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ON SOME EAST-ASIATIC LEAFHOPPER GENERA

(HOMOPTERA : CICADINA : IASSIDAE)

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1. Genus *Albicostella* Ishihara, 1953

When Prof. T. Ishihara created the genus *Albicostella*, he stated that the genus "is represented by the single beautiful Japanese species"—*A. albicosta* Matsumura, 1914. He also figured the male genitalia of the type species. Some years later Emeljanov (1962) described a new genus—*Macednus*—with the type species *M. marginatus*. By the description and topotypic material¹⁾ it turned out that *Macednus* is a younger synonym for *Albicostella*. Judging by the figures the type species of these two genera are not identical. So we had at least two species in this genus.

Comparing the original description of Matsumura (1914) with the figures in the above-mentioned work of Ishihara (1953 a), it came clear that certain differences exist between them. So the genital plates should be long, quadrangular, on the hind margin almost straight after Matsumura, whereas on the figures of Ishihara (1953 a) and also Emeljanov (1962) they are parabolic. Through the courtesy of Prof. Dr. C. Watanabe and Dr. S. Takagi I was able to examine a series of "*Thamnotettix albicosta*" from Matsumura's collection. To my great surprise I found two species, which were both different from those of Ishihara and Emeljanov. Most specimens were from Huzi-san. As there were also two pairs which bore the label "*Thamnotettix albicosta* Matsumura" among them, I designated one male of them as a lectotype of *albicosta*. The genitalia of this species are given in Fig. 1. The other species is apparently new, and its description is given below.

Albicostella kiushiuensis, n. sp.

Up to now only male known. Upper side light reddish-brown. Crown almost concolorous, on the fore angle with two small brownish spots. Ocelli surrounded by

1) The author has found this species from Primorye District: Sidimi (July 16, 1961) and the National Park Kedrovya Pad (Aug. 10, 1961).

Editor's Note—A lot of new species of insects were described by the late Dr. S. Matsumura, Professor of Entomology, Emeritus, at Hokkaido University, and their type-specimens are deposited in the collection of the Entomological Institute of the university. Up to the present time many specialists have examined these type-specimens, and published excellent papers. Having examined Matsumura's type-specimens Dr. J. Vilbaste has given a revision of some East-Asiatic genera of leafhoppers. It is very delighted that his revision is published in the present number of the *Insecta Matsumurana*.
C. WATANABE

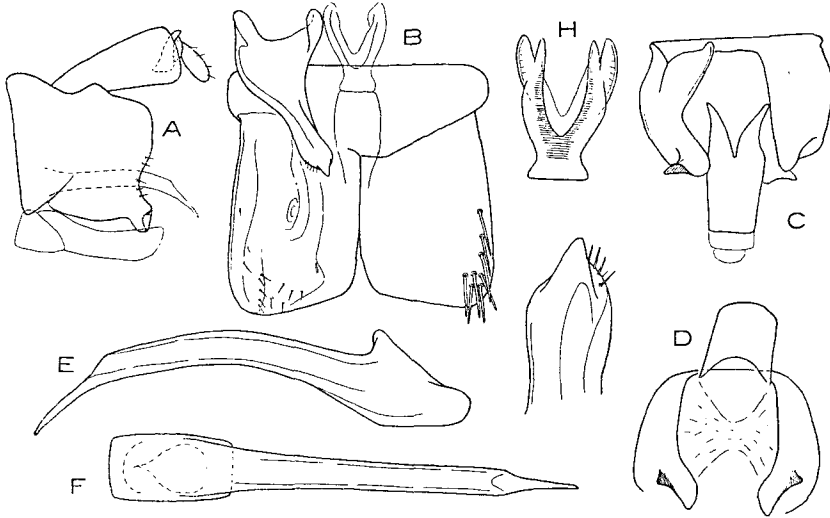


Fig. 1. *Albicostella albicosta* (Mm.). A—genital segment, lateral view (enlargement 34 ×); B—genital valve, genital plates (right ventral, left dorsal view) and connective (52 ×); C—genital segment, dorsal view (32 ×); D—same, caudal view (34 ×); E—aedeagus, lateral view (82 ×); F—aedeagus, dorsal view (82 ×); G—style, dorsal view (150 ×); H—connective (82 ×).

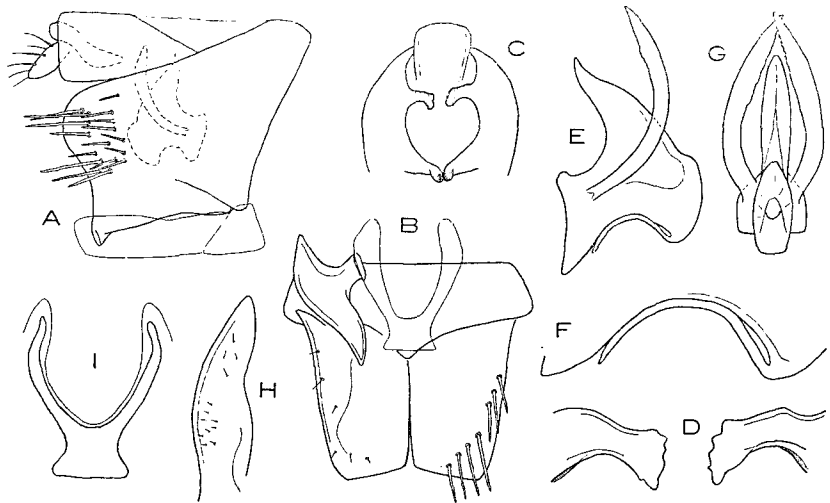


Fig. 2. *Albicostella kiushiuensis*, n. sp. A—genital segment, lateral view (46 ×); B—genital valve and plates (52 ×); C—genital segment, caudal view (32 ×); D—pygofer appendages, caudal view (112 ×); E—aedeagus, lateral view (82 ×); F—under border of aedeagus (150 ×); G—aedeagus, caudal view (82 ×); H—style (150 ×); I—connective (82 ×).

a reddish ring. Frons light ochreous-yellow, also almost concolorous, arc lines very unclear. In the middle of the ocellular area there is a great brown spot, which does not reach the frontal suture. Ground segments of the antennae light. Rostrum short, reaches the end of the fore coxae, its tip is blackish. Eyes blackish, in some places surrounded with red.

Pronotum and scutellum = \pm concolorous. Side lobe of pronotum with short dark brown stripe above the side margin, the under margin whitish. Fore wings greenish yellow, the veins unclear. Costal area (from the base to the level of the end of the clavus) white. Hind wings hyaline, slight brownish with dark brown veins. Legs almost totally light yellowish, only the claws are brown. Medial parts of the underside of thorax darkened.

The upper side of abdomen brown, tergites with narrow light hind margins and rather broad light side margins. Underside light ochreous yellow. Before the hind margins of the sternites there is a reddish cross-line. Genital segment from below also light, ochreous yellow.

The male genitalia see Fig. 2.

Size in millimetres: ♂ (1)—Length to the end of fore wings—5.95; to the end of abdomen—3.75; length to the vertex—0.40; width of the head—1.59; width of the vertex between the eyes—0.79; length of the pronotum—0.72; width of the pronotum—1.56; length of the fore wing—5.00; width of the fore wing—1.31; length of the hind femur—2.75.

Holotype ♂: Japan, Kiushiu, Kumamoto, April 16, 1907, H. Kawamura. (In coll. Matsumura, Sapporo, Japan).

Very near to *A. albicosta* (Mm.), but is smaller. Slightly different is also the coloration (reddish ground colour of the upper side, dark spot in the ocellular area, almost concolorous legs etc.). Rather different are the male genitalia.

The species described and figured by Ishihara (1953 a) as *A. albicosta* is not identical with *A. albicosta* (Mm., 1914) and should be renamed. I propose *A. ishiharai* (n. sp.) for it.

Thus at present the genus includes 4 species as follows:

Albicostella Ishihara, 1953

Macednus Emeljanov, 1962 [t. g. *M. marginatus* Emeljanov, 1962].

T. g. *A. ishiharai*, n. sp., pro *A. albicosta*: Ish., 1953, nec Mm., 1914.

albicosta (Matsumura, 1914) [*Thamnotettix*]

ishiharai, n. sp.

=*albicosta*: Ishihara, 1953, nec Matsumura, 1914

kiushiuensis, n. sp.

marginatus (Emeljanov, 1962) [*Macednus*], n. comb.

The males of these species can be separated by the following key:

- 1 (4) Genital plates quadrangular, their hind margin \pm straight, under the right angle with sides (Figs. 1 B and 2 B). Pygofer at the hind margin abruptly cut, shorter than the plates (Figs. 1 A and 2 A).
- 2 (3) Aedeagus long and slender (Figs. 1 E and F). Pygofer lobes without teeth. *A. albicosta* (Mm., 1914).
- 3 (2) Aedeagus shorter, plate-like, with a pair of long appendices (Fig. 2 E and F). Pygofer

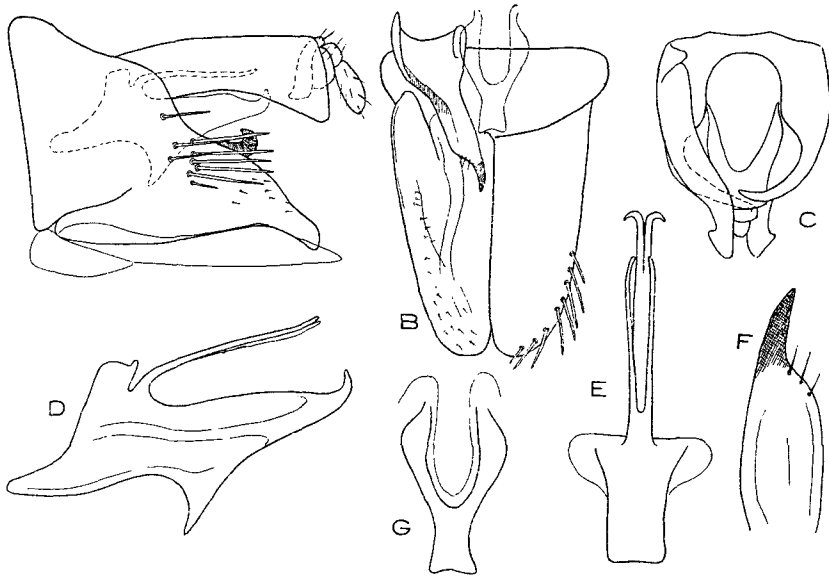


Fig. 3. *Albicostella marginatus* (Em.). A—genital segment, lateral view (42 ×); B—genital valve and plates (52 ×); C—pygofer (right dorsal, left ventral view) (34 ×); D—aedeagus, lateral view (82 ×), E—aedeagus, dorsal view (82 ×); F—style (150 ×); G—connective (82 ×).

lobes with inwardly direct teeth (Fig. 2 C and D). *A. kiushiensis*, n. sp.

- 4 (1) Genital plates (together) parabolic, their outer margins continuously narrowing hindwards (Fig. 3 B). Pygofer with long ± triangular lobes, reaching almost the tip of plates (Fig. 3 A).
 5 (6) Aedeagus laterally compressed, lamellate, seen from above very thin (Fig. 3 D and E). *A. marginatus* (Em., 1962).
 6 (5) Aedeagus not laterally compressed, not so thin seen from above (cf. Fig. 3a in Ishihara, 1953 a). *A. ishiharai*, n. sp.

2. Genus *Futasujinus* Ishihara, 1953

The genus *Futasujinus* was also created by Ishihara in 1953 (Ishihara, 1953 b). The type species *Deltocephalus candidus* Matsumura, 1914, was also figured (fore body, wings, male genitalia). The figures of male genitalia are, however, somewhat schematic and do not allow us the right recognition. As the author (Vilbaste, 1966) of the present work has found two different species in Ussuriland, he describes one of them as a new species—*F. pellucidus*. Emelyanov (1966) has also described a new species—*F. rudis* and has also referred to this genus *Deltocephalus fraternellus* Baker, 1925 (= *D. fraternus* Mm., 1915). To the lastmentioned species he also referred *Deltocephalus bilineatus* Lindberg.

Matsumura (1914) himself thought that two species of “*Deltocephalus*” described by him—*D. formosanus* and *D. towadensis* are very near to *D. candidus*.

So several species which are associated with this genus, or which probably belong to *Futasujinus*, exist.

It was possible to resolve the quite confused synonymy of the genus only by the

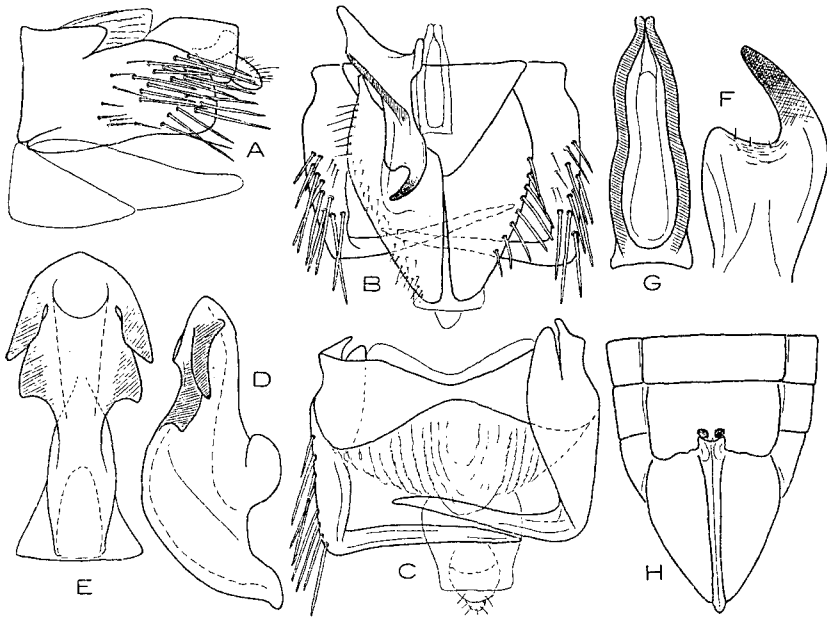


Fig. 4. *Futasujinus candidus* (Mm.). A—genital segment, lateral view (52×); B—genital valve and plates (52×); C—pygofer and anal tube (right ventral, left dorsal view) (52×); D—aedeagus, lateral view (150×); E—aedeagus, caudal view (150×); F—style (150×); G—Connective (112×); H—female abdomen-end (46×).

investigation of the type specimens. Besides the types of the species described by Matsumura the author also had the possibility to examine the type of *D. bilineatus* Lindberg kindly sent to him by Dr. M. Meinander (Zoological Museum of the University Helsinki).

It became clear that the species described by the author (1966) as *F. pellucidus* is actually *F. candidus* Mm., 1914 (Fig. 4). The species named by Emelyanov (1966) as *fraternellus* belongs also to this species.

The real *D. fraternellus*, the types of which we have not been able to examine up to now is probably not *Futasujinus*. So after the original description there are 4 separate brownish spots on the crown, which are often confluent. Among the numerous specimens of *F. candidus* which I have seen, there exists no specimen with the brownish longitudinal bands divided into two parts. In *D. fraternellus* two dark spots on the fore margin of the fore wings must occur, which are absent in *F. candidus*. The hind margin of the seventh sternite of the female should be with a narrow round lobe in *D. fraternus*. In all species of *Futasujinus* there is a large emargination in the middle of the seventh sternite and only in this there is a little lobe, which is notched on the tip. It is more probable that this species belongs to *Diplocolenus* Rib.

Deltocephalus formosanus also belongs to *F. candidus*, as I could not find any differences in the male genitalia. The crown is only somewhat darker in colour.

Deltocephalus towadensis Matsumura, 1914, is a good species and is clearly dis-

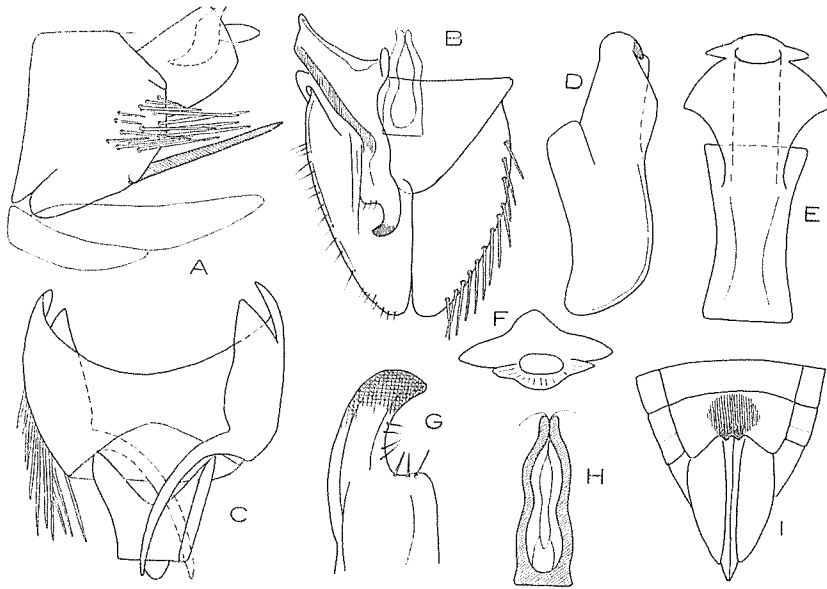


Fig. 5. *Futasujinus towadensis* (Mm.). A—genital segment, lateral view (52×); B—genital valve and plates (52×); C—pygofer and anal tube (right ventral, left dorsal view) (52×); D—aedeagus, lateral view (112×); E—aedeagus, caudal view (112×); F—aedeagus, dorsal view (112×); G—style (150×); H—connective (82×); I—female abdomen-end (46×).

tinguished from other species of the genus by the shape of the pygofer appendages (Fig. 5).

The third species, widely distributed in Primorye District should be called *F. amuriensis* (Metcalf, 1955) (= *D. bilineatus* Lb., 1929, nec Gl. & Bk., 1895) (Fig. 6). *F. rudis* Em., 1966, also belongs to this species.

Thus, up to now there are 3 following species in the genus:

***Futasujinus* Ishihara, 1953**

T. g. *Deltocephalus candidus* Matsumura, 1914.

candidus (Matsumura, 1914) [*Deltocephalus*]

= *formosanus* (Matsumura, 1914) [*Deltocephalus*], n. syn.

= *pellucidus* Vilbaste, 1966, n. syn.

= *fraternellus* Emeljanov, 1966, nec Baker, n. syn.

towadensis (Matsumura, 1914) [*Deltocephalus*], n. comb.

amuriensis (Metcalf, 1955) [*Deltocephalus*]

= *bilineatus* (Lindberg, 1929) [*Deltocephalus*], n. praeocc.

= *rudis* Emeljanov, 1966, n. syn.

The males of these species can be separated from each other by the following key:

1 (2) Pygofer very wide, considerably wider than the genital plates, their appendices ± horizontal,

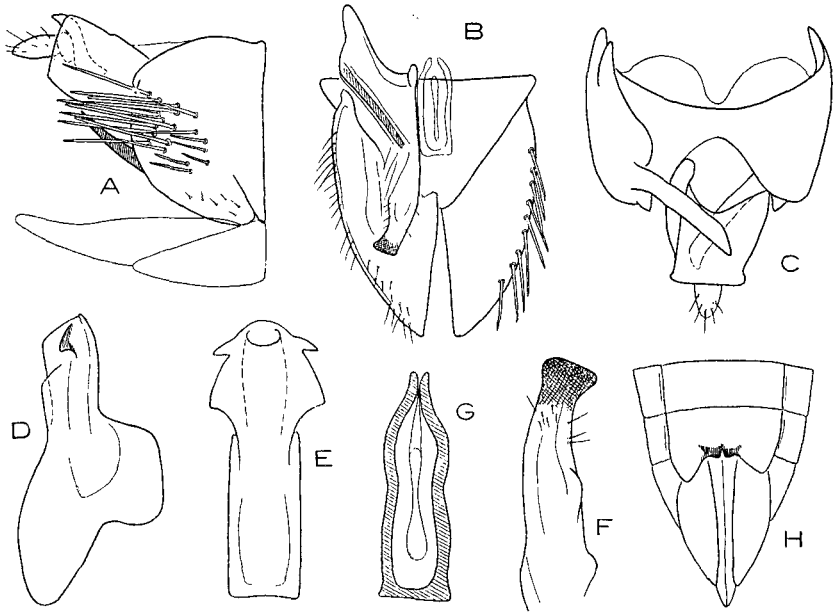


Fig. 6. *Futasujinus amuriensis* (Mc.). A—genital segment, lateral view (52×); B—genital valve and plates (52×); C—pygofer and anal tube (right ventral, left-dorsal view) (52×); D—aedeagus, lateral view (112×); E—aedeagus, caudal view (112×); F—style (112×); G—connective (112×); H—female abdomen-end (46×).

directed just against another (Fig. 4 A, B and C). *F. candidus* (Mm.).

- 2 (1) Pygofer not or only slightly wider than genital plates, its appendages directed up- and inwards.
- 3 (4) Appendages of pygofer short, straight and stout, not extending to the tip of the anal tube (Fig. 6 C). The upper appendages of the aedeagus almost as wide as the under ones (Fig. 6 E). Tip of stylus with twosided extension (Fig. 6 F). *F. amuriensis* (Mc.).
- 4 (3) Appendages of the pygofer long, slightly curved and slender, extending to the tip of the anal tube (Fig. 5 C). The upper appendages of the aedeagus considerably narrower than the lower ones (Fig. 5 F). Tip of stylus with onesided extension (Fig. 5 G). *F. towadensis* (Mm.).

3. Genus *Yanocephalus* Ishihara, 1953

In his tentative check list of Japanese leafhoppers Ishihara (1953 b) refers only the type species—*Deltocephalus yanonis* Mats., 1902 to this genus. After Matsumura (1915) also *D. kongosanus* Mm. is very near to this species. I have investigated the types of both species and have found that they are identical. The specimens of “*D. yanonis*” are only lighter (especially the face, which is ochreous-yellow). Also numerous specimens of this species collected by me in Primorye District are very dark. Probably Matsumura has made his description after newly hatched specimens. Lindberg & Zachwatkin (1936) have also indicated that most specimens are darker in colour. The lastnamed authors figured also male genitalia.

Yanocephalus Ishihara, 1953

T. g. *Deltocephalus yanonis* Matsumura, 1902.

yanonis (Matsumura, 1902) [*Deltocephalus*]

= *kongosanus* (Matsumura, 1915) [*Deltocephalus*], n. syn.

The author wishes to express his sincerest thanks to Prof. Dr. C. Watanabe, and Dr. S. Takagi, the Entomological Institute of Hokkaido University, Sapporo, Japan, and to Dr. M. Meinander, the Zoological Museum of University Helsinki for the loan of corresponding type species materials.

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**THIRD SUPPLEMENT TO
"LIST OF PAPERS OF DR. RYOICHI TAKAHASHI"**

Some Aphididae from Afghanistan (Homoptera). Results of the Kyoto Univ. Sci. Exped. to the Karakoram and Hindukush, 1955 8: 263-269, 1966.

Afghanaphis ulmi, n. gen. and n. sp.; *Brachycaudus cardui yosiii* n. subsp.; *Hyalopterus pruni amygdali* and *Chaitophorus pseudotremulae* redescribed.

Descriptions of some new and little known species of *Aphis* of Japan, with key to species. *Trans. Amer. Ent. Soc.* 92: 519-556, 1966.

List of aphids described as new species in *Aphis* in Japan; key to species; descriptions of a new subgenus, 3 new species and 3 new subspecies; 2 new names proposed; redescriptions of 21 species or subspecies.