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HOMOPTEROUS STUDIES. PART I.

Contribution Towards Our Knowledge of the Homoptera of South Africa.

ERIC S. COGAN, M. A.

INTRODUCTION.

The systematic treatment of the Auchenorrhynchous Homoptera of South Africa has received but little attention from entomologists and naturalists, with the result that the worker or investigator finds himself confronted with what may be termed a pioneer task. Of all the orders of insects in South Africa, the Hemiptera and particularly the suborder Homoptera have been studied the least. The list of described species, at all events for the Auchenorrhynchous Homoptera, would scarcely number more than one hundred. The Cicadidæ and Fulgoridæ are perhaps the best known, yet our knowledge of these two large families is far from complete. The Membracidæ have received but passing comment, while the Cercopidæ and Jassoidea are scarcely known at all.

Through the courtesy of Professor Osborn of the Ohio State University, the writer was afforded an opportunity to study a series of Cercopids and Jassids, which had been consigned to him for study by Mr. Mally, of the Department of Agriculture in the Cape Province. Except in a few cases where the specimens had faded a little, the collection was in a good state of

white, the frons brownish on the middle and sides, with a brown band extending from below the ocelli to the anterior margin of the head; much wider than the clypeus, which is oval in shape, yellowish, with the sides marked brown; loræ white, not as wide as the clypeus. Cheeks white, strong and broad. Ocelli colorless. Black markings beneath the antennal pits. Pronotum strong, brownish on anterior, whitish on posterior half with two large black spots near the posterior margin; irregular brown markings in advance of these, and a brown median band. Pronotum almost twice as wide as its length, the anterior margin rounded, and the posterior broadly rounded towards the sides; convex above. Scutellum yellow, with a brownish semi-circular furrow on the anterior half, not as long as the pronotum; apex tapering to a fine point. Thorax beneath black. Elytra gray, semi-transparent, the veins distinct, showing as brown lines. Middle anteapical cell much larger and longer than the other two; only three apical cells present. Abdomen above yellow, black at the base, beneath light yellow. Legs light yellow to whitish. Genitalia: male—last ventral segment a little longer than the previous ones; valve strong, three times as long as the ultimate ventral segment, broadly triangular in shape, rounded at apex; plates triangular, about equalling the valve in length. Pygofers not as long as the plates, yellowish ventrally, black dorsally.

Described from two males.

Habitat: Cape Town (Mally).

This species may be easily distinguished from *A. novella* Say. by the size and shape of the pronotum. In the former the pronotum is much larger and more convex than in the latter. Further the black spots on the pronotum of *A. novella* are located nearer the middle than in this species.

***Agallia cuneata* sp. n.** (Pl. V, Fig. 2).

Form thin and slender with the posterior end of the body distinctly wedge-shaped. Color light pink, obscured in parts by a white incrustation; large round, black spots on vertex and pronotum. Length 3.5 mm. Breadth scarcely 1 mm.

Vertex small, well rounded, pinkish, the black spots on the anterior margin surrounded by yellowish halos; length about one-fourth as long as the pronotum; anterior margin rounded. Eyes yellowish, ocelli black. Face narrow, a little longer than broad; frons whitish, with brown across the middle, and on the sides to the clypeus; genæ almost straight margined from clypeus to the eyes; loræ rather long and narrow, not as wide as the clypeus, which is short and oval, its length about one-fourth of the frons; sutures marked indistinctly with brown in parts. Pronotum whitish pink, about one and a half times as broad as its length, and not as wide as the vertex across the eyes; convex above both anteriorly and laterally; anterior margin rounded between the eyes, side margins of

moderate length; two black spots near the posterior margin, large and round. Scutellum whitish, about as long as the pronotum. Pro-, meso- and metapleura black. Elytra covered with a whitish incrustation, venation distinct, the veins indicated in part by brownish lines; apex of elytron rather sharply rounded. Four apical cells, and two ante-apicals, the inner ante-apical being much larger and longer than the other. Abdomen above blackish gray, the borders and ventral surface yellow. Legs dirty white. Genitalia: female—last ventral segment about one and a half times as long as the penultimate, the posterior margin almost straight, except for a small niche on middle; pygofer about two and a half times as long as the last ventral segment, and longer than their width at base; ovipositor longer than pygofer, black at the tip.

Described from one female.

Habitat: Cape Town, C. P. (Mally).

FAMILY TETTIGONIDÆ.

The family Tettigonidæ is easily recognized by the position of the ocelli which are located on the disk of the vertex.

SUBFAMILY GYPONINÆ Berg.

Genus *Penthimia* Germ.

Body oval; head obtuse, the anterior margin rounded. Pronotum frequently longer than the vertex, sometimes transversely striated. Scutellum a little broader than long.

Penthimia bella Stal.

Penthimia bella Stal. Hem. Afr. IV. 108. (1866).

Penthimia bella Stal. Ofv. Vet. Ak. Forh. 98. 2. (1855).

General color from above black intermixed with brown and dirty white, beneath black and brown. Length of female 4.5 mm. Breadth 1.75 mm. Vertex yellowish white with irregular brown markings arranged along a median line; obtusely angular, the length not as great as the width of the head between the eyes; anterior of head sharply rounded. Ocelli brown, eyes black. Face black, except the brown clypeus; sutures distinct; clypeus small, about one-fourth of the length of the frons. Pronotum a mottled brown, black and white; longer than the vertex, slightly convex on the anterior half, the lateral margins rather short. Scutellum yellowish with brown markings at the basal angles, about two-thirds as long as the pronotum. Elytra whitish but with a mottled appearance due to the brown and black; a few clear spaces in the anteapical cells, some hyaline areas on the corium, and middle of costal margin. Abdomen above brownish, lighter ventrally with the borders yellow. Genitalia: female—pygofer large, yellow with bluish marks, convex and very spiny; last ventral segment more than

Genitalia: Male—last ventral segment not quite as long as the penultimate; plates roundly triangular, a little more than twice as long as the last ventral segment, and longer than the pygofer. Legs a dirty white.

Described from one male.

Habitat: Cape Town (Mally).

Genus *Thamnotettix* Zett.

Body oblong or oval, widest in the middle. Pronotum strongly curved in front, the side margins short. Head usually short. Scutellum generally as long or not quite as long as the pronotum. Elytra longer than the abdomen and overlapping at the apex.

This genus is well represented in South Africa, Stal having described a number of forms from the region of the Cape.

***Thamnotettix karrooensis* sp. n.** (Pl. VIII, Fig. 2).

General color brownish white. Length 3.5 mm. Breadth 1.25 mm.

Vertex white, with a dilute brown pattern, angularly rounded, the length equalling the width between the eyes, and about one-third of the distance across the eyes. Eyes large, dark brown, ocelli dark brown, surrounded by clear white spaces. Face dull brown, the frons two and a half times as long as the clypeus, and twice as long as its width between the antennæ; clypeus narrow, its sides almost parallel, twice as long as its width next the frons; loræ about equalling the clypeus in width. Pronotum well rounded on its anterior margin, dirty brown in color, with an irregular pattern, one and a third times as long as the vertex; sternum yellow; black spots on the pro-, meso- and metapleura. Scutellum almost as long as the pronotum, with brown markings on the middle and at the basal angles. Elytra a dull white, the veins distinctly marked with fuscous, the outer margin of the corium white, except for the minute brown spots. Abdomen dorsally black, with yellow margins, ventrally dirty white, with black on the base and the middle. Genitalia: Female—Last ventral segment two and a half times as long as the preceding, the posterior margin inwardly rounded and slightly produced on the middle; pygofer one and a half times as long as the width at base, and three times as long as the last ventral segment; ovipositor a little longer than the pygofer. Male: Valve brown, with a yellow border, last ventral segment equalling the penultimate in length, but not quite as long as the valve; plates long and narrow.

Described from numerous examples of males and females from Beaufort West, C. P. (Mally).

***Thamnotettix karrooensis* var. *pallidus*.**

Form and shape the same as *T. karrooensis*. General color light yellowish to whitish, with the brown coloration generally absent. Face light yellow, the frons marked with dilute brown arcs. Ocelli san-

guineous. Genitalia female: last ventral segment almost two and a half times as long as the penultimate, white with brownish markings on the anterior half. Male: last ventral segment a little longer than the preceding. Males distinctly brown on the middle of the ventral part of the abdomen, the lateral margins yellow.

This variety was described from nine females and three males which were separated from *T. karrooensis*, on account of the absence of brown color pattern, and the general predominance of yellow.

Habitat: Beaufort West, C. P. (Mally).

***Thamnotettix cotula* sp. n. (Pl. VIII, Fig. 3).**

General color yellowish brown. Length 3.5 mm. Breadth 1.25 mm.

Female: Head with the eyes prominent, vertex almost as long as the pronotum, fuscous yellow in color and characteristically marked with ten brown to black spots—two situated on the middle, one on either side of the median line, two somewhat smaller alongside these, but nearer the eyes, two large angular spots near the anterior margin, located close to one another and to the median line, two smaller spots on the anterior margin in advance of these; the other two spots are on the anterior half close to the lateral margin. The arrangement of these spots gives the insect a very characteristic appearance. Vertex acutely angled. Face strong, the frons fuscous with light arcs; clypeus almost twice as long as its width, less than half as long as the frons. Eyes large, dark steel gray; ocelli colorless located very close to the eyes. Pronotum fuscous yellow, equalling or a little longer than the vertex. Scutellum shorter than the pronotum, of the same yellow brown color. Elytra yellowish, transparent, the claval area irregularly marked with fuscous; apical cells fuscous at their borders. Abdomen above black, with yellow borders, beneath yellow. Legs light yellowish with alternate bands of fuscous on the coxæ and femora. Genital apparatus: ultimate ventral segment somewhat narrow, a little longer than the previous one, posterior margin notched at the middle, and rounding slightly to the sides; pygofer dark colored, twice as long as their width at base; spines strong and stout forming a rough crown at the tip of the ovipositor; the latter is longer than the pygofer, and is black at the sides and tip.

Male: General color the same as for the female; vertex shorter; the fuscous markings on the apical cells absent or not as prominent. Abdomen beneath dark brown. Genitalia: last ventral segment yellow on the middle, black at the sides, equalling the penultimate in length; valve semi-circular, small, not well exposed; plates angular at the tips, one and a half times as long as the last ventral segment; pygofer longer than the plates, rounded laterally; spines large.

Described from one male and one female.

Habitat: Cape Town (Mally).