

more melodious »voice«. In most species, the singing is a privilege of the male sex, but in some species both sexes are capable of sound-production. Most species seem to have several different »songs«, apparently with different biological significations. An endeavour to record these notes, partly by setting them down in musical notation, will be presented in my paper announced above.

The structure of the sound-producing apparatus is very different in the various groups. But in its essential parts it is *homologous with the tymbal organ* of the *Cicadidae*, and the function of the effective instrument of sound is the same in the different groups. Thus the sound is produced by the lateral parts of the first abdominal tergum being set in vibration by special muscles. In some cases there is a single muscle on each side, and the apparatus is strikingly similar to the tymbal organ of a *Melampsalta*. In other cases, the sound-producing organ is more complicated, as in the *Fulgoroidea* and *Typhlocybidae*. I am preparing descriptions of the structure of this organ in the different groups. I have found this sound-producing apparatus also in *Ommatidiotus* (*Issidae*) and in *Centrotus* (*Membracidae*), the songs of which I have not yet had the opportunity of hearing. No doubt the tymbal apparatus hitherto held to be an organ peculiar to the *Cicadidae* is in reality general in the *Auchenorrhyncha*. At least, the facts revealed during the study of our Swedish forms seem to support such an opinion.

Chloriona chinai n. sp.

A New Swedish Species of *Chloriona* (Hom. *Araeopidae*).

With Remarks on the Synonymy of *Chloriona smaragdula* (Stål).

By

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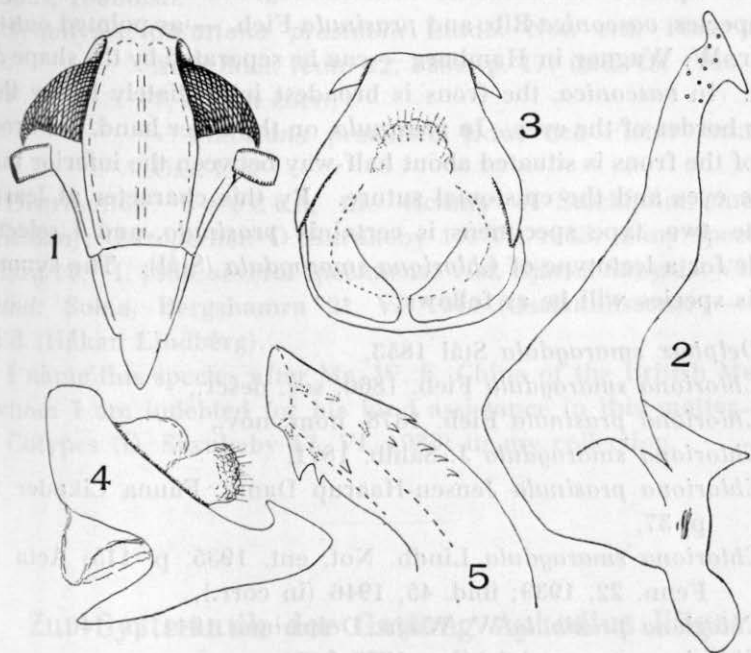
In an earlier paper (Opusc. ent. 1943, pp. 17—18), I briefly discussed the Swedish species of the Araeopid genus *Chloriona* Fieb. Of this genus we have four species in Sweden. According to my paper above cited, these species are:

1) *Chl. smaragdula* (Stål); 2) *Chl. vasconica* Rib.; *Chl. glaucescens* Fieb. sensu Ribaut (*unicolor* J. Sahlb.), and 4) a species provisionally named »?*Chloriona prasinula* (Fieb.) Edw.«.

The synonymies in the genus *Chloriona*, however, are far from clear, as the original descriptions of most European species are very imperfect. This genus has been dealt with by Fieber (Verh. k. k. zool-

bot. Ges. in Wien 1866, pp. 522—523; Rev. et Mag. de Zool. 3:e Sér., T. 6, 1878, p. 275 ff.), and later by J. Edwards (Ent. Mo. Mag. 1898, pp. 58—62). Neither of these authors succeeded very well in his task, as most of the species treated cannot be identified with the aid of their descriptions and figures.

The species *Chloriona smaragdula* was described in 1853 by Stål on six females from the vicinity of Stockholm («Hlm.»). In his 1866



Figs. 1—5. *Chloriona chinai* n. sp. Fig. 1, face of female; fig. 2, right genital style of male as seen from behind; fig. 3, anal tube in ventral aspect; fig. 4, same, lateral aspect; fig. 5, end of aedeagus, lateral aspect.

paper, Fieber gave a short description of the male of this species. From this description it may be found with tolerable certainty that the insect dealt with is identical with the common Swedish species described by J. Sahlberg (Öfversigt af Finl. Skand. halföns Cicadariae, Helsingfors 1871, p. 407) under the same name. In his later paper (1878), however, Fieber seems to have taken the view that his former opinion on the identity of *smaragdula* (Stål) was incorrect. For *Chl. smaragdula* Fieb. 1866 he now introduced the new name *prasinula*. Of the species for which the name *smaragdula* was reserved in his later paper, Fieber described the female sex only.

Of the six original females of *Delphax smaragdula* Stål only two

remain; they are preserved in the Swedish collection of Hemiptera of the Swedish Museum of Natural History (Riksmuseum) in Stockholm. By the courtesy of Professor Dr. O. Lundblad, I had the opportunity of examining them. The determination of the females of this genus is far from easy. Of our four species, however, *glaucescens* Fieb. and *chinai* n. sp. are easily characterized by certain details in the female genital apparatus. Thus it was possible to make certain that neither of these species was identical with *smaragdula* Stål. The remaining two species, *vasconica* Rib. and *prasinula* Fieb. — as pointed out to me by Mr. W. Wagner in Hamburg — can be separated by the shape of the frons. In *vasconica*, the frons is broadest immediately below the inferior border of the eyes. In *prasinula*, on the other hand, the broadest part of the frons is situated about half-way between the inferior margin of the eyes and the epistomal suture. By this character at least one of the two type specimens is certainly *prasinula*, and I select this female for a lectotype of *Chloriona smaragdula* (Stål). The synonymy of this species will be as follows:

Delphax smaragdula Stål 1853,

Chloriona smaragdula Fieb. 1866, sec. descr.,

Chloriona prasinula Fieb. 1878, nom. nov.,

Chloriona smaragdula J. Sahlb. 1871,

Chloriona prasinula Jensen-Haarup Danm. Fauna Cikader 1920,
p. 37,

Chloriona smaragdula Lindb. Not. ent. 1935, p. 115; Acta Zool.
Fenn. 22, 1939; *ibid.* 45, 1946 (in corr.),

Chloriona prasinula W. Wagn. Dohrniana 1941, p. 140,

Chloriona smaragdula Oss. 1943 l. c.

In my paper above cited I provisionally named one of our species »? *Chloriona prasinula* Edw. nec Fieb.«. I am unable to identify this species with any described species known to me. In order to make certain whether this species was identical with *Chloriona prasinula* Edw. (nec Fieb.) or with any one among James Edwards' other species, I sent two males to Mr. W. E. China of the British Museum. At my request, Mr. China most courteously compared the specimens with the species of Edwards in the British Museum, and he was then able to state that the Swedish species was not identical with any English species, nor with any other *Chloriona* species known to him. In any case it will be found necessary to produce a name for this insect till a definitive revision of this genus can take place, and so I feel justified in describing it here:

Chloriona chinai n. sp. — Resembles *Chl. smaragdula* (Stål).

Frons broadest at the inferior margin of the eyes (fig. 1). Abdomen of the male fuscous. Pygophor as seen from behind transversely oval, blackish. Genital styles twice curved, each with a pick-like dilation at apex (fig. 2). Anal tube with two pairs of hooks (figs 3 and 4). Aedeagus as in fig. 5. The serration of the saw in the female ovipositor is much finer than in our remaining three species. The medially directed lobe of the 8th sternite at the base of the ovipositor inconspicuous, roundish.

Synonyms: *Chloriona prasinula* Lindb. Not. ent. 1935, p. 115; Acta Zool. fenn. 22, 1939, p. 17; *ibid.* 45, 1946, pp. 5, 7, 33 (in corr.);
 »? *Chloriona prasinula* Edw. nec Fieb.» (immerito) Oss. I. c.

Distribution: Sweden, the vicinity of Stockholm, one male (Boheman); *Ostrogothia*: Ö. Skrukeby 17. VI. 1933, many specimens; Ö. Harg 19. VI. 1933, several specimens; Vist, Bjärka Säby 24. VI. 1934; *Upland*: Solna, Bergshamra 21. VI. 1944 (Ossiannilsson). — Finland (Håkan Lindberg).

I name this species after Mr. W. E. China of the British Museum, to whom I am indebted for his kind assistance in this matter.

Cotypes (Ö. Skrukeby 17. VI. 1933) in my collection.

Zur Systematik der Gattung *Aphodius* Illiger. (Col. Scarab.).

Von

B.-O. LANDIN.

(Mit 2 Abb.)

Die Gattung *Aphodius* Ill. ist in viele Untergattungen eingeteilt worden, was die Übersicht der Systematik dieser artreichen Gattung erleichtert¹. Die verschiedenen Untergattungen sind im allgemeinen ziemlich gut voneinander getrennt, die Arten innerhalb jeder Untergattung bieten aber oft Schwierigkeiten beim Unterscheiden. Das gilt z. B. für die Untergattungen *Volinus* Muls., *Melinopterus* Muls. und *Agriolus* Muls. Innerhalb der letzten Untergattung finden wir in der

¹ In Schweden kommen 18 Untergattungen vor.