

The male of *Crypsicerus cubicus* Saussure, 1888 (Orthoptera : Lathiceridae)

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The material from which Saussure described *Crypsicerus cubicus* in 1888 was immature. The first adult female of this rare species was described only recently by Rehn (1955) on material from Swakopmund, S.W. Africa. Further specimens, collected on a recent visit to the Central Namib, now make it possible to describe the hitherto unknown male. Although both Dirsh (1954) and Rehn (*op. cit.*), have published satisfactory photographs of this curious insect, the only figure so far published, is of the head and pronotum by Miller (1932). As a further aid to the identification of this remarkable insect detailed illustrations of the male are now given.

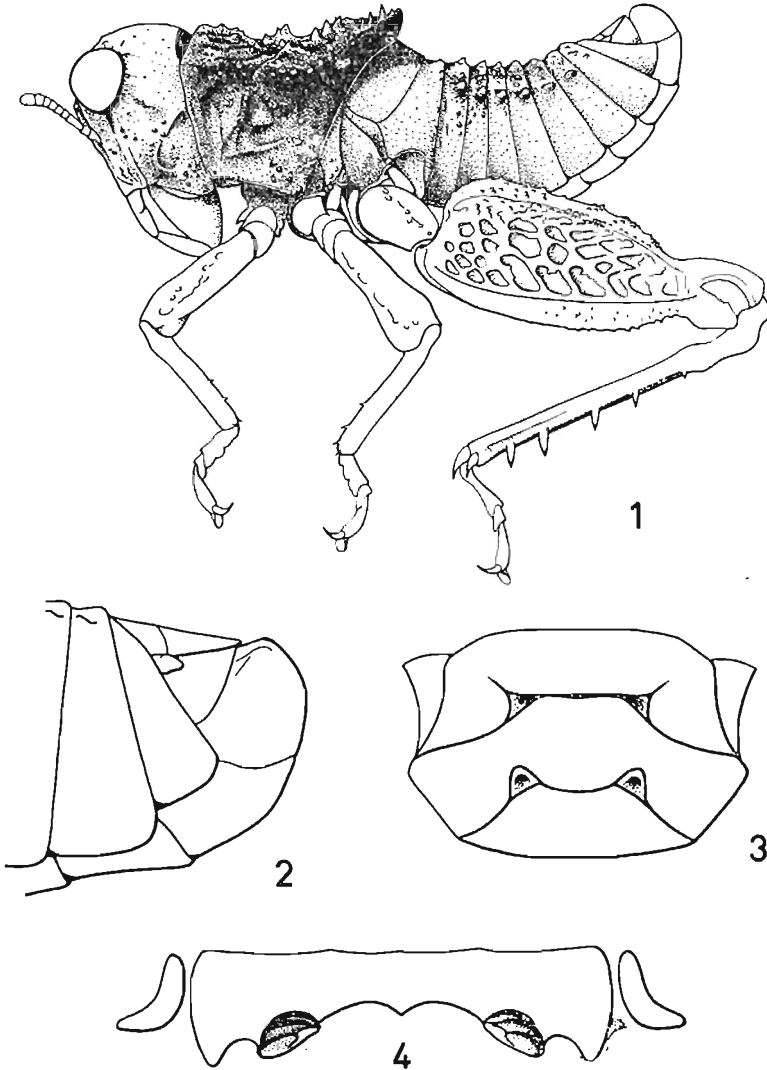
C. cubicus is at present placed with several other aberrant species in the newly created family Lathiceridae. The history of the species is as follows: Saussure (1888) placed it in Thrincites of the subfamily Oedopinae, where it remained until Uvarov (1943) transferred it to his tribe Thrinchini within the family, Pamphagidae. Dirsh (1954) then removed it to his subfamily, Lathicerinae which he subsequently (1956, 1961) elevated to family rank.

Crypsicerus cubicus Saussure, 1888, figs. 1-7.

♂ - METALLOTYPE: Body of medium size, smaller than female, covered with coarse tubercles and spines.

Antenna short, composed of nine distinct segments, the apical one with a faint transverse suture. Fastigium of vertex sloping down anteriorly, surface flat, median furrow deep, apex truncate, joined to face by transverse denticulate ridge. Frons in profile straight, almost perpendicular; frontal ridge wide, margins feebly raised, denticulate, constricted strongly in middle, diverging below and flanked on either side by deep antennal grooves. Eyes small, convex, widely separated; ocelli rudimentary. Head in profile, elongate, surface granulose and rugose.

Dorsal surface of pronotum covered with dense accumulations of tubercles and small, sharp teeth. Disc in profile, saddle-shaped, basal sulcus incomplete, deep and well developed at sides and absent in middle; anterior margin of

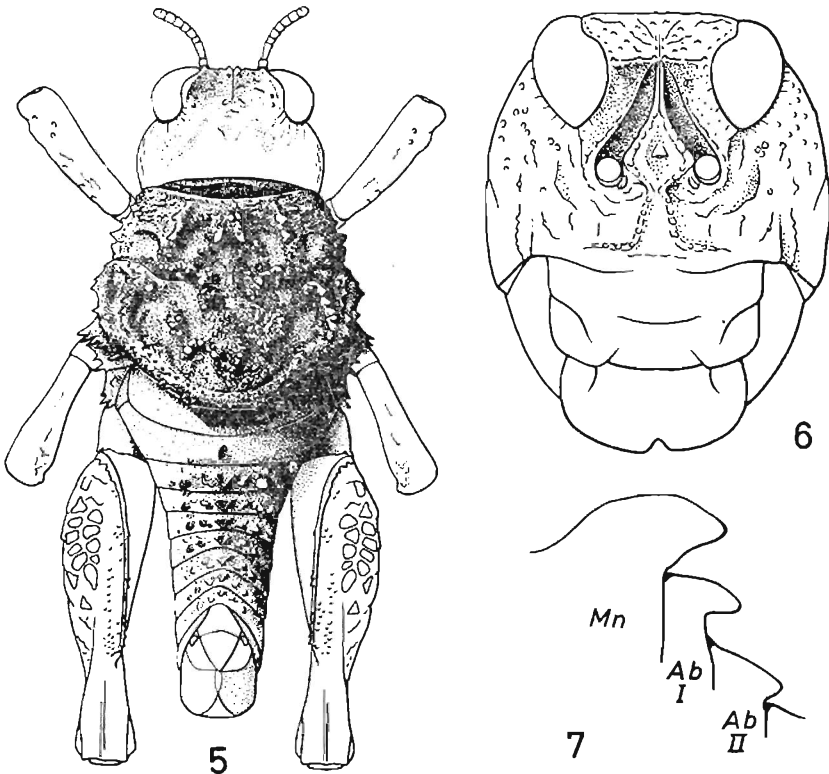


Crypsicerus cubicus Saussure. ♂

Fig. 1. whole insect, lateral view; 2. end of abdomen, lateral view; 3. meso- and metasternum; 4. epiphallus.

basal sulcus with row of denticulate tubercles. Median carina indistinct, represented by inverted V-shaped mass of tubercles near anterior margin; lateral carinae formed of strongly projecting, conical tubercles. Posterior

margin of pronotum edged with small, sparse teeth. Lateral lobe of pronotum perpendicular, basal sulcus deeply impressed in upper half; lower margin of lobe sloping up slightly in front; lower posterior margin of lobe with several slender spines. Prosternal tubercle transverse, collar-like, compressed, apex curved and carinate. Meso- and metanotum with smooth integument, without horn-like process of female (*cf.* fig. 7). Mesosternal interspace four times as wide as long with deep lateral pits, mesosternal lobes oblique; metasternal interspace very broad. Anterior and middle femora of legs with scattered tubercles and carinae; hind femur broad and robust, upper carina denticulate, lower one excurved, basally smooth, apically denticulate; disc strongly convex with rough cellular sculpture. Hind tibia slightly shorter than femur, spines well developed, long and slender. Hind tarsi slender. Claws longer than arolia.



Crypsicerus cubicus Saussure

Fig. 5. whole insect, dorsal view, ♂ ; 6. face, ♂ ; Fig. 7. metathoracic projection, lateral view, ♀. (Mn: metanotum; Ab I: first abdominal segment; Ab II: second abdominal segment).

Tergites of abdomen with single median and paired lateral tubercles. Supra-anal plate triangular, apex subacute. Subgenital plate laterally compressed, feebly upcurved, apex rounded in profile. Epiphallus flat, bridge-shaped, ancorae absent, lophi formed of three laminate, sclerotized ridges, arranged in vertical series.

General body colour purple-brown, tubercles on head and base of hind femur white. Antennal grooves black; unexposed surface of mandibles dark red; maxillae, labium and their appendages light red. Ventral surface of entire body biscuit-brown; hind femur internally with yellow, cell-like pattern, ventral surface biscuit colour with thick black stripe along entire inner margin. Dorsal surface of hind tibia yellow, ventral surface, between bases of spines, black.

Measurements: Length of body, ♂ 16.6; pronotum, ♂ 5.6; hind femur, ♂ 9.1 mm.

Material examined: SOUTH WEST AFRICA: Kuiseb River, Central Namib, 18 miles N. E. Gorab Mine, 12.V.1959, 1♂, 1♀, 2 nymphs, leg. H. D. Brown.

The newly described male is deposited in the collection of the Transvaal Museum, Pretoria.

A female from this locality has red mandibles as well but the colour of the body is sandy-brown. The measurements of this specimen are: body, 27.6; pronotum, 9.0; hind femur, 12.2 mm.

NOTES ON HABITAT: The specimens were all collected from poorly vegetated sand and gravel flats situated about 50 miles inland from the coast which is about the inland limit of the fog belt. Rainfall in this region is low and unreliable with frequent spells of drought which last sometimes for years. In this locality, however, at the time of the writers visit, there had been sufficient recent rain to bring up a sparse cover of annual grasses and make the perennial shrublets, scattered along the drainage lines, flower. *C. cubicus* was found here on the ground amongst wind-bevelled stones and pebbles, the colour and texture of the integument of the insect blending rather closely with the stones and making them difficult to spot. When first disturbed they jumped and were easy to detect, but after the initial movement they were apt to remain motionless amongst the stones with the antennae partly retracted into the antennal grooves and the hind femora flattened against the abdomen. In this position they are practically indistinguishable from the stones. A straw or even the finger waved close to the head does not elicit any response. They move when touched, however and continued teasing makes them jump away. The male when held in the hands regurgitated a messy, dark fluid. The presence of nymphs, together with the teneral condition of the female suggests that their season had just commenced, probably the result of recent rains which this area had experienced. One of the smallest nymphs in the series, probably third instar, also has the antennal grooves well developed. On a subsequent visit to this locality several days later a strong wind was blowing sand and other debris across the flats making

collecting unpleasant and only one nymph of this species was found in the lee of a stone. Collecting was generally very poor.

The remarkable desert-adapted animal fauna inhabiting this area and the adjacent sand dunes has been described by both Lawrence (1959) and Paulian (1960). One of the main difficulties experienced by small animals living in this environment must be the harmful effects of wind-blown sand. This is particularly true of the hot Berg Wind which blows almost with gale force across the desert from the interior. Most of the animals living in the dunes overcome this danger by restricting their activities to the leeward sides of the dunes, digging down beneath the surface or become nocturnal in their habits. By comparison the gravel flats are not able to provide much shelter from the wind. Indeed the fauna of this zone is poor in contrast with the sands. Although there is no observational evidence in support, it may well be that the function of the antennal grooves in these grasshoppers is to house and protect the antennae from the harmful effects of wind-driven sand in these exposed gravel flats. The pamphagid, *Trachypetrella anderssoni* (Stål), living under somewhat similar biological conditions in the desert areas of Bushmanland and Namaqualand also folds the normally erect antennae down across the cheeks and along the sides of the body when disturbed. The insect also adopts this posture when sand is thrown against the body. A similar lowering of the antennae has been noted in species of *Lithidium* Uvarov on windy days when sand is scudding across the ground.

A study of the field behaviour of *C. cubicus* would be of great interest.

The biological significance of the red colour of the mandibles of this insect is also unexplained. It is probably of no sexual significance since it is found in both sexes. Similar, even brighter, mandibles are found in the related species *Batrachidacris rubridens* (Uvarov) and *Lathicerus cimex* Saussure, which inhabit similar desert environments.

ACKNOWLEDGEMENTS

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