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NOTES ON THE CERCOPIDÆ WITH DESCRIPTIONS OF SOME NEW SPECIES

E. D. BALL

No additions have been made to the records of Iowa *Cercopidæ* since the writer presented his papers on this group in 1895 and 1897; in fact, only one new species has been added to the United States list since that time.

There have, however, been a number of rather surprising additions and extensions of distribution and some of them point to the probability of two more species being found in Iowa and the distribution of two others being extended beyond what appeared at that time to be their probable limits.

The *Cercopidæ* are a strikingly distinct group from the fact that their larvæ produce a frothy secretion inside of which they develop. This froth or spittle appears to serve the double purpose of concealment and absolute protection from all parasitic forms, as no parasites of *Cercopidæ* have been found. The food plants and larvæ of quite a number of species are as yet unknown and among them are the four mentioned below.

Tomaspis bicincta. This is the only representative found in the United States of a tropical group large in numbers and in size. It is found in the southern states and up the Atlantic coast to Massachusetts. The only record for Iowa is the single specimen taken by the writer at Ames in 1893. This was thought at the time to be a specimen that had been blown up from more southern locations. The writer last season (1918) took a single specimen at Madison, Wisconsin, along the margin of a marsh, in a situation practically identical with that in which the Ames specimen was found. Both specimens were apparently fresh and it now seems probable that it will be found in suitable localities throughout the state where search is made. Nothing is known of its food plant or larvæ.

Philaenus parallelus Str. This species was described recently from examples from northern Wisconsin. There is a single example from central Illinois, collected by the late Charles Hart, in the collection of the Illinois State Laboratory. Last season (1918) the writer took five examples from a marsh at Balsam lake, Wisconsin. They were all beaten from a single species of sedge grow-

ing in open spaces between clumps of wild cranberries. They were all adults and no traces of the larvæ could be found. The Illinois record suggests that this species also will be found in suitable situations in Iowa when more collecting is done.

Lepyronia gibbosa Ball. This species was described from the sand hills of northwestern Nebraska. The writer took it in eastern Colorado and western Nebraska. In all cases it was taken from very sandy areas and was next reported from sand dunes along the Mississippi in Illinois by Hart and later it was found in similar situations along the coast in Massachusetts. Last season the writer took this species quite commonly in sand hills along Wisconsin river. From these records it seems certain that this species will be found in sandy areas in this state.* It is probable that the larvæ of this species when found will prove to be subterranean, like that of *Philaronia abjecta* and *Aphrophora permutata*, as it is doubtful whether it could maintain a froth above ground in such locations.

Philaronia bilineata Say. This is an abundant species in the Rocky mountain region. The writer reported collecting it in northwestern Iowa in the former paper and suggested that as the limit of its range in the state. It has been found to be common in the northern Appalachians and to extend across the United States in the northern tier of states, coming down into Wisconsin to about the Iowa line. Careful collecting will undoubtedly show that it extends across our northern border. The writer has taken them by hundreds in low, slightly alkaline meadows in Wyoming, but was not able to find a sign of froth or a larva. It will probably be found to have a subterranean habit like the other representative of the genus.

Philaronia bilineata var. *reticula* n. var.

Resembling typical *bilineata*, but with the entire dorsal surface pale smoky, set off by a narrow median line, all the elytral nervures, especially emphasized on the reticulate ones, and the basal half of the costal margin creamy white.

Described from a pair from Kimball, Nebraska, collected by the writer.

Philaronia bilineata var. *nigricans* n. var.

Resembling *bilineata*, but with the whole dorsal surface dark smoky brown with the white stripe along the costal margin in sharp contrast. This stripe widens a little and curves inward just before

* Since the publication of the above the writer has taken this species on a gravelly knoll near Little Rock, Lyon county, Iowa.

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the apex of the elytra. The irregular apical nervures are partly light marked. The vertex and pronotum of the female are slightly lighter than the elytra.

Described from a pair from North Park, Colorado, collected by the writer.

Philaronia bilineata var. *orbiculata* n. var.

Resembling *bilineata* var. *nigricans*, but with the apical third of the elytra abruptly white except for the narrow apical margin which curves around and divides the light area into two oval spots. The narrow median line is definitely white on the scutellum.

Described from two examples from Rhinelander and Trout lake, Wisconsin, collected by the writer. Other examples are at hand from Ontario, Colorado and Wyoming.

Philaronia abjecta var. *provana* n. var.

Resembling typical *abjecta* in size and form, but with markings similar to var. *ustulatus* of *Philaneus leucophthalmus*. Dorsal surface pale tawny brown, darker in the males, a transverse, slightly irregularly oblique white band from just back of the apex of clavus to the costa, where it is definitely widened. The apical fourth of the elytra, extending forward to the apex of clavus and obliquely outward to the costa, subhyaline. These two light areas bound an irregularly triangular, darker "saddle," which is still darker along the margins.

Described from two pairs from Provo, Utah, collected by the writer from leaves of a *Helianthus* of the *grosseserratus* type.

Clastoptera obtusa var. *pallida* n. var.

Resembling typical *obtusa*, but with the ground color and all markings very pale and obscure. General color pale straw with most of the pattern in pale tawny.

Described from four examples collected by the writer at Ames, Iowa.

Clastoptera obtusa var. *borealis* n. var.

Resembling typical *obtusa* in size and pattern, but much darker. Ground color dark smoky brown with the vertex, anterior half of the pronotum, except for a narrow transverse band, and the oblique saddle definitely set off in light creamy or white in sharp contrast.

Described from two examples from Nova Scotia from Dr. Brittain, one from Osceola, Wisconsin, collected by the writer, and one

from West Virginia. This is the common form in the Rocky mountains and northern regions and extends down along the coasts as far as Washington and San Francisco. It was the only form at hand from California at the time the writer reviewed the genus. The western specimens have the band on the pronotum somewhat broken and the lower part of the face light, thus agreeing fairly well with the description of *lineaticollis* Stal and were so referred. Since that time dark smoky forms of the species that was known at that time as *delicata* Uhl. have been found in California and as Baker suggests they are undoubtedly the form that Stal described.

Clastoptera obtusa var. *juniperina* n. var.

Resembling *testacea* in ground color, but with the addition of a definite pattern of narrow dark lines on the nervures of the posterior part of the elytra, a band from the middle of the costa to just before the claval suture slightly irregular and curving around the bulla, a medium-sized callosity, a crescent at the apex of clavus and usually an arcuated transverse line setting off the anterior third of the pronotum, a line at the base of the scutellum and a very small spot at the extreme tip black. Sometimes a brown cloud extends obliquely across the clavus from before the middle of the scutellum towards the dark line in front of the bulla.

Described from four examples from Palisades, Colorado, taken by the writer.

This variety occurs only on the red cedar and has been found in all stages on that tree throughout the mountain regions of Colorado and Utah. The ground color and dark penciling render this globose species an almost perfect mimic of a dried strobile of this tree.

Clastoptera lineaticollis var. *lugubris* n. var.

Size and form of var. *delicata*, but lacking its definite marking. Dull smoky brown with faint indications of the transverse bands on vertex and pronotum. A dark smoky cloud just before the inflated portion of elytra and a large shining black callosity. Face shining black.

Described from a single female from Alameda county, California, in the collection of the writer. Other examples from the same locality vary in having broader bands and on the pronotum and the

Clastoptera lineaticollis var. *brunnea* n. var.

Smaller and less definitely marked than *delicata*. Smaller than typical *lineaticollis* with less of a smoky and more of a bronzy cast, the lines and markings present, but obscure; face shining black.

Described from four examples from Alder and Rifle, Colorado, collected by the writer. The smaller size and shining black face will at once distinguish this variety from its lineate relatives.

Enocomia n. gen.

Broad short species superficially resembling, but not closely related to, *Clastoptera*. Resembling *Philaronia* in venation, but with a much shorter head and pronotum and a single spine on the posterior tibia.

Vertex very short, obtusely angled, disc sloping, ocelli almost equidistant from each other and the eyes. Front broadly transversely oval, the median third slightly longitudinally depressed. Pronotum very broad and short, anterior disc sloping, posterior disc horizontal, anterior margin more strongly produced than in *Philaronia*. Scutellum large, transversely convex, especially on the long acute apex. Elytra broadly oval as in *Clastoptera*, but not folded posteriorly, coriaceous and with the venation obscure on the disc as in *Philaronia*. Venation slightly irregular, variable, the outer antepical cell broad, inner one long, acuminate anteriorly, apical veins slightly curved, prominent, several irregular supernumerary veins between the outer antepical and the costa. Venation of under wing as in *Philaronia* except that the third vein is forked back of the cross nervure. Posterior tibia with a single stout spine.

Type of the genus *Enocomia ampliata* n. sp.

This genus, which superficially resembles *Clastoptera*, appears to have affinities in venation and structure with both *Tomaspis* and *Philaronia*. It probably represents a group developed in the West Indian region.

Enocomia ampliata n. sp. (Figure 39, Fig. 1.)

Superficially resembling *Philaronia abjecta* var. *provana*, but much broader, almost as broad as in a *Tomaspis*. Length 7 mm., width 3 mm.

Vertex nearly twice wider than its median length, distinctly shorter than the pronotum, disc almost flat, strongly inclined; face straight in profile, line extended touching costa. Pronotum with

the anterior two-thirds on the same inclined plane as the vertex then strongly rounding into the line of the convex scutellum. Elytra broad, coriaceous, venation obscure except towards the apex, outer anteapical narrow, curving around the end of the adjacent discoid cell; posterior veinlets distinctly curved. Posterior tibia weak, a single long spine before a rather weak terminal crown of spines.

Color brown, the vertex and anterior half of pronotum washed with yellow; face black, the anterior margin yellow; elytra with a pair of white spots just in front of the middle of costal margin from which narrow crescents extend in onto the claval areas, a similar pair of spots on costa half way to apex and large white areas occupying the first three cells and the bases of the ones adjoining.

Described from a single female from Port au Prince, Hayti, taken in February by R. J. Crew.

Enocomia ovata n. sp. (Figure 39, Fig. 2.)

Size and general appearance of a *Clastoptera*. Pale brown with eight or more spots. Length, 4 mm.; width, 2 mm.

Vertex short, obtusely rounding, two-thirds the length of the pronotum, disc strongly sloping, the margin thick. Front convex, the disc depressed. Pronotum broader behind than in *ampliata*, scutellum smaller, shorter and less convex than in that species. Elytra long-oval, coriaceous; venation indistinct, first anteapical cell large, apical cells short, almost rectangular.

Color pale testaceous brown, darker below, the margin of the vertex and apex of elytra lighter, eight or more round white spots as follows: A pair on costal margin before the middle, another pair on costa behind the middle, a pair just inside of these in the anteapical cells and usually one or two points on the disc.

Described from three examples from Jamaica, W. I. This is the smallest species in the Cercopid group outside of the genus *Clastoptera*. It is closely related to *ampliata*, but is much smaller and more compact.

Leocomia n. gen.

Resembling *Lepyronia* in general form, but with the elytra more rounding apically and the marginal vein of the under wing entire.

Vertex long, flat, parabolic in outline, the anterior margin thin, inclined to be foliaceous. Face very flat, profile straight and the extended line touching the costa. Head distinctly narrower than pronotum. Elytra broader than scutellum as in *Lepyronia*. Elytra

rounding posteriorly and nearly flat, similar to *Philaronia*. Venation similar to *Enocomia*, slightly more irregular, underwing with four apical cells as in *Enocomia*. Posterior tibia with two spines, both rather weak.

Type of the genus *Leocomia parabolocrata* n. sp.

This genus is intermediate in character between *Philaronia*, *Lepyronia* and *Enocomia*. The foliaceous vertex and flat elytra will serve to distinguish it from *Lepyronia*, which it most resembles, but from which it is widely separated by the venation of the underwing.

Leocomia parabolocrata n. sp. (Figure 39, Fig. 3).

Resembling a miniature *Philaronia abjecta*, but lighter in color and with a rounding vertex. Length, 4.5 mm.; width, 2 mm.

Vertex about two-thirds the length of the pronotum, parabolic in outline, disc flat, margin attenuate, in profile the whole head thin and shovel-like. Pronotum very slightly rounding in front, the lateral margin long and definitely oblique, continuing the outline of the head. Elytra coriaceous, long-oval in outline, not inflated nor compressed posteriorly. Venation obscure, similar to *E. ovata*, slightly irregular, the apical cells long and narrow.

Color testaceous, a rusty brown cloud on the vertex and pronotum omitting a median line and an area behind the eye.

Described from a single specimen from Port au Prince, Hayti, collected in February by R. J. Crew.

Lepyronia angulifera var. *minuenda* n. var.

Resembling *angulifera*, but still smaller and much lighter colored. Length, female, 4.5 mm.; male, 3.5-4 mm.

Cinereous gray with a tawny cast, eyes and below darker brown. Males much smaller than the females and usually darker. Scarcely as large as a *Clastoptera*.

Described from six examples from Vera Cruz, Mexico, collected by Professor Herbert Osborn.

This minute variety may be specifically distinct from *angulifera*, but until more material of the latter species is available for study its normal range of variation cannot be told. The writer has held this material for many years thinking that this might represent a small variety of Stal's *sordida*, which was described from Mexico. Recently specimens of what is apparently that species have come to hand and are quite distinct.

FIGURE 39

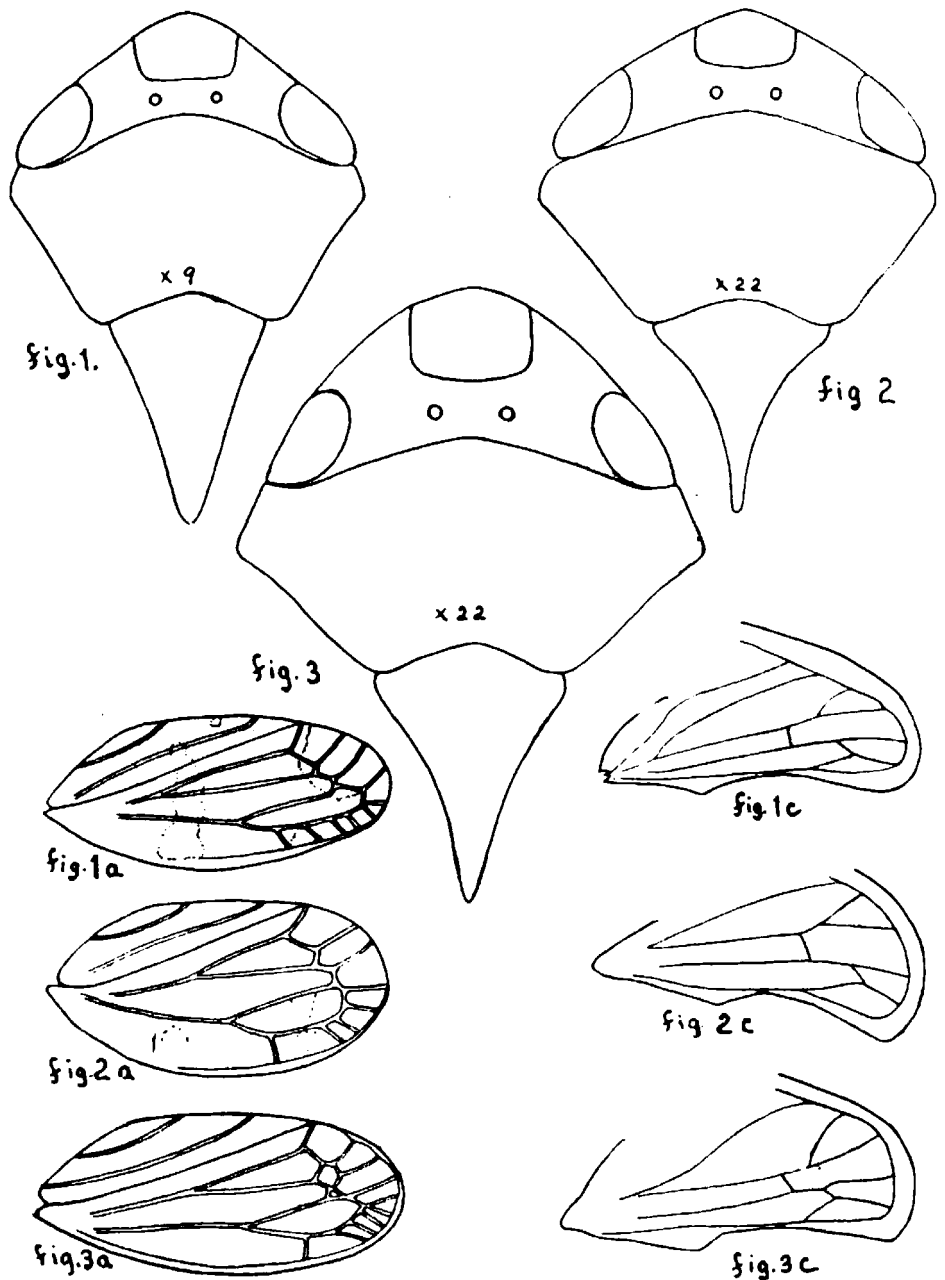


Fig. 1. Vertex and pronotum of *Enocomia ampliata* n. sp. (x9).
 1a, Elytron (x5). 1c, Underwing (x5).

Fig. 2. Vertex and pronotum of *Enocomia ovata* n. sp. (x22).
 2a, Elytron (x9). 2c, Underwing (x9).

Fig. 3. Vertex and pronotum of *Leocomia parabolocrata* n. sp. (x22).
 3a, Elytron (x9). 3c, Underwing (x9).