

Revision of the Mirine Genus *Creontiades* Distant and Allies from Japan (Heteroptera: Miridae)

Part III: *Neomegacoelum* gen. n., and Exotic New Taxa, New Synonymy and New Combinations

Tomohide YASUNAGA

Biological Laboratory, Hokkaido University of Education Ainosato 5-3-1, Sapporo, 002-8502 Japan

Abstract. A new mirine genus, *Neomegacoelum*, is proposed for *Creontiades vitreus* Kerzhner, which is diagnosed, redescribed and recorded from Japan for the first time. A key to Japanese genera, species and subspecies of *Creontiades* and allies is provided. Diagnostic characters of the genus *Megacoelum* FIEBER, which can be confused with *Creontiades*, description of a new species from the Philippines, *C. philippinensis*, and new synonymy and combinations of exotic species are also provided. A new genus, *Poppiocapsidea*, is erected for the Taiwanese *Megacoelum clypeale* POPPIUS. This paper concludes the revision.

Key words: Revision, Miridae, *Creontiades* and allies, new genus, new species, new combinations, key.

Neomegacoelum gen. n.

Type species: *Creontiades vitreus* Kerzhner, 1988.

Diagnosis. Recognized by the small size, sparse dorsal vestiture, vertical head, wide vertex, rather broad and long antenna, smooth pronotum, rather thick collar, nearly glabrous hemelytra, and hyaline corium and clavus.

Description. Body small, parallel-sided, 5.5–6.6 mm in length; dorsal surface smooth, nearly glabrous. Head vertical, slightly granulate; frons less striolate; vertex wide, 0.38–0.39 times as wide as head including eyes in ♂, 0.41–0.46 in ♀, with a weak, longitudinal mesal sulcation. Antenna rather broad, cylindrical; segment I the broadest, with a few blackish bristles apically, subequal in length to segment IV, head width including eyes and mesal pronotal length; segments II, III and IV subequal in thickness; segment II 2.3–2.5 times as long as I. Rostrum reaching but not exceeding hind coxa.

Pronotum shining, not wrinkled, almost smooth, minutely and sparsely punctate, bearing very sparse, short, suberect setae; collar rather thick, about as thick as antennal segments (except for broader segment I), with several, brownish, erect setae; mesoscutum pruinose or shagreened; scutellum rather shiny, somewhat arched, weakly rugose, with sparse, dark, suberect setae. Hemelytra almost glabrous, slightly shagreened, very sparsely and finely punctate, partly with several silky, suberect, short pubescence; corium and clavus hyaline (but not so distinct as in species of the tribe Hyalopeplini), hind wings seen through them in dorsal aspect. Leg long; tibial spines blackish, prominent; inner part of hind tibia with brownish, suberect setae. Abdomen shorter than forewing in dorsal view, sometimes slightly surpassing tip of forewing membrane in mature ♀.

Male genitalia (Fig. 2, A–E): Completely asymmetrical in general shape. Genital segment lacking spine near base of left paramere (C); left paramere long, strongly curved at basal 1/3, with sparse, short setae (C); right paramere short and straight (B). Vesica strongly expanded left-laterally in expanded condition, with a long, straight and widened sclerite (D–E).

Female genitalia (F–G): Sclerotized rings thick rimmed, very small, each ring widely separated mesally (F). Posterior wall of bursa copulatrix with conspicuously enlarged interramal lobes, lacking noticeable dorsal structure (G).

Discussion. This new genus is similar to *Orientomiris* and *Megacoelum*, but is easily distinguished by the overall smaller size, hyaline hemelytra, completely asymmetrical male genitalia, very small sclerotized rings and widened interramal lobes. These characters suggest that *Neomegacoelum*, based on the unique eastern Palearctic species inhabiting *Quercus* spp. (Fagaceae), is rather isolated and that its resemblance to *Orientomiris* and *Megacoelum* is only superficial.

Neomegacoelum vitreum (Kerzhner), comb. n.

(Figs. 1 & 2)

Creontiades vitreus Kerzhner, 1988a (1987), Nov. maloiz. poluzh. Nasek. dal'n. vost. SSSR, Vladivost., p. 32; Kerzhner, 1988b, Opredel. Nasek. dal'n. vost. SSSR, 2: 815; Schuh, 1995, Plant Bugs of the World, p. 748.

Diagnosis. Recognized by the small body, almost glabrous dorsum, shiny blackish brown pronotum with the narrowly yellow posterior margin, shiny hyaline corium and clavus, and red (or sometimes blackened) cuneus.

Redescription. General coloration variable; dorsal surface rather shiny. Head chestnut brown to fuscous, with sparse, suberect, short pubescence; vertex weakly sulcate longitudinally. Antenna reddish brown to dark chestnut brown;

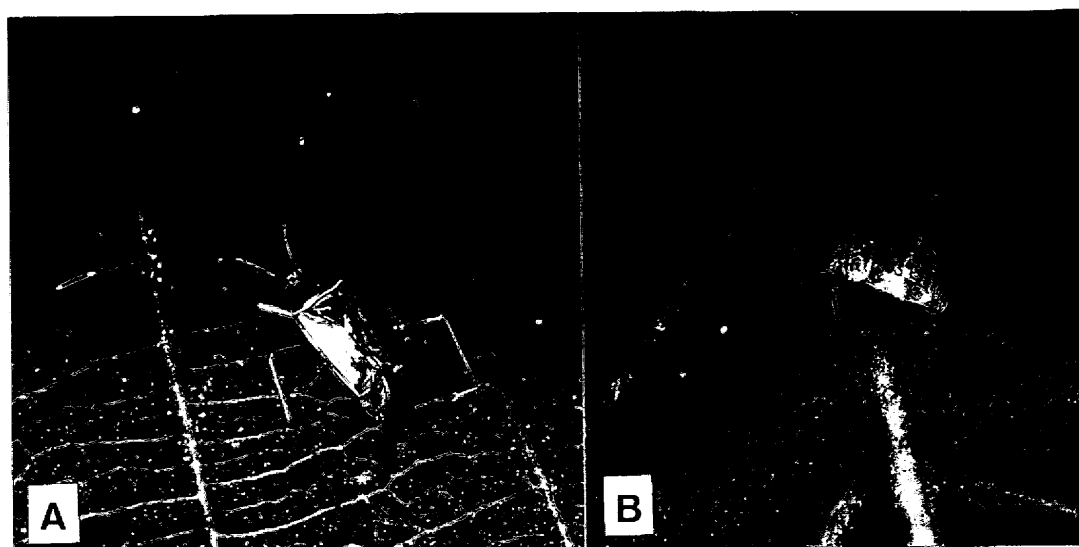


Fig. 1. *Neomegacoelum vitreum* on its host plant, *Quercus acutissima*. — A, adult at Nokonoshima Is., Fukuoka City; B, last-instar nymph at Kōnoura, Nagasaki Pref.

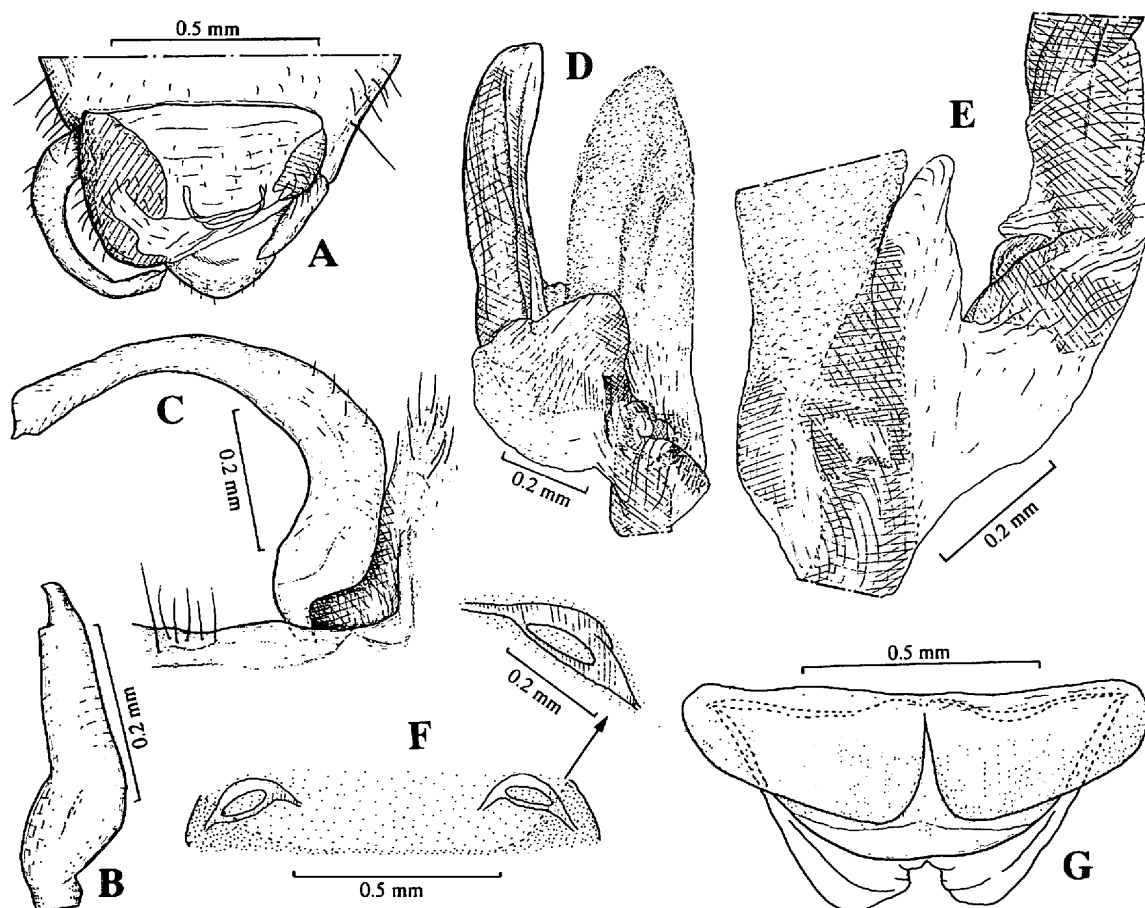


Fig. 2. Male (A-E) and female (F-G) genitalia of *Neomegacoelum vitreum*. — A, Genital segment in dorsal view; B, right paramere; C, left paramere; D, vesica in anterior view; E, ditto in posterior view; F, sclerotized rings; G, posterior wall of bursa copulatrix.

base of segment II somewhat pale; segments III and IV reddish brown, with yellowish extreme bases; length of segments I-IV (♂/♀): 1.00-1.05/1.12-1.25, 2.31-2.55/2.62-3.00, 1.72-1.75/1.75-1.89, 1.00-1.15/1.10-1.18. Rostrum dark chestnut brown, shining, reaching hind coxa; segments III and IV paler; length of segments I-IV (♂/♀): 0.58-0.63/0.65, 0.62-0.68/0.63-0.64, 0.47-0.50/0.52-0.53, 0.73-0.78/0.77-0.78.

Pronotum dark chestnut brown, shining, with very sparse, silky, short setae, not wrinkled, posterior margin usually narrowly yellow; collar pale brown to dark grayish brown, pruinose or shagreened; mesoscutum subshining, with grayish brown pollinosity; scutellum blackish brown, rather shiny, weakly and transversely rugose; thoracic pleurite widely covered with grayish pollinosity, with yellow ostiolar peritreme.

Hemelytra tinged with yellowish or green, widely hyaline and shining; apical parts of corium and clavus infusate; lateral margin of embolium reddish brown or dark brown; cuneus widely red, reddish brown or sometimes blackened; membrane pale grayish brown, semitransparent. Coxa yellowish brown to dark brown; femur reddish brown or dark brown, but widely yellowish or pale red in fresh specimen; hind femur reddish brown to fuscous, sometimes pale red with partly infusate apex; fore- and midtibiae yellow; hind tibia reddish brown or dark chestnut brown; tibial spines blackish; tarsus brown, except for widely darkened tarsomere III; length of hind femur, tibia and tarsus (σ^7/φ): 2.75–2.90/2.87–3.05, 3.90–4.05/4.37–4.60, 0.52–0.55/0.51–0.58; that of hind tarsomeres I–III (σ^7/φ): 0.19–0.24/0.21–0.24, 0.24–0.25/0.23–0.27, 0.26–0.32/0.26–0.33. Abdomen generally reddish brown or dark chestnut brown.

Male and female genitalia as mentioned in generic description.

Dimensions. σ^7/φ : Body length 5.50–6.00/6.30–6.60; head width including eyes 1.02–1.08/1.07–1.15; vertex width 0.40–0.42/0.47–0.50; rostral length 2.30–2.43/2.57–2.58; mesal pronotal length including collar 1.00–1.18/1.06–1.20; basal pronotal width 1.72–1.85/1.93–2.03; maximum width across hemelytra 1.92–1.98/2.20–2.29.

Specimens examined. JAPAN: Honshu: 1 σ^7 , Yamano-uchi, Murayama C., Yamagata Pref., 1. x. 1993, K. Watanabe (HUES); 1 φ , Mt. Tsukuba, Ibaraki Pref., 11. ix. 1994, K. Watanabe (HUES); 1 φ , Higashi-yamada, Kuzuhara, Fujisawa C., Kanagawa Pref., 20. vii. 1988, M. Yamamoto (HUES); 1 σ^7 1 φ , Son'enji, Hirakata C., Osaka Pref., 29. ix. 1993, Y. Nakatani (UOP); 2 σ^7 1 φ , Chojabaru, Geihoku T., Hiroshima Pref., 10–11. vii. 1994, light trap, K. Yoshizawa (HUES). Kyushu: 3 σ^7 1 φ , Mt. Sobosan, Oita Pref., 28–29. vi. 1932, Hori, Fujino & Cho (ELKU); 1 σ^7 , same locality and collectors, 8. vii. 1932 (ELKU); 1 σ^7 , Nokonoshima Is., Fukuoka C., Fukuoka Pref., 30. vii. 1986, S. Miyamoto (MC); 1 σ^7 , Azuma T., Minamitakaki-gun, Nagasaki Pref., 29. viii. 1992, light trap, T. Yasunaga (HUES); 1 φ , Konoura, Sotome T., Nishisonogi-gun, Nagasaki Pref., on *Quercus acutissima*, 1. viii. 1996, T. Yasunaga (HUES); 1 σ^7 2, same locality, plant & collector, 2. viii. 1996 (HUES); 1 σ^7 1 φ , same locality, plant & collector, 4. viii. 1996 (HUES); 1 φ , Uchiyama, Mt. Tatera, Tsushima Is., Nagasaki Pref., on *Q. serrata*, last-instar nymph when collected on 25. ix. 1993 and emerged on 26. ix., T. YASUNAGA (HUES).

Distribution. Japan* (Honshu, Kyushu), continental Russian Far East (Primorskij Kraj, Ussurijskij Dist., Khabarovskij Kraj).

Remarks. This species is easily recognized by the small size, smooth, almost glabrous and rather shiny dorsum, and beautiful hyaline hemelytra with the red cuneus.

Kerzhner (1988) recognized *Quercus mongolica* (Fagaceae) as its host plant in the continental Russian Far East. In Japan *Q. acutissima* and *Q. serrata* were found to harbor the last-instar nymphs. A bivoltine life cycle is assumed for *N. vitreum* because both adults and nymphs have been found

continuously from early June to late September.

Key to Japanese genera, species and subspecies of *Creontiades* and allies

The key given below includes the genera *Adelphocoris* Reuter and *Adelphocorisella* Miyamoto & Yasunaga as well as *Creontiades* and *Orientomiris*, some species of these genera exhibiting similarity in external appearance. For identifying the species of *Adelphocoris* and *Adelphocorisella*, see Yasunaga (1990) and Miyamoto & Yasunaga (1993).

1. Pronotum with both dark simple setae and silvery sericeous pubescence; if pronotum only with a single type of vestiture, then pronotal disk shiny and not rugose 2
- Pronotum with pale vestiture only, subshining, more or less transversely rugose 3
2. Body larger, more than 6.5 mm in length; pronotum shiny; male genital segment with a pair of thumb-like processes near base of each paramere *Adelphocoris* Reuter
- Body smaller, up to 6.2 mm in length; pronotum shagreened and not distinctly shining; male genital segment lacking such processes *Adelphocorisella* Miyamoto & Yasunaga
3. General coloration pale stramineous brown; apex of scutellum with a dark, circular spot; hemelytra entirely pale stramineous brown, sometimes with scattered small dark spots and/or a reddish, mesal longitudinal stripe 4 (*Creontiades* Distant)
- General coloration dark, or distinctly pigmented; scutellum lacking such spot; hemelytra widely fuscous, or widely hyaline with red cuneus 7
4. Antennal segment I apparently longer than width of head including eyes; length of antennal segments II + III more than 5 mm *C. coloripes*
- Antennal segment I as long as or shorter than width of head including eyes; length of antennal segments II + III less than 5 mm 5
5. Body larger, more than 6.5 mm in length *C. bipunctatus*
- Body smaller, up to 6.3 mm in length 6
6. Body suboval; antennal segment I about 2/3 as long as width of head including eyes; pronotum shiny, less rugose; the Ryukyus *C. minutus*
- Body slender; antennal segment I subequal in length to width of head including eyes, pronotum subshining, transversely rugose; the Bonin and Volcano Islands . . *C. brevis*
7. Body small, less than 6.6 mm in length; hemelytra with transparent corium and red cuneus *Neomegacaelum vitreum*
- Body elongate, more than 7 mm in length; hemelytra widely infusate, not transparent 8 (*Orientomiris* Yasunaga)
8. Temperate species; mainlands of Japan (Hokkaido, Honshu, Shikoku & Kyushu) 9
- Subtropical species; the Ryukyus 10

9. Pronotum fuscous, with yellowish or reddish anterior half *O. eurytus*
- Pronotum unicolorously brownish or blackish *O. tricolor*
10. Hind femur yellowish, with darkened apical part 11
- Hind femur almost unicolorous, reddish brown or dark brown 13
11. Pronotum blackish, with yellowish collar and posterior margin *O. flavicollaris*
- Pronotum unicolorously darkened 12
12. Coxa blackish; hind femur yellow, with blackish apical half; Amami-Oshima *O. nigripennis*
- Coxa pale; hind femur widely yellowish, sometimes with darkened apical 1/4–1/3; Iriomote Island *O. yaeyamanus yaeyamanus*
13. Hind femur pale red; tibial spines reddish brown; Amami-Oshima Island *O. erythromelas*
- Hind femur widely dark brown; tibial spines blackish; Yonakuni Island *O. yaeyamanus nigripes*

Genus *Megacoelum* Fieber

(Fig. 3)

Type species: *Capsus infusum* Herrich-Schaeffer, 1837, Wanz. Ins., 4: 30, by monotypy.

Megacoelum Fieber, 1858, Wien. ent. Monatschr., 2: 305; Carvalho, 1959, Arq. Mus. nac., Rio de Janeiro, 48: 158; Wagner & Weber, 1964, Faune Fr., 67: 110, 151, Wagner, 1970–'71, Ent. Abhand-

lung. Mus. Tierk. Dresden, 37, suppl.: 132, 272; Schuh, 1995, Plant Bugs of the World, p. 831.

Diagnosis. Body dark in coloration, moderate in size, oblong-oval and subparallel-sided; dorsal surface subshining, impunctate, and glabrous or sparsely pubescent. Head vertical, rather granulate; vertex with a longitudinal, mesal sulcation. Antenna rather thick, longer than body (from apex of head to apex of membrane); segment I shorter than head width including eyes. Rostrum reaching hind coxa. Pronotum subshining, impunctate, weakly, shallowly and transversely rugose, lateral and posterior margins not carinate; collar narrow, even narrower than any antennal segments. Scutellum raised, tumid, weakly rugose. Hemelytra subshining, impunctate, somewhat granulate. Legs long, tibial spines prominent.

Male genitalia (Fig. 3, A–E): Genital segment with a pair of cone-shaped processes near base of each paramere (A–B). Left paramere curved at apical 1/4, sparsely setose (D); right paramere short and straight (C). Vesica with a single, distinct horn-like spiculum apically; gonopore thick-rimmed, rounded; ejaculatory duct not expanded subapically (E).

Female genitalia (F–G): Sclerotized rings slender, subcontiguous mesally, with an inner extension equal in length to each ring (F). Posterior wall of bursa copulatrix with rather wide interrampal lobes, lacking dorsal structure (G).

Discussion. Based on my examination of three European species, *M. infusum* (Herrich-Schaeffer), *M. beckeri* (Fieber)

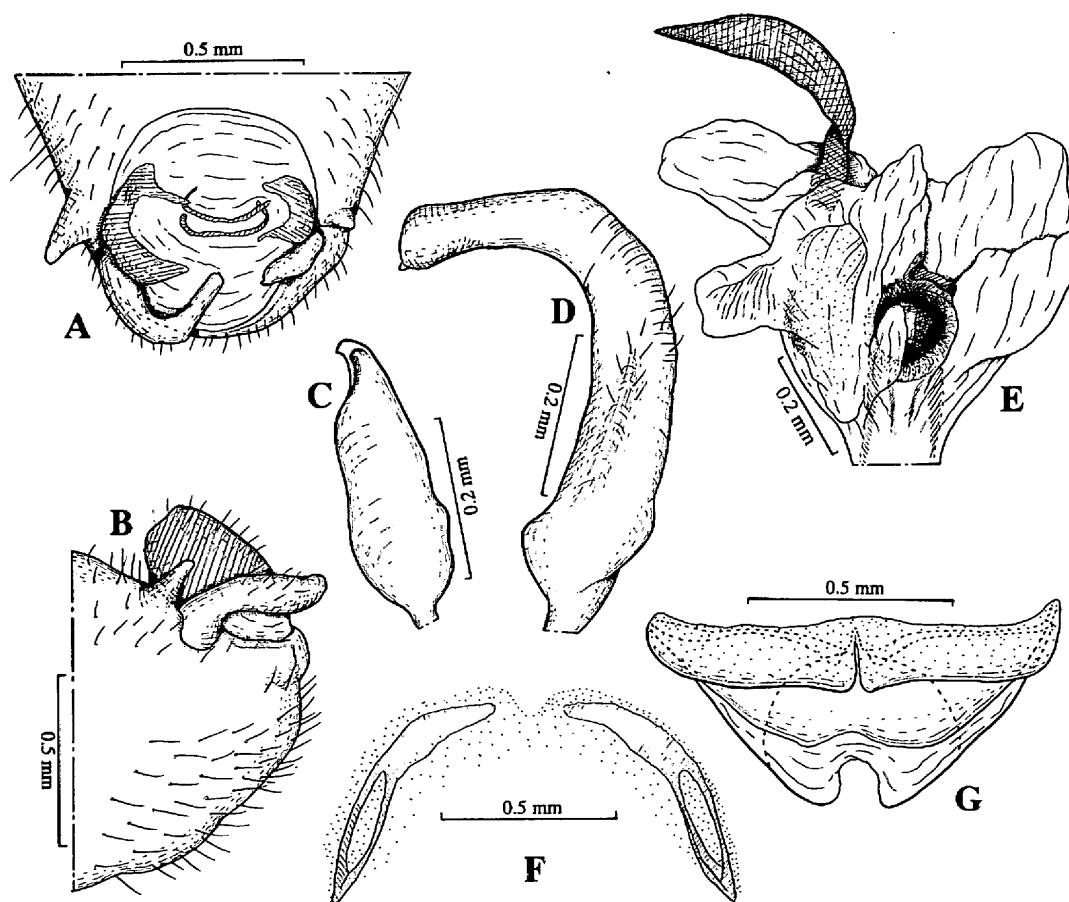


Fig. 3. Male (A–E) and female (F–G) genitalia of *Megacoelum infusum*. — A, Genital segment in dorsal view; B, ditto in left lateral view; C, right paramere; D, left paramere; E, vesica in anterior view; F, sclerotized rings; G, posterior wall of bursa copulatrix.

and *M. myrti* Linnavuori, *Megacoelum* apparently differs from *Creontiades* in the following characters: general coloration darker; dorsal surface subshining; dorsal vestiture sparser; head vertical; antenna thicker; collar evenly narrow; tibia with dark spines; genital segment with a pair of cone-shaped processes; vesica with an apical spiculum and thick-rimmed gonopore. The presence of distinctive apical spiculum and peculiarly shaped female sclerotized rings are considered here as synapomorphies for the genus. *Megacoelum* was proposed for European species, and other species distributed mainly in the western Eurasia, Taiwan and some areas of China have been referred to the genus. Wagner (1970-'71) recognized twelve species from Europe and Mid East; these are undoubtedly true members of *Megacoelum*, so far as based on the redescrptions provided by him. Many other species currently placed in *Megacoelum* from the Old World tropics and subtropics, and especially from eastern Asia, appear to be members of *Orientalis* or other genera.

Exotic species examined, with descriptions of new taxa and propositions of new synonymy and new combinations

1. *Creontiades debilis* Van Duzee, 1915—USA: 1♂1♀, Florida, Flamingo, 24. iv. 1961, L. A. Kelton (HUES).

2. *C. gossypii* Hsiao, 1963—CHINA: 1♂1♀, Lukiang, Bao-

shan, Yunnan Prov., on cotton, 25. iii. 1960 (paratypes, DBNU).

3. *C. pallidifer* (Walker, 1873)—INDIA: 1♂, Vyara, Gujarat, on wheat, 12. iii. 1970, I. Hattori (NIAES); 1♂, Karnal, Haryana, on rice, 28. ix. 1971, I. Hattori (NIAES); 1♂1♀, Coimbatore, Madras, on gram, 10. xi. 1971, I. Hattori (NIAES); 1♂, Bangalore, 23. xi. 1971, K. Sadanaga (NIAES); 1♂, Pakanjore M. P., on rice, 27. xi. 1971, I. Hattori (NIAES); 2♂, New Delhi, 13. xii. 1971, light trap (NIAES).

4. *Creontiades philippinensis* sp. n.

(Fig. 4, A-F)

Diagnosis. Recognized by the rather shiny pronotum which is less rugose and minutely punctate, and almost immaculate hemelytra without reddish tinge.

Description. Body elongate, parallel-sided; dorsal surface generally pale stramineous brown, with rather sparsely distributed, sericeous pubescence. Head pale stramineous brown, partly with red spots, minutely granulate, subvertical, bearing silky, suberect pubescence; vertex with a red tinged, longitudinal mesal sulcus; frons striolate, with sericeous short pubescence along sutures. Antenna almost entirely pale brown, partly tinged with red; length of segments I-IV (♂/♀): 1.02-1.08/1.00-1.05, 2.65-2.90/2.50, 2.12-2.28/2.12-2.25, 1.07-1.25/1.10-1.13. Rostrum pale brown, slightly exceeding hind

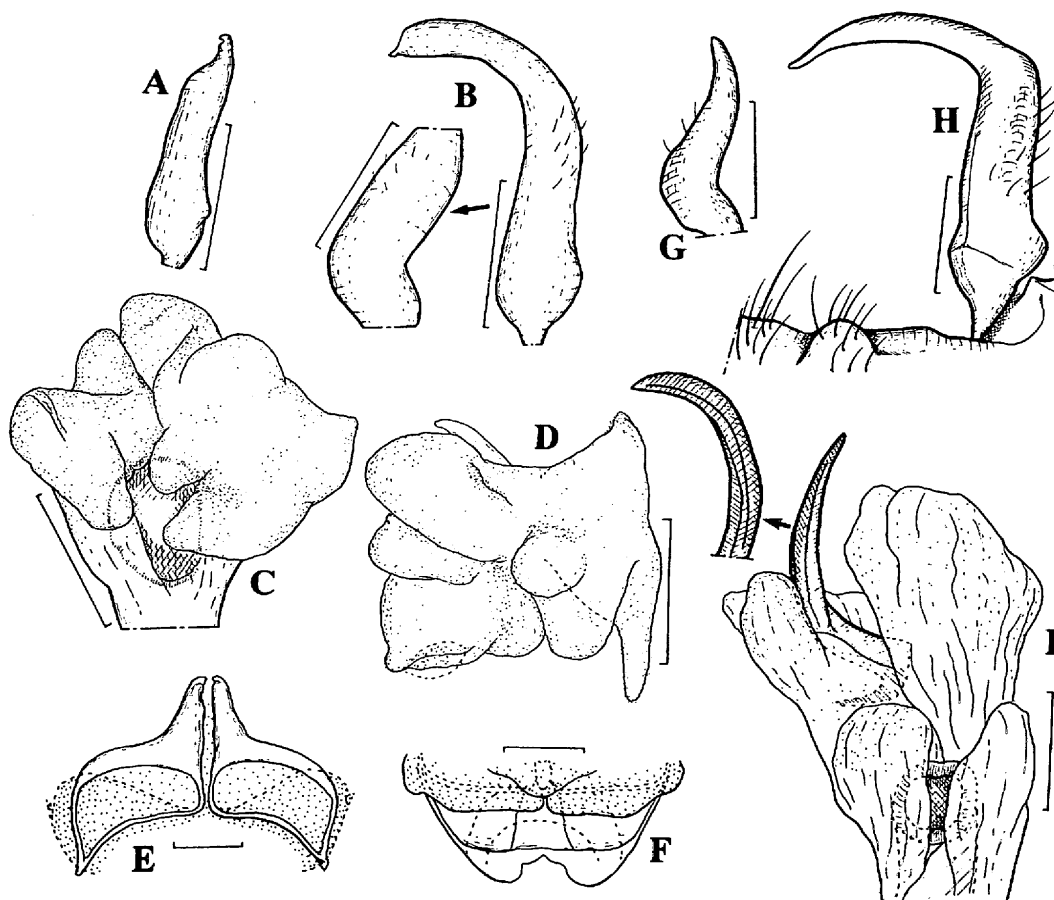


Fig. 4. Male (A-D & G-I) and female (E-F) genitalia of *Creontiades philippinensis* (A-F) and *Megacoelum formosanum* (G-I). — A & G, Right paramere; B & H, left paramere; C & I, vesica in anterior view; D, ditto in dorsal view; E, sclerotized rings; F, posterior wall of bursa copulatrix. Scales: 0.2 mm.

coxa; apical 1/3 of segment IV infusate; length of segments I–IV (σ^7/φ): 0.72–0.73/0.72–0.73, 0.70/0.72–0.73, 0.52–0.53/0.51–0.52, 0.75/0.77–0.78.

Pronotum pale brown, rather shining and less shagreened, with dark spots especially near immaculate posterior margin, sparsely and shallowly punctate, with uniformly distributed, silvery, recumbent pubescence; mesoscutum bearing silvery, recumbent pubescence; scutellum pale brown, somewhat tinged with red, with a pair of dark spots at anteromesally, a dark circular spot at posterior apex and several smaller spots, bearing sparse, silky, suberect pubescence. Hemelytra pale stramineous brown, almost immaculate and rather shiny, with uniformly distributed, silky, suberect, short pubescence; inner part of clavus with tiny dark spots; apical inner corner of corium slightly infusate; membrane pale grayish brown, with reddish veins. Leg pale brown; hind femur with dense sanguineous spots apically; hind tibia with a dark circular spot at extreme base; tibial spines pale reddish brown; length of hind femur, tibia and tarsus (σ^7/φ): 3.25–3.30/2.95–3.00, 4.75–4.90/4.45–4.80, 0.40–0.42/0.35–0.40; that of hind tarsomeres I–III: 0.18–0.20/0.18–0.24, 0.28–0.29/0.28–0.35, 0.31–0.38/0.32–0.37. Abdomen uniformly pale stramineous brown.

Male genitalia (Fig. 4, A–D): Left paramere weakly curved, with short sensory setae (B); right paramere straight, rather slender (A). Vesica with a thin, slender, weakly sclerotized lobe posteriorly (D).

Female genitalia (E–F): Sclerotized ring with distinct median projection (E). Interramal sclerite of posterior wall of bursa copulatrix divided mesally (F).

Dimensions. σ^7/φ Body length 6.50–6.70/6.00–6.40; head width including eyes 1.07–1.08/1.00–1.03; vertex width 0.30–0.34/0.40–0.42; rostral length 2.42–2.63/2.51–2.62; mesal pronotal length including collar 1.00–1.02/0.90–0.95; basal pronotal width 1.70–2.00/1.55–1.83; maximum width across hemelytra 1.82–1.93/1.83–1.93.

Holotype: σ^7 , Puerto Galera, Mindoro Is., the Philippines, 10. ix. 1985, light trap, M. Tomokuni (NSMT). Paratypes: 2 σ^7 1 φ , same data as for holotype (NSMT); 1 φ , Los Baños, 200 m, C. Luzon Is., the Philippines, 12. ix. 1985, light trap, M. Tomokuni (NSMT).

Distribution. The Philippines (Luzon and Mindoro Is.).

Remarks. This new species is related to *C. bipunctatus* Poppius, from which it can be distinguished by the more shiny pronotum, almost immaculate hemelytra, and different structure of the genitalia.

5. *C. rubrinervis* (Stål, 1858)–USA: Florida: 1 σ^7 , Dade Co. Res. & Educ. Ctr. Univ. Fla., Homestead, 13–19. iv. 1981, T. J. Henry & A. G. Wheeler, Jr. (HUES); 1 φ , Monroe Co. Big Pine Key, Watson Hammock, 14. iv. 1981, same collectors (HUES). MEXICO: Chiapas: 1 σ^7 , Bochil, 23. vii. 1969, L. A. Kelton (HUES); 1 φ , Comitán, 20. vii. 1969, L. A. Kelton (HUES).

6. *Megacoelum beckeri* (Fieber, 1870)–BULGARIA: 1 σ^7 , Beledie-han, 700 m, 5. vii. 1968, M. Josifov (HUES).

7. *M. formosanum* (Poppius, 1915), *comb. n.* (*Creontiades*) (= *M. fuscescens* Hsiao, in Hsiao & Meng, 1963: 442, 448, n.

syn.) (Male genitalia: Fig. 4, G–I)–TAIWAN: 1 σ^7 , dated as Taihorinsho/ Formosa/ H. Sauter, 1909/7. ix, here designated as lectotype (DEI); 1 φ , Fuhosho, 7. ix, H. Sauter (paralectotype, DEI). CHINA: 1 σ^7 , Longzhou, Guangxi Prov., 15. vii. 1964, S.-l. Liu (det. as *M. fuscescens* Hsiao, DBNU); 1 φ , Jianfengling, Hainan Is., 10. v. 1964, S.-l. Liu (det. as *M. fuscescens* Hsiao, DBNU).

Note: Examination of the lectotype male revealed that this species should be placed in *Megacoelum*, and that it is conspecific with *M. fuscescens*.

8. *M. infusum* (Herrich-Schaeffer, 1837) (Fig. 3)–BULGARIA: 1 σ^7 , Vraschka Tschuka, 25. vii. 1964, M. Josifov (HUES); CZECHOSLOVAKIA: 1 σ^7 1 φ , Morava, Mohelno (step), J. L. Stehlik (USNM); 1 φ , Breznik, 12. ix. 1943, J. L. Stehlik (USNM). 1 σ^7 , without collecting data, det. by P. R. Uhler (USNM).

9. *M. myrti* Linnavuori, 1965–TURKEY: 1 φ , Iskenderun (Paratype, DBNU).

10. *Orientomiris chinensis* (Li & Zheng, 1991), *comb. n.* (*Megacoelum*)–CHINA: Fujian Prov.: 1 σ^7 , Aotou, Jianyang, 21. vi. 1965, S.-l. Liu (DBNU); 1 σ^7 , Guadun, Chong'an, 6. viii. 1982, C. Chen (DBNU); 1 φ , Sangang, Chong'an, 21. vi. 1965, S.-l. Liu (paratypes, DBNU).

11. *O. piceus* (Reuter, 1906), *comb. n.* (originally placed in *Pantiliodes* Noualhiar, a synonym of *Creontiades*, and subsequently transferred to *Megacoelum* by Zheng (1995))–CHINA: Sichuan Prov.: 1 σ^7 , Momian, Luding, 2,000 m, 4. viii. 1985 (DBNU); 1 φ , Zhijiang, 2,700 m, 9. viii. 1985, W.-j. Bu (DBNU).

12. *O. pronotalis* (Li & Zheng, 1991), *n. comb.* (*Megacoelum*)–CHINA: 1 σ^7 1 φ , Mt. Tianmu, Zhejiang Prov., 15. viii. 1965, S.-l. Liu (paratypes, DBNU).

13. *O. pseudopronotalis* (Li & Zheng, 1991), *comb. n.* (*Megacoelum*)–CHINA: 1 σ^7 , Chong'an, Sangang, Fujian Prov., 22. vi. 1965, S.-l. Liu (paratype, DBNU).

14. *O. rubripeda* (Li & Zheng, 1991), *comb. n.* (*Megacoelum*)–CHINA: Fujian Prov.: 1 σ^7 1 φ , Nanjing, Hexi, 22. vii. 1965, L.-c. Wang (paratypes, DBNU); 1 σ^7 , Chong'an, Sangang, 6. viii. 1982, P.-p. Chen (DBNU).

15. *O. tenuicornis* (Li & Zheng, 1991), *comb. n.* (*Megacoelum*)–CHINA: Sichuan Prov.: 1 σ^7 , Jinchuan, 2,000–2,300 m, 10. ix. 1963, S.-l. Liu (paratype, DBNU); 1 φ , Baoxing, 950–1360 m, 18. vi. 1963, L.-y. Zheng (paratype, DBNU).

16. *O. yunnananus* (Li & Zheng, 1991), *comb. n.* (*Megacoelum*)–Not examined.

17. *O. zoui* (Li & Zheng, 1991), *comb. n.* (*Megacoelum*)–Not examined.

Note: Judging from the original descriptions and illustrations of the male genitalia provided by Li & Zheng (1991), *zoui* and *yunnananus* are undoubtedly members of *Orientomiris*.

Poppiocapsidea gen. n.

(Fig. 5)

Type species: *Megacoelum clypeale* Poppius, 1915.

Diagnosis. Recognized by the short rostrum not reaching

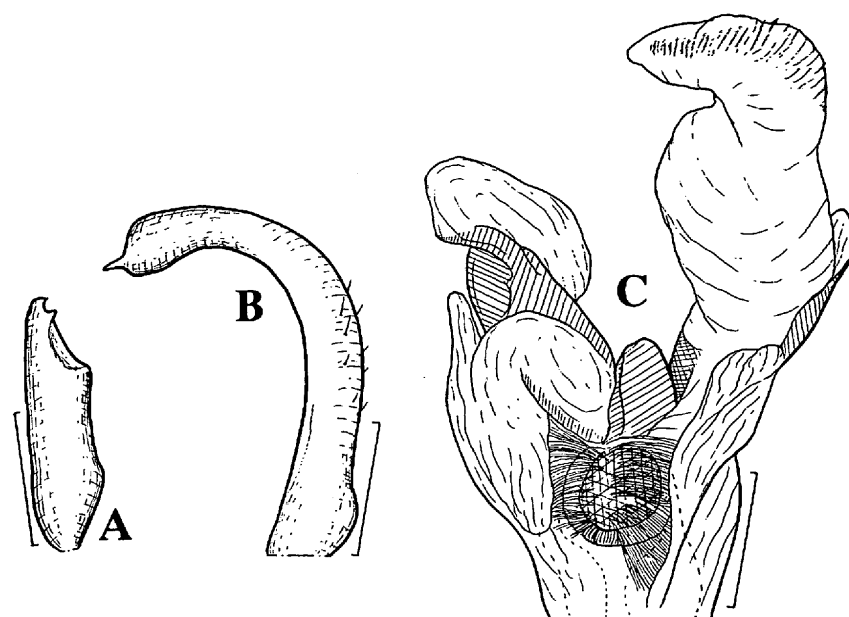


Fig. 5. Male genitalia of *Poppiocapsidea clypeale*. — A, Right paramere; B, left paramere; C, vesica. Scales: 0.2 mm.

hind coxa, shiny and glabrous pronotum with the shiny collar, dense vestiture on the hemelytra, and hairy tibia.

Description. Body elongate oval, large, 8.3–8.5 in length, 2.8–3.0 in maximum width; dorsal surface shining, with silky pubescence. Head rounded in lateral view, with sparsely distributed, silky, short, suberect pubescence; vertex shining, with a weak, longitudinal mesal sulcation which is triangularly widened posteriorly; frons very weakly striolate. Antenna long; segment I shorter than width of head including eyes; segment II about 2.5 times as long as I, slightly longer than III; segment III subequal in thickness to II, longer than basal width of pronotum. Rostrum short, reaching or slightly exceeding middle coxa.

Pronotum shiny, rather tumid, almost glabrous and smooth, with sparse and very fine punctures; collar shiny and smooth, about as thick as antennal segment II; mesoscutum not distinctly shagreened or pruinose, with silky, short pubescence; scutellum relatively flat, transversely rugose, with uniformly distributed, silky, suberect, short pubescence. Hemelytra shallowly rugose, with dense, silky, recumbent pubescence. Leg rather long; tibia with dense, silky, suberect setae and pale reddish brown spines.

Male genitalia (Fig. 5): Parameres similar in form to those of *Creontiades* or *Megacoelum*; left paramere with several short sensory setae (B); right paramere with a subapical process (A). Vesica bilobed, provided with several sclerotized plates, bearing dense, peculiar, membranous hair-like processes covering thick-rimmed gonopore (C).

Female genitalia: Not examined.

Discussion. This new genus is very characteristic in having the peculiar hair-like membranous processes in front of the gonopore, and this state is considered to be an autapomorphy for the new genus. In the present study, I have not examined female genitalia of the type species because no female specimen other than the holotype was available, but the male genital structure sufficiently supports the placement of *clypeale* in the

new genus.

18. *Poppiocapsidea clypeale* (Poppius, 1915), **comb. n.** (*Megacoelum*) (Fig. 5)—TAIWAN: 1 ♀, Kanshirei, Kagi-ken, 1. ii. 1983, K. Baba (NSMT); 1 ♀, Kosempo, x. 1911, H. Sauter (holotype, DEI).

Note: The male is reported here for the first time. The female holotype exhibits pale reddish general coloration with the darkened tylus, mesal parts of pronotum and entire cuneus, but the male is generally yellowish with the widely darkened head, pronotum and hemelytra.

Acknowledgments

I especially thank Dr. S. Miyamoto (Fukuoka City) for his continuous advice and encouragement. I am also much indebted to Dr. M. D. Schwartz (Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, Ottawa), who was kind enough to review the manuscripts. My cordial thanks are due to the following individuals for offering invaluable material, photographs used in this paper, and/or kind assistance during my fieldwork: Dr. M. Josifov (Bulgarian Academy of Sciences, Sofia); Dr. R. Gaedike and Dr. E. K. Groll (DEI); Prof. L.-y. Zheng (DBNU); Dr. T. J. Henry (USNM); Dr. M. D. Schwartz; Mrs. J. Margerrison-Knight (NHML); Dr. S. Miyamoto; Ms. M. Ogawa and Ms. Y. Todo (Sapporo C.); Mr. T. Ichita (Kuroishi C., Aomori Pref.); K. Watanabe (Yamagata Pref.); Dr. M. Hayashi (Saitama Univ., Urawa); Dr. T. Matsumura and Mr. K. Konishi (NIAES); Mr. H. Hasegawa (Hoya C., Tokyo); Dr. M. Tomokuni and Dr. S. Nomura (NSMT); Mr. S. Gotoh (Tanabe City); Mr. Y. Nakatani (UOP); Dr. A. Nakanishi and Dr. Y. Sawada (MNHA); Mr. M. Takai, Mr. T. Kawasawa, Mr. M. Kawamura and Mr. I. Yamashita (Kochi Pref.); Mr. R. Noda (Fukuoka Pref.); Prof. Emer. Y. Hirashima, Prof. K. Morimoto and Dr. S. Kamitani (ELKU); Mr. K. Takeno (HBLK); Mr. T. Nakamura, Mr. K. Yoshizawa, Mr. R. Matsumoto and Mr. T.

Yamauchi (Biosystematics Laboratory, Kyushu Univ.); Mr. K. Tanaka and the late Mr. M. Ejima (Nagasaki C.).

References

- Carvalho, J. C. M. 1956. Heteroptera: Miridae. *Bernice P. Bishop Museum Insect of Micronesia*, 7: 1-100. Honolulu, Hawaii.
- Carvalho, J. C. M. 1959. Catalogue of the Miridae of the world. Part IV. *Arquivos do Museo nacional, Rio de Janeiro*, 48: 1-384.
- Distant, W. L. 1883. *Biologia Centrali-Americana, Insecta, Hemiptera-Heteroptera*, 1: 1-462, 39 pls.
- Distant, W. L. 1904. The fauna of British India, including Ceylon and Burma, Rhynchota. Taylor & Francis, London.
- Distant, W. L. 1910. The fauna of British India, including Ceylon and Burma, Rhynchota, 5. Heteroptra Appendix. Taylor & Francis, London.
- Esaki, T. 1950. Heteroptera. In Esaki *et al.* (ed.) *Iconographia Insectorum Japonicorum*: 179-270. Hokuryukan, Tokyo. (In Japanese.)
- Fieber, F. X. 1858. Kriterien zur generischen Theilung der Phytocoriden (Capsini aut.). *Wiener entomologische Monatschrift*, 2: 289-327, 329-347, 388, 1 pl.
- Hasegawa, H. 1960. Heteroptera of Niigata Prefecture, Japan. *Bulletin of Nagaoka Municipal Science Museum*, (1): 19-65. (In Japanese.)
- Hsiao, T.-y. & Meng, H.-y. 1963. The plant bugs collected from cotton fields in China (Hemiptera-Heteroptera, Miridae). *Acta Zoologica Sinica*, 15: 439-449. (In Chinese with English descriptions of new taxa.)
- Kerzhner, I. M. 1988(1987). Novye i maloizvestnye poluzhestkokryryeNasekomyesDal'negoVostokaSSSR [Newandlittle known heteropterous insects of the Soviet Far East]. 1-83 pp. Akademija Nauk SSSR, Vladivostok. (In Russian.)
- Li, X.-z., & Zheng, L.-y. 1991. New species of the genus *Megacoelum* Fieber from China (Miridae, Heteroptera). *Tijdschrift voor Entomologie*, 134: 183-192.
- Linnavuori, R. 1963. Contribution to the Miridae fauna of the Far East III. *Annales Entomologici Fennici*, 29: 73-82.
- Miyamoto, S. & Yasunaga, T. 1993. A new genus of the mirid bug, *Adelphocorisella*, with two new species from Japan. *Proceedings of the Japanese Society of Systematic Zoology*, (49): 47-52.
- Poppius, B. 1915(1914). H. Sauter's Formosa=Ausbeute: Nabidae, Anthocoridae, Termatophylidae, Miridae, Isometopidae und Ceratocombidae (Hemiptera). *Archiv für Naturgeschichte*, 8A: 1-80.
- Poppius, B. 1915. Zur Kenntnis der Indo-Australischen Capsarien I. *Annales Historico-naturales Musei Nationalis Hungarici*, 13: 1-89.
- Todo, Y. & Yasunaga, T. 1996. The plant bugs collected on willow (*Salix* spp.) in Hokkaido, Japan. *Rostrum*, (45): 41-47. (In Japanese with English summary.)
- Walker, F. 1873. Catalogue of the specimens of Hemiptera Heteroptera in the collection of the British Museum, Part VI. British Museum, London.
- Yasunaga, T. 1988. A new species of the genus *Creontiades* (Heteroptera, Miridae) from Japan, with a note on *C. tricolor*. *Kontyû, Tokyo*, 56: 475-479.
- Yasunaga, T. 1990. A revision of the genus *Adelphocoris* Reuter (Heteroptera, Miridae) from Japan, Part II. *Japanese Journal of Entomology*, 58: 725-733.
- Yasunaga, T. 1991. Record of the female of *Creontiades eurytus* (Heteroptera, Miridae). *Japanese Journal of Entomology*, 59: 504.
- Yasunaga, T., Takai, M., Yamashita, I., Kawamura, M. & Kawasawa, T. 1993. A field guide to Japanese bugs. Terrestrial heteropterans (Tomokuni, M., ed.). 380 pp. *Zenkoku Noson Kyoiku Kyokai*, Tokyo. (In Japanese.)
- Zheng, L.-y. 1995. A list of the Miridae (Heteroptera) recorded from China since J. C. M. Carvalho's "world catalogue". *Proceedings of the entomological Society of Washington*, 97: 458-473.

(Received February 7, 1997; Accepted June 20, 1997)