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DESCRIPTION OF A NEW SPECIES OF THE GENUS
PLESIOOESTRUS VILLENEUVE, WITH
NOTES ON AULACEPHALA HERVEI BEQUAERT
(DIPTERA: LARVAEVORIDAE)

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This paper is based chiefly upon the material which is preserved in the collection of the Entomological Laboratory, Ehime University. There are two species belonging to the tribe Ormiini before me :- one is *Aulacephala hervei* Bequaert and the other is a new species of the genus *Plesioestrus* Villeneuve. In the following pages my information in regard to these species will be given.

I owe my indebtedness to Prof. Toichi Uchida and Prof. Chihisa Watanabe for their constant guidance and encouragement. Grateful thanks are also due to Prof. Tamotsu Ishihara and Mr. Mutsuo Miyatake, of Ehime University, for their courtesy in placing the interesting material at my disposal. Furthermore, I wish to express my hearty gratitude to Dr. Joseph Bequaert of the Museum of Comparative Zoölogy at Harvard College and to Mr. Claude Dupuis of the Museum National d'Histoire Naturelle de Paris for their kindness in offering invaluable reprints.

Genus *Aulacephala* Macquart

Aulacephala Macquart, 1851. Mém. Soc. Sci. Lille 1850: 138 (Dipt. exot. Suppl. 4: 165).

Type: *Aulacephala maculithorax* Macquart. Monobasic.

Aulacocephala Gerstaecker, 1863. Verh. zool.-bot. Ges. Wien 13: 1033. Emendation.

Aulacocephalopsis Townsend, 1919. Ins. Insc. Menstr. 6: 165.

Type: (*Aulacocephala badia* Gerstaecker)

= *Aulacephala maculithorax* Macquart. Original designation.

Aulacephala hervei Bequaert

Aulacephala hervei Bequaert, 1922. Rev. zool. afric. 10: 305-307, fig. 1b, ♀. [Japan :

[Insecta Matsumurana, Vol. 23, No. 1, January, 1960]

Yokohama; China: Zi-Ka-Wei]; Bequaert, 1929. *Konowia* 8: 164.

Aulacocephala karnyi Malloch, 1925. *Treubia* 6: 147, fig. 2, ♂. [S. Sumatra: Wai Lima].

As a supplement to the previous descriptions of this species the following accounts may be added:

Ocelli greatly reduced, at most anterior ocellus alone recognizable or represented by a small depression. Thorax: intraalars weak and extremely variable, the intermediate one not rarely perceptible, while the anterior and/or posterior ones frequently disappearing or displaced; presuturals 1-2; propleurals 2-3; substigmatala 1-2, sometimes absent; sternopleurals 2-3, not forming a distinct triangle; marginal scutellars 3-5 on each side, with the position rather variable. Wings: costal sections about in ratio of II (*h* to *sc*) 43: III 34: IV 56: V 34; *r*₁ beyond apical third of upper surface frequently provided with irregular-set small setulae, which vary in number from 1 to 7; apical cross-vein about as long as distance between *m-cu* and bend; *m-cu* mostly beyond 0.60 or proximal three-fifths of *R*, along *m*, rarely more basad, always distinctly longer than either of the two compared above, with degree of sinuosity sometimes approaching to that in *maculithorax*. Legs: anterior tibiae with 1 distinct (or 1 distinct and 1-2 weaker) *ad* at about apical fourth, 2 *pd* on apical half; mid-tibiae with 1-2 *ad* and 2 submedian *pd*, 1 *v* seta sometimes discernible; hind tibiae with at least 1-2 *ad* beyond middle, 1-2 submedian *pd*, 1 *av* at about apical third.

Mesoscutum with 2 pairs of glabrous strips: inner pair (between acrostichal and dorsocentral rows) ending before suture, outer pair (between dorsocentral and intraalar rows) much wider, extending at least to middle of postsutural area; colouration of mesoscutum grading from almost concolourous light chestnut-brown on one extreme to ochre, leaving dark colour on narrow dorsocentral lines and on broad lateral sides, on the other (in the latter case the pale colour on the glabrous strips appears more pronounced through the absence of vesture); scutellum light to dark brown, with a more or less distinct, broad pale vitta along median line.

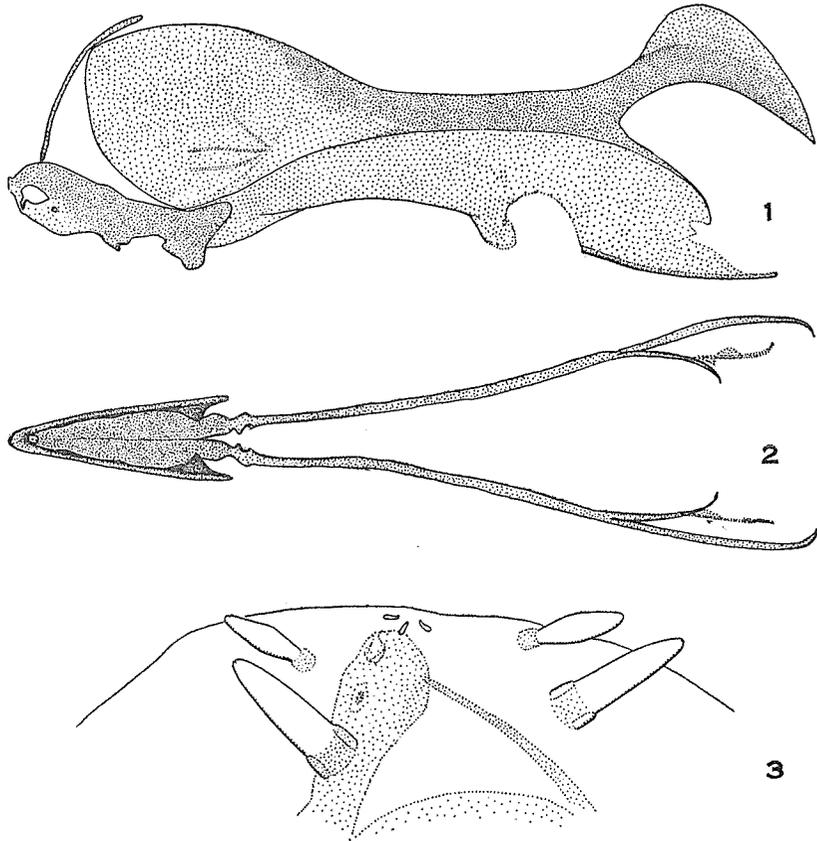
Length: body 9.0-11.9 mm. (mean 10.4 mm.); wing 8.5-11.0 mm. (mean 9.8 mm.).

Specimens examined.—Shikoku: Matsuyama, 1 ♀, 2. viii. 1948 (M. Miyatake), 1 ♀, 28. vi. 1949 (M. Miyatake), 1 ♀, 25. ix. 1951 (T. Ishihara et al.), 1 ♀, 4. x. 1953 (M. Miyatake), 2 ♀♀, 10 ♂ & 28. ix. 1955 (member of Entom. Labor., Ehime Univ.). Amami-Oshima: Shinmura, 5 ♀♀, 17-21. vii. 1954 (S. Hisamatsu et al.).

Distribution: Japan (Honshu, Shikoku, Amami-Oshima I.), China, Sumatra. This species may be distinguishable from *A. maculithorax* by the reduced

ocelli, the more obtuse lower apical angle of the cell R_5 , and the shorter distance between bend of the vein m and apical cross-vein.

It should be noted here that the present specimens were collected at a light. On this occasion the first-stage larva of *Aulacephala hervei* will be des-



Figs. 1-3. *Aulacephala hervei* Bequaert, first-stage larva :
Fig. 1. Buccopharyngeal armature, sinistrolateral view ; Fig. 2. Do.,
ventral view ; Fig. 3. Pseudocephalon, anterodorsal view.

cribed from more than thirty individuals obtained from the uterus of a dissected female.

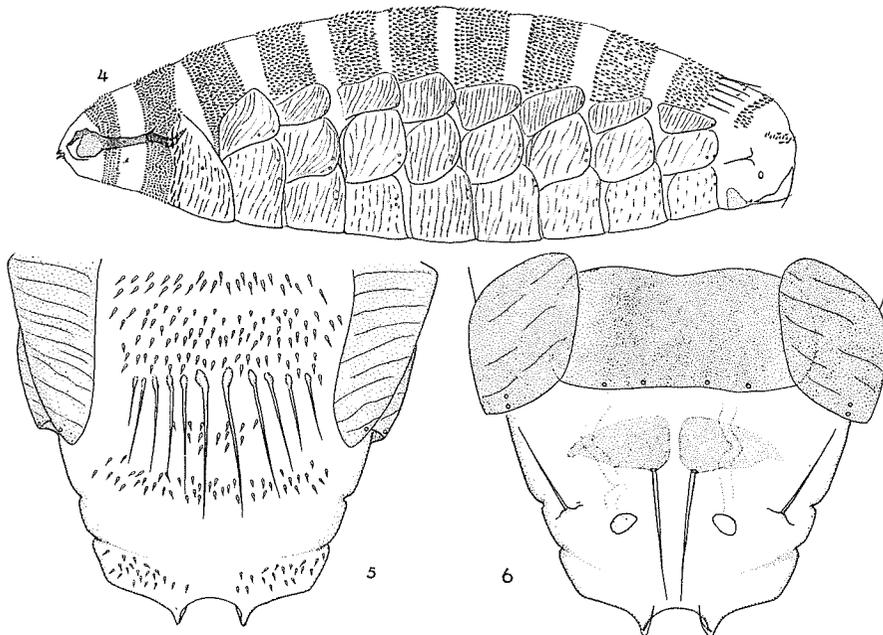
First-stage Larva (fig. 4).

Maggot metapneustic, of approximately the same conformation as in *Aulacephala maculithorax* Macq. (ref. Grunin, 1948¹⁾): subfusiform in outline, consisting

1) Grunin, K. Ia. 1948. Ent. Obozr. 30 : 143-147, 8 figs.

of a pseudocephalon followed by 3 thoracic and 8 abdominal segments, with average length about 0.60 mm. and width 0.18 mm.; skin transparent, with well-pigmented plates on thorax and abdomen, which are provided with fine rugulae.

Pseudocephalon (fig. 3) with 2 pairs of sensorial appendages: antennae elongate-subconical with a distinct basal collar, longer than thrice the diameter (length 0.012-0.013 mm.); sensoria situated ventrad to antennae, subfusiform, thrice longer than thick, smaller than antennae (length 0.008 mm.); at extreme cephalic end between sensoria 3 minute spinuliform processes recognizable. Thorax: segment I only with a complete ring of close-set microspines; segment II with a similar microspine-ring and a sclerotized dorsal plate, which is provided



Figs. 4-6. *Aulacephala hervei* Bequaert, first-stage larva:
Fig. 4. General appearance, dextro-lateral view; Fig. 5. Apical
abdominal segments, ventral view; Fig. 6. Do., dorsal view.

with distinct transverse rugae on anterior fifth, in addition to fine rugulae; III with a ventral microspine-band and 3 sclerotized plates, 1 dorsal and a pair of lateral ones. Abdomen: segments I-VII each with 1 dorsal and 2 pairs of lateral sclerotized plates and a ventral microspine-band; rugulae on dorsal plates short and reduced in number on segments IV and V; segments VII (fig. 5) along posterior margin of ventral surface with a row of 10-12 long, strong seta-like spines directed caudad. Segment VIII: dorsal surface (fig. 6) with

a pair of ovate spiracles (tracheal trunks somewhat apparent), a pair of well-sclerotized plates, each bearing 1 caudally directed long spine at inner posterior corner, and with a pair of shorter lateral spines directed cephalad; ventral surface (fig. 5) with 3 spinuligerous areas, of which the posterior one is interrupted at middle; segment VIII also with a pair of long caudal spines directed dorsad. All the sclerotized plates, except for caudal one, with minute pores (possibly sensorial in function): 2 pairs on all dorsal plates, 2 on each thoracic lateral plate and upper abdominal one, and 1 on each lower abdominal one; the pores arranged one laterad of the other except on dorsal plate of segment II and lateral plates of segment III of thorax and on upper lateral plates of abdominal segment VII, where they are situated one behind the other. No distinct type of microspines recognizable.

Buccopharyngeal armature (figs. 1 & 2): hypostomal sclerites and pharyngeal sclerites fused together into a paired, rather stout principal structure; a pair of well-pigmented structure articulated ventrad to the principal one in front, possibly representing fusion of dental sclerites with oral hooks; a linear dorsal anterior piece separated from both structures; ventral cornuae with a window-like notch at apex and a ventral emargination behind a small flap; length 0.116–0.125 mm.

Judging from the description and figure published by Grunin (loc. cit.), the larva of *Aulacephala hervei* appears to differ from that of *A. maculithorax* in having the paired sclerotized plates on the caudal segment and the larger number of strong spines on the seventh abdominal segment.

Genus *Plesioestrus* Villeneuve

Plesioestrus Villeneuve, 1914. Ann. hist.-nat. Mus. Nat. Hung. 12: 439.

Type: *Plesioestrus albifacies* Villeneuve. Monobasic.

Proxystomima Villeneuve, 1925. Konowia 4: 51.

Type: (*Proxystomima claripennis* Villeneuve)

= *Plesioestrus albifacies* Villeneuve. Monobasic.

Xystomima (*Plesioestrus*), van Emden, 1945. Proc. zool. Soc. Lond. 114: 417.

On account of the incomplete sixth vein and other wing-characters, I am inclined to the opinion that *Plesioestrus* should be recognized as a distinct genus.

Plesioestrus japonicus sp. nov.

Female. Ferruginous brown, with black hairs and grey or yellowish-grey pollinosity. Head above fuscous; interfrontalia dark velvety-ferruginous, reddish above. Antennae yellow, 3rd segment brownish apically. Mouth parts yellowish brown. Mesoscutum with 4 rather broad glabrous strips, the inner pair reaching anterior third of postsutural area, the outer one much wider and

more broadly interrupted at suture, extending nearly to postalar calli; thorax latero-ventrally paler in colouration and more thinly pollinose. Wings brownish-subhyaline; veins pale brownish yellow, costa pale. Lower calyptra brown-smoky, with border and fringe pale. Halteres reddish yellow, with apex slightly infuscated. Legs yellow; femora, especially of hind pair, brownish except for apex. Abdomen with tergite II on distal half, III on distal third (both except for extreme hind margins), and IV along hind margin, devoid of pollinosity, the areas on tergites III and IV being interrupted at middle by a pollinose vitta. Base of hairs and setae more or less devoid of pollinosity.

Vertex a little less than a half head-width (ca. 0.45), with ratio in width to an eye=12:7.4; frons slightly convergent below; ocellarium less than a third width of vertex; ocellars weak; interfrontalia narrower than a parafrontale except above lunula where they are of subequal width; inner verticals somewhat longer than duplicated outer verticals; frontals about 10, 2 reclinate preverticals approximately in line with frontal series, the upper longer; 4-5 proclinate orbitals (upper 1-2 may be weaker); interfacialia with median ridge stout; epistoma slightly visible in profile, a little less than twice as wide at narrowest point as 2nd antennal segment; facialia much wider below than twice a parafaciale, with a row of weaker setae interior to vibrissae; jowls in profile about one-fourth of greater diameter of an eye. Eyes imperceptibly pubescent on posterior portion, where the facets become markedly smaller. Antennae exactly at mid-height of eyes; 2nd and 3rd segments longer than thick, subequal in length; arista slender, about as long as head along antennal axis, thickened and minutely pubescent at base. Palpi moderately thick, longer than mentum.

Thorax with chaetotaxy rather well developed: 1 (intermediate) + 1 prescutellar acrostichals (much shorter, irregular additional setae discernible before

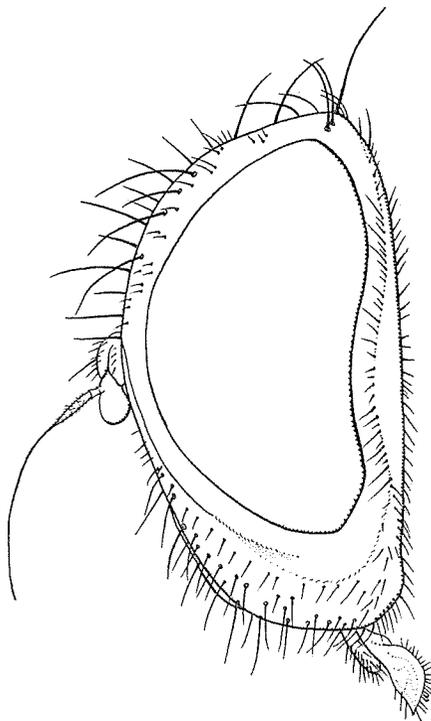


Fig. 7. *Plesiooestrus japonicus* sp. nov., profile of head.

the prescutellars), 2+3 dorsocentrals, 1 anterior sublateral, 1 presutural, 2 humerals, 1 (posterior) intraalar, 1 prealar, 1 supraalar; scutellum with 3 pairs of subequal marginals (including decussate median pair) and a weaker discal pair, hairs sparse and suberect; 1 propleural, 2 substigmatal; 1 dorsal+7-8 posterior mesopleurals; pteropleurals 1-2, rather weak; 1+1 sternopleurals; 5 hypopleurals behind a few short hairs. Wings: costal sections about in ratio of II (*h* to *sc*) 35: III 23: IV 47: V 24; r_{4+5} at base with 2 setulae above and 3-4 beneath; R_s narrowly open or closed in margin; bend of *m* more than 2.5 times distant from *m-cu* as from wing-margin, apical cross-vein rather strongly and evenly concave; *m-cu* situated at about apical two-fifths of R_s along *m*. Legs of moderate build; fore tibiae with 6 submedian (2 *a*, 2 *pd*, 2 *p*) setae; mid-tibiae with 1 *ad* and 1 *pd* at about apical third; hind tibiae with 2 *ad* and 3 *pd* on middle third.

Abdomen subcordiform; hairs appressed, much sparser and irregular on segments IV and V, the latter segment with a discal and a marginal row of moderate suberect setae.

Length: body ca. 6.5 mm.; wing ca. 6.1 mm.

Holotype: ♀, Omogo Valley, Ehime-ken, Shikoku, 7. viii. 1953 (T. Yano), in the collection of the Entomological Laboratory, Ehime University, Matsuyama.

Distribution: Japan (Shikoku).

This species appears to be closely allied to *Plesiooestrus bouvieri* (Séguy) (comb. nov.) from Indo-China, but may be distinguished therefrom in the colouration of the calyptra and legs, the position of the antennae, and in some other minor details.

It should be noted here that in the present specimen there is a small setula beyond the apical third of the vein r_1 of the dextral wing.