

CONTRIBUTION TO THE KNOWLEDGE OF ANTHOCORIDAE
FROM JAPAN AND ITS ADJACENT TERRITORIES
(HEMIPTERA-HETEROPTERA) 1.*

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Since POPPIUS's works (POPPIUS, 1909, 1914) based on HANS SAUTER's collection, the knowledge of Anthocoridae occurring in Japan and its neighbouring regions has been scarcely advanced. In the present paper the author adds some data, observations and taxonomic dispositions. Most of materials are preserved in the Osaka Museum of Natural History and in the Entomological Laboratory of Kyushu University.

Before going further, the author wishes to express his hearty thanks to the late Dr. Professor Teiso ESAKI, Professor Keizo YASUMATSU, Professor Shōichi MIYAMOTO, Professor Yoshihiro HIRASHIMA, Professor Shun-ichi NAKAO, Mr. Mitsuo TAKAHASHI, Mr. Katsura MORIMOTO, Mr. Osamu MIZOGUCHI, Mr. Hitoshi HASEGAWA, Mr. Terunobu HIDAKA, Mr. Yasutoshi OKADA, Mr. Masao HAYASHI, Mr. Taichi SHIBATA, Mr. Yōzo MURAKAMI, Mr. Yoshihiko MAEDA, Mr. Tomoaki YOSHIDA, Mr. Shinsaku KIMOTO, Mr. Hiroyuki KAMIYA, Mr. Yoshikazu MIYAKE, Mr. Shigeo MIZOGUCHI, Mr. Kin-ichi MIZOGUCHI, Mr. Yasuo NISHIOKA, Mr. Hiroshi FUKUDA, Mr. Yutaka KIMURA, Mr. Yasuo HAMA, Miss. Chiyoko ŌKUMA and members of the Osaka Museum of Natural History for their kind help, guidance and assistance in materials.

Genus *Teisocoris* nov. (Anthocorinae)

Genotype: *Ectemnus pictipennis* ESAKI, (1931)

Colour shining black, central part of hemielytra whitish yellow, membrane greyish, centrally with brown longitudinal marking.

Head long, cylindrical; eyes small, weakly prominent, post-ocular area broad, eyes apart far from the anterior margin of pronotum, neck area broad, not constricted. First segment of antennae stout, not beyond the apex of head, second segment very stout and thickened, last two segments slender and club-like, not thread-like. Rostrum long, not reaching the apex of front coxae.

All legs normal, without armaments. Pronotum narrow, with very broad collar area, lateral margin narrowed forwards straightly with distinct marginal area, poste-

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rior margin shallowly curved, central transverse groove very shallow. Scutellum broad, frontal $3/5$ levigated. Coxae of front legs contact each other. Mesosternum broad, coxae of middle legs apart far from each other; metasternum very narrow, evaporating area of scent-gland T-shaped, coxae of hind legs apart from each other.

Hemelytra without punctuation, poorly haired, embolium narrow, membrane broad, with two distinct veins. Venation of hind wing as shown in figure.

Distinguished from the other genera of Anthocorinae by possessing the following characters:—1. first and second antennal segment very stout; 2. head long and cylindrical; 3. neck broad and not constricted; 4. eyes small and weakly prominent, apart far from the anterior margin of pronotum; 5. rostrum not reaching the front coxae; 6. collar of pronotum very broad; 7. evaporating area of scent-gland T-shaped; 8. both meso- and meta-coxae apart far from each other.

***Teisocoris pictipennis* (ESAKI), 1931**

“Monshiro-Hanakamemushi”

1931 *Ectemnus pictipennis* ESAKI, Ann. Zool. Jap., vol 13, p. 264, f. 5

1934 *Ectemnus pictipennis* ESAKI, Icon. Ins. Jap., p. 1673, f. 3305

1950 *Ectemnus pictipennis* ESAKI, Icon. Ins. Jap., ed. 2, p. 256, f. 671

Distribution :— Japan Kyushu (Mt. Wakasugi, Fukuoka-pref.)

Specimens examined :— 1 ♀, Takarajima, Tokara Is., Kagoshima-pref., 26. V. 1953, S. MIYAMOTO leg.; 1 ♀, Hattani, Nose, Osaka-pref., 9. II. 1958, T. SHIBATA & Y. HAMA leg.

Habits :— Lives in the grasses (after ESAKI); MIYAMOTO obtained the specimen from the dead tree by beating, and HAMA collected another under the pile of fallen leaves near the water with Dryopid- and Ptiliid- beetles.

Genus *Tetraphleps* FIEBER, 1860 (Anthocorinae)

***Tetraphleps ezoensis* n. sp.**

“Kogashira-Hanakamemushi”

Colour: Black; eyes black; ocelli, tip of every femur and tips of front coxae reddish, every tibia sometimes yellowish brown; hemelytra brownish black or yellowish brown, cuneal suture sometimes yellowish; membrane dark grey, with the whitish spots near the cuneal angle and inner basal corner.

Structure: Body elongate-ovate, upper surface with yellowish hairs. Head levigated and poorly haired, (neck except) shorter than width including both eyes, eyes moderate. First segment of antennae reaching the apex of head, second segment equal

length as width of head including both eyes, first two segments club-like and last two spindle-form, proportions are I : II : III : IV = 6 : 20 : 11 : 13. Rostrum reaching the middle of front coxae, proportions are II : III : IV = 5 : 17 : 10.

Pronotum inclined forwards, densely haired, lateral margins narrowed forwards, anterior end strongly rounded inwards; collar distinct but posited between both apical angles, posterior margin curved; upper surface strigose but central area of anterior half levigated. Scutellum densely haired, anterior $3/5$ swollen, posterior $2/5$ depressed and strigose.

Hemelytra punctate and weakly strigose, densely haired, anterior $2/3$ of outer margin of embolium warped up; proportions of embolium and cuneal length are 2 : 3, outer end of cuneal suture rifted; membrane with four veins. Middle coxae apart from each other; evaporating area of scent-gland straight and elevated, ending prominent tip. Ovipositor of female well developed. Legs normal, without armaments, apex of every tibia with spongy structure.

Length: 3.6-3.8 mm, width: 1.5 mm.

Holotype ♂, Allotopotype ♀, Paratopotypes 4 ♂♂ 2 ♀♀, Mt. Meakandake, Hokkaido, 5. VII. 1958, S. MIYAMOTO leg., collected from "Ezomatsu", *Picea jezoensis* and from "Todomatsu", *Abies sachalinensis*.

Allied to west siberian species *T. atterimus* (SAHLBERG), but differs from it by the shorter head, antennal proportions and markings of membrane.

Genus *Anthocoris* FALLÉN, 1826 (Anthocorinae)

Six species of this genus have been known from far east, *A. confusus* REUTER from Wladiwostock, *A. nemorum* LINNÉ from "East Asia", *A. sibiricus* REUTER from Irukutuk, *A. sylvestris* LINNÉ from Kamtschacka, *A. ussuriensis* LINDBERG from Spas-skaya, Ussuri, and *A. japonicus* POPPIUS from Honshu, Japan. Now following three new species are added.

Anthocoris miyamotoi n. sp.

"Kimon-Kuro-Hanakamemushi"

Colour: Light brown; antennae light brown, base and apex of second segment, apex of third segment, total of last segment black, tip or total of first segment black. Rostrum black, eyes dark brown, ocelli light brown, median lobe of head black, head totally brown or black. Collar and posterior half of pronotum black, anterior disk light brown or brown or black. Legs light brown or black. Hemelytra stramineous, with black markings, membrane almost brown with white sub-hyaline area as shown in figures.

Specimens from Tokara Is. and lower land of Kyushu are light, from mountainous region of Shikoku and Hokkaido are blackish, some of from Kyushu are of intermediate colour pattern.

Structure: Elongate, most of upper surface levigated and shining, coarsely haired, posterior half of pronotum, scutellum and cuneus pilosed with long golden hairs. Head (neck except) as long as width including both eyes; antennae long and stout, club-like, last segment spindle-shape, second segment as long as width of head including both eyes, proportions are I : II : III : IV = 12 : 38 : 25 : 29. Rostrum reaching the middle of front coxae, proportions are II : III : IV = 10 : 43 : 24.

Pronotum sub-horizontal; collar broad, weakly granulated; lateral margin arcuate, posterior margin deeply curved, broader than twice of anterior margin of collar (78 : 30). Disk with deep transverse groove in the middle. Anterior 2/3 of scutellum convex, posterior 1/3 depressed. Hemelytra long and narrow, mostly covering the abdomen (abdominal margin exposed), proportions of embolium and cuneal length are 51 : 33. Membrane with only one distinct vein.

Length: Male, 3.3mm., Female, 3.2-3.7 mm.

Width: Male, 0.9mm., Female, 1.0-1.25 mm.

Holotype ♂, Allotopotype ♀, Nakanoshima, Tokara-Is., Kagoshima-pref., 3-13. V. 1953, T. NAKANE leg. Paratypes 1 ♂ 4 ♀ ♀: 1 ♂ 1 ♀, Sata-cape, Kagoshima-pref., 29. V. 1953, I. HIURA leg.; 1 ♀, Mt. Iwayasan, Nagasaki-city, 3. VIII. 1957, H. KAMIYA leg.; 1 ♀, Tachibanayama near Fukuoka-city, 28. VI. 1956, S. MIYAMOTO leg.; 1 ♀, Mt. Hikosan, Ōita-pref., 20. VIII. 1956. S. MIYAMOTO leg.

1 ♀, Katsura-fudō, Jinryo-vil., Tokushima-pref., 24. VII. 1952, I. HIURA leg.; 1 ♀, Omogō-kei, Ehime-pref., 4. V. 1958, Y. MIYATAKE leg.; 1 ♀, Ashoro, Hokkaido. 16. VI. 1958, Y. MURAKAMI leg. Last three specimens may represent a different subspecies.

Allied to *A. aterrimus* DISTANT from Burma, but differs from it by the antennal proportions, coloration of hemelytra and membrane. Specific name is dedicated to Professor S. MIYAMOTO, designating author's heartfelt thanks for his kind help and constant advice. This is the most beautiful bug of the Japanese Anthocoridae.

***Anthocoris japonicus* POPPIUS, 1909**

“Kuro-Hanakamemushi”

1909 *Anthocoris japonicus* POPPIUS, Act. Soc. Sci. Fenn., XXXVII (9) p. 33-34.

1950 *Anthocoris japonicus* ESAKI, Icon. Ins. Jap., ed. 2, p. 257 f. 672

1957 *Anthocoris japonicus* MIYAMOTO, Sieboldia, 2 (1) p. 76

Distribution:- Japan, Honshu (“Kanagawa”)

Specimens examined:- 2 exs., Shikanoshima, Hakata Bay, Fukuoka-pref., 25. VI.

1957, T. HIDAOKA leg., from the aphid-galls of "Keyaki", *Zelkova serrata*; 5 exs., Kuroki-machi, Yame-gun, Fukuoka-pref., 2. II. 1953. Y. MIYAKE leg., under the bark of "Mukunoki", *Aphananthe aspera*; 1 ex., Mt Daisen, Tottori-pref., 27. V. 1954, S. KIMOTO leg.; 6 exs., 2. VI. 1950, 7 exs., 3. VI. 1950, 8 exs., 14. VI. 1950, Murozumi, Hikari-city, Yamaguchi-pref., S. MIYAMOTO leg., from the aphid-galls of "Keyaki"; 1 ex., same locality, 25. III. 1952, S. MIYAMOTO leg., under the bark of "Keyaki"; 1 ex., Nara-park, Nara-city, 19. I. 1958, T. SHIBATA leg., under the bark of "Keyaki"; 3 exs., Sugunami, Tokyo, 7. II. 1948, 4 exs., Seijyō, Tokyo, 15. II. 1949, 4 exs., Fuchū, Tokyo, 1. II. 1950, 1 ex., Fuchū, Tokyo, 18. XII. 1950, 3 exs., Mt. Takao, Tokyo, 24. I. 1950, M. TAKAHASHI leg., under the bark of "Keyaki".

Habits:-Living on the "Keyaki" tree, *Zelkova serrata*, where they may be predaceous on aphids which make galls on leaves. Hibernating under the bark of "Keyaki". MIYAKE's observation that they hibernate under the bark of "Mukunoki" tree, *Aphananthe aspera*, induce us to investigate the "Mukunoki" leaves in early summer.

Anthocoris chibi n. sp.

"Chibi-Kuro-Hanakamemushi"

Colour: Antennae light brown, first segment brown, apexes of second and third segments black, last segment brownish black, third segment sometimes totally brownish black. Head black, apical half brownish, eyes brownish black, ocelli reddish brown. Pronotum and scutellum black. Hemelytra brownish black, membrane greyish transparent, posterior half brown. Rostrum brownish black, legs brown or brownish black.

Structure: Oblong-ovate; upper surface levigated and shining, poorly haired. Head (neck except) shorter than width including both eyes (34 : 37). Antennae stout and club-like, last two segments spindle-form; first segment reaching the apex of head, second segment little longer than width of head including both eyes (40 : 37), proportions are I : II : III : IV = 13 : 40 : 24 : 27. Rostrum long, beyond the fore coxae and reaching the apical 1/3 of mesosternum, proportions are II : III : IV = 5 : 30 : 17.

Pronotum sub-horizontal; collar broad, granulated; lateral margins of pronotum narrowed forwards straightly, anterior end rounded inwards; posterior margin broadly curved, shorter than three times of anterior margin of collar (31 : 86); disk with distinct transverse groove in the middle, anterior half convex and levigated, posterior half strigose. Anterior half of scutellum convex and levigated, posterior half depressed and strigose. Hemelytra completely covering the abdomen in male, but in female, abdominal margin slightly exposed; cuneus punctate; clavus and most of corium mat, pilosed with long white hairs; proportions of embolium and cuneal length are 59 : 28. Membrane with three parallel veins, middle vein sometimes hard visible.

Length: Male, 2.9mm.; Female, 3.3mm.

Width: Male, 1.0mm.; Female, 1.2mm.

Holotype, ♂, Yodobashi-Jyōsuijyō, Tokyo, 12. VII. 1957, Y. NISHIOKA leg. Allotype, ♀, Hakozaki Fukuoka-city, 2. VI. 1954, I. HIURA leg. Paratypes 16 ♀♀: 1 ex., 14. VI. 1953, 2 exs., 18. V. 1954, 2 exs., 26. V. 1954, 4 exs., 2. VI. 1954, 3 exs., 13. VI. 1954, Hakozaki, Fukuoka-city, I. HIURA leg.; 1 ex., Mt. Wakasugi, near Fukuoka-city, 11. VIII. 1958, S. MIYAMOTO leg.; 1ex., Sata-cape, Kagoshima-pref., 30. V. 1953, I. HIURA leg.; 1 ex., Jinryō-vil., Tokushima-Pref., 4. VIII. 1953, I. HIURA leg.; 1 ex., Izumi-Tamagawa, Tokyo, 24. VI. 1951, M. TAKAHASHI leg.

1 ex., Izu-Ōshima I., Tokyo, 29. IX. 1949, Y. ITOH leg.

Living in the *Pinus* forest, where they may be predaceous on aphids. Allied to *A. japonicus* POPPIUS but differs from it by smaller size and antennal proportions.

***Anthocoris confusus* REUTER, 1884**

“Chabane-Kuro-Hanakamemushi”

1884 *Anthocoris confusus* REUTER, Act. Soc. Sci. Fenn., XIV, p. 625-626.

1890 *Anthocoris confusus* EDWARDS, Ent. Monthl. Mag., vol. 26-27. new ser. vol. 1-2.

1896 *Anthocoris confusus* LETHIERRY et SEVERIN, Cat. III, p. 237.

1927 *Anthocoris confusus* LINDBERG, Act. Soc. Faun. Flor. Fenn., 56, N: 9, p. 21

1954 *Anthocoris confusus* LE QUESNE, Ent. Monthl. Mag., XV (170) PP. 36-40.

Distribution:-Europe (Sweden, Finland, Norway, Holland, Great Britain, Galicia, Italia, and Helvetia), and East Siberia (Wladiwostock).

Specimen examined:-1 ♂, Ashoro, Hokkaido, 28. V. 1957, M. TAKAHASHI leg.

Habits:- Lives on the poplar and hop in Europe.

***Anthocoris takahashii* n. sp.**

“Ō-Kuro-Hanakamemushi”

Colour: Pitch black, shining; inner margin of eye, ocelli brownish. Hemelytra brownish, outer margin of cuneus and embolium, same of clavus black, cuneal suture yellow-ochre. Membrane greyish hyaline, basal corner and apical half brownish as shown in figures.

Structure: Oblong-ovate, upper surface of head weakly strigose, head (neck except) shorter than width including both eyes, eyes large, prominent. Antennae stout and club-like, first segment reaching the apex of head, second segment thickened, subequal length as width of head including both eyes (45:47), last two segments spindle-like, proportions are I:II:III:IV=1:3:2:2. Rostrum just reaching the apex

of fore coxa, proportions are II : III : IV = 9 : 31 : 14.

Pronotum inclined forwards; collar large, strongly granulated; lateral margins narrowed forwards straightly, apical end strongly rounded inwards, posterior margin broadly curved, $3\frac{1}{2}$ wider than anterior margin of collar, disk with transverse groove in the middle, anterior disk levigated, posterior half punctate and weakly strigose. Scutellum broad, anterior half convex and weakly scratched, posterior half depressed, transversely strigose.

Hemelytra large, completely covering the abdomen, pilosed with the short yellow hairs, embolium and cuneus levigated and punctate, clavus and corium mat, proportions of embolium and cuneal length are 79 : 43. Membrane with four distinct veins, inner two approaching to each other.

Length 4.8mm., width 1.7mm.

Holotype ♂, Allotopotype ♀, Paratopotype ♀, Ashoro-gun, Hokkaido, 28. V. 1957, M. TAKAHASHI leg.

Allied to *A. confusus* REUTER, but distinguished from it by the larger size, black coloration and longer second antennal segment. Specific name is dedicated to Mr. Mitsuo TAKAHASHI, for his continuous assistance in materials to the author.

Genus *Physopleurella* REUTER, 1884 (Dufouriellinae)

Physopleurella armata POPPIUS, 1909

“Yumiashi-Hanakamemushi”

- 1909 *Physopleurella armata* POPPIUS, Act. Soc. Sci. Fenn., XXXVII (9) p.12
 1914 *Physopleurella armata* POPPIUS, Arch. Nat., Bd. 80, A8, p.7
 1926 *Physopleurella armata* ESAKI, Ann. Mus. Nat. Hung., XXIV (178) p.170
 1957 *Physopleurella armata* MIYAMOTO, Sieboldia 2(1) p. 76
 1931 *Scoloposcelis japonicus* ESAKI, Ann. Zool. Jap., vol. 13, p.263, f. 4
 1932 *Scoloposcelis japonicus* ESAKI, Icon. Ins. Jap., p. 1673, f. 3306
 1938 *Scoloposcelis japonicus* KATO, “Musashino-Konchū-Shi” p. 54, no. 1
 1950 *Scoloposcelis japonicus* ESAKI, Icon. Ins. Jap., ed. 2, p.257, f. 674

Distribution :- New-Guinea, Formosa (Anping, Daitotei), and Japan (“Bukenjei”, Fukuoka-Hirao, and Mt. Wakasugi Fukuoka-pref.).

Specimen examined :- Kyushu: 1 ex., Kechi~Izuhara, Tsushima-Is., 29. VII. 1930; 2 exs., 30. VII. 1930, HORI et CHō leg.; 2 exs., Mt. Iwayasan, Nagasaki-city, 3. VIII. 1957, H. KAMIYA leg.; 7 exs., Kōnosuyama, Fukuoka-city, 10. XI. 1953, I. HIRURA leg.; 10 exs., Tachibanayama, Fukuoka-city, 28. X. 1954, K. MORIMOTO leg.; 1 ex., Harumachi, Fukuoka-city, 20 VIII. 1948, S. MIYAMOTO leg.; 1 ex., Mt Inunaki, Fukuoka-pref., 5. V. 1954, K. MORIMOTO leg.; 4 exs., Mt. Wakasugi, Fukuoka-pref., 10. XII. 1955, K. MORI-

moto leg.; 1 ex., Sata-cape, Kagoshima-pref., 30. V. 1953, S. KIMOTO leg.

Shikoku: 1 ex., 14. VII. 1953, 30 exs., 17. VII. 1953, 12 exs., 22. VII. 1953, 1 ex., 30. VII. 1953, 1 ex., 2. VIII. 1953, 1 ex., 19. VIII. 1953, 1 ex., 20. VIII. 1953, 1 ex., 31. VIII. 1953, Uetsuno, Jinryō-vil., Tokushima-pref., I. HIURA leg.; 1 ex., Uetsuno, Jinryō-vil., Tokushima-pref., 13. IX. 1953, A. HIURA leg.; 6 exs., Mt. Kōne, Jinryō-vil, Tokushima-pref., 24. VIII. 1954, I. HIURA leg.; 3 exs., Kawauchi-vil., Tokushima-city, 31. VIII. 1956, I. HIURA leg.; 13 exs., 14. VII. 1953, 35 exs., 15. VII. 1953, 9 exs., 21. VII. 1953, 1 ex., 23. VII. 1953, 1 ex., 29. XII. 1953, 1 ex., 6. VIII. 1954, Jinzenji, Kōchi-city, K. MORIMOTO leg.

Honshu: 2 exs., Shimonoseki, Yamaguchi-pref., 14. VI. 1951, A. YAMASAKI leg., (in the banana cargo transported from Formosa!); 1 ex., 18. VIII. 1957, 1 ex., 11. V. 1958, foot of Mt. Iwawaki, Osaka-pref., Y. OKADA leg.; 1 ex., 30. VIII. 1928, 1 ex., 1. IX. 1928, Dohara, Yoshino, Nara-pref., T. ESAKI leg.; 1 ex., Hikimizu, Mt. Odaigahara, Nara-pref., 10 VIII. 1957, I. HIURA leg.; 13 exs., foot of Mt. Asama, Futami-machi, Mie-pref., 11. XI, 1958, I. HIURA leg.

Habits:-Most abundant in the fire wood, another lives in the pile of dead and withered plants, harvested stems and leaves (e. g. bamboo-grass, wheat stem, rice stem, sweetpotato vine, and broad-bean plant). Flies to the light at night.

References

- POPPIUS, B. (1909), Beiträge zur Kenntnis der Anthocoriden; Acta Societatis Scientiarum Fennicae, Tom. XXXVII N: 09, pp. 1-43.
- (1914), H. SAUTER's Formosa Ausbeute, Nabidae, Anthocoridae, Teratophylidae, Miridae, Isometopidae und Ceratocombidae (Hemiptera); Archiv für Naturgeschichte 80(8) pp. 1-76.

moto leg.; 1 ex., Sata-cape, Kagoshima-pref., 30. V. 1953, S. KIMOTO leg.

Shikoku: 1 ex., 14. VII. 1953, 30 exs., 17. VII. 1953, 12 exs., 22. VII. 1953, 1 ex., 30. VII. 1953, 1 ex., 2. VIII. 1953, 1 ex., 19. VIII. 1953, 1 ex., 20. VIII. 1953, 1 ex., 31. VIII. 1953, Uetsuno, Jinryō-vil., Tokushima-pref., I. HIURA leg.; 1 ex., Uetsuno, Jinryō-vil., Tokushima-pref., 13. IX. 1953, A. HIURA leg.; 6 exs., Mt. Kōne, Jinryō-vil, Tokushima-pref., 24. VIII. 1954, I. HIURA leg.; 3 exs., Kawauchi-vil., Tokushima-city, 31. VIII. 1956, I. HIURA leg.; 13 exs., 14. VII. 1953, 35 exs., 15. VII. 1953, 9 exs., 21. VII. 1953, 1 ex., 23. VII. 1953, 1 ex., 29. XII. 1953, 1 ex., 6. VIII. 1954, Jinzenji, Kōchi-city, K. MORIMOTO leg.

Honshu: 2 exs., Shimonoseki, Yamaguchi-pref., 14. VI. 1951, A. YAMASAKI leg., (in the banana cargo transported from Formosa!); 1 ex., 18. VIII. 1957, 1 ex., 11. V. 1958, foot of Mt. Iwawaki, Osaka-pref., Y. OKADA leg.; 1 ex., 30. VIII. 1928, 1 ex., 1. IX. 1928, Dohara, Yoshino, Nara-pref., T. ESAKI leg.; 1 ex., Hikimizu, Mt. Odaigahara, Nara-pref., 10 VIII. 1957, I. HIURA leg.; 13 exs., foot of Mt. Asama, Futami-machi, Mie-pref., 11. XI, 1958, I. HIURA leg.

Habits:-Most abundant in the fire wood, another lives in the pile of dead and withered plants, harvested stems and leaves (e. g. bamboo-grass, wheat stem, rice stem, sweetpotato vine, and broad-bean plant). Flies to the light at night.

References

- POPPIUS, B. (1909), Beiträge zur Kenntnis der Anthocoriden; Acta Societatis Scientiarum Fennicae, Tom. XXXVII N: 09, pp. 1-43.
- (1914), H. SAUTER's Formosa Ausbeute, Nabidae, Anthocoridae, Teratophylidae, Miridae, Isometopidae und Ceratocombidae (Hemiptera); Archiv für Naturgeschichte 80(8) pp. 1-76.

Explanation of plates

Plate 1. *Teisocoris pictipennis* (ESAKI)

Fig. A, dorsal view of total insect from Honshu, ♀. Fig. B, ventral view, head and right legs omitted. Fig. C, fore wing, Fig. D, apical half of hind wing, from Tokara Is. Fig. E-G, relative length of detailed parts of antenna (Fig. E), head (Fig. F) and pronotum (Fig. G) (130 units=1 mm).

Plate 2. *Tetraphleps ezoensis* n. sp.

Fig. A, dorsal view of total insect, ♂. Fig. B, hind wing. Fig. C, fore wing. Fig. D, ventral view of thorax, left legs are shown. Fig. E, relative length of detailed parts of head (80 units=1 mm.). Fig. F, dorsal view of pronotum. Fig. G, dorsal view of male genital segment.

Plate 3. *Anthocoris* spp.

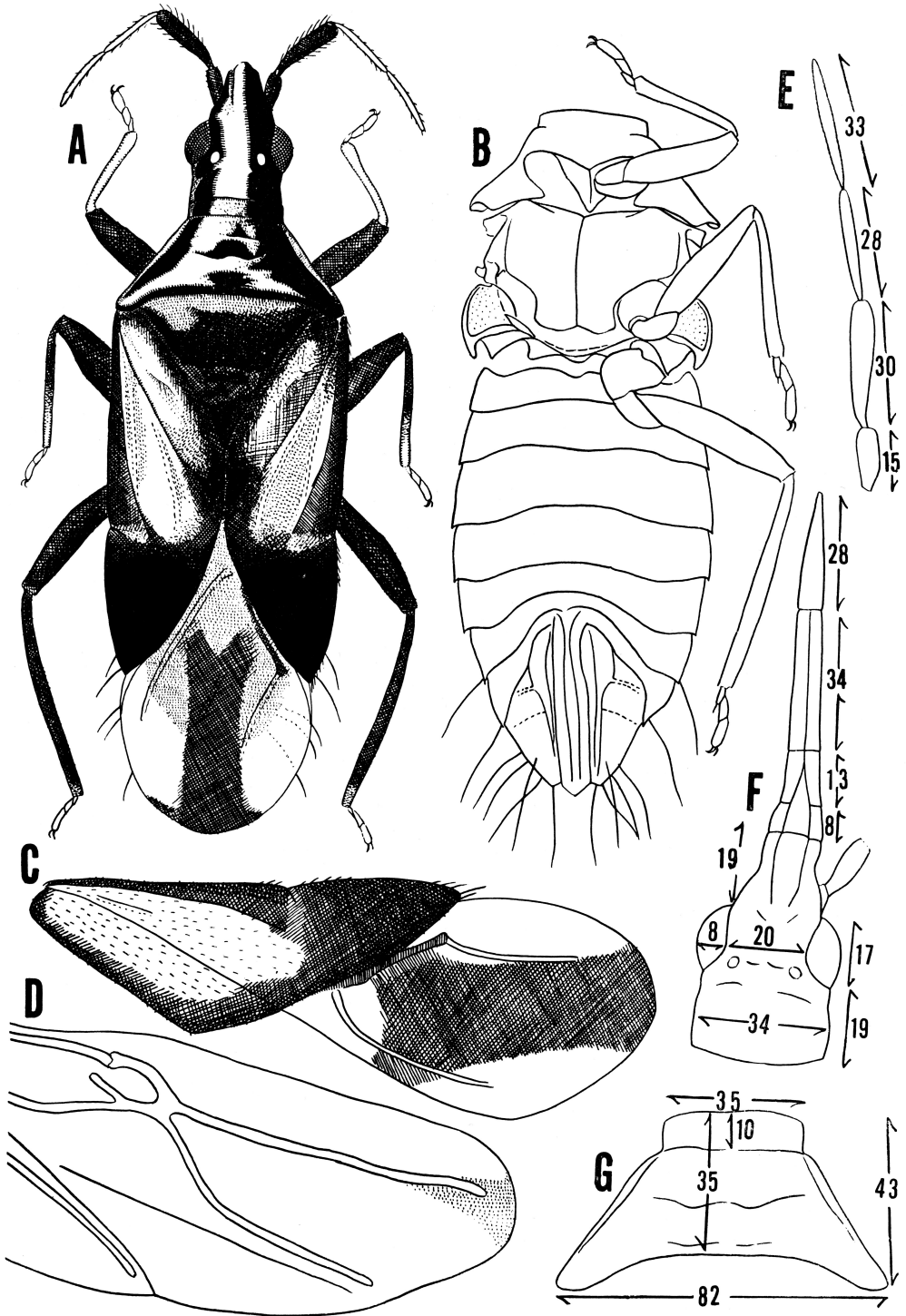
Figs. A-F, dorsal view of insects (legs omitted), six figures are drawn to scale. Fig. A, *A. japonicus*, from Honshu, ♂. Fig. B, *A. confusus* from Hokkaido, ♂. Fig. C, *A. miyamotoi* n. sp. from Hokkaido, ♀. Fig. D, *A. miyamotoi* n. sp. from Tokara Is., ♂, Holotype. Fig. E, *A. chibi* n. sp., from Kyushu, ♀, Paratype. Fig. F, *A. takahashii* n. sp., from Hokkaido, ♂, Holotype. Fig. G, dorsal view of male genital segment of *A. takahashii* n. sp., (hairs omitted). Fig. H, dorsal view of male genital segment of *A. japonicus*. Fig. I, hind wing of *A. japonicus*.

Plate 4. *Anthocoris* spp.

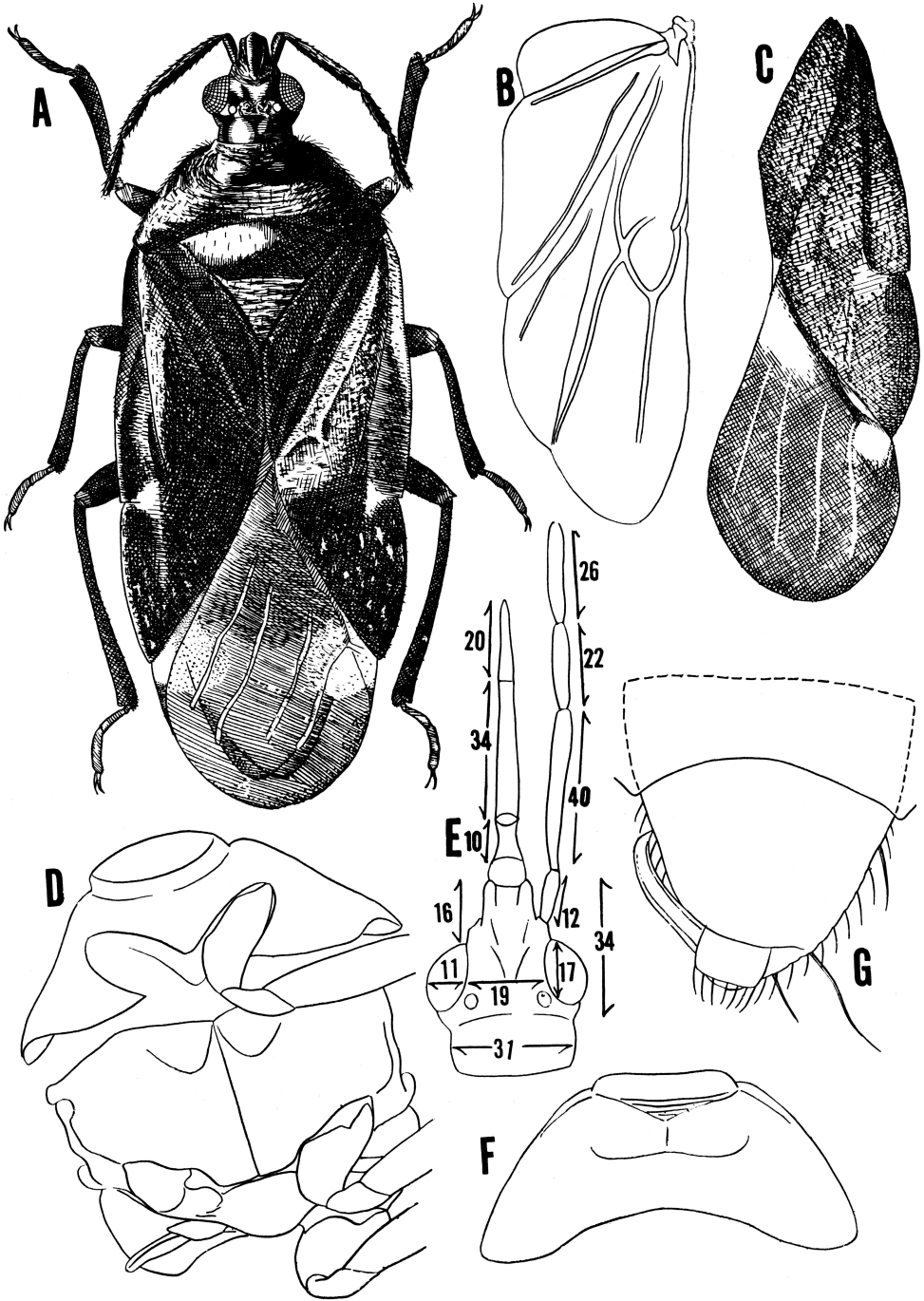
Figs. A-G, fore wing, seven figures are drawn by same scale. Fig. A, *A. confusus*, from Hokkaido, ♂. Fig. B, *A. confusus*, from Delaware, ♀, membrane only shown. Fig. C, *A. takahashii* n. sp., from Hokkaido, ♂, membrane only shown. Fig. D, *A. takahashii* n. sp., from same place, ♀. Fig. E, *A. miyamotoi* n. sp., from Shikoku, ♀. Fig. F, *A. japonicus* from Honshu, ♀. Fig. G, *A. chibi* n. sp., from Kyushu, ♀. Figs. H-L, relative length of detailed parts of head and pronotum (female), five figures are same scale (80 units=1 mm.). Fig. H, *A. confusus* from Hokkaido. Fig. I, *A. takahashii* n. sp. from Hokkaido. Fig. J, *A. chibi* n. sp., from Kyushu. Fig. K, *A. japonicus* from Honshu. Fig. L, *A. miyamotoi* n. sp., from Kyushu. Figs. M-O, tarsi and apexes of tibiae of *A. japonicus*. Fig. M, fore leg. Fig. N, middle leg. Fig. O, hind leg. "ss" is the spongy structure.

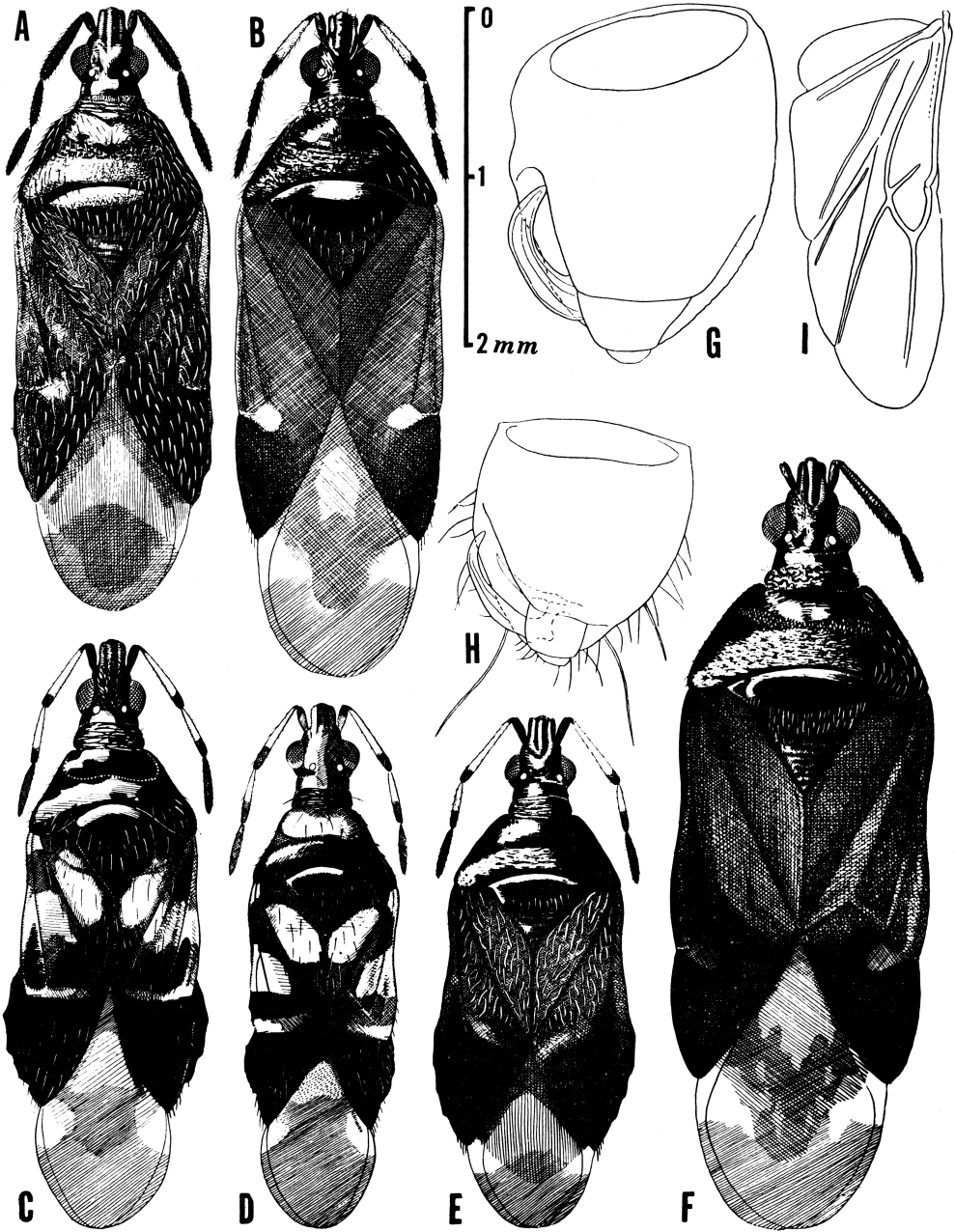
Plate 5. *Physopleurella armata* POPPIUS.

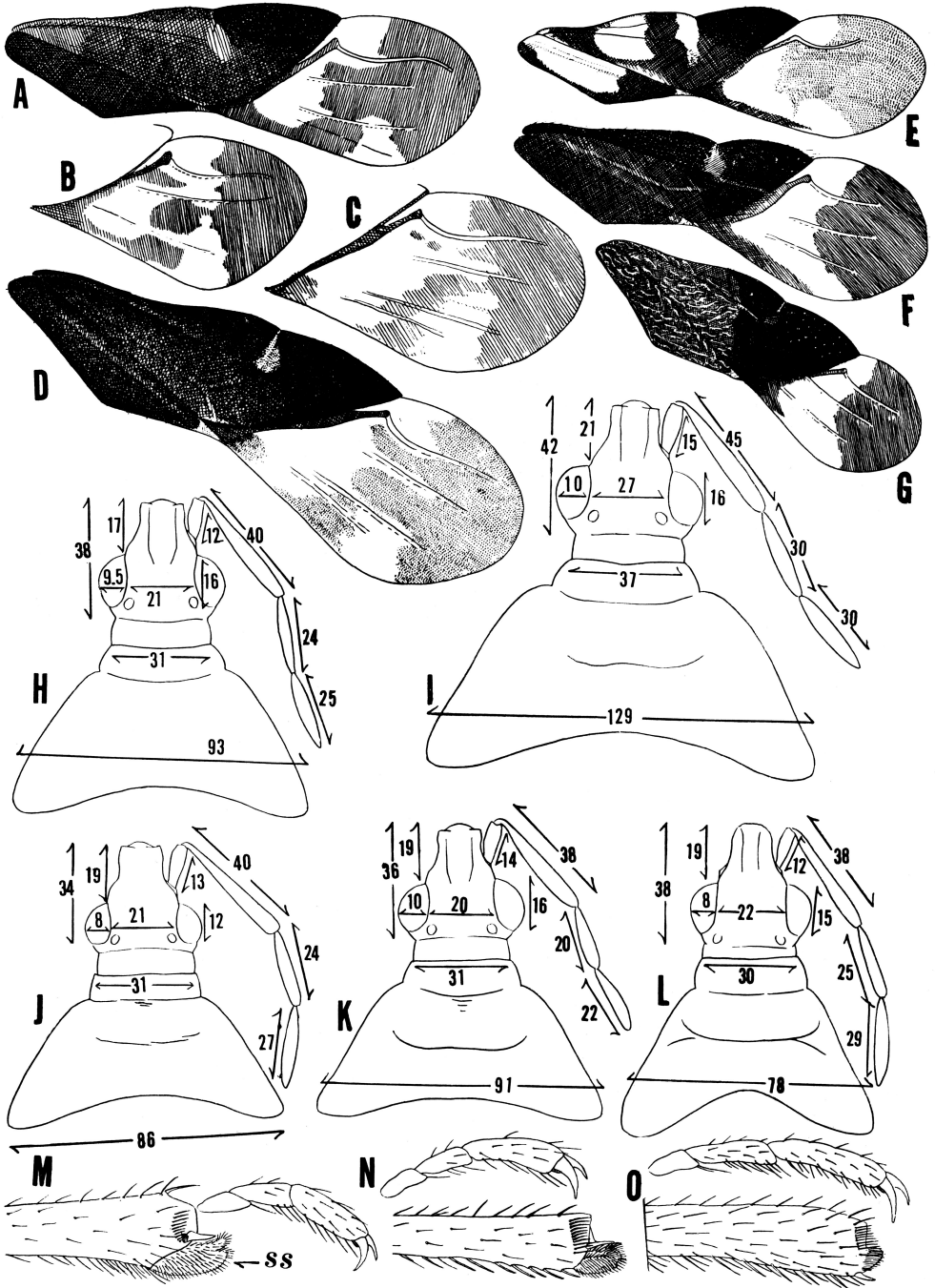
Fig. A, dorsal view of male, legs omitted. Fig. B, fore wing. Fig. C, hind wing. Fig. D, fore leg. Fig. E, middle leg. Fig. F, hind leg. Fig. G, dorsal view of male genital segment. Fig. H, ventral view of thorax, left coxae shown. Fig. I, relative length of detailed parts of head (150 units=1 mm..)



I. HIURA: Contr. Anthocoridae, Jap.







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