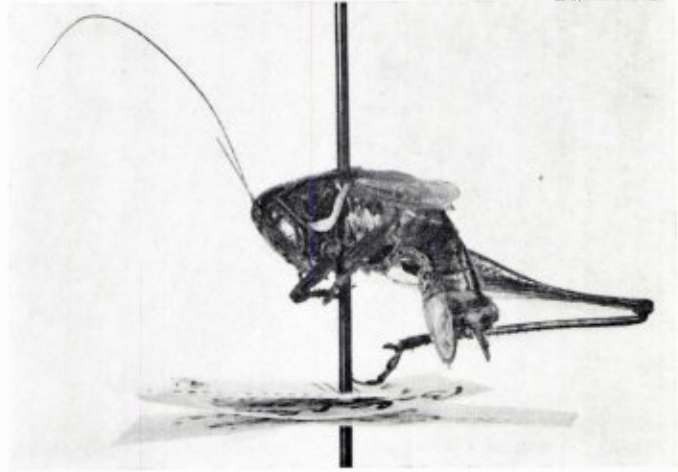
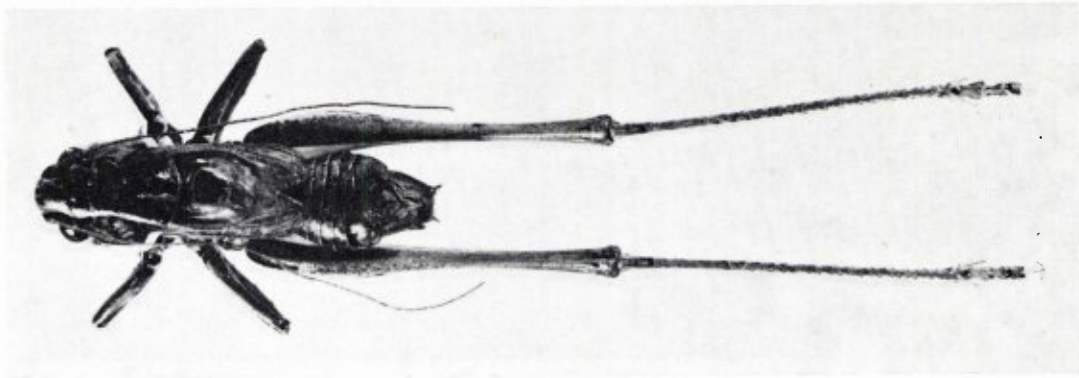




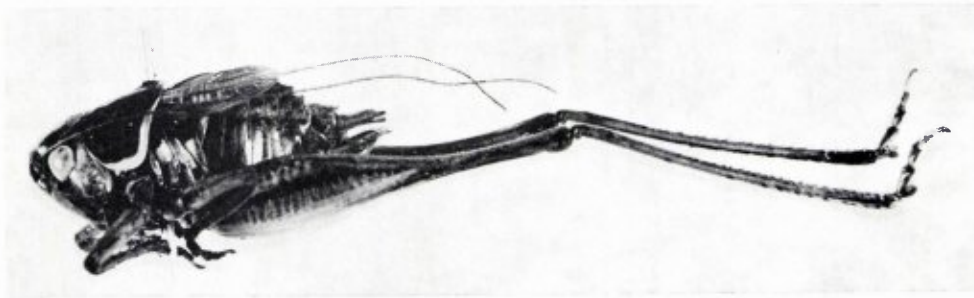
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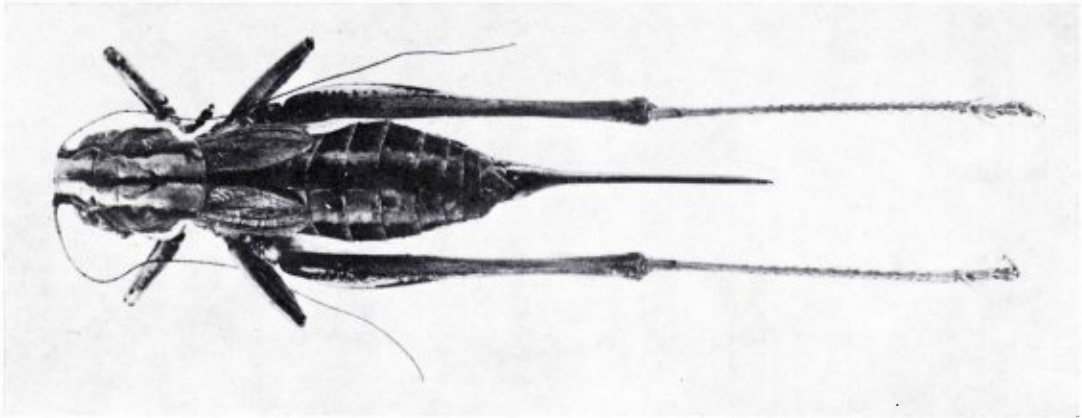
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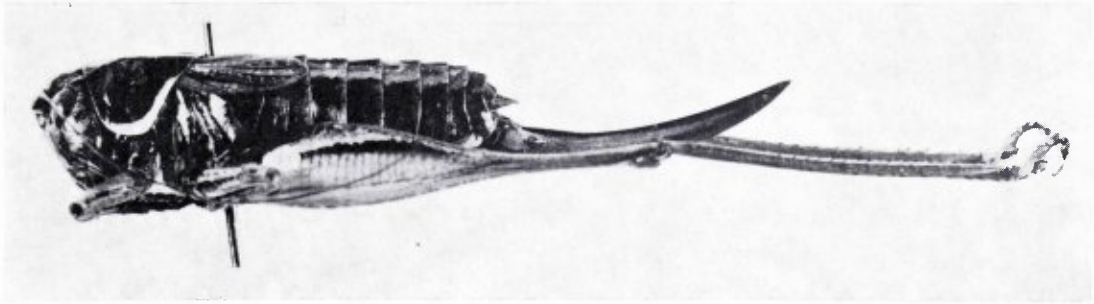
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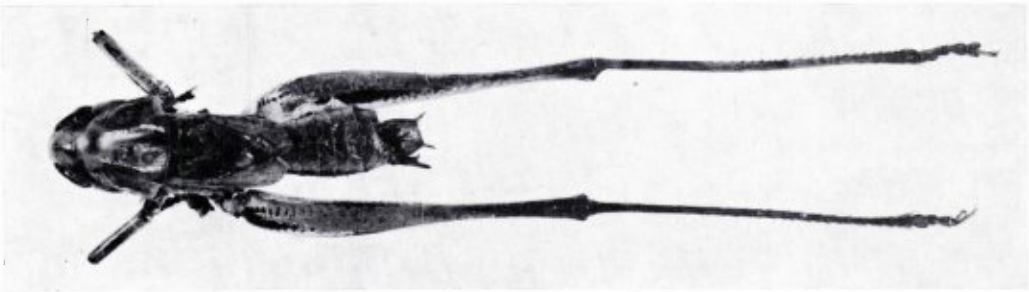
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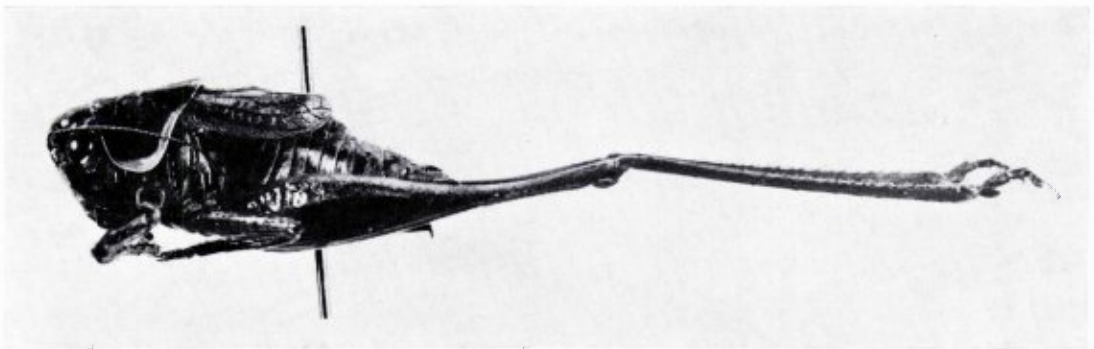
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METRIOPTERA MONTENEGRINA RAMME, 1933, CONSPECIFIC WITH METRIOPTERA HOERMANNI (WERNER, 1906), A LITTLE KNOWN ORTHOPTEROUS SPECIES OF THE YUGOSLAV FAUNA (ORTHOPTERA, TETTIGONIOIDEA, DECTICINAE).

by

Fer WILLEMSE

R a m m e, 1933, described *Metrioptera montenegrina* after a single female specimen captured on Mount Durmitor, Montenegro, by P e n t h e r in 1904. Not earlier than after a lapse of sixty years, in September 1964, this species was rediscovered at the same locality. It was found along the road from Pasina Voda (near Zabljak) to Trsa. The distance between these two villages is about 38 km. The exact place where the specimens were found is about 12 km South of Trsa, along the road, at an altitude of about 1900 m. The specimens usually were hiding themselves in clumps of grass.

For the description of *Metrioptera montenegrina*, R a m m e had at his disposal a single female specimen. As now more material, including male specimens, is at hand, it is possible to compare this species with related ones and study the titillators.

A comparison with the holotype of *M. montenegrina*, proved that the fresh Durmitor material agrees with this species. Comparison with the holotype and other specimens of *M. karnyana*, showed that *montenegrina* and *karnyana* both are good although very similar species, and differ in the titillators. Comparison with *M. brachyptera* (L.), *M. prenjica* (Burr), *Platypleis (Modestana) modesta* Fieber and *Pl. (M.) ebneri* (Ramme), showed clear differences, which will be discussed below.

Comparison with *Metrioptera (s.str.) hoermanni* (Werner, 1906), proved to be difficult by lack of material. The original description, made after a single male, is not quite satisfactory. S. Ognjeva, 1948, discussing *M. hoermanni*, gave further details of this little known species. B e i e r, 1955, in a survey of the Yugoslav Platycleidini, does not give more data. Especially no description or figure of the titillators was given up to now.

In the collection of the Zemaljski Muzej of Sarajevo, there are two males and three females of *M. hoermanni*. One male and one female,

originally identified as *Platypleis prenjica* Burr, from Ruzevaca, were correctly named as *M. hoermanni*. Another female from Platice, was collected 1947 by V. M a r t i n o and discussed in the paper by S. Ognjeva. A third female from Bjelasnica, was collected by M r s. S. M i k s i c in 1962. Finally there is a male specimen with the following two labels: „Baba planina 1400 m 10.viii.03” (handwriting) and „Platypleis Hörmanni ♂ Werner” (handwriting, not different from W e r n e r ’ s). This specimen agrees with the original description, except for some minor differences in measurements. The labels seem to be original, to belong to the specimen, and the data on them agree in every respect with the records in the original paper. Karny, 1912, discussing *M. prenjica* (nec Burr, but *M. karnyana* Uvarov 1923) records on p. 294: „..... Pl. Hörmanni, von welcher ich das Exemplar typicum im Landesmuseum zu Sarajevo untersuchen konnte,”. Besides part of W e r n e r ’ s collection went to the Sarajevo Museum via Dr. A p f e l b e c k (pers. comm. M r s. S. M i k s i c, 1965). Dr. A. K a l t e n b a c h (in litt. 1965) ascertained that no *hoermanni* specimen is now present in the Naturhistorisches Museum of Vienna. All these data indicate that the Baba Planina male represent the holotype of *Platypleis hoermanni*, Werner, 1906.

After comparing the Durmitor *montenegrina* males with the holotype of *M. hoermanni*, there remained no doubt that both species are conspecific. Not only the external morphology and coloration, but especially the titillators show no differences. As *hoermanni* was described by W e r n e r in 1906, and *montenegrina* by R a m m e in 1933, the former has priority.

The holotype of *M. hoermanni* lacks the left hind leg, the greater part of the right antenna and the apical part the left antenna; the titillators were dissected and pasted on a separate

label. The dissection of the titillators may be responsible for the difference in body length, as recorded in the original description 13,5 mm and now being 15,3 mm. Photographs of the specimen are reproduced here as figures 1 and 2.

Redescription of *Metrioptera* (*Metrioptera*) *hoermanni* (Werner, 1906).

General aspect see figures 1 to 6.

Surface of head and pronotum slightly punctate. Vertex and disc of pronotum dull as compared with the shining surface of the face and the lateral lobes of the pronotum. Disc of the pronotum flattened. Posterior part impressed with a median carina. Anterior part slightly impressed in the middle, without carina. Lateral keels rounded, somewhat converging anteriorly. Posterior margin evenly and weakly

curved. Anterior margin straight. Lateral lobe ventrally broadly rounded.

Elytra short, reaching the third or fourth tergite in the female, the fifth tergite in the male. Elytron in the male one fourth longer, in the female only a little longer than the length of the pronotum. Elytron in the male two third times as broad as the length of the elytron. Stridulating field two third times as broad as the width of the elytron. In the female the elytron only a little wider than half the width of the elytron. Apex of the elytron broadly rounded.

First three to six tergites with a median carinula. The transition between the wider proximal part of the hind femur and the narrower distal part comparatively short. Length of the hind tibia three times the length of the pronotum or slightly longer. Hind femur a little longer than the hind tibia. Spines on the legs without particulars.

Male: Last tergite (fig. 14) impressed, with a broad but shallow emargination and with short, bluntly pointed lobes. Cerci (figs. 14, 15) almost reaching the apex of the subgenital plate, half as long as the pronotum. The width just proximally of the insertion of the tooth is equal to one fourth of the length of the cercus. Cerci straight, dorsoventrally depressed, scarcely dilated at their base. The tooth is placed just distad of the middle of the cercus. The tooth is regularly recurved and decurved. The apical portion of the cercus is quite slender, as long as one third of the length of the cercus. Subgenital plate posteriorly with a median carina. Posterior margin truncate or only slightly emarginate. Styli short, always shorter than the posterior margin of the subgenital plate.

Titillator (figs. 22, 23, 24) slender. Apical part dorsoventrally flattened. The lateral margin near the apex provided with a row of greater and smaller spines. The apical part is curved ventrally. The basal part of the titillator is longer and wider than the apical part. The basal part is also curved, but in regard to the apical part, in two directions. The axis of the basal part makes an obtuse angle with the axis of the apical part (i. e. laterally). At the same time the basal part is strongly curved upwards (i. e. dorsally).

Female: Last sternites without particulars. Subgenital plate (fig. 18) wider than long.

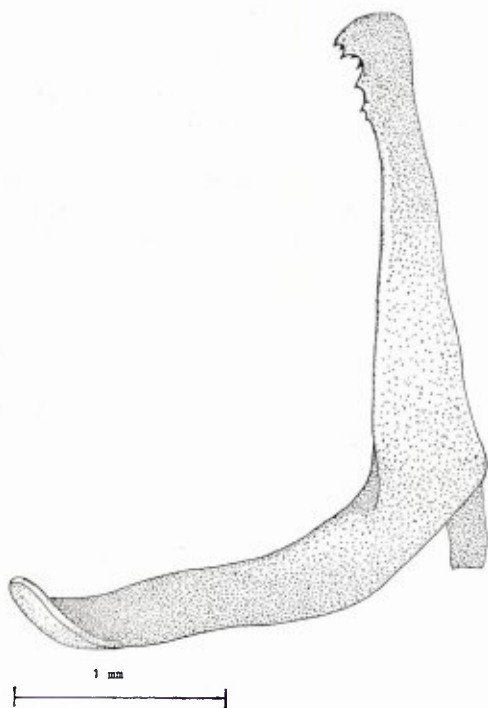


Fig. 22 Dorsal aspect of right titillator of *Metrioptera* (*Metrioptera*) *hoermanni* (Werner). Same data as in figure 3 (author's collection).

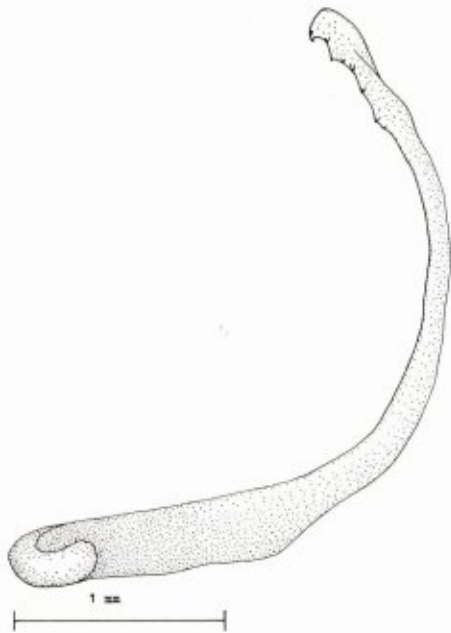


Fig. 23 Lateral aspect of same titillator as in figure 22.

Sometimes a median carinula indicated in the posterior half. Posterior margin broadly rounded. The terminal excision is small, regularly concave or more U-shaped. Last tergite and cerci without particular. Ovipositor long, somewhat shorter than the hind tibia, weakly curved, mainly in the apical half. The width of the middle part about two third times as broad as the basal width at the insertion of the ovipositor. Ovipositor in the middle as wide as the antero-posterior length of the eye.

Coloration: General coloration dirty brown. Antennae brown, ventrally often more dark coloured. Face and genae straw-yellow, seldom unicoloured, usually considerably marbled with dark brown or blackish irregular stripes, spots and points. Often a straw-yellow triangular spot is visible on each side, laterally above the clypeal margin. Sometimes this spot extends dorsally, reaching the lower anterior angle of the eye, on this place laterally bordered by a black spot. Usually an oval paler spot is also visible medially on the face at the level of the lower margin of the eyes. Vertex straw-yellow or brown, with a pale median line between two irregular blackish fasciae. These fasciae are

largely interrupted, usually most distinct on the fastigium. Behind the eye a fine straw-yellow temporal line, between two irregular black spots. The pattern of the head, like that of the disc of the pronotum is rather variable.

Disc of the pronotum straw-yellow or light brown, with a dark brown or blackish median stripe, or the disc is more unicoloured. Lateral keels sometimes marked by a paler line, ventrally bordered by a narrow black fascia. Lateral lobe in the upper part lighter or darker brown, in the lower part blackish with a sharply defined ivory or straw-yellow coloured border along the posterior and ventral margin. The width of this pale border along the posterior margin is about half as wide as the greatest width along the ventral margin.

Elytra brown, sometimes unicoloured. Usually, especially in the female, the subcostal field is dark brown with paler transverse veinlets. The radial field shows usually only one or a few faint dark brown spots between the veinlets, especially near the apex of the elytron. In some specimens the radial field is unicoloured, without any dark spot. The radial field never has a pattern as characteristic as in representatives of the genus *Platyceis*. In the female the anal area sometimes is darker coloured between the veinlets. Abdomen brown. Laterally on each side an interrupted black fascia, composed of black triangular spots on the anterior margin of each tergite. Posteriorly the fasciae gradually obsolete. Along the hind margin of each tergite a few black dots. Pleurae in upper half black. Lower half straw-yellow with some black spots near the joints of the legs. Pro, meso, and metasternum green or yellowish green. Sternites pale brown or yellowish.

Anterior and median legs brown with a few black spots, mainly near the joints. On the external side of the median femur a black fascia, composed of some transverse black lines. Hind femur brown. The ventral and internal side paler. The internal side shows, dorsally, a narrow black fascia. This fascia runs from the first proximal fourth part of the length of the femur to just over halfway the length of the femur. Basally the hind femur has a dorsal black fascia, composed of transverse black stripes. Sometimes this fascia extends posteriorly along the dorso external margin of the external side of

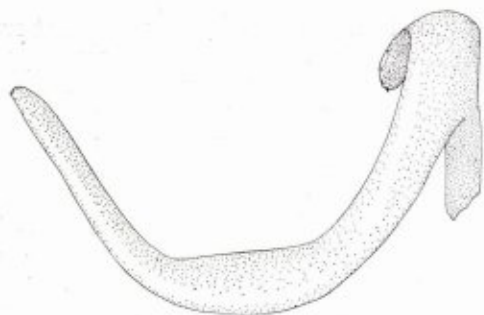


Fig. 24 Posterior aspect of same titillator as in figure 22.

the hind femur, reaching the transition of the proximal wider part into the distal narrower part of the hind femur. The external side of the hind femur, in the upper half, with a narrow black fascia, also composed of confluent transverse stripes. This fascia runs from near the base of the hind femur to just proximally of the above mentioned transition of both parts of the hind femur. Hind knees usually with some darker dots. Hind tibiae and tarsi brown. Tarsi ventrally with black spots. Spines of the legs black, or with one side black or only with the tips black, somewhat variable. Last tergite of male and cerci brown. Tooth and apical part of the male cerci darker. Male and female subgenital plate paler brown or straw-yellow, sometimes marbled with irregular darker brown spots. Ovipositor brown, with more or less black bordered dorsal and ventral margin. Usually the base is straw-yellow, the apex dark brown or black.

Geographical distribution: Bosna-Hercegovina, Montenegro.

All known localities are indicated on a map (fig. 31).

Material studied: 7 ♂♂ and 12 ♀♀.

Baba Planina, 1400 m, 10.viii.1903 (1 ♂, holotype, Zem. Mus. Sarajevo).

Ruzevaca, Prenj Planina (1 ♂, 1 ♀ Zem. Mus. Sarajevo).

Platice, Gacko, 14.vii.1947, V. Martino (1 ♀ Zem. Mus. Sarajevo).

Opservatorij, Bjelasnica, 2060 m, 29.viii.1962, S. Miksic (1 ♀ Zem. Mus. Sarajevo).

Durmitor, 1904, Penzner (1 ♀, holotype of *M. montenegrina* Ramme, Naturh. Mus. Wien).

Pasina Voda, Durmitor, 1700 m, 2.viii.1963, F. Willemse (1 ♂, 1 ♀ juvenile specimens, author's collection).

12 km S. of Trsa, Durmitor, 1900 m, 19.ix.1964, F. Willemse (4 ♂♂, 7 ♀♀, author's collection).

Discussion.

Metrioptera (s. str.) hoermanni comes nearest to *Metrioptera (s. str.) karnyana* Uv. This species was described by Uvarov, 1923, after a male and a female from Ruzevaca, Prenj Planina, Hercegovina. Uvarov records in his paper that he had before him some specimens collected by Ebner and Karny, which were examined by the latter in 1912. The specimens, named *Platycleis prenjica* (Burr, 1899), by Karny proved to belong to two different species, none of them agreeing with the types of *prenjica*. Only one of these new species Uvarov described, giving the name *Metrioptera karnyana*. The other species leaving unnamed „until more material may be studied”. The holotype and allotype of *M. karnyana* were collected in Ruzevaca. As stated earlier, a ♂ and ♀ in the collection of the Sarajevo Museum, both belonging to *M. hoermanni*, are labeled „*Platycleis prenjica* Burr, Ruzevaca” in the handwriting not differing from Ebner's. These data are suggestive that the species which Uvarov left unnamed, is *hoermanni*. Thus the description of *Platycleis prenjica* (nec Burr!) by Karny, 1912, could be partim *hoermanni*. An argument against this presumption could be that Karny wrote in his paper, discussing his *Pl. prenjica*, that he studied the holotype of *Platycleis hoermanni*, stating: „*Pl. Hörmanni*,, steht der *Pl. prenjica* äusserst nahe, stimmt mit ihr im Bau der Cerci und der Subgenitalplatte überein und unterscheidet sich im wesentlichen nur durch die Form des Analsegments, welche mehr an *Pl. Saussureana* und *Pl. fusca* erinnert.” But this argument is not strong, because, as will be discussed, the last tergite of

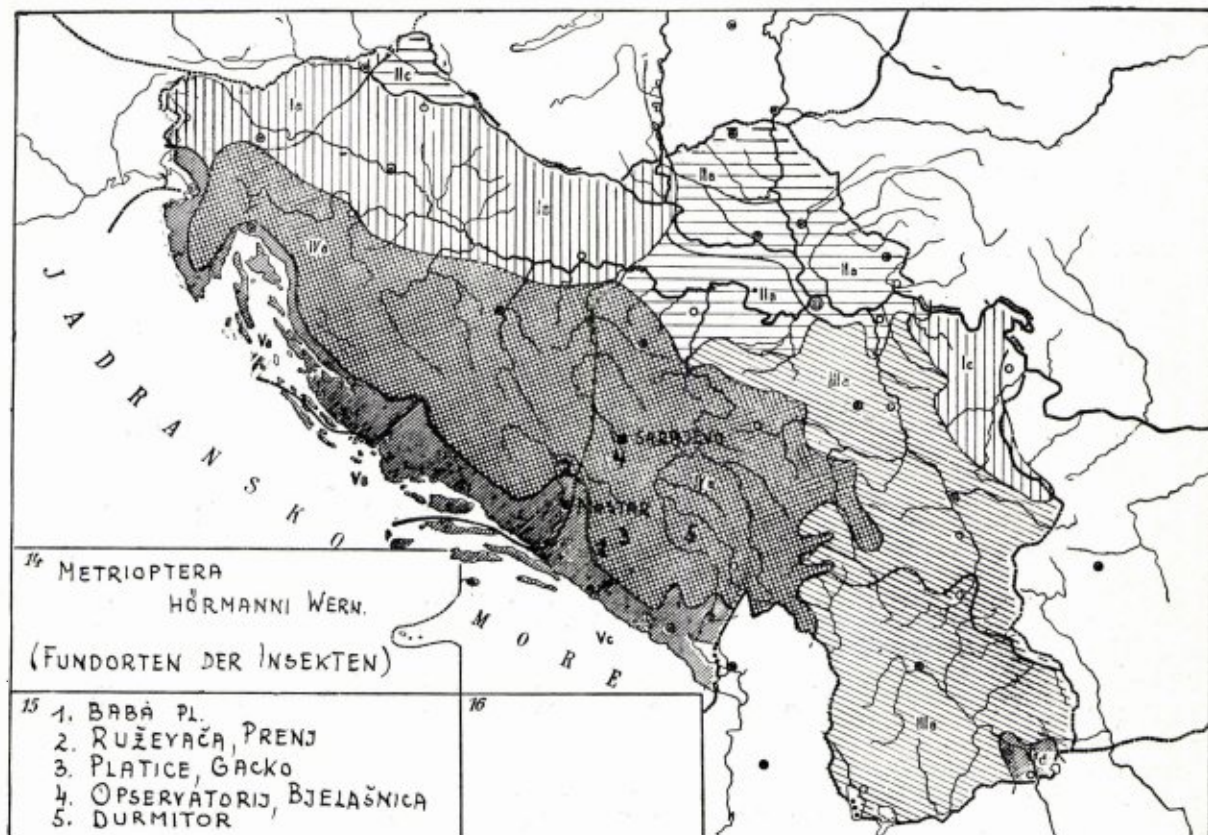


Fig. 31 Map of Yugoslavia, showing the known distribution of *Metrioptera (Metrioptera) hoermanni* (Werner).

the male shows no good characters to separate *hoermanni* and *karnyana*.

Metrioptera (s. str.) karnyana Uvarov (figs. 7, 8, 9) has a less robust aspect, particularly obvious in the hind legs. As the body and the ovipositor in both species do not differ much in length, the result is that the ovipositor in *karnyana* projects behind the hind knee only for a few millimeters, whereas in *hoermanni* it does so for quite a greater distance. The male cerci (fig. 15) also seem to accentuate the more slender habit of *karnyana*. The two females of *karnyana* studied, unfortunately have the last sternites and the subgenital plate slightly shrivelled. This makes a comparison difficult. But nevertheless it seems that in *karnyana* the female subgenital plate (fig. 19) is narrower and

slightly more deeply excised than in *hoermanni*. All other external features, including the colour, present no remarkable differences between the two species.

The principal character for distinguishing the two species is found in the titillators. The titillator (fig. 25) in *karnyana* is characterised by a straight, conical apical part, provided laterally at the apex with one dorsal and one ventral hook. The basal part, not as long as the apical part, is simply directed laterally. The axis of the basal part makes an obtuse angle with that of the apical part. The end of the basal part is only slightly curved posteriorly. For the titillator in *hoermanni*, see the description above. The differential features are mainly the teeth of the apical part. In *karnyana* two at the top, in

Measurements (mm.) of studied specimens of *Mettiopfera* (s. str.) *hoermanni* (Werner) and *M.* (s. str.) *karnyana* Uvarov

	length of body	length of pron.	length of elytr.	width of elytr.	length of h. fem.	width of h. fem.	length of h. tibia	length of cercus	length of ovipos.	width of ovipos.
<i>M. hoermanni</i> (Werner)										
Males:										
Baba Pl. (holotype)	15,3	4,1	5,2	3,5	14,0	2,9	13,1	2,0		
Ruzevaca, Prenj Pl.	16,1	4,0	5,1	3,4	14,1	2,9	13,0	2,0		
12 km S. of Trsa, Durmitor	14,4	4,0	5,2	3,6	13,3	2,8	12,4	1,9		
12 km S. of Trsa, Durmitor	17,3	4,1	5,5	3,8	13,6	2,9	12,4	2,0		
12 km S. of Trsa, Durmitor	15,5	4,2	5,3	3,7	13,1	2,9	12,5	1,9		
12 km S. of Trsa, Durmitor	14,9	4,2	5,4	3,4	13,7	2,9	12,8	2,1		
Females:										
Bjelasnica	17,0	4,6	4,8	2,6	15,5	3,3	14,1		12,4	1,2
Ruzevaca, Prenj Pl.	17,1	4,8	4,7	2,8	17,1	3,5	15,2		13,1	1,3
Platic, Gacko	20,3	4,9	5,0	2,6	19,0	3,4	14,9		13,1	1,3
Durmitor (holotype <i>M. montenegrina</i> Rammé)	16,5	4,8	4,9	2,6	15,7	3,4	14,5		13,0	1,3
12 km S. of Trsa, Durmitor	20,6	4,9	5,1	2,7	16,3	3,6	15,0		13,0	1,3
12 km S. of Trsa, Durmitor	20,6	4,8	5,1	2,6	15,8	3,4	14,7		12,9	1,25
12 km S. of Trsa, Durmitor	20,7	4,7	5,1	2,65	16,1	3,5	14,7		13,1	1,3
12 km S. of Trsa, Durmitor	20,3	4,9	5,2	2,65	16,1	3,5	14,7		13,2	1,3
12 km S. of Trsa, Durmitor	19,6	4,75	5,2	2,8	16,3	3,5	14,9		13,5	1,3
12 km S. of Trsa, Durmitor	19,9	4,9	5,4	2,8	16,2	3,5	14,8		13,1	1,3
12 km S. of Trsa, Durmitor	18,0	4,7	5,1	2,8	15,8	3,4	14,3		13,1	1,2
<i>M. karnyana</i> Uvarov										
Males:										
Ruzevaca, Prenj Pl. (holotype)	15,5	3,9	4,9	3,4	14,9	2,9	14,0	1,85		
Otis-Tisovica, Prenj Pl.	13,5	3,9	4,8	3,1	13,5	2,9	12,7	1,9		
Females:										
Ruzevaca, Prenj Pl. (allotype)	17,5	4,8	4,5	2,5	17,9	3,5	16,2		12,9	1,2
Ruzevaca, Prenj Pl. (topotype)	15,5	4,8	4,5	2,5	17,5	3,4	16,0		12,8	1,2

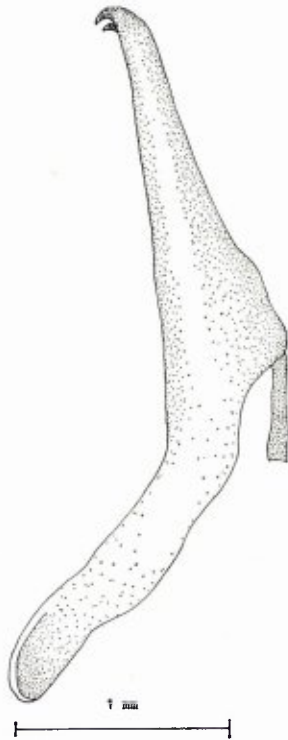


Fig. 25 Dorsal aspect of right titillator of *Metrioptera (Metrioptera) karnyana* Uvarov. Same specimen as in figure 8.

hoermanni a row of more slender teeth along the lateral margin. Furthermore, the cross section of the apical part in *karnyana* is round, in *hoermanni* flattened. Also the size and the curvature of the apical and particularly of the basal part is different.

The difference with *Metrioptera (s. str.) prenjica* (Burr) (figs. 10, 11) is clear. This species was described by Burr, 1899, from Tisovica, Prenj Planina, Hercegovina. In *prenjica*, generally green coloured, the white border on the lateral lobe of the pronotum is narrower. The elytra have the apex still more broadly rounded. The elytra are usually bright green, with the stridulating field brownish. The insertion of the tooth of the male cercus (fig. 16) is situated more proximally. The last tergite of the male (fig. 16) is V-shaped and deeper emarginate with the lobes acute and upcurved. The female subgenital plate (fig. 20) also is more

deeply excised, with the lobes narrower, more accentuated. The titillator (figs. 29, 30) is very different, much smaller in size, with an inflated apical part, provided with several spines.

Likewise the difference with *Metrioptera (s. str.) brachyptera* (L.) is clear. In *brachyptera* the lateral lobe of the pronotum is bordered usually only along the hind margin. The elytra, usually green with brown radial field, are much longer with the apex more acuminate. The female subgenital plate with the posterior margin not broadly rounded. The ovipositor shorter and more curved. Last tergite of male with the lobes acute and strongly upcurved. The insertion of the tooth of the male cercus more proximal. The male subgenital plate distinctly ex-

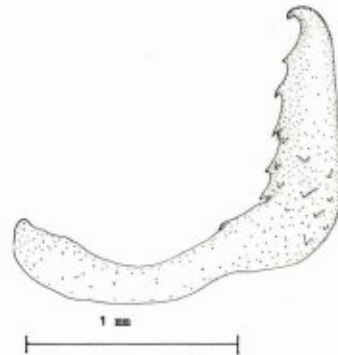


Fig. 29 Dorsal aspect of right titillator of *Metrioptera (Metrioptera) prenjica* (Burr). Treskavica, Crno Jezero, 7. viii. 1954, S. Miksic leg. (author's collection).



Fig. 30 Lateral aspect of same titillator as in figure 29.

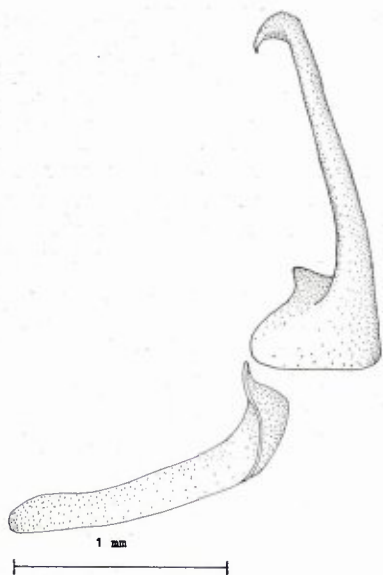


Fig. 26 Dorsal aspect of right titillator of *Metrioptera (Metrioptera) brachytera* (L.). Brunsummerheide, Netherlands, 26. viii. 1964, F. Willemsse leg. (author's collection).

cised. The titillator (fig. 26) is different. The apical part is smaller, straight, cylindrical, with a recurved hook at the apex. The basal part is short and not joined with the base of the apical part. This last feature is remarkable. The author found no record of it in the literature. This feature was equally present in all studied specimens of the most different localities (Sweden, Germany, Netherlands, England, Belgium, France, Austria and Italy). Chopard, 1951 (Faune de France 56: fig. 274) and Harz, 1957 (Die Geradflügler Mitteleuropas, fig. 122) gave a figure only of the apical part of the titillator. These figures are in agreement with the presently studied material. But the figure of the whole titillator, as given by Ramme 1951, is incorrect.

The differences between *M. (s. str.) hoermanni* and other yugoslav members of the genus *Metrioptera*, are evident, since they belong to the subgenera *Bicolorana* and *Roeseliana*.

Among yugoslav representatives of the genus *Platycleis*, *Metrioptera hoermanni* must be compared with *Platycleis (Modestana) modesta* Fieber and *Pl. (Modestana) ebneri* (Ramme).

The differences are clear, but, especially in the field, they show much resemblance.

Platycleis (Modestana) modesta Fieber (fig. 13) is slightly larger, has a more slender general aspect. Especially the hind legs are actually and proportionately longer. The disc of the pronotum is slightly convex, with the lateral keels rounded. The elytra are provided with a distinctly brown spotted radial field and are more elongate. The male cerci are longer, cylindrical, with the tooth more distal. Last tergite of the male with acute lobes, simply directed posteriorly. The male subgenital plate has the posterior margin distinctly excised. The titillator (fig. 28) is long, with the apical part cylindrical, slightly narrowing towards the apex, which ends in a laterally directed blunt spine, with the basal parts strongly recurved. The ovipositor is shorter and more curved (Zeuner 1941: fig. 5), the female subgenital plate differs markedly (Ramme 1951: fig. 68m). As up till now no figure of the holotype has been published, the author takes this opportunity to give a photograph of the specimen (fig. 12).

Platycleis (Modestana) ebneri was described by Ramme, 1926 from Tetovo, Macedonia. As mentioned below, this species also occurs in Montenegro. The author collected this species also on the Hajla Planina, near Pec, Metochija, Southwest Serbia and on Mt. Olymp, Greece. Cejchan, 1963 recorded this species also from

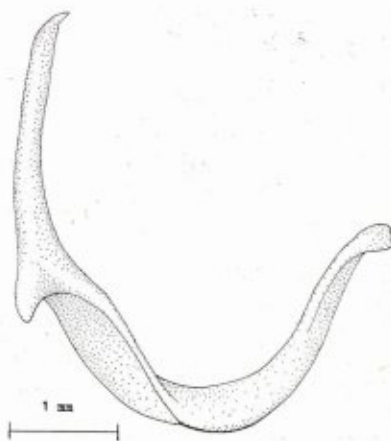


Fig. 28 Dorsal aspect of left titillator of *Platycleis (Modestana) modesta* Fieber. Same specimen as in figure 13.

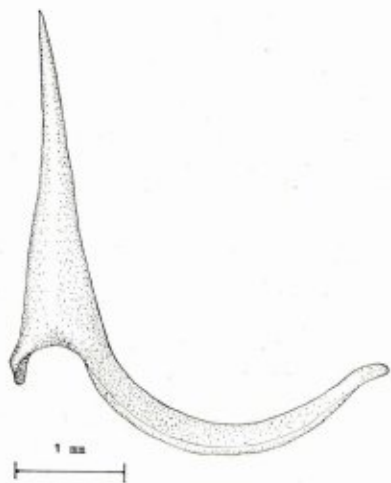


Fig. 27 Dorsal aspect of left titillator of *Platycleis (Modestana) ebneri* (Ramme). Same specimen as in figure 17.

Albania. Thus the distributional area is much larger as originally only Macedonia was recorded. The white border of the lateral lobe of the pronotum in *ebneri* extends also along the anterior margin. The elytra are longer, the apex less rounded. The radial field, although not as distinct as in other *Platycleis* members, always with some faint dark spots. The male cerci (fig. 17), like in *modesta*, cylindrical with tooth more distally. Last tergite of the male (fig. 17) has the lobes acute and curved ventrally. The posterior margin of the male subgenital plate (fig. 17) is distinctly excised. Also the female subgenital plate (fig. 21) is more deeply excised, the lobes being also convex medially. The titillator (fig. 27) is unarmed. The apical part is straight, conical, with the apex simply pointed. The basal part is recurved posteriorly.

Differences with other Yugoslav members of the genus *Platycleis* are evident.

Appendix.

The faunistic knowledge of Montenegro is poorly known. Therefore it may be interesting to record other orthopterous species found together with *Metrioptera hoermanni* at the same time (September 19th, 1964) and locality (Mt. Durmitor, 12 km South of Trsa):

Metrioptera (s. str.) prenjica (Burr), *Decticus verrucivorus* (L.), *Stenobothrus (Stenobothrodes) rubicundus* (Germ.), *St. (s. str.) stigmaticus* (Ramb.), *St. (s. str.) nigromaculatus* (Herr.-Schäff.), *Omocestus haemorrhoidalis* (Charp.), *Chorthippus (Glyptobothrus) brunneus* (Thunb.), *Ch. (Glyptobothrus) sp. (biguttulus (L.) ?)*, *Ch. (s. str.) longicornis* (Latr.), *Gomphocerus sibiricus* (L.) and *Hololampra brevipennis* (Fisch.).

It was the second time that the author visited Mount Durmitor. The year before, on August 2nd - 3rd, 1963, only two juvenile specimens of *M. hoermanni* were found in the neighbourhood of Pasina Voda at an altitude of 1700 m. On these days, along the road between Zabljak (Durmitor) and Gvozd the following species were found:

Platycleis (Modestana) ebneri (Ramme), *Metrioptera (Roeseliana) roeselii* (Hgb.), *Metrioptera (Bicolorana) bicolor* (Phil.), *Decticus verrucivorus* (L.), *Psorodonotus illyricus trans macedonicus* Ramme, *Polysarcus denticauda* (Charp.), *Poecilimon ampliatus* Br., *Poecilimon ornatus* (Schmidt), *Stauroderus scalaris* (F. W.), *Stenobothrus (Stenobothrodes) rubicundus* (Germ.), *Stenobothrus (s. str.) lineatus* (Panz.), *Stenobothrus (s. str.) stigmaticus* (Ramb.), *Stenobothrus (s. str.) nigromaculatus* (Herr.-Schäff.), *Chorthippus (Glyptobothrus) apricarius* (L.), *Chorthippus (Glyptobothrus) biguttulus* (L.), *Chorthippus (s. str.) albomarginatus* (De Geer), *Chorthippus (s. str.) longicornis* (Latr.), *Arcyptera fusca* (Pall.), *Gomphocerus sibiricus* (L.), *Oedipoda coerulescens* (L.), *Psophus stridulus* (L.).

Acknowledgement is made here to Mrs. S. Miksic of the Zemaljski Muzej of Sarajevo for her kind help and information. She offered the author opportunity to study the dubious species in the collection of the Sarajevo Museum. Besides she prepared the map (fig. 31) and the photographs of the holotype of *M. hoermanni* (figs. 1 and 2). Gratefull thanks are also extended to Prof. Dr. M. Beier and Dr. Kaltenbach of the Naturhistorisches Museum of Vienna, for the kind loan of material and for information, and to Dr. D. Ragge of the British Museum (Natural History) of London for giving opportunity to study material of this museum. Special acknowledgement is due to Drs. C. Jeekel of the Zoologisch Museum of the Amsterdam University for reading the manuscript and offering much helpful criticism.

Explanation of figures

- Fig. 1 Dorsal aspect of *Metrioptera (Metrioptera) hoermanni* (Werner). Male, Baba Planina, 1400 m (holotype, Sarajevo Museum).
- Fig. 2 Lateral aspect of *Metrioptera (Metrioptera) hoermanni* (Werner). Same specimen as in figure 1.
- Fig. 3 Dorsal aspect of *Metrioptera (Metrioptera) hoermanni* (Werner). Male, 12 km S. of Trst, 1900 m, Durmitor, 19. ix. 1964, F. Willemsse leg. (author's collection).
- Fig. 4 Lateral aspect of *Metrioptera (Metrioptera) hoermanni* (Werner). Male, same data as in figure 3, but another specimen (author's collection).
- Fig. 5 Dorsal aspect of *Metrioptera (Metrioptera) hoermanni* (Werner). Female, same data as in figure 3 (author's collection).
- Fig. 6 Lateral aspect of *Metrioptera (Metrioptera) hoermanni* (Werner). Same specimen as in figure 5.
- Fig. 7 Dorsal aspect of *Metrioptera (Metrioptera) karnyana* Uvarov. Male, holotype, labeled: (1) „Ruzevaca 15. viii. 11” (handwriting), (2) „Platykleis prenjica” (handwriting) „det. Karny” (printed), (3) „Metrioptera karnyana sp. n. Typus” (handwriting) „Det. B. Uvarov” (printed), (4) label with left cercus (Naturh. Mus. Wien).
- Fig. 8 Lateral aspect of *Metrioptera (Metrioptera) karnyana* Uvarov. Male, Otis-Tisovica, 16. viii. 1911, R. Ebner (Naturh. Mus. Wien).
- Fig. 9 Lateral aspect of *Metrioptera (Metrioptera) karnyana* Uvarov. Female, allotype, labeled: (1) and (2) as corresponding labels in the holotype of *M. karnyana*, (3) „Metrioptera karnyana sp. n. Paratypus” (handwriting) „Det. B. Uvarov” (printed) (Naturh. Mus. Wien).
- Fig. 10 Dorsal aspect of *Metrioptera (Metrioptera) prenjica* (Burr). Male, 12 km S. of Trsa, 1900 m, Durmitor, 19. ix. 1964 F. Willemsse leg. (author's collection) (L. corp. 17 mm, 1. fem. post. 14 mm).
- Fig. 11 Lateral aspect of *Metrioptera (Metrioptera) prenjica* (Burr). Female, same data as in figure 10 (L. corp. 18 mm, 1. fem. post. 14,5 mm, 1. ovipos. 12 mm).
- Fig. 12 Lateral aspect of *Platykleis (Modestana) modesta* Fieber. Female, holotype, labeled: (1) „Coll. Br. v. W. ex coll. Fieber” (printed), (2) „9661” (printed), (3) „Holotype” (printed on lilac label), (4) „modesta” (handwriting) (L. corp. 18,2 mm, 1. fem. post. 18,6 mm, 1. pron. 4,8 mm, 1. elytr. 5,4 mm, 1. ovipos. 10,5 mm) (Naturh. Mus. Wien).
- Fig. 13 Dorsal aspect of *Platykleis (Modestana) modesta* Fieber. Male, Bahtievica Pl., 15. vii. 1911 (L. corp. 17,3 mm, 1. pron. 4,6 mm, 1. elytr. 6,1 mm, 1. fem. post. 18 mm, 1. tib. post. 17,3 mm) (Naturh. Mus. Wien).
- Fig. 14 Dorsal aspect of last tergite and cerci of a male of *Metrioptera (Metrioptera) hoermanni* (Werner). Same data as in figure 3, but another specimen (author's collection).
- Fig. 15 Dorsal aspect of right cercus of a male of *Metrioptera (Metrioptera) hoermanni* (Werner) (same data as in figure 14) and *Metrioptera (Metrioptera) karnyana* Uvarov (holotype). *M. hoermanni* on the right, *M. karnyana* on the left.
- Fig. 16 Dorsal aspect of last tergite, cerci and subgenital plate of a male of *Metrioptera (Metrioptera) prenjica* (Burr). Same specimen as in figure 10.
- Fig. 17 Dorsal aspect of last tergite, cerci and subgenital plate of a male of *Platykleis (Modestana) ebneri* (Ramme). Savnik-Gvozd, Montenegro, 1400 m, 2. viii. 1963, F. Willemsse leg. (author's collection).
- Fig. 18 Subgenital plate of *Metrioptera (Metrioptera) hoermanni* (Werner). Female, Durmitor, 1904, P e n t h e r (holotype of *Metrioptera montenegrina* Ramme 1933, Naturh. Mus. Wien).
- Fig. 19 Subgenital plate of *Metrioptera (Metrioptera) karnyana* Uvarov. Female, Ruzevaca, 15. viii. 1911, R. Ebner (topotype, Naturh. Mus. Wien).
- Fig. 20 Subgenital plate of *Metrioptera (Metrioptera) prenjica* (Burr). Female, same specimen as in figure 11.
- Fig. 21 Subgenital plate of *Platykleis (Modestana) ebneri* (Ramme). Female, Popova Sapka, Tetovo, Macedonia, 1900 m, 12. ix. 1964, F. Willemsse leg. (topotype, author's collection).

A list of references of *Metrioptera* (*Metrioptera*) *hoermanni* (Werner) and some other discussed species is given below, including some data about geographical distribution and the holotypes.

METRIOPTERA (METRIOPTERA) HOERMANNI (Werner, 1906).

- Geogr. distrib.: Hercegovina, Montenegro.
 Holotype: ♂ Zem. Mus. Sarajevo.
 Loc. typ.: Baba Planina.
Platyceis Hörmanni Werner 1906: 572.
Platyceis Hörmanni; Werner 1907: 653-654. (translation in German).
Platyceis Hörmanni; Karny 1907: 29.
Platyceis prenjica (nec Burr); Karny 1912: 289, 291, 293-295, 296. (partim) (?).
Platyceis Hörmanni; Karny 1912: 294.
Metrioptera montenegrina Ramme 1933: 420-422, figs. 5b, pl. 12 f. 2. (syn. nov.).
Montana montenegrina; Zeuner 1941: 17.
Metrioptera hörmanni; Zeuner 1941: 42.
Metrioptera hörmanni; Ognjeva 1948: 81-82, figs. 1-3.
Montana montenegrina; Ramme 1951: 252.
Platyceis (Modestana) montenegrina; Beier 1955: 215, 222-223.
Metrioptera (Metrioptera) hörmanni; Beier 1955: 223, 238.

METRIOPTERA (METRIOPTERA) KARNYANA Uvarov 1924

- Geogr. distrib.: Hercegovina.
 Holotype: ♂ Naturh. Mus. Wien.
 Loc. typ.: Ruzevaca (Prenj Pl.).
Metrioptera karnyana Uvarov 1924: 523-533, pl. 28 f. 27.
Platyceis prenjica; (nec Burr); Karny 1912: 289, 291, 293-295, 296. (partim) (?).
Metrioptera karnyana; Ramme 1926: 286, fig. 9b.
Metrioptera karnyana; Zeuner 1941: 42.
Metrioptera karnyana; Ramme 1951: 251, fig. 62.
Metrioptera (Metrioptera) karnyana; Beier 1955: 233, 237-238, figs. 7c-g.

METRIOPTERA (METRIOPTERA) PRENJICA Burr, 1899).

- Geogr. distrib.: Hercegovina, Montenegro.
 Holotype: ♂ Brit. Mus. (Nat. Hist.) London.
 Loc. typ.: Tisovica (Prenj Pl.).
Platyceis prenjica Burr 1899: 20.
Platyceis prenjica; Redtenbacher 1900: 123-124, 119.
Platyceis prenjica; Jacobson & Bianchi 1903: 414.
Platyceis prenjica; Werner 1906: 572.
Chelidoptera prenjica; Kirby 1906: 210.
Platyceis prenjica; Karny 1907: 29.
Platyceis raia (nec Burr); Karny 1912: 291, 295.
Metrioptera prenjica; Chopard & Berland 1922: 234.
Metrioptera prenjica; Uvarov 1924: 532, pl. 28 f. 26.
Metrioptera prenjica; Uvarov 1935: 87.
Metrioptera prenjica; Zeuner 1941: 42, fig. 8.
Metrioptera prenjica; Ognjeva 1948: 81.
Metrioptera prenjica; Ramme 1951: 232, 251, 255, fig. 62.
Metrioptera (Metrioptera) prenjica; Beier 1955: 233, 236-237, figs. 7c-d.

PLATYCLEIS (MODESTANA) EBNERI (Ramme, 1926).

- Geogr. distrib.: Macedonia, S. W. Serbia, Albania, Montenegro, N. Greece.
 Holotype: ♂ Zool. Mus. Berlin.
 Loc. typ.: Tetevo, Macedonia.
Metrioptera ebneri Ramme 1926: 285-286, fig. 9a.
Metrioptera dofleini Ramme 1926: 287-289, fig. 10b, 12b, 13b.
Metrioptera dofleini; Ramme 1931: 181.
Metrioptera ebneri; Ramme 1933: 423-424.
Sepiana ebneri; Zeuner 1941: 35.
Sepiana ebneri; Grebenscikov 1950: 184, 186, 187.
Metrioptera ebneri; Ramme 1951: 250, 251, 255, figs. 63, 68, pl. 5 f. 5.
Platyceis (Modestana) ebneri; Beier 1955: 215, 224-225.
Metrioptera ebneri; Cejchan 1963: 773.

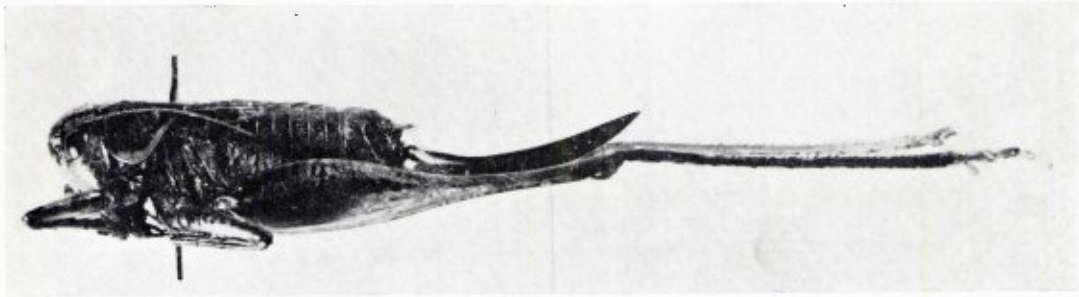
PLATYCLEIS (MODESTANA) MODESTA Fieber 1853.

- Geogr. distrib.: Istria, Dalmatia, Bosnia-Hercegovina, Albania.
 Holotype: ♀ Naturh. Mus. Wien.
 Loc. typ.: Trieste.
Platyceis modestus Fieber 1853: 153.
Decticus (Platyceis) vittatus (nec Charp.); Fischer 1853: 276-277, pl. 13 ff. 11, 11a.
Platyceis modesta; Krauss 1878: 523-526, pl. 4 ff. 5, 5a-e.
Platyceis modesta; Brunner v. W. 1882: 346, 354-355.
Platyceis modesta; Werner 1898: 155.
Platyceis modesta; Burr 1898: (reprint) 5.
Platyceis modesta; Redtenbacher 1900: 118, 122-123.
Platyceis modesta; Tümpel 1900: 265.
Platyceis modesta; Padewieth 1900: 31.
Platyceis modesta; Jacobson & Bianchi 1903: 512.
Platyceis modesta; Werner 1906: 572.
Chelidoptera modesta; Kirby 1906: 208.
Platyceis modesta; Karny 1907: 29.
Platyceis modesta; Karny 1912: 288, 289, 294.
Chelidoptera modesta; Csiki 1922: 81.
Metrioptera modesta; Ramme 1926: 288, fig. 13c.
Metrioptera modesta; Ramme 1931: 183.
Sepiana modesta; Zeuner 1941: 35, fig. 5.
Metrioptera modesta; Ramme 1951: 250, 251, 255, figs. 63, 68 m.
Platyceis (Modestana) modesta; Beier 1955: 215, 223-224, 225, figs. 3a-c.
Platyceis (Modestana) modesta; Adamovic 1956: 152, 154.
Metrioptera modesta; Cejchan 1963: 774.

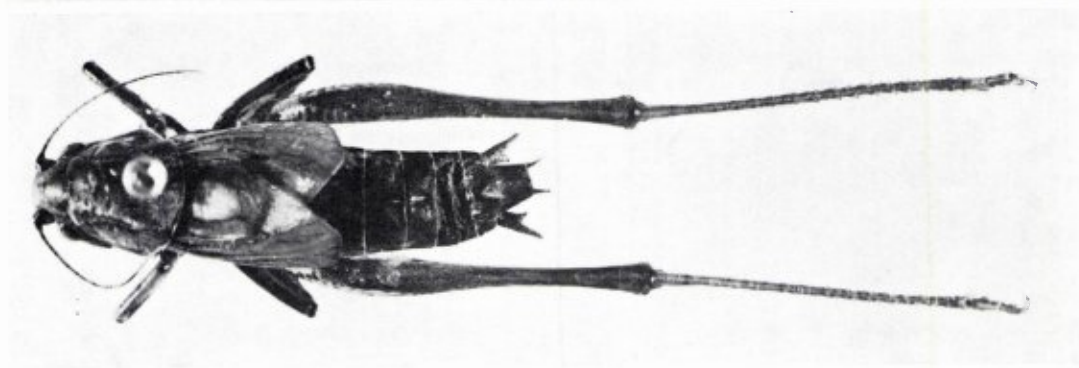
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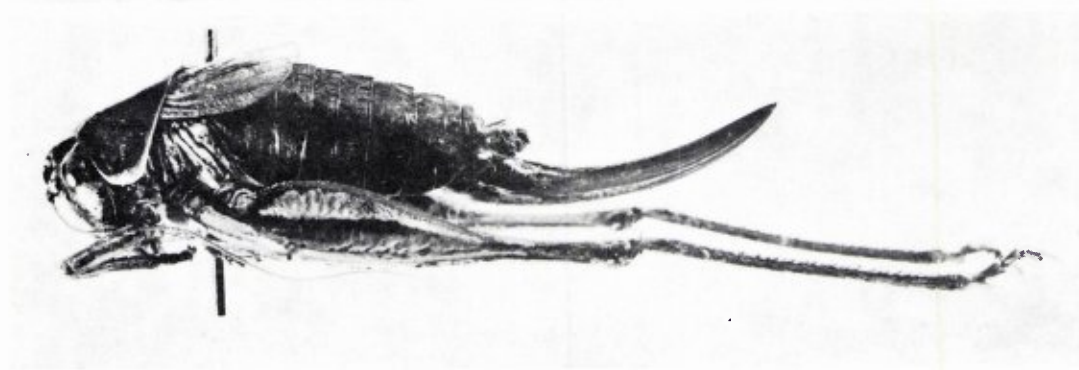
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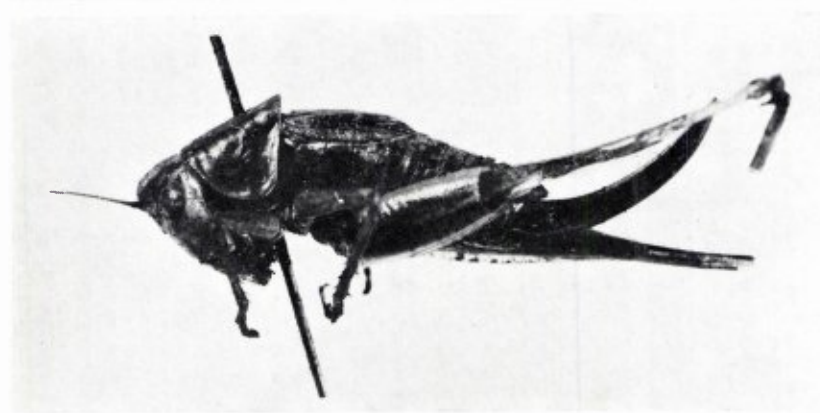
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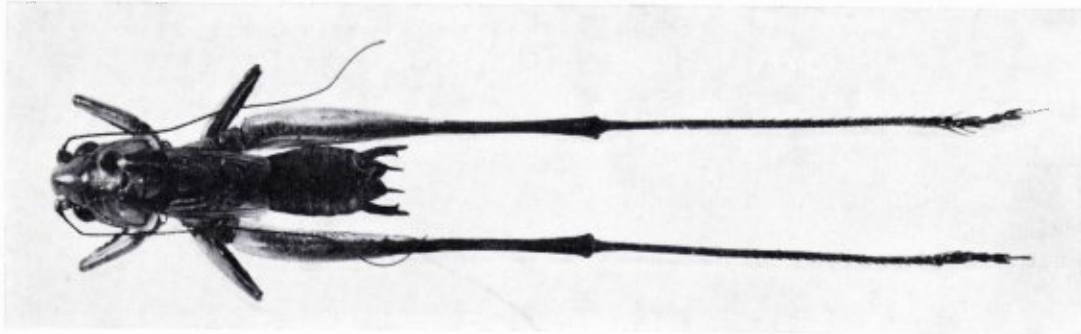
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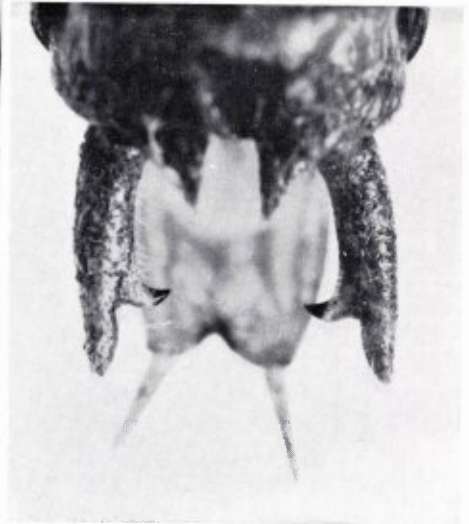
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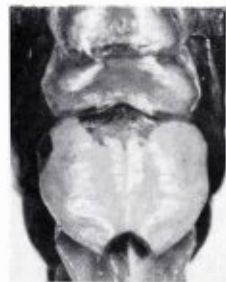
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