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ON A COLLECTION OF INDO-AUSTRALIAN TETTIGONIIDAE

by

C. WILLEMSE.

The collection of *Tettigoniidae* from the Baseler Museum, that I had the opportunity to study, contains a number of species new to science.

They were collected by different collectors, but most of them by Prof. E. Handschin during his voyage to the extreme Orient.

They were partly studied by my late friend Dr. H. Karny, who was however not able to finish this study, because of his illness during the last years of his life.

I wish to express my sincere thanks to the

authorities of the Museum of Basle for the opportunity to study this interesting collection.

PART I.

FAM. MECOPODINAE.

GROUP: PHRICTAE.

Phrictaetypus nigro-ornatus nov. spec.

♂: Body slender. Head much shorter than the pronotum. Antennal scrobes reaching a little beyond the apex of fastigium of vertex, antennae slender, about two or three times as long as the body, first joint smooth, without keels, third joint about two times as long as the second one.

Fastigium of vertex produced in advance into a processus, which at the apex is deeply cut into two obtuse teeth. Eyes small, very prominent, globose, more or less stalked. Frons reclinate, smooth, broader than high, median ocel indistinct.

Pronotum with the disc flat, coarsely punctured, anterior margin straight, posterior margin slightly concave, without median keel, two transverse sulci perceptible, sides of the disc provided with four, long, cylindrical tubercles, the first one a little behind the anterior margin, the fourth one a little before the posterior margin, both obtuse at their apex, the second and third one at their apex with an indication of bifurcation, between the first and second and between the third and fourth one with a triangular incision of the sides of the disc, just behind the fourth one still with a minute tubercle; lateral lobes vertical, sinuately inserted, broader than high, finely rugose, with a deep V shaped impression in the middle, lower margin rounded anteriorly and a little less posteriorly.

Elytra and wings reaching the apex of hind femora.

Elytra relatively broad, with dense reticulation, anterior and posterior margin straight and nearly parallel, apex broadly rounded, apical half as broad as the basal one. Mediastinal vein indistinct or absent.

Subcostal and radial vein nearly straight, reaching the apex of elytra, separated in the basal and apical third by a very narrow interspace, behind the middle contiguous along a short distance; first radial branch arising in the apical third and reaching the apical margin of elytra, followed by still one branch. Medial vein simple, slightly undulated, reaching the posterior margin near the apex, at the base connected with the cubital and anal vein. Cubital vein connected with the anal vein in the basal third, reaching the posterior margin in the apical third, no branches. Anal vein substraight.

Stridulating field in the left elytra with irregular and coarse reticulation, with coarse stridulating vein. Speculum of right elytra oval, very clear hyaline, surrounded on all sides by a strong, thickened vein.

Wings subcycloid, principal veins distinct, with only a few branches.

Legs relatively thick. Anterior femora undulated from above by a row of irregular small rounded tubercels, with a row of 4 spines from below on the inner margin, inner and outer genicular lobes with a short curved spine.

Anterior tibiae with a row of 7—8 spines on both sides from below, with an apical spine from above on both sides, auditory foramina oval, open on both sides.

Median femora undulated from above by a row of irregular, small, rounded tubercels, with a row of 3—4 spines from below on the outer margin, inner and outer genicular lobes with a short curved spine.

Median tibiae with a row of spines from below on both sides and an apical spine from above on both sides.

Hind femora slightly incrassate in the basal half, undulated in the basal half from above by a row of irregular, small, transverse rugosities, with a row of strong spines from below on both sides, genicular lobes with a spine on both sides. Hind tibiae with four rows of strong spines.

Prosternum bispinose, spines short, obtuse. Meso- and metasternum about as long as broad, the lobes with an obtuse spine.

♂ : Ultimate tergite with the posterior margin concave in the middle, disc with a longitudinal median impression. Supra-analplate triangular, apex obtusely rounded. Cercus cylindrical, attenuate towards the apex, curved inwards in the apical half, apex subacute.

Subgenitalplate longer than broad, slightly narrowing apically, posterior margin broadly concave, styli thick, short, shorter than the depth of the concave incision of the hind margin.

General coloration brown. Antennae reddish brown, first joint brown, bordered with black at the insertion of the second one. Head yellowish brown, frons with a black stripe on the inner side of the antennal scrobae and a small black spot just below it. Cheeks with some irregular, small, brown spots; vertex brown.

Disc of pronotum brown, with a narrow black V shaped figure in the middle and a black narrow stripe in the first transverse sulcus on both sides, hind margin bordered with blackish brown, the tubercels on both sides yellowish brown, lateral lobe yellowish brown, V impression black.

Epimerum of pro- meso- and metasternum incompletely bordered with black.

Elytra brown, with a few irregular darker spots. Wings hyalinous. Anterior and median femora from above and on both sides with some rows of regular, small black points or spots, spines with their insertion totally black.

Spines of anterior and median tibiae, with their insertion black.

Hind femora with a row of small black or blackish brown spots from above in the basal half and on the sides, from below totally black, spines black. Spines of hind tibiae with apex black, coxae



Fig. 1. *Phrictaetypus nigro-ornatus* nov. sp. ♂ type.

of hind legs from below with a black spot. Sternum and abdomen brown or yellowish brown.

♀ unknown.

	♂
Length of body	33 mm
" " head	3 "
" " pronotum	7 "
" " elytra	35 "
Width of elytra	9 "
Length of ant. femora	12 "
" " median femora	12,5 "
" " hind femora	26 "
" " hind tibia	29 "

Fig 1.

Locality : 1 ♂, Kira Kira (Makira) Salomon Isl., III 29. (E. Paravicini) type Mus. Basel.

This species differs from the only known species *P. viridis* Br. v. W. by its brown colour with black figures and stripes, in its greater length (♂ of *viridis* 22—27 mm), the lack of a distinct median keel and in the much shorter styli on the subgenitalplate of the male.

GROUP : MOSSULAE.

Mossula salomonis Kirby.

1891. *Mossula salomonis*, Kirby, Trans. Ent. Soc. London, p. 411, no. 22.
 1892. " " , Redtenbacher, Verh. zool.-bot. Ges., Wien, XLII, p. 197.
 1906. " " , Kirby, Syn. Cat. Orth. II, p. 358.
 1916. " " , Caudell, Gen. Ins., fasc. 171, p. 11.



Fig. 2. *Mossula salomonis* Kirby ♀

1922., Hebard, Proc. Ac. Natur. Sc., Philad., vol. LXXIV, p. 174.

The short description of Kirby needs some additions and corrections. The collection contains a fine serie of 11 ♂♂ and 9 ♀♀, from the Salomons Isl.

♂, ♀: Body stout, robust. Head distinctly shorter than the pronotum.

Antennal scrobes reaching beyond the apex of fastigium of vertex, antennae more than three times as long as the body, slender but somewhat incrassata in the basal part, third joint about one and a half times as long as the second one. Fastigium of vertex produced in advance into a small triangular process with apex acutely rounded, laterally compressed, separated from the facial fastigium by an intersection. Eyes small, globose, prominent. Frons reclinate, nearly smooth, with shallow, transverse ridges near the clypeal margin, broader than high.

Pronotum with the disc flat, coarsely and heavily wrinkled; anterior margin rounded, posterior margin nearly straight, disc with irregular transverse ridges, an indication of median keel in the prozona and two deep transverse sulci; in the middle near the posterior sulcus with an indication of an oval, swollen tubercle on each side, touching each other in the middle; lateral lobes vertical, roundly inserted, broader than high, lower margin ascendent posteriorly, anterior and posterior angle rounded.

Elytra and wings in the male not quite reaching

the top of hind femora, in the female reaching the top or surpassing the top a little.

Elytra with the anterior margin slightly convex, posterior margin nearly straight or subconvex, slightly narrowing apically, apex broadly rounded.

Anterior area distinctly less broad than the other together. Mediastinal vein distinct in the basal fourth, dissolving into the dense reticulation.

Subcostal and radial vein substraight, in the male slightly curved in the basal fourth, reaching the apex of elytra, distinctly separated from base to apex by a small interspace. Subcostal vein with about 8—11 branches anteriorly, reaching the anterior margin of elytra.

Radial vein with its first branch in the apical third, followed by still one branch. Median vein slightly curved, without branches, reaching the posterior margin near the apex.

Cubital vein curved in the basal third, in the female with one branch, reaching the posterior margin in the basal third.

Anal area with some slightly curved veins.

Stridulating field of the left elytra in the male with numerous and coarse veinlets, with obtuse stridulating vein. Speculum of the right elytra oval, very clear hyaline, surrounded by a clear vitreous space, extending beyond the speculum at each end.

Wings subcycloid, principal veins well developed with few branches.

Legs strong. Anterior femora with a row of 4—6 small spines on the inner lower margin, genicular lobes with a spine on both sides. Anterior tibiae with a row of spines from below on both sides, with an apical spine from above on both sides, auditory foramina oval, open on both sides.

Median femora with a row of 7—8 spines on the outer lower margin, genicular lobes with one spine on the outer and two on the inner side.

Hind femora incrassata at the base, reaching a little behind the apex of abdomen, with a row of spines from below on the inner and outer margin, smooth from above, genicular lobes with two spines on the inner and one on the outer side. Hind tibiae with four rows of spines from base to apex.

Prosternum bispinose, spines not touching each other in the middle.

Meso- and metasternum in the male about as long as broad, bispinose, in the female broader than long, bispinose, spines obtuse.

♂: Ultimate tergite with the posterior margin triangularly rounded, in the middle with a small, rounded incision.

Supra analplate triangular, apex obtuse.

Cercus strong, thick, slightly curved inward, apex bidentate, a stronger and larger spine on the inner side, directed inward, which extreme tip



Fig. 3. *Mossula salomonis* Kirby.
♂ Elytra.



Fig. 4. *Mossula salomonis* Kirby.
♀ Elytra.

bears a minute sharp teeth and a small obtuse triangular spine at the outer side. Subgenitalplate long, lamellate, broad at the base, narrowing posteriorly, the apical half parallelsided, hind margin deeply, triangularly incised, styli cylindrical, about as long as, or only a little shorter than the incision.

♀ : Ultimate tergite triangular, posterior margin rounded, with a small median, rounded incision. Supra analplate triangular, apex rounded.

Cercus cylindrical, attenuate, curved inward, apex acute.

Ovipositor substraight or only weakly curved upwards, margins smooth or nearly so. Subgenitalplate broader than long, posterior margin rounded, with a median slitlike incision.

General coloration tawny. Head brown or yellowish brown with dark irregular figures, spots or stripes, mostly with six dark longitudinal stripes on the frons and cheeks; from above with a blackish brown median stripe on the vertex. Between the antennal scrobes with a chestnut black spot, apex of fastigium and upper margin of antennal scrobes bordered with black.

Basal joint of antennae black or only black in the upper part, second joint black, antennae reddish brown, partly annulated with yellowish brown.

Pronotum with a black narrow median stripe on the disc, on each side of the disc with a more or less large, black, longitudinal, irregular spot, lateral lobes mostly with a black spot in the middle of the lower part, margins of pronotum yellowish

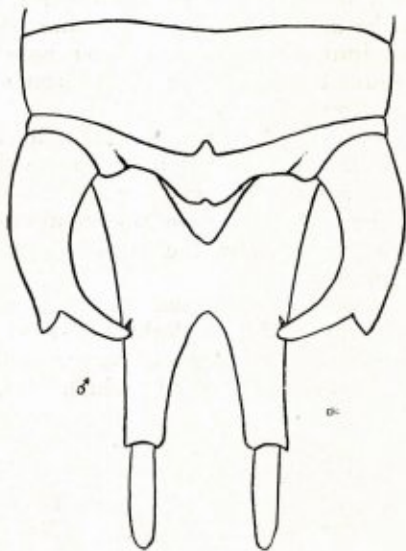


Fig. 5. *Mossula salomonis* Kirby.
♂ Abdomen from above.

brown. Elytra brown, a small black spot at the insertion of the principal veins at the base, areas with small, round or irregular, dark brown dots, the apex and posterior margin darker coloured. Wings fusco hyalinous.

Anterior and posterior legs yellowish brown or chestnut brown, femora from below, at the apex and on the inner and outer area with blackish dots or stripes, tibiae blackish at the base, joints of tarsi bordered with black. Hind femora yellowish brown or brown, outer area with rows of blackish transverse stripes especially in the basal half, from below blackish brown, apex and kneelobes blackish, spines with black tips.

Hind tibiae yellowish brown, spines blackish brown with black tips.

Hind tarsi with blackish brown, longitudinal stripes from above.

Sternum and abdomen brown. Ovipositor brown, darker apically.

Fig. 2—5.

	♂	♀
Length of body	42 mm	59 mm
" " head	5 "	6 "
" " pronotum	8 "	11 "
" " elytra	39 "	58 "
Width of elytra	10 "	16 "
Length of hind femora	36 "	41 "
Width of hind femora	6 "	7 "
Length of hind tibia	40 "	42 "
Length of ovipositor		34 "

Locality: Salomon Islands; Buma (Malaita) V. 29, 7 ♂♂, 8 ♀♀; Inneres N. Malaita IV. 29, 1 ♂; Batuna (N. Georgia) VII. 29, 1 ♂ (leg. E. Paravicini); Bula (Bougainville) 1930, 1 ♂, 1 ♀; Domma, VIII. 28, 1 ♂.

***Mossula intermedia* nov. spec.**

♂ : Body stout, robust. Head distinctly shorter than the pronotum.

Antennal scrobes reaching beyond the apex of fastigium of vertex, antennae slender, third joint about two times as long as the second.

Fastigium of vertex produced in advance into a very small triangular processus, with apex in profile rounded.

Eyes small, globose, prominent. Frons as in *salomonis*.

Pronotum with the disc flat, coarsely and heavily wrinkled, anterior margin rounded, posterior margin nearly straight, in the middle slightly concave; without indication of a median keel in the prozona, with two transverse sulci but less deep than in *salomonis*, lateral lobes vertical, roundly inserted, broader than high, lower margin ascendant posteriorly, anterior and posterior angle rounded.

Elytra and wings not quite reaching the top of hind femora.

Elytra with the anterior margin rounded, posterior margin substraight, narrowing apically, apex

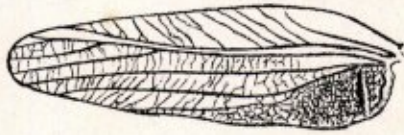


Fig. 6. *Mossula intermedia* nov. sp.
♂ Elytra.

narrowly rounded. Anterior area distinctly less broad than the other together; mediastinal vein distinct in the basal third, reaching the anterior margin; subcostal and radial vein substraight, slightly curved in the basal third, distinctly separated from base to apex by a small interspace, subcostal vein with about 12 branches anteriorly, reaching the anterior margin. Radial vein with his first branch in the apical third, followed by one other branch.

Medial vein slightly curved, without branches, reaching the posterior margin near the apex. Cubital vein curved in the basal third, without distinct branch. Anal vein straight. Stridulating field of left elytra and speculum of right elytra as in *salomonis*. Wings as in *salomonis*.

Legs more slender, distinctly longer than in *salomonis*.

Anterior femora with a row of 5—6 small spines on the inner lower margin, genicular lobes with a spine on both sides. Anterior tibiae with a row of spines from below on both sides, with an apical spine from above on both sides, auditory foramina oval, open on both sides. Median femora with a row of 7—8 spines on the outer lower margin, genicular lobes with one spine on the outer and two on the inner side.

Hind femora incrassate at the base, relatively long, reaching far behind the top of abdomen, with a row of spines from below on the inner and outer margin, smooth from above, genicular lobes with one spine on the outer and two on the inner side. Hind tibiae relatively longer and more slender than in *salomonis*. Meso- and metasternum broader than long, mesosternum bispinose, spines

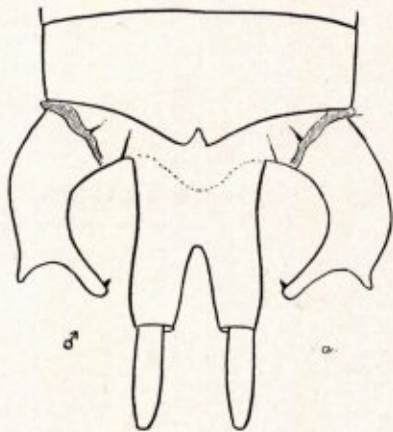


Fig 7. *Mossula intermedia* nov. sp. ♂
Abdomen from above.

small and obtuse, metasternum with the lobes rounded.

♂ : Ultimate tergite with the posterior margin triangularly excised in the middle. Supra analplate shrivelled, not distinctly to observe.

Cercus strong, thick, slightly curved inward, apex bidentate, a small obtuse triangular spine on the outer side, a larger spine on the inner side, which extreme tip bears a minute sharp tooth.

Subgenitalplate long, lamellate, broad at the base, narrowing posteriorly, the apical half parallel sided, posterior margin deeply triangularly excised, styli large, cylindrical, about as long as the depth of the incision.

General coloration uniformly brown or yellowish brown. Head yellowish brown, without blackish or dark stripes, except a few irregular dots on the vertex.

First and second antennal joint yellowish, first joint black at the apex, second joint black at the base and apex, the following joints yellowish brown.

Pronotum brown. Elytra yellowish brown, without dark brown spots. Wings fusco-hyalinous. Anterior and median legs yellowish brown, femora with rows of transversely arranged darker spots. Hind femora yellowish brown, darker apically, knee blackish brown, spines yellowish brown with black tips. Hind tibiae and tarsi yellowish brown, spines with black tips.

Sternum and abdomen yellowish brown. ♀ unknown.

Fig. 6, 7.

	♂
Length of body	44 mm
" " head	5 "
" " pronotum	9 "
" " elytra	43 "
Width of elytra	13 "
Length of hind femora	42 "
Width of hind femora	6 "
Length of hind tibia	48 "

Locality : Neu Pommern (Kinigunang) coll. C. Ribbe 1 ♂, type Mus. Basel.

This species resembles *M. salomonis*, but differs, except in the more uniform yellowish brown colour, in the narrower apex of elytra and especially in the longer and slender legs. The dimensions of the legs are respectively as follows :

	♂	♂
	<i>Salomonis Intermedia</i>	
Length of anterior femora	14 mm	17 mm
" " anterior tibia	15,5 "	19 "
" " median femora	17 "	20 "
" " median tibia	18 "	21,5 "
" " hind femora	36 "	42 "
" " hind tibia	40 "	48 "

(Is continued).