flagellum blackish above, ferruginous below. Legs whitish with black or piceous markings as follows: On middle femur an elongate spot on each side above toward apex; on hind leg large spots on inner and outer sides of coxa below, basal joint of trochanter, elongate spots on outer and inner sides of femur, base and apex of tibia with a connecting stripe on outer side, and apices of the tarsal joints. Wings hyaline with fuscous venation.

Male.—Essentially like female, but the face broader, malar space longer, seventh tergite black with a small yellow spot on each side.

Type locality.—Hillsboro County, Fla.

Other localities.—Osceola County, Lake County, and Pinellas County, Fla.

Type.—U.S.N.M. no. 50623.

Three females and three males, all taken in bait traps in connection with the Florida Fruit Fly Survey of 1929-30. One of the males is headless, and another lacks all the abdomen except the first segment.

BRACHYCYRTUS CONVERGENS, new species

FIGURE 2

This and the next following species form a group differing from both of the other groups in the barely emarginate eyes; entire lack of epomia; broad, shallow, and smooth scutellar fovea; virtually absent lateral carinae of propodeum; uniformly shagreened propodeum; and entire lack of gastrocoeli.

Female.—Length 6.0 mm; antenna 5.0 mm; ovipositor sheath 1.0 mm.

Head polished, nearly half as thick as broad, temples oblique, very weakly convex; ocellar triangle moderately transverse, the postocellar line fully twice as long as lateral ocellar line, a short deep groove between the posterior ocelli; head in front view distinctly transversely oval, the eyes together comprising distinctly less than two-

thirds total width; eyes very weakly emarginate, distinctly convergent below; face distinctly broader than long, sparsely and finely punctate, in profile strongly convex; clypeus twice as broad as long, truncate at apex; malar space about half as long as basal width of mandible; occipital carina extending straight to base of mandible; antennae 33-jointed, basal joint of flagellum about five times as long as thick and nearly twice as long as second, subapical joints much less than twice as thick as first.

Thorax slightly deeper than long, polished, mesoscutum and scutellum very sparsely and finely punctate, propodeum very uniformly and finely shagreened and subopaque; epomia entirely absent; prepectal carina ascending about halfway up anterior margin of mesopleurum and ventrally approaching very closely the posterior carina of the sternum; mesopleural scrobe very strongly oblique; notauli represented anteriorly by small shallow pits; scutellum as broad as long, moderately convex, margined to apex, its fovea shallow,

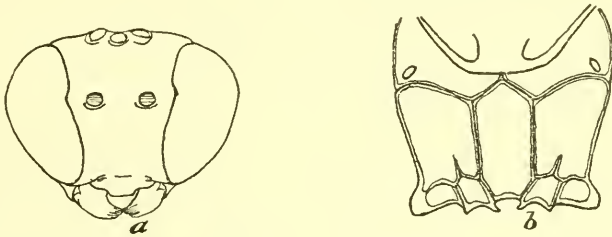


FIGURE 2.—*Brachycyrtus convergens*, new species: a, Head; b, propodeum.

smooth, not limited anteriorly by a carina; propodeum incompletely areolated, the lateral carinae lacking except at apex and the areola and petiolar area confluent, parallel-sided posteriorly, acutely pointed basally, all five apical areas defined. Intercubitus more than half as long as space between it and recurrent; nervulus postfurcal by much more than its length; abscissula nearly half as long as intereubitella.

Abdomen polished, with sparse minute punctation and pubescence, first tergite virtually impunctate and glabrous; postpetiole much broader than petiole; second tergite distinctly shorter than first and little more than twice as long as broad at base, without trace of gastrocoeli, spiracles distinctly behind middle; tergites 2-6 with broad, transparent epipleura; ovipositor sheath as long as first segment.

Head and thorax yellow with black markings as follows: Occiput and posterior margin of vertex and temples, narrowly joined to a triangular spot enclosing the ocelli; a medium stripe in anterior two-thirds of mesoscutum and a U-shaped mark with its base in

the scutellar fovea and its arms extending forward on the lateral lobes and narrowly confluent medially with a pyriform spot on scutellum; a small spot on postscutellum; a large spot on each side of propodeum at base; tegulae; an oblique band in the mesopleural scrobe, a small spot in prepectus, and the entire sternum and lower pleurum; abdomen black, the tergites broadly yellow at apex, venter entirely yellow. Scape and pedicel black above, yellow below; flagellum fuscous, paler at base and below, flagellar joints 18-22 yellow; legs yellow; front and middle femora each with a piceous stripe above, middle tibia with a more or less distinct dorsal stripe; hind coxa black at base above and below, and with a dash of black on the outer side at apex; basal joint of trochanter black; femur with a piceous stripe on either side, tibia blackish with a broad yellow annulus at middle, calcaria yellow, tarsus fuscous except basal half of first joint; wings hyaline, venation blackish.

Type locality.—Cano Saddle, Gatun Lake, Panama.

Type.—U.S.N.M. no. 50624.

One female taken by R. C. Shannon, May 8, 1923.

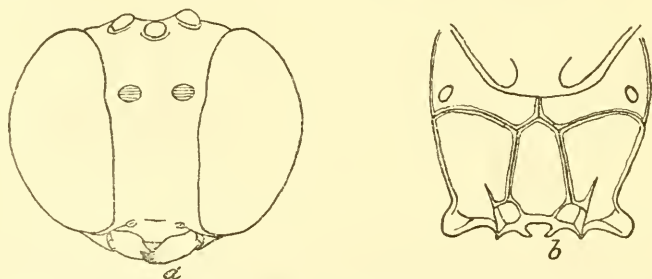


FIGURE 3.—*Brachycyrtus oculatus*, new species: a, Head; b, propodeum.

BRACHYCYRTUS OCULATUS, new species

FIGURE 3

Superficially very similar to *convergens*, with which it agrees almost exactly in color pattern; but remarkably distinct from that species in the form and detail characters of the head.

Female.—Length 7.0 mm; antenna 7.0 mm; ovipositor sheath 1.5 mm. Differs from the above description of *convergens* only as follows: Head not so thick, temples virtually flat and less strongly oblique; ocellar triangle more strongly transverse, the postocellar line about three times as long as lateral ocellar line; head in front view very strongly transversely oval, the eyes very large and comprising distinctly more than two-thirds of the total width; eyes not conspicuously convergent below, the face, although narrower than the frons, with its sides parallel, distinctly longer than broad; malar space nearly obliterated; antenna 35-jointed; mesoscutum more

coarsely and distinctly punctate; notauli not at all indicated; scutellum longer than broad, strongly convex; apical carina of propodeum incomplete laterally, the apical pleural area not defined; abscissula more than half as long as intercubitella; postpetiole only a little broader than petiole; second tergite fully three times as long as broad; ovipositor sheath nearly a half longer than first segment.

Black of posterior part of head reduced to a small median bilobate spot widely separated from ocellar spot; all markings of thorax the same as in *convergens* except smaller, and the U-shaped mark of mesoscutum not confluent with scutellar spot; abdomen with same pattern but brown instead of black; scape and pedicel entirely yellow, flagellum ferruginous with the apical fifth or sixth black; front and middle legs without dark markings; hind coxa yellow except a spot of piceous on outer lower side, basal joint of trochanter piceous; femur yellow with outer and inner surfaces partly ferruginous, fuscous at base and yellowish at middle of upper surface; tarsus ferruginous, apices of joints slightly darker.

Type locality.—Cano Saddle, Gatun Lake, Panama.

Type.—U.S.N.M. no. 50625.

One specimen taken by R. C. Shannon on May 8, 1923.



FIGURE 4.—*Brachycyrtus nawaii* (Ashmead): a, Head; b, propodeum.

BRACHYCYRTUS NAWAII (Ashmead)

FIGURE 4

Proterocryptus nawaii ASHMEAD, Proc. U. S. Nat. Mus., vol. 30, p. 174, pl. 12, fig. 3, 1906.

(*Brachycyrtus*) *nawaii* ROMAN, Ark. für Zool., vol. 9, no. 9, p. 5, 1915.

Proterocryptus nawaii CUSHMAN, Proc. U. S. Nat. Mus., vol. 55, p. 543, 1919.

This Japanese species was only briefly described by Ashmead, and the following is largely a statement of characters not mentioned by him, but by which it differs from all the species described above: Ocellar triangle very strongly transverse; malar space nearly as long as basal width of mandible; occipital carina curving sharply inward to join hypostomal carina far behind base of mandible; thorax strongly punctate throughout, propodeum rugulose apically and medially; epomia strong and complete; scutellum margined only at base, its fovea margined anteriorly by a strong carina, foveolate; meso-

pleural scrobe nearly paralleling posterior margin of mesopleurum; nervulus postfureal by more than its length; first abdominal segment slightly upcurved.

A second specimen of this species was reared at Manila, Philippine Islands, from the cocoon of a *Chrysopa*. It differs from the type virtually only in being slightly more extensively yellow and in having the propodeal areola granularly roughened rather than transversely rugulose.