

Spiniphora genitalis n. sp. ♂.

Hypopyg von links und von rechts gesehen.
As = Analsegment. Ot = Oberteil. St = Stylus (unpaarer rechter Zangenarm). T6 = sechster Abdominaltergit. Ut = Unterteil. 1H und rH = dessen linke bzw. rechte Längshälfte.

Bauplan mit der Gattung und speziell mit *Sp. bergestammi* übereinstimmend, macht es doch von der Seite gesehen einen etwas fremdartigen Eindruck. Die Unterkante ist nämlich hinten verlängert und vorstehend. Die nähere Analyse ergibt folgendes: Der Unterteil des Hypopygs (Abb. Ut) ist mit dem Oberteil (Ot) seitlich weitgehend verwachsen; die ungefähre Grenze ist am Hinterrande rechts nur durch eine leichte Ausbuchtung, links durch einen tieferen Einschnitt angedeutet. Der median tief gespaltene Unterteil, der wie bei allen *Phorinae* unbehaart ist, besteht aus zwei hier sehr ungleichen Längshälften, die im Prinzip dieselbe Form haben wie bei *Sp. bergestammi*; die kleinere linke Hälfte [Abb. links, Ut (1H)] ist nach hinten dreieckig zugespitzt, die grosse rechte ist hinten bootförmig mit nach oben gekehrter Öffnung: Ut (rH). In diese Höhlung ragt der bewegliche Stylus (St), der auf der rechten Seite des Oberteils neben dem Aftersegment (As) entspringt, mit seiner Spitze hinein. Links neben dem Aftersegment gibt es bei *Spiniphora* keinen Stylus, sondern nur einen nach hinten halbkreisförmig abgerundeten Vorsprung. Das besondere Artmerkmal von *Sp. genitalis* besteht also in der vergrößerten und weit nach hinten vorragenden Rechtshälfte des Unterteils.

Beine alle gelblich, die verbreiterten Hinter-schenkel längs der Oberkante besonders apikalwärts verdunkelt. Die Schienenbewaffnung genau wie bei *Sp. bergestammi*. Letztes Tarsenglied der Vorderbeine nur unbedeutend länger als das vorletzte.

Flügel mit deutlicher gelber Trübung, sehr ähnlich denen von *Sp. apicalis* (Brues l.c. Fig. 1): Vorderrandadern tiefschwarz, auch die übrigen Adern dunkel. Die Gabel der 3. Längsader ist oft noch spitzer, so dass ihr Lumen nicht breiter ist als der Gabelhinterast; m_1 entspringt nahezu unterhalb der Gabelung (bei *apicalis* weiter hinten). Die 6. und 7. Längsader den Flügelrand nicht ganz erreichend.

Halteren gelb, stellenweise verdunkelt. Körperlänge 2.4 mm.

Das Weibchen liegt mir nicht vor. Angesichts der offenbar nahen Verwandtschaft mit *apicalis* Brues ist es möglich, dass es, abweichend vom ♂, eine verdickte Randader besitzt.

Nach 3 Exemplaren beschrieben. Etikette: Malaya, Kuala Lumpur, 14. II. 1938. Ent. Div. Agric. Dpt. Dead *Achatina fulica* Fer. Die Art entwickelt sich also wie alle übrigen *Spiniphora*-arten in toten Gehäuseschnecken.

ON A COLLECTION OF INDO-AUSTRALIAN TETTIGONIIDAE

by

C. WILLEMSE.

(Finish).

Anterior area distinctly less broad than the other together. Reticulation very dense, with only a few principal veins to recognize.

Mediastinal vein indistinct or absent. Subcostal and radial vein distinct, substraight on the whole length separated by a distinct interspace with transverse veinlets, reaching the top of elytra, both through the dense reticulation without distinct principal branches.

Median vein absent in the male, obsolete in the female, cubital and anal vein connected and reaching the apical third of posterior margin of elytra.

Stridulating field of the left elytra in the male with irregular veinlets and obsolete stridulating vein. Speculum of right elytra irregularly oval, clear hyaline, surrounded by a space with irregular transverse veinlets, except near the base by a small hyalinous space.

Anal area in the female with irregular reticulation.

Wings subcycloid, about as long as the elytra, the principal veins distinct. Legs long and slender. Anterior femora with a row of 4—5 spines on the inner lower margin, genicular lobes with a slightly curved spine on both sides.

Anterior tibiae sulcate from above, with a row of spines on both sides from below, with an apical spine from above on both sides, auditory foramina oval, open on both sides. Median femora with a row of 4—5 spines on the outer lower margin, genicular lobes with a slightly curved spine on both sides.

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

Hind femora long and slender, incrassate at the base, with a row of 12—14 spines on the outer and 7—10 on the inner margin from below, genicular lobes with a long spine on both sides.

Hind tibiae with four rows of spines from base to apex, apex from above with a movable calcar on each side, outer side from above without apical spine.

Prosternum bispinose, with long spines. Meso-

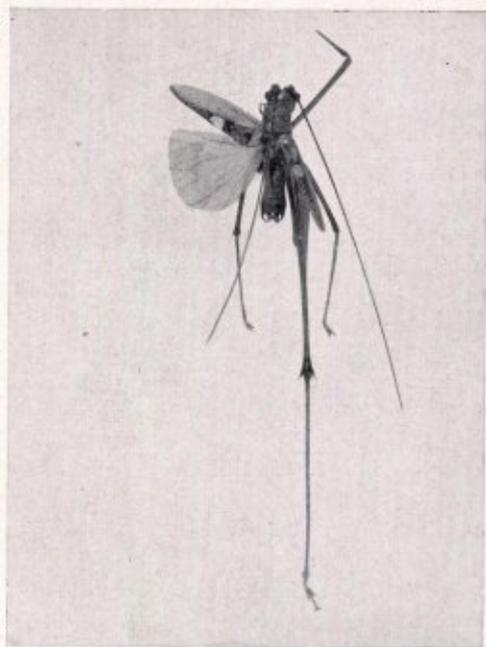


Fig. 14. *Elaeoptera salomonis* nov. spec.
♂ type.

and metasternal lobes somewhat broader than long, lobes with an obtuse spine.

♂ : Posterior margin of the last tergite undulated. Supra analplate invisible in the specimen before me. Cercus incrassate at the base, angularly curved inward about in the middle, apical half cylindrical or nearly so, apex obtusely pointed,



Fig. 15. *Elaeoptera salomonis* nov. sp.
♀ type.

inner margin crenulate from near the base to the apex.

Subgenital plate mutilated, styli absent ?

♀ : Supra analplate short, triangular, lateral margins rounded, apex subacute. Cercus reaching beyond the supra analplate, slightly curved, substraight, conical, apex pointed. Ovipositor relatively broad, slightly curved upwards, margins smooth. Subgenital plate small, broader than long, hind margin convex, in the middle with a concave incision.

General coloration yellowish brown or green. Head and pronotum unicolorous. Elytra yellowish brown or green, along the posterior margin bordered by a dark brown stripe from base to apex, which colour is formed by the dark brown colour of the areolas between the veinlets, in the middle of this coloured stripe with a long oval or more irregular, clear spot, without or only with a few veinlets, which spot in one of the males is coloured with orange. Wings slightly tinged with red.

Anterior and median legs yellowish brown or greenish brown. Hind femora yellowish brown or greenish brown, hind knee black, especially in the male.

Sternum and abdomen yellowish brown or greenish brown.

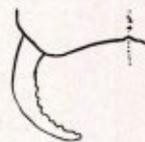


Fig. 16. *Elaeoptera salomonis* nov. sp.
♂ cercus.

Ovipositor yellowish or greenish brown.

	♂	♀
Length of body	14 mm	26—30 mm
" " head	2 "	3—3,5 "
" " pronotum	4 "	5—7 "
" " elytra	12 "	22—26 "
Width of elytra	4 "	5—7 "
Length of anterior femora	11 "	11—12 "
" " median femora	11 "	12—13 "
" " hind femora	25 "	29—30 "
" " hind tibia	26 "	30—33 "
" " ovipositor		16—18 "

Locality : Salomon Isl. Buma, (Malaita) 2 ♂♂, 1 ♀ V 1929. (E. Paravicina).

Salomon Isl. Aola, Guadalcanar, 2 ♀♀, X—XL 1928. Type Mus. Basel.

This species differs from the two other known species from the Fidji Islands by the presence of a clear spot in the middle of the posterior margin of elytra.

GROUP SEXAVAE.

Sexava femorata nov. spec.

♀ : Body slender. Head about as long as the pronotum. Antennal scrobes moderately produced

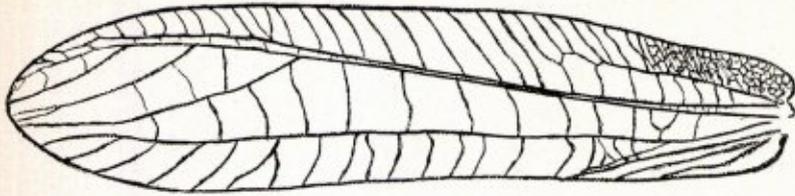


Fig. 17. *Sexava femorata* nov. sp. ♀ elytra.

on the inner side, antennae slender and reaching far behind the top of the ovipositor.

Fastigium of vertex produced in advance into a triangular processus, scarcely reaching beyond the antennal scrobes, with the apex obtuse. Eyes small, globose, prominent. Frons reclinate, nearly smooth, somewhat wider than high, median ocel distinct between the antennal scrobes.

Pronotum with the disc flat, coarsely punctured, anterior margin convex, posterior margin weakly rounded, nearly straight, the two transverse sulci distinct, concave anteriorly; lateral lobes vertical, roundly inserted, about as long as high, lower margin strongly ascendent anteriorly, posterior margin slightly concave.

Elytra coriaceous, with dense reticulation, relatively narrow, anterior and posterior margin subparallel, apex rounded. Anterior area in the basal half about as broad as the other together. Mediastinal vein only distinct in the basal third, not quite reaching the anterior margin.

Subcostal and radial vein nearly straight, contiguous, only separated by a narrow interspace at the base and in the apical third, followed by two or three other branches. Medial vein substraight reaching the apex of elytra, with a branch in the basal third. Cubital and anal vein contiguous, anal area with some longitudinal veins. Veinlets subparallel and regularly arranged, areas between them irregularly and very densely net-veined.

Legs long and slender. Anterior tibiae with a distinct apical spine on both sides from above, median tibiae only on the inner side. Anterior femora with a row of 2—4 small spines near the apex on the inner lower margin, genicular lobes with one spine on the outer and two on the inner-side.

Median femora without spines, genicular lobes with two spines on both sides. Hind femora very slender, reaching about the middle of ovipositor, from below with a row of strong triangular spines on each side, genicular lobes with two spines on both sides. Hind tibiae with four rows of spines from apex to base.

Meso- and metasternum about as long as broad, lobes rounded.

Tergites of the abdomen in the middle of the



Fig. 18. *Sexava femorata* nov. sp. ♀. Hind femora.

posterior margin with a small indistinct tooth.

♀ : Cercus cylindrical, gradually narrowing apically, slightly curved inwards near the apex, apex acute.

Ovipositor long, substraight, margins obtuse. Subgenital plate about as long as broad, lateral margin rounded, posterior margin broad triangularly excised in the middle.

General coloration brown. Antennae yellowish brown, annulated with blackish brown, except the basal joint which is darker coloured.

Head brown with a whitish spot near the clypeal margin in the middle and with a more yellowish, oblique stripe running from the hind margin of the eye on to the lower margin of lateral lobe of pronotum. Head from above with some irregular dark brown longitudinal stripes.

Pronotum brown. Elytra brown, the areas in the middle somewhat lighter coloured. Wings subhyalinous, veins brown.

Legs brown, tibiae yellowish brown, tarsi blackish brown.

Hind femora brown, from below on the lower outer side near the base with a row of five small, well limited, black round spots, spines reddish brown with black tips, hind tibiae yellowish, the extreme tip blackish brown, spines with black tips.

♂ unknown. Fig. 17, 18.

	♀
Length of body (without ovipositor)	62 mm
" " head	8,5 "
" " pronotum	9 "
" " elytra	85 "
Width of elytra	17 "
Length of hind femora	52 "
Width of hind femora	5,6 "
Length of ovipositor	43 "

Locality : Halmaheira 1 ♀, type, (coll. mea).

This species differs from all the other known species by its long and slender hind femora, provided with a row of strong triangular spines.

I have in my collection still another female belonging to an other new species with the same features, but from an unknown locality.

It is not impossibility that they represent a new genus, but where the male is still unknown it will be better to place them provisionally into this genus.

Sexava uniformis nov. spec.

♀ : Body slender. Head about as long as the pronotum. Antennal scrobes not reaching beyond the apex of fastigium of vertex, antennae slender, more than three times as long as the body.

Fastigium of vertex produced in advance into a triangular processus with the apex obtusely rounded. Eyes small, globose, prominent. Frons reclinate, smooth, somewhat wider than high, median ocel between the antennal scrobes indistinct. Pronotum with the disc flat, coarsely punctured, anterior margin convex, posterior margin substraight, the two transverse sulci concave anterior-



Fig. 19. *Sexava uniformis* nov. sp. ♀. Elytra.

ly; lateral lobes vertical, roundly inserted, about as high as broad, lower margin slightly ascendant anteriorly, anterior and posterior angle obtusely rounded, posterior margin nearly straight.

Elytra and wings reaching behind the apex of hind femora.

Elytra narrow; coriaceous with dense reticulation, anterior and posterior margin gradually narrowing towards the apex, apex narrowly rounded. Anterior area in the basal half as broad as the other together. Mediastinal vein distinct in the basal third, reaching the anterior margin. Subcostal and radial vein nearly straight, contiguous and only separated by a narrow interspace at the base and in the apical third, first radial branch arising in the apical third, followed by two other branches. Medial vein substraight, reaching the posterior margin in the apical third, with a slightly curved branch in the basal third, connected with the cubital vein. Cubital vein nearly straight, reaching the posterior margin after the middle, with one branch in the basal fourth, anal area with some curved longitudinal veins.

Legs slender. Anterior tibiae missing. Median tibiae with an apical spine from above only on the inner side. Anterior femora with a row of two small spines near the apex on the inner lower margin, genicular lobes with one spine on the outer and two on the inner side. Median femora with two small spines on the lower outer margin near the apex; genicular lobes with two spines on both sides.

Hind femora incrassata in the basal half, reaching about the middle of ovipositor, from below with a row of small slender spines on each side, genicular lobes with two spines on both sides. Hind tibiae with four rows of spines from base to apex.

Mesosternum broader than long, metasternum about as long as broad.

Tergits of the abdomen in the middle of the posterior margin with a small tooth.

♀: Supra analplate relatively long, narrow, triangular, apex obtusely rounded. Cercus cylindrical, gradually curved inward, attenuate towards the apex, apex acute.

Ovipositor substraight, margins smooth. Subgenitalplate somewhat broader than long, posterior margin broadly rounded, with an incision in the middle.

General coloration uniformly yellowish brown (discoloured by alcohol), probably green in vivo. Elytra yellowish brown. Wings hyalinous. Legs yellowish brown. Hind femora yellowish brown, without black spots or stripes. Spines black at the top.

♂, unknown. Fig. 19, 20.

	♀
Length of body	50 mm
" " head	8 "
" " pronotum	7,5 "
" " elytra	73 "
Width of elytra	12 "
Length of hind femora	44 "
Width of hind femora	7 "
Length of ovipositor	31 "

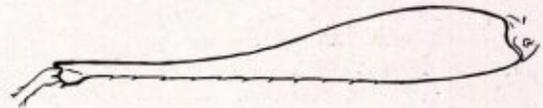


Fig. 20. *Sexava uniformis* nov. sp. ♀.
Hind femora.

Locality: Lou, II, 32, (coll. Bohler) 1 ♀, type; Umboi, (Rook Isl.) 1930, (coll. H. Hediger), 1 ♀. Type Mus. Basel.

Sexava leefmansii nov. spec.

♂, ♀: Body slender. Head a little shorter than the pronotum, or as long as the pronotum. Antennal scrobes a little produced on the inner side, not reaching beyond the apex of fastigium of vertex, antennae slender and more than three times as long as the body.

Fastigium of vertex produced in advance into a triangular process with the apex obtusely rounded. Eyes small, globose, prominent. Frons reclinate, nearly smooth, somewhat wider than high, median ocel between the antennal scrobes.

Pronotum with the disc flat, coarsely and rugosely punctured, anterior margin convex, posterior margin rounded truncate, the two transverse sulci distinct, concave anteriorly, lateral lobes vertical, roundly inserted, in the male higher than broad, in the female about as high as broad; lower margin slightly ascendant anteriorly and posteriorly, anterior and posterior angle obtusely rounded, posterior margin subconvex.

Elytra and wings long, reaching far behind the apex of hind femora.

Elytra narrow, coriaceous with dense reticulation, anterior and posterior margin nearly parallel, apex rounded. Anterior area in the basal half about as broad as the other together. Mediastinal vein only distinct in the basal third, not quite reaching the anterior margin.

Subcostal and radial vein nearly straight, contiguous, only separated by a narrow interspace at the base and in the apical third; first radial branch arising in the apical third, followed by one or two other branches.

Medial vein substraight, reaching the apex of elytra, with a branch in the basal third. Cubital vein nearly straight, reaching the posterior margin in the apical fourth, with a branch in the basal fourth, anal area with some longitudinal veins.

Legs slender. Anterior tibiae with a distinct api-

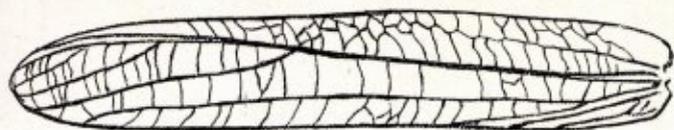


Fig. 21. *Sexava leefmansii* nov. sp. ♀. Elytra.

cal spine from above, only on the outer side, median tibiae only on the inner side.

Anterior femora with a row of 4—5 small spines near the apex on the inner lower margin, genicular lobes with one spine on the outer and two on the inner side. Median femora with one or two small spines on the lower outer margin; genicular lobes with two spines on both sides.

Hind femora incrassate in the basal half, reaching in the male beyond the subgenitalplate, in the female reaching about the middle of ovipositor; from below with a row of small slender spines on each side, genicular lobes with two spines on both sides.

Hind tibiae with four rows of spines from base to apex.

Mesosternum broader than long, metasternum about as long as broad. Tergites of the abdomen, in the middle of the posterior margin with a small tooth.

♂: Supra analplate small, triangular, apex acutely rounded.

Cercus cylindrical, gradually curved inward, apex narrowing and terminating into a short, sharp spine.



Fig. 22. *Sexava leefmansii* nov. sp. ♀. Hindfemora.

Subgenital plate long, lamellate, broad at the base, somewhat constricted in the middle, at the apex deeply, triangularly incised with two sharp short styli.

♀: Supra analplate triangular, apex obtuse. Cercus cylindrical, attenuate towards the apex, slightly curved, apex more or less pointed.

Ovipositor substraight, at the apex slightly curved upwards, margins smooth.

Subgenitalplate somewhat broader than long, posterior margin triangularly expanded, with an incision in the middle.

General coloration uniformly brown (alcoholic material), probably green in vivo. Elytra brown, the areas in the middle and along the veinlets with dark brown spots. Wings subhyaline. Legs brown. Hind femora brown, from below and on the inner side in the basal half black. Spines with black tips. Tarsi brownish yellow, the joints bordered with blackish brown. Fig. 21, 22.

	♂	♀
Length of body	45 mm	55 mm
" " head	6 "	7,5 "
" " pronotum	8 "	7,5 "
" " elytra	62 "	72 "
Width of elytra	10 "	12 "
Length of hind femora	40 "	45 "
Width of hind femora	6 "	6,5 "
Length of ovipositor		34 "

Locality: Lawongai, New Hebrides, XI, 31, 2 ♂♂, 1 ♀. (Type ♂).

Namaoroso, New Hebrides, XI, 31, 1 ♂, 1 ♀, Type Mus. Basel.

Key to the species of *Sexava*.

1. Hind femora long and slender, from below with a row of strong triangular spines on each side; on the lower outer side near the base with a row of five black round spots. Meso- and metasternum about as long as broad. Body slender. ♂ unknown. **H a l m a h e i r a.**

femorata n. sp.

Hind femora shorter, incrassate in the basal half, spines small and slender, without distinct black round spots from below on the outer side.

2. Hind femora from below and on the inner side in the basal half black.

Hind femora unicolorous, without black at the base.

3. Elytra long and narrow, reaching far behind the top of hind femora (length in the male 62, width 10 mm, in the female 72, width 12 mm). Styles of the subgenitalplate in the male small and slender. **N e w H e b r i d e s.**

leefmansii n. sp.

Elytra much shorter and much broader, reaching only a little behind the top of hind femora (length in the male 53, width 18 mm, in the female 56, width 13,5 mm). Styles of the subgenitalplate in the male more robust.

I s l. P o a t.

karnyi Leefmans.

4. Body stout, relatively broad, meso- and metasternum distinctly broader than long. Elytra broad, anterior and posterior margin subparallel or anterior margin convex, especially in the male. Subgenitalplate in the male broad, at the apex triangularly excised, with a pair of very small styles. Subgenitalplate in the female at the posterior margin broadly triangularly excised or concave.

S a n g i h e I s l., M o r o t a i a n d T e r n a t a I s l., B a t j a n B a n g g a i A r c h., S o e l a I s l., O b i, B u r u I s l., C e r a m, A m b o i n a, N e w G u i n e a.

coriacea Linn.

Body slender, less broad, mesosternum broader than long, metasternum as long as broad. Elytra less broad, anterior and posterior margin subparallel or narrowing towards the apex. Subgenitalplate in the male narrower, at the apex triangularly excised with a pair of distinct, relatively long and slender styles. Subgenitalplate in the female at the posterior margin broadly excised or only excised in the middle.

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5. Elytra in the female broad, anterior and posterior margin nearly parallel, apex broadly rounded. Supra analplate short, broad. Fig. 23.

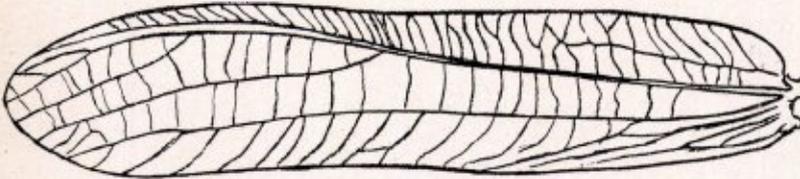


Fig. 23. *Sexava nubila* Stål. ♀. Elytra.

Nanoesa Isl., Talaud Isl., Batjan, Ceram, Key Isl., Aru Isl., New Guinea.

nubila Stål

Elytra in the female relatively shorter and narrower, anterior and posterior margin narrowing towards the apex, apex narrowly rounded. Body slender. Supra analplate long, narrow. Bismarck Archip. (Lou Isl., Rook Isl).

uniformis n. sp.

HOE KOMT EEN MANNETJE AAN EEN WIJFJE ?

door

G. H. Waage.

I. SEXUEELE LOKTONEN.

Om te komen tot een geslachtelijke voortplanting zijn, afgezien van de tweeslachtige of hermaphrodiete soorten, twee dieren noodig, een mannetje en een wijfje. Het wijfje is de voortbrengster van de eieren, die, willen ze tot ontwikkeling komen, bevrucht moeten worden, d.w.z. versmelten met een mannelijke cel, een spermatozoïde.

Op welke wijze vinden mannetje en wijfje elkaar ?

Dit is wel een van de meest interessante vragen

uit het zoo belangwekkende onderwerp der voortplanting. Dat hierbij de zintuigen wel een belangrijke rol moeten en zullen spelen, spreekt van zelf. Laten we zien, welken rol elk zintuig afzonderlijk hierbij speelt. Allereerst het gehoororgaan.

Geluidsproductie komt in het dierenrijk alleen maar bij de twee hoogst georganiseerde diergroepen voor en wel bij de gewervelde dieren en geleedpootigen, waartoe o.a. de insecten behooren. Bij de eerste is het ademhalingsapparaat meestal zoo gevormd, dat het tevens als geluidproduceerend orgaan dienst kan doen. Bij de geleedpootige dieren ontstaat het geluid door trilling van uitwendige lichaamsdeelen. Deze geraken in trilling door mechanische wrijving dezer deelen. Men spreekt in dit geval van stridulatie en stridulatie-organen. Het meest bekende voorbeeld is het „kriekende kriekeske”, de huiskrekel. Het sjirpen van huiskrekel is toch wel een ieder bekend. Ook sprinkhanen en enkele spinnen striduleeren.

Hoe vindt dit plaats ?

Nemen we als voorbeeld de sprinkhanen. De mannetjes onzer inheemsche veldsprinkhanen dragen aan hun achterste paar pooten een rij fijne tandjes, waarmede zij langs een verhard rand der voorvleugels strijken. Deze geraken hierdoor in trilling, waardoor geluid ontstaat. De sabelsprinkhanen bewegen hun linker voorvleugel over den, met den rand daaronder liggenden, rechter voorvleugel, als een strijkstok over de snaren. Zij musicceeren dus met hun vleugels. Slechts bij heel enkele soorten kan ook het wijfje sjirpen, maar dan steeds veel zachter dan het mannetje.

Heeft het sjirpen nu inderdaad iets met de voortplanting te maken ?

Een mannetje van een groene sabelsprinkhaan sjirpt in den namiddag op een veld. Onvermoeid musicceert het dier en het schijnt nergens acht op te slaan. Daar verschijnt plotseling een wijfje, nadert het mannetje, dat zijn sjirpen onderbreekt, zoodra de lange sprietten van het wijfje de zijne aanraken. Het wijfje zoekt hier dus het mannetje op en het lijdt geen twijfel, of het mannetje oefent door zijn muziek een aanlokkende werking uit op het wijfje.

Bij de veldkrekel, die we op zonnige dagen hooren musicceeren, gaat het ongeveer even zoo. Het mannetje musicceert voor het holletje, waarin zich het wijfje schuil houdt. Hij brengt haar dus een serenade. Aangelokt door het gesjirp komt ze uit haar holletje te voorschijn en de paring vindt plaats.

Bij de cicaden bezit het mannetje aan de buikzijde, op de grens van borststuk en achterlijf een paar breede schubben, die een groot, tamboerijnachtig trommelvlies bedekken, dat door spieren in trilling gebracht kan worden. Sommige Europeesche, maar meer nog de tropische mannelijke cicaden, kunnen nachten achtereen hun gezang laten hooren. De wijfjes verzamelen zich om den nachtelijken zanger. Ook hier dus sexueele loktonen.

(Wordt vervolgd).