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CHALCIDIDAE, LEUCOSPIDIDAE AND PODAGRIONIDAE
FROM THE SATSUNAN AND RYUKYU ISLANDS
MAINLY FOUNDED ON JAPAN-U. S. CO-OPERATIVE
SCIENCE PROGRAM (Hymenoptera)*

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Recently I have had an opportunity of studying forty specimens of the Chalcididae and four of the Leucospididae preserved in the Entomological Laboratory of Kyushu University, and thirty-three specimens of the Chalcididae and one of the Podagrionidae sent from the Bishop Museum. These specimens have chiefly been collected under Japan-U. S. Co-operative Science Program.

I take this opportunity of thanking Professor K. Yasumatsu and Dr. J. L. Gressitt for their privileging me to study the material.

CHALCIDIDAE

Subfamily Brachymeriinae

Brachymeria (Brachymeria) minuta (Linné)

Ryukyus—1♂, IX. 2, 1945, Okinawa Is., J. L. Gressitt leg.; 1♀, XI. 17~20, 1963, Omoto-dake, Ishigaki Is., G. A. Samuelson leg.

Brachymeria (Brachymeria) fonscolombi (Dufour)

Satsunans—1♂, VIII. 11, 1963, Naze, Amami-ôshima Is., K. Yasumatsu and K. Yano leg. Ryukyus—1♂, X. 27, 1952, Miyako Is., G. E. Bohart leg.

Brachymeria (Brachymeria) yasumatsui Habu

Ryukyus—1♀, XII. 1~10, 1952, Ishigaki Is., C. E. Bohart leg.; 2♂♂, XI. 19~20, 1963, Omotodake, Ishigaki Is., G. A. Samuelson leg.

The male of the species has not been known; the antennae of the male are without trichoid sensillae on the ventral side of the funicle.

Brachymeria (Brachymeria) obscurata (Walker)

Satsunans—1♂, VII. 18, 1963, 1♂, VII. 19~20, 1963, Yuwan, Amami-ôshima Is., C. M. Yoshimoto leg., 1♂, VII. 31, 1963, do., Y. Hirashima leg.; 1♀, VII. 27, 1963, Mikyo, Tokunoshima Is., J. L. Gressitt leg. (Malaise trap). Ryukyus—1♀, XI. 15, Miyako Is., 1♀, X. 27, 1952, Miyako Is., G. E. Bohart leg.; 1♀, X. 1951,

* Third Supplement to Fauna Japonica, Chalcididae etc., 1962.

Ishigaki Is., R. M. Bohart leg., 1 ♂, XII. 1~10, 1952, Ishigaki Is., C. E. Bohart leg., 1 ♀, III. 17, 1964, Torogawa, Ishigaki Is., C. M. Yoshimoto and J. Harrell leg., 1 ♀, III. 18, 1964, Karayama, Ishigaki Is., C. M. Yoshimoto and J. Harrell leg., 1 ♀, V. 21~22, Banna, Ishigaki Is., J. L. Gressitt leg. (Malaise trap).

Brachymeria (Brachymeria) sp. [= *B. euploae* (Westwood) ?]

Ryukyus—1 ♀, III. 28, 1964, Kude-ken, Okinawa Is., C. M. Yoshimoto leg.
In the single specimen the black stripes on the hind tibiae are fairly narrow, and the second tergite is without dense punctures but smooth on the dorsal side.

Brachymeria (Brachymeria) hime Habu

Ryukyus—1 ♀, X. 27, 1952, 1 ♀, XI~XII. 1952, Miyako Is., G. E. Bohart leg.; 1 ♀, III. 15, 1964, Yonehara, Ishigaki Is., C. M. Yoshimoto and J. Harrell leg.

Brachymeria (Brachymeria) excarinata Gahan

Ryukyus—1 ♀, X. 20, 1963, Kayauchi-banda, Okinawa Is., S. Miyamoto leg., 1 ♀, X. 21, 1963, Izumi, Okinawa Is., Y. Hirashima leg.; 1 ♂, XI. 25~30, 3 ♀♀, 1 ♂, XII. 1~10, 1952, Ishigaki Is., G. E. Bohart leg., 1 ♀, X. 15, 1963, Kabira, Ishigaki Is., Y. Hirashima leg.

Brachymeria (Matsumurameria) taiwana (Matsumura)

Ryukyus—1 ♀, X. 27, 1963, Inoda, Ishigaki Is., Y. Hirashima leg.

Subfamily Haltichellinae

Hockeria amamioshimensis Habu

Satsunans—1 ♀, VII. 31, 1963, Yuwan, Amami-ōshima Is., Y. Hirashima leg.; 1 ♀, VII. 27, 1963, Mikyo, Tokunoshima Is., J. L. Gressitt leg. (Malaise trap). Ryukyus—1 ♀, IX. 2, 1945, Okinawa Is., J. L. Gressitt leg., 1 ♂, X. 19, 1963, Yona, Okinawa Is., S. Miyamoto leg., 1 ♀, III. 22, 1964, Izumi~Gogayama, Okinawa Is., C. M. Yoshimoto and J. Harrell leg.; 1 ♀, XI. 25~30, Ishigaki Is., G. E. Bohart leg., 1 ♀, III. 14~18, 1964, Karayama, Ishigaki Is., C. M. Yoshimoto and J. Harrell leg. (Malaise trap); 1 ♂, X. 4, 1963, Shirahama, Iriomote Is., Y. Hirashima leg. (Malaise trap).

The male of this species has been undescribed.

Description. Male: 2.7 mm (one of the two male specimens examined is apparently smaller, but the abdomen is missing). Scape and pedicel reddish brown or dark reddish brown. Tegulae black. Fore wings similar to those of ♀, but brown part somewhat pale, transparent round patch near stigmal vein without white cilia. Fore and mid legs darker than in ♀ except tarsi, hind femora and hind tibiae black (apex of hind tibiae narrowly reddish); tarsi brown.

Compound eyes sparsely finely ciliate. Antennae slender; scape not reaching front ocellus, as long as pedicel, ring segment, segment 4, and one-half of segment 5 together; pedicel as long as wide or slightly longer than wide, a little less than one-half as long as segment 4; ring segment thin; funicle segments and club almost

equal in width, segments 4 to 8 equal in length, segment 10 one and one-half times as long as wide, three-fourths as long as segment 4; club one and one-half times as long as segment 10; surface of segments 4 to 10 and club with rather dense sensoria and cilia.

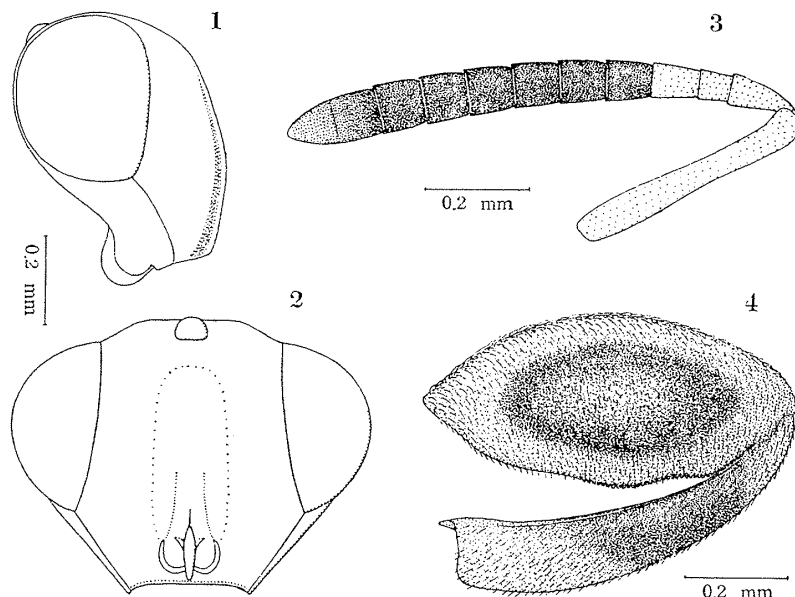
Abdomen as long as pronotum, mesoscutum, and mesoscutellum combined, widest near middle; tergite 1 flat at median area, occupying two-thirds of length of body, punctures dense and distinct, punctures not extending up to posterior margin, posterior margin well rounded; tergite 2 fairly reticulate.

Hockeria yoshimotoi sp. nov.

“Yoshimoto-hanemadara-ashibuto-kobachi”

Description. Female: Length 2.6~3.1 mm.

Head black. Scape, pedicel, ring segment, and segment 4 (Fig. 3) light reddish brown, remaining segments black. Thorax black, rather shiny; tegulae reddish brown. Fore wings almost hyaline at basal one-third, faintly smoky at apical one-fifth, dark brown at remaining part except round whitish patch—where cilia are whitish—near stigmal vein, and somewhat whitish patch near anal angle; submarginal vein pale yellowish brown, marginal and stigmal veins dark brown; hind wings hyaline. Fore and mid coxae almost reddish brown, hind coxae blackish at basal half, reddish brown at apical half; trochanters reddish brown; femora reddish brown, hind femora (Fig. 4) with blackish large patch on outer side; tibiae dark or blackish except reddish brown basal and apical areas; tarsi reddish brown. Abdomen black, shiny, faintly reddish ventrally. Pubescence on body silvery.



Figs. 1-4. *Hockeria yoshimotoi* sp. nov., ♀.
1. Head in lateral view. 2. Head in ventrofront view. 3. Antenna.
4. Hind femur and tibia.

Head (Figs. 1, 2) one and one-fourth times as wide as thorax; surface compactly pitted, interspaces of pits fairly narrow, somewhat carinate; width of ocellar area three-fourths as wide as inter-ocular space at level of hind ocelli, inter-ocular space two and two-fifths to two and one-half times as wide as major axis of hind ocelli; compound eyes rather convex, microscopically, sparsely ciliate, combined width of each eye three-fourths to four-fifths as wide as inter-ocular space at level of ventral margin of compound eyes; scrobe cavity rather deep, margins indistinct, apex not reaching front ocellus; inter-antennal projection rather thin, well projecting forward; area below scrobe cavity fully short; fronto-genal sutures rather distinct; height of malar space two-thirds as high as compound eye; postorbital carina absent; front genal angle rather acute, hind genal angle obtuse, somewhat rounded.

Antennae (Fig. 3) slender; scape long, as long as pedicel, ring segment, and segments 4 to 6 combined; pedicel one and three-fifths times as long as segment 4, two and one-half times as long as wide; ring segment two-fifths as long as pedicel, as long as wide; segments 4 to 10 almost equal in length, segment 5 one and one-seventh times as wide as segment 4, segments 5 to 10 gradually increasing in width, segment 8 as long as wide, segment 10 slightly longer than wide; club twice as long as segment 10, two-segmented; surface finely densely ciliate, without sensoria on segment 4, with a few sensoria on segment 5, with rather sparse sensoria on segments 6 to 10, with a little more sensoria on club.

Thorax moderately pitted on dorsal side, pits somewhat smaller and less compact on mesonotum than in *A. amamioshimensis*, interspaces of pits narrow, faintly reticulate on mesonotum, faintly carinate on pronotum and mesoscutellum, somewhat wide (almost as wide as diameter of pits in part) and hardly carinate on mesonotum; mesoscutellum convex, gently declined posteriorly, a little longer than wide (one and one-tenth times as long as wide), apical area reflexed and bilobed; propodeum gently declined posteriorly, submedian, accessorial and sub-lateral carinae moderately distinct, secondary transverse carinae somewhat distinct.

Fore wings two and two-thirds times as long as wide; marginal vein one-third as long as submarginal vein; post-marginal vein not distinct, short, a little longer than stigmal vein.

Hind coxae three-fifths to two-thirds as long as hind femora, ventral side well reticulate, densely pubescent, dorsal side without distinct protuberance; hind femora (Fig. 4) a little more than twice as long as wide, outer side distinctly reticulate, so rather mat, densely pubescent, inner side hardly reticulate, shiny, outer ventral margin with two faint rounded lobes, first lobe situated near middle.

Abdomen pointed posteriorly, one and one-third times as long as combined length of pronotum, mesoscutum, and mesoscutellum, widest before middle, as wide as or slightly narrower than thorax; tergite 1 smooth, occupying a little more than one-half of length of gaster, almost flat at median area, posterior margin moderately rounded; tergite 2 smooth and glabrous on dorsal side, posterior margin slightly rounded; tergite 6 strongly reticulate and rough; epipygium faintly carinate at middle, with distinct microsculpture; ovipositor sheath projecting beyond epipygium.

Male: Unknown.

Distribution. Japan: Satsunan Islands.

Type-specimens. Holotype: 1 ♀, VII. 28~30, Ooyama, Okinoerabu Is., C. M. Yo-

shimoto leg. (Malaise trap), preserved in the collection of the Bishop Museum. Paratype: 1 ♀, same as holotype.

Host. Unknown.

Remarks. This new species is closely allied to *H. amamioshimensis* Habu, from which it is distinguishable by the remarkable colouration of the legs, the mesonotum with smaller pits, and the shorter mesoscutellum.

***Haltichella nipponensis* Habu**

Ryukyus—1 ♂, X. 21, 1963, Izumi, Okinawa Is., Y. Hirashima leg.

***Antrocephalus apicalis* (Walker)**

Satsunans—1 ♀, VII. 22, 1963, 1 ♀, VII. 27, 1963, Mikyo, Tokunoshima Is., Y. Hirashima leg., 1 ♂, VIII. 2, 1963, Kametsu, Tokunoshima Is., T. Okada leg.; 1 ♂, VII. 28~30, 1963, Ooyama, Okinoerabu Is., C. M. Yoshimoto leg.; 2 ♂♂, VIII. 4, 1963, Furusato~Asato, Yoron Is., K. Yasumatsu and K. Yano leg. Ryukyus—1 ♀, VI. 1945, Okinawa Is., G. E. Bohart leg., 2 ♂♂, X. 19, 1963, Yona, Okinawa Is., S. Miyamoto leg., 1 ♀, X. 20, 1963, Kayauchi-banda, Okinawa Is., S. Miyamoto leg.

***Antrocephalus apicalis* subsp.**

Ryukyus—1 ♀, XI. 22, 1963, Sakitagawa, Oonosanrin, Miyako Is., H. Inoue leg.; 1 ♂, X. 12, 1963, Sonai, Iriomote Is., S. Miyamoto leg.

***Antrocephalus ryukyuensis* sp. nov.**

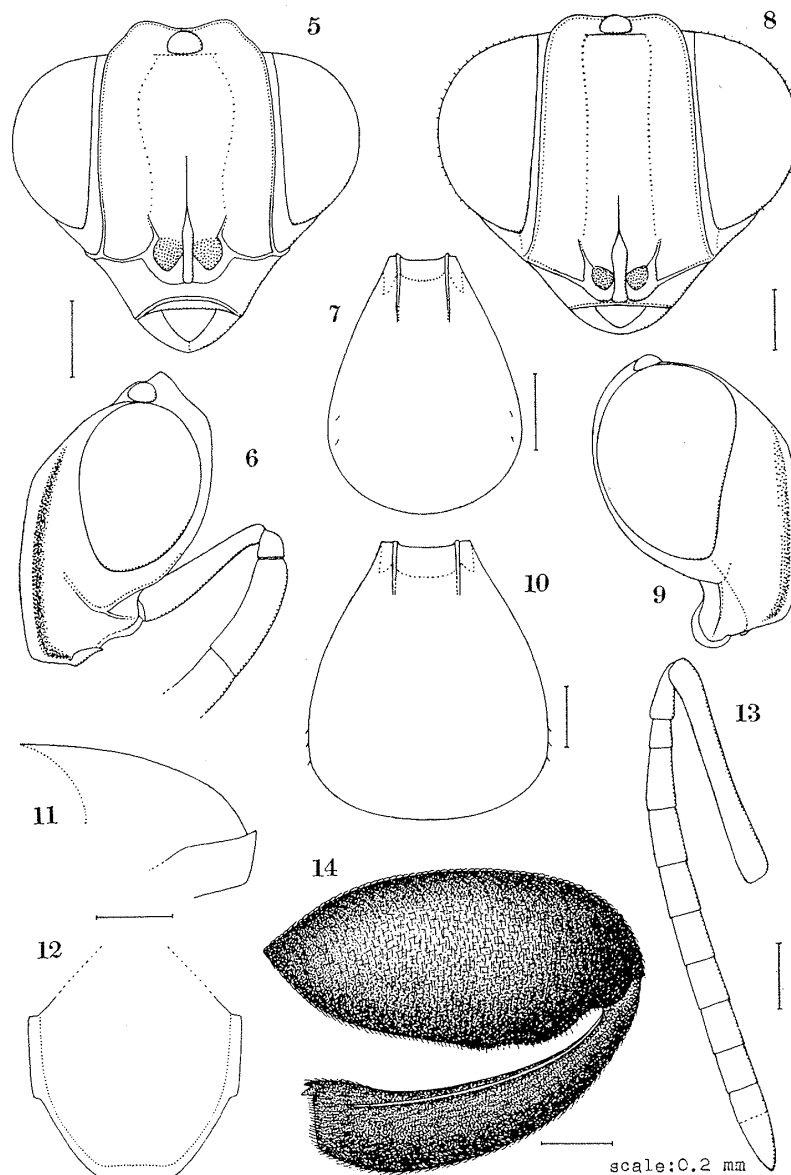
“Ryūkyū-chibi-tsuya-ashibuto-kobachi”

Antrocephalus japonicus Masi: Habu, 1963, Mushi, 37: 118.

Description. Female: Length 2.8~3.8 mm.

Head black. Antennae black, sometimes scape, pedicel, and ring segment slightly reddish. Thorax black, rather mat; tegulae black or reddish black. Fore wings somewhat smoky, more or less brownish near marginal vein, submarginal vein pale brown or yellowish brown, other veins dark brown; hind wings almost hyaline, veins brown. Coxae black; trochanters brown or reddish brown; fore and mid femora black, with reddish apex, hind femora black, slightly brownish or reddish at base; fore and mid tibiae black, reddish at basal and apical areas, hind tibiae almost wholly black; fore and mid tarsi pale brown or yellowish brown, hind tarsi reddish brown or dark reddish brown. Abdomen black, shiny. Pubescence on body silvery grey.

Head (Figs. 8, 9) one and one-eighth to one and one-sixth times as wide as thorax: pits on surface rather shallow; width of ocellar area four-fifths as wide as inter-ocular space at level of hind ocelli, inter-ocular space twice as wide as major axis of hind ocelli; compound eyes convex, very finely, sparsely ciliate, combined width of each eye as wide as inter-ocular space at level of ventral margin of each eye; preorbital carinae adjoining to facial carinae below compound eyes, then faintly, a little extending onto genae; scrobe cavity reaching front ocellus, transversely carinate at apex beneath front ocellus; inter-antennal projection narrow,



Figs. 5-14. *Antrocephalus ryukyuensis* sp. nov. (5-7, ♂; 8-14, ♀).
 5, 8. Heads in ventrofront view. 6, 9. Heads in lateral view. 7,
 10. Tergites 1. 11. Mesoscutellum in lateral view. 12. Do. in
 dorsal view. 13. Antenna. 14. Hind femur and tibia.

moderately protrudent forward; fronto-genal suture faintly carinate or indistinct; malar space one-half as high as compound eye; hind genal angle obtuse.

Antennae (Fig. 13) slender; scape at apex a little distant from front ocellus, a little shorter than pedicel, ring segment, and segments 4 to 6 combined; pedicel as long as segment 4, twice as long as wide; ring segment one-half as long as ped-

icel, slightly longer than wide, segment 4 twice as long as wide, segments 4 to 10 slightly decreasing in length, segments 5 to 10 almost equal in width, segment 10 slightly longer than wide, two-thirds as long as segment 4; club twice as long as segment 10, indistinctly two-segmented; surface of segments 4 to 10 and club with many sensoria and dense cilia.

Thorax compactly pitted on dorsal side, interspaces of pits narrow, carinate (less carinate or hardly carinate on mesoscutum), microsculpture distinct; pronotum shallowly depressed at middle, anterior carinae often more or less becoming faint near middle, forming faint tubercle on either side of median depression; mesoscutellum (Figs. 11, 12) rather convex, distinctly declined posteriorly, one and one-sixth to one and one-fifth times as long as wide, apex well emarginate in hind view, almost straight in dorsal view; propodeum similar to that of *A. japonicus*, rather narrow, fairly declined posteriorly, submedian, accessorial and sub-lateral carinae distinct, median areola concave, as wide as outer areolae of submedian carinae, spiracular areas delimited posteriorly by transverse carina, lateral costae with one dull protuberance (not well visible in dorsal view) behind spiracles.

Fore wings two and two-thirds to two and three-fourths times as long as wide; marginal vein one-fourth as long as submarginal vein, densely ciliate; post-marginal vein as long as or longer than marginal vein, becoming obscure apically; stigmal vein one-fourth as long as marginal vein.

Hind coxae two-thirds as long as hind femora, ventral side fully reticulate, densely pubescent, laterodorsal side with faint carinate projection near base; hind femora (Fig. 14) a little more than twice as long as wide, outer side finely densely punctate, evidently reticulate, mat, densely pubescent, inner side densely punctate and well reticulate, outer ventral margin with two faint lobes, first lobe a little behind middle, second lobe behind first lobe, series of dense teeth beginning with first lobe.

Abdomen as long as pronotum, mesoscutum, mesoscutellum, and propodeum combined, widest a little before middle, five-sixths as wide as thorax; tergite 1 (Fig. 10) occupying a little more than one-half of length of gaster, smooth, basal carinae one-fifth as long as tergite 1, a little less than twice as long as median fovea, as long as or shorter than width of median fovea, outside areas of carinae shallowly foveate, posterior margin weakly rounded; tergite 2 not reticulate on dorsal area, tergites 3 to 5 reticulate; tergite 6 as long as tergites 3 to 5 together, punctate and reticulate; epipygium faintly carinate at middle.

Male: Length 2.3~3.6 mm. Antennae wholly black. Tegulae black, sometimes slightly reddish. Legs black, fore and mid tarsi brown, hind tarsi brownish black. Wings almost hyaline, without brownish patch.

Head (Figs. 5, 6) in dorsal view prominent on either side of anterior part, sinuate in middle at anterior part; frons rather bilobed at apex in ventrofront view; compound eyes glabrous, three-fourths as wide as inter-ocular space at level of ventral margin of eyes; preorbital carinae fairly elevated, somewhat angulate at level of ventral margin of front ocellus; antennal sockets remote from fronto-clypeal suture; facial carinae sinuate-transverse, adjoining to preorbital carinae below compound eyes, then a little extending posteriorly; fronto-genal suture invisible; malar space two-thirds as high as compound eye.

Antennae long; scape (Fig. 6) tumid near basal one-third, a little longer than pedicel, ring segment, and segment 4 combined; pedicel as long as wide; ring segment fully thin; segment 4 curving, three-fourths as long as scape, three times as long as wide, segment 5 less curving than segment 4, segment 6 straight, segments 4 to 10 gradually decreasing in length, equal in width, segment 10 three-fifths as long as segment 4, a little less than twice as long as wide; club one and three-fifths times as long as segment 10, two and two-thirds times as long as wide, indistinctly two-segmented; surface of segments 4 to 10 and club with dense sensoria.

Thorax with hexagonal pits on dorsal side, interspaces of pits distinctly carinate, microsculpture generally invisible; pronotum shallowly depressed at middle, anterior carinae distinct, with prominent tubercle on either side of median depression. Hind femora two and one-fourth times as long as wide. Abdomen fusiform, two-thirds to three-fourths as wide as thorax, as long as pronotum, mesoscutum, and mesoscutellum together; tergite 1 (Fig. 7) occupying one-half of gaster, smooth, basal carinae one-fourth as long as length of tergite 1, three times as long as median fovea, one and one-half times as long as width of median fovea, posterior margin rounded; tergites 2 to 6 with more or less distinct microsculpture.

Distribution. Japan: Satsunans—Okinoerabu Is.; Ryukyus.

Type-specimens. Holotype: 1 ♀, XI. 3~7, 1963, Ushikumori, Iriomote Is., G. A. Samuelson leg. (Malaise trap), preserved in the collection of the Bishop Museum. Paratypes: 1 ♂, VII. 28~30, 1963, Ooyama, Okinoerabu Is., C. M. Yoshimoto leg. (Malaise trap); 1 ♂, X. 19, 1963, Yona, Okinawa Is., Y. Hirashima leg.; 1 ♀, III. 24~25, 1964, 1 ♀, XI. 27, 1963, do., C. M. Yoshimoto and J. Harrell leg.; 1 ♂, XI. 14, 1960, Yona~Hedo, K. Yasumatsu leg.; 1 ♂, XI. 17~20, 1963, Omotodake, Ishigaki Is., G. A. Samuelson leg.; 1 ♀, III. 14~18, 1964, Karayama, Ishigaki Is., C. M. Yoshimoto and J. Harrell leg. (Malaise trap), 1 ♀, V. 20, 1964, Banna, Ishigaki Is., J. L. Gressitt leg. (Malaise trap); 1 ♀, X. 12, 1963, Sonai, Iriomote Is., S. Miyamoto leg., 2 ♀♀, XI. 3~7, 1963, 1 ♂, XI. 7~10, 1963, Ushikumori, Iriomote Is., C. A. Samuelson leg. (Malaise trap.)

Host. Unknown.

Remarks. The present new species is closely related to *A. japonicus* (Masi), but differs in the following characteristics. The female:—The scape, the pedicel, and the ring segment are not yellowish brown, but black, the hind tarsi are more reddish, and the interspaces of pits on the dorsal side of the thorax are not or hardly carinate. The male:—The tarsi are dark brown to brownish black (more light brown in *A. japonica*), the tenth antennal segment is shorter, slightly longer than wide (one and one-half times as long as wide in *A. japonicus*), and the basal carinae on the first tergite are shorter.

***Euchalcidia kajimurai* Habu**

Ryukyus—1 ♀, X. 1, 1963, Bannadake, Ishigaki Is., K. Morimoto leg.

Subfamily Epitraninae

***Epitranus albipennis* (Walker)**

Ryukyus—1 ♂, X. 8, 1963, Sonai, Iriomote Is., S. Miyamoto leg.

Subfamily Dirhininae

Dirhinus (*Dirhinus*) *hesperidum* (Rossi)

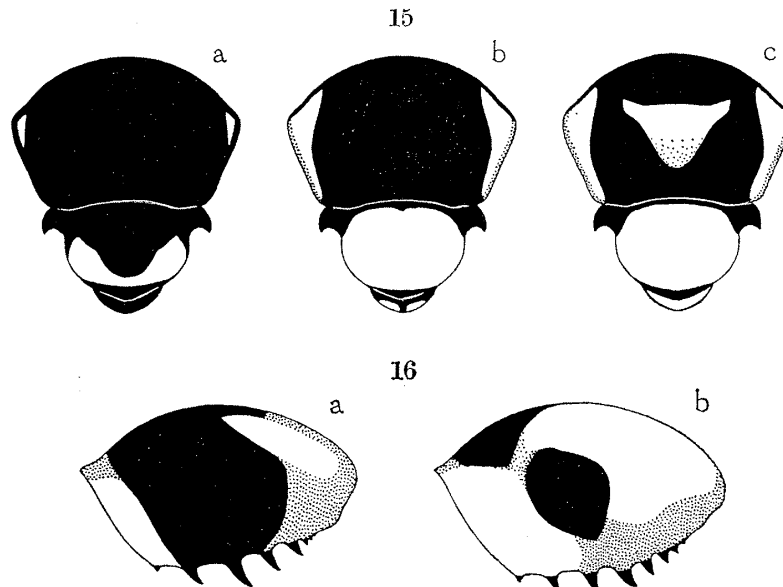
Ryukyus—1 ♂, XI. 3, 1963, Ushikumori, Iriomote Is., G. A. Samuelson leg.
The single specimen is fairly smaller than usual, only 2.5 mm in length.

LEUCOSPIDIDAE

Leucospis (*Leucospis*) *okinawensis* Matsumura

Satsunans—2 ♂♂, VII. 28~30, 1963, Ooyama, Okinoerabu Is., C. M. Yoshimoto leg. Ryukyus—1 ♀, X. 8, 1963, Sonai, Iriomote Is., Y. Hirashima leg., 1 ♂, X. 12, 1963, do., K. Morimoto leg.

The two specimens (Figs. 15a, 16a) from Okinoerabu Is. are almost same as those from Honshu, but the two (Figs. 15b, c, 16b) from Iriomote Is. are with distinctly wider yellowish parts: The two transverse and lateral bands on the pronotum are fully wider, in the female specimen the pronotum is almost wholly reddish yellow, and the mesonotum is with one large patch near the middle; the mesoscutellum is widely yellowish except narrow basal and apical areas; the median raised area of the metanotum has two yellowish patches in the male specimen (Fig. 15b), almost wholly yellowish in the female (Fig. 15c); in the gaster of the female, the fourth tergite has the distinct yellowish band, the yellowish part of the



Figs. 15, 16. Variation of patches in *Leucospis okinawensis* Matsumura from a. Okinoerabu Is., b, c. Iriomote Is. 15. Mesonota, mesoscutella with axillae, and median raised areas of metanotum. 16. Hind femora.

fifth tergite is larger, fully extending anteriorly on the dorsal side along the median groove, and the sixth tergite and the epipygium have also narrow yellowish bands along the posterior margin; in the gaster of the male, the two yellowish bands are fully wider, more extending ventrally, and two small yellowish patches are present before the apex on the laterodorsal areas; the hind coxae are distinctly yellowish at the apical area; the hind femora (Fig. 16 b) are so widely yellowish on the outer side, that the black area is conspicuously reduced to two rather small patches.

It requires further materials to make it clear whether the above-mentioned characteristics are of subspecific value or not.

PODAGRIONIDAE

Podagrion nipponicum Habu ?

Ryukyus—1♀, III. 28, 1964, Kude-ken, Okinawa Is., C. M. Yoshimoto leg.

This specimen resembles the "forma" parasitic on *Tenodera angustipennis* De Saussure from Honshu and Kyushu, but the ovipositor is still shorter, about one and one-fifth times as long as the length of the body, the proportion of the length of the ovipositor to the width of the head being only 4.3.

新 著 紹 介

Uvarov, B. 1966: Grasshoppers and Locusts. Vol. I. xi+481 pp. Cambridge University Press, London.

本書はバッタ学(著者は acridology と呼ぶ)の世界的大御所 Uvarov 老の 500 頁に近い大著で、1928年に出された現在絶版の“Locusts and Grasshoppers”の内容を一新して、1960年代に至るまでのバッタ類に関するあらゆる生物学的知見の集成を試みたものである。

本巻の内容は、一般形態・各器官と組織の構造と機能・生理・初期発生・後期発生・phaseの問題・分類などであるが、それぞれ簡にして要を得た説明で、一般の研究者にも理解しやすく書かれている。書中もつとも興味深いところは、やはり phase の問題のところであろう。前著はこの意味で画期的な書物であつたが、そこでは phase の外面的な面にのみ重点をおきすぎていた。今回更に内面的な面にも眼を向けるべきことが強調され、また他の直翅類や鱗翅類にも同様な現象が発見されるに及んで、問題はさらに幅広いものとなつてきた、と述べている。分類の項はやや簡単すぎると思うが、書中に出てくるバッタ名はすべて網羅されており、利用者にはすこぶる便利である。また巻末に膨大な文献表が付されているが、これは人名の索引も兼ねていて、細かい点にも気を配つてあることがうかがわれる。

今後出版される第2巻(下巻に当る)の内容もついでに紹介しておく、行動・生態・生物地理・population dynamics・コントロールなどの応用面、などである。この2巻の書物によつて、バッタ学がどこまで進んでおり、これから研究すべき点は何か、が容易に理解され、なお高次の段階に進む十分な手がかりを得ることができると思われる。

第1巻は5ポンド(約5,000円)。多数の鮮明な凸版図のほかに写真プレート1、口絵に着色プレート1葉がついている。

(山崎柄根)