

**NOTES ON PHYLLOPHORINAE (ORTHOPTERA,  
TETTIGONIIDAE) FROM NEW GUINEA**

ORTHOPTEROLOGICAL NOTES VII <sup>1)</sup>

by

**C. DE JONG**

Bilderdijklaan 69, Bilthoven, Netherlands

With 8 text-figures

In the present paper I have brought together the results of my studies of material from various collections made in New Guinea.

One new genus and some new species are described and figured, viz., *Microsasima* gen. nov. related to *Phyllophorina*, with as type-species *Microsasima stueberi* spec. nov.; *Phyllophora cheesmanae* spec. nov., and *Phyllophora similis* spec. nov.

Further the paper gives new information concerning species previously described from one sex only, viz., *Sasima bifurcata* Bolívar I., ♀ plesioallotype; also information is presented on the infraspecific variability and geographical distribution of some other species.

The basis for the modern study of the subfamily is Karny's monograph (Karny, 1924), which gives considerable information on most species, as well as an extensive list of references. It also contains a great number of descriptions of new species. For the older literature I refer to that paper. The few papers published after Karny completed his monograph can be found in the list of references. The sequence of genera and species in the present paper is nearly the same as Karny's.

**Sasima** Bolívar I., 1903

**Sasima bifurcata** Karny, 1924 (fig. 1)

New Guinea: 1 ♀, Papua, Kokoda, 1200 ft, viii.1933, L. E. Cheesman (plesioallotype, in British Museum).

Karny described the species from a single male specimen from Menado on the island of Celebes. The only difference from the closely allied *S. spinosa* (Brunner von Wattenwyl) is the medial vein (M) of the tegmina, which

---

1) Orthopterological Notes VI, Zool. Meded., 45 : 303-311, figs. 1-15, pl. 1.

bifurcates in the left tegmen, but which shows a second bifurcation in one of the resulting veins in the right tegmen. In my opinion this shows that the type specimen only has a somewhat reduced venation. As no series of specimens is available it is very difficult to decide whether this venational pattern of the tegmen is a constant character. Personally I do not attach much importance to it.

A character of more value, though not emphasized by Karny in his Latin diagnosis (Karny, 1924: 28), is mentioned in his additional description in German (p. 29): "Metazona im vorderen Teile abwechselnd mit vier kürzen und drei längeren Dornen bewehrt. Schulterdornen mächtig entwickelt, geradeaus seitwärts gerichtet, gut doppelt so lang und stark wie die längsten der übrigen Dornen. Hinterteil der Metazona bis zur Spitze bedornt und zwar jederseits mit etwa zehn längeren Dornen, zwischen denen in den ersten zwei Dritteln je zwei, im Apikaldrittel je ein kleinerer Dorn steht."

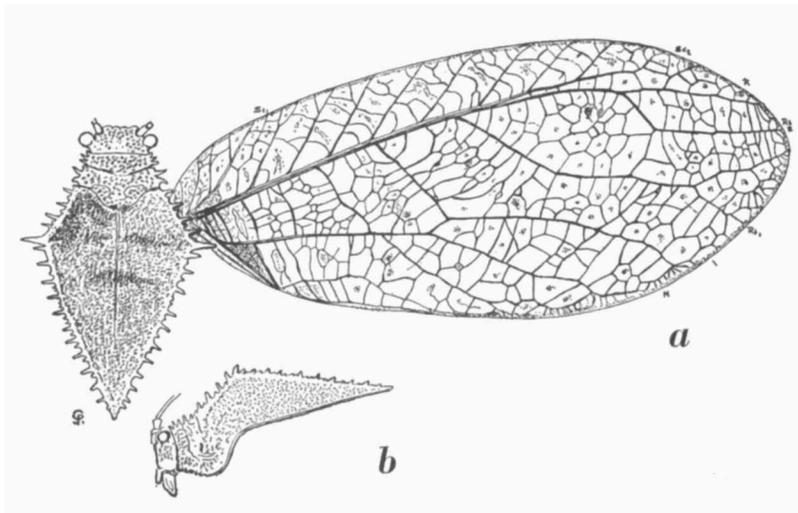


Fig. 1. *Sasima bifurcata* Karny, ♀. a, thorax and right tegmen; b, thorax in lateral view. Nat. size.

In the present species we find more than one small spine, e.g. two or three, between two stronger spines on the lateral borders of the posterior part of the pronotum, in contradistinction to the allied species.

In the collection I could study there is one ♀ specimen which agrees with Karny's description in this respect, but the venational pattern in the tegmina is like that of *spinosa*. It shows the characters of *bifurcata* apart from the bifurcation. In view of the above-mentioned details I have decided to con-

sider the ♀ at hand the female of *bifurcata*, and the specimen is hereby designated as the plesioallotype.

General colour leaf-green; part of the body and legs yellowish brown, probably in consequence of chemical changes after death. Posterior femora with a dark brown ring on knee and knee-caps. Spines on the legs all black or black-tipped.

Head almost flat anteriorly, with strong puncturation. Vertex faintly convex, with the same strong puncturation near the well-accented transverse ridge at the anterior border; this puncturation growing weaker posteriorly, and dividing into two rows of punctures, one at either side, which reach below the pronotum. Eyes globular, light brown. Genae as strongly punctate as the frons. Mandibles strong and showing a distinct excavation on the outer (anterior) surface. Maxillary and labial palps rather long and slender, leaf green, somewhat darker towards the apex. Antennae  $\frac{3}{4}$  times as long as the whole animal (with closed tegmina), very slender, thinly ringed with white on segmental borders in the basal part, the remaining part being uniformly light green. Antennal scrobes simple, as well as the basal joints, showing no spines.

Pronotum as figured by Karny (1924: fig. 3) but the humeral spine somewhat stronger, and showing a dark tip. Prozona with 3 lateral spines on left and right, mesozona with 2 and 2 spines; metazona showing 4 big spines before the very strong humeral spine, alternating with 4 smaller ones. Behind the humeral spine 10 strong spines, alternating with smaller ones, but in some of the intervals more than one small spine present, two or sometimes three, as also shown in Karny's figure of the male. Surface of the pronotum covered with strong but rather superficial punctures or impressions which form a network on the metazona. In the anterior part punctures equal to those on frons and vertex, but less deep. Lateral lobes, when seen from the side, broader than high. Anterior ventral angle almost rectangular. Anterior border showing a few crenules near the angle, the ventral border crenulate to where it merges smoothly into the hind margin, which in its turn gives a smooth connection towards the humeral angle. Ventral margin of the posterior part of the pronotum straight.

Tegmina leaf-shaped. Posterior border more gradually curved towards the rounded apex than in the male (Karny, 1924: fig. 3). The venational pattern has been discussed above; it seems normal for the genus (fig. 1).

Prosternum bituberculate. Lobes of meso- and metasternum oval with a distinct terminal spine. Anterior coxae with a sharp spine at anterior border. Knee-lobes of all legs armed with a strong tooth with black apex. Armature of the legs as follows.

Anterior legs: femora dorsally smooth, ventro-internal margin with 4, ventro-external margin with 5 spines; except for the terminal spines the dorso-external margin of the tibiae smooth, and the dorso-internal one with only 1 (2) small spine. Ventral margins each with 7 spines, the terminal one included.

Middle legs: femora dorsally smooth, ventral margins with 4 spines each; except for the terminal spine the dorso-external rib of the tibiae smooth, the dorso-internal one bearing 5 spines, the terminal one included. Ventral ribs with 8 spines each.

Posterior legs: femora dorsally smooth, ventro-external margin with 8 (9) spines, ventro-internal margin with 6 in apical part; tibiae with 13 (14) smaller spines on the dorso-internal rib, and 6 on the dorso-external one, the terminal spine excluded; ventral ribs with 10 (11) small spines each.

All femora transversely rugulose on their dorsal surface, especially near the knee, the posterior ones also in the proximal part. Ovipositor of the normal shape for the genus, slender, distinctly curved, broadest at the rather strong base. Subgenital plate broadly triangular with small semicircular incision at the tip.

Measurements of the ♀ plesioallotype (in mm):

total length, tegmina included	98
length from frons to apex of subgenital plate	47
length of ovipositor	31
length of pronotum	34
breadth of pronotum, humeral spines included	24
breadth of pronotum, humeral spines excluded	21
breadth of pronotum anteriorly	8
length of tegmina	86
breadth of tegmina	36
length of wings	79
length anterior femora	17.5
length anterior tibiae	18
length 2nd pair of femora	20
length 2nd pair of tibiae	20.5
length posterior femora	41
length posterior tibiae	41
length antennae	87

The locality is new for the species that was described from Menado (Celebes), but this type locality seems doubtful to me, considering the distribution of the genus *Sasima*.

**Sasima spinosa** (Brunner von Wattenwyl, 1898)

New Guinea: 1 ♀, Hollandia, i.1937, 300-600 m alt., W. Stüber; 1 ♀, Humboldt Bay Distr., Bewani Mts., W. Stüber; 1 ♀, Sentani Lake, Ifar, viii.1936, L. E. Cheesman (all in British Museum (N.H.)).

The three specimens, all females, agree in general with *Sasima spinosa* as redescribed by Karny (1924: 30-32). Only a small difference is found which, in my opinion, should not exclude the specimens: the incision at the apex of the subgenital plate is somewhat wider than 90°. Otherwise I cannot find any difference.

The specimen from Bewani Mts. shows a number of whitish spots between the veins in the cell-centres. Similar white spots are also found in the specimen from Hollandia, though they are smaller and more numerous.

**Sasima lactuca** Bolívar I., 1903

New Guinea: 1 ♀, Kokoda, 1200 ft, x.1933, L. E. Cheesman (plesioallotype, in British Museum (N.H.)).

The present ♀ specimen represents a species previously unknown to me. In Karny's key to the species of *Sasima* (Karny, 1924: 21-22), to which genus the specimen undoubtedly belongs, it runs down to *S. lactuca* Bolívar I. Karny did not see the species himself either but refers to the original description. In my opinion the specimen under consideration should be identified with *S. lactuca* Bolívar I., and as only the ♂ has been described, the ♀ constitutes the plesioallotype.

The measurements of the ♀ agree with those of the ♂ except for the breadth of the pronotum, which measures 17 mm in the ♂ (sec. Karny). In the ♀ the pronotum is much more slender than is usual in the genus. The measurements are 14 mm, the humeral spines included, and 11 mm without.

The ovipositor is slender, strongly curved, 25 mm long (measured straight from base to apex). The subgenital plate is broadly triangular, incised at the tip, the sides of the incision standing at an angle of about 140°.

The specimen further agrees with Bolívar's description as quoted by Karny in his monograph.

**Sasima areolata** Bolívar I., 1903

New Guinea: 1 ♂, Humboldt Bay Distr., Bewani Mts., iv-viii.1937, W. Stüber (in British Museum (N.H.)).

Bolívar I. described the species from one ♀ specimen only. In 1947 (De Jong, 1947: 243, figs. 1 and 2) I described and figured the male. The present specimen agrees with the plesioallotype. The species appears to occur in a

rather large area: the holotype was captured on the island of Waigeu, while Griffini (1908: 643) mentions two specimens, one adult ♀ from Ansum on Japen Island, and one immature specimen from Pulu Faor. The plesioallotype originates from Roon Island, and the present ♂ was taken near Humboldt Bay. All localities are situated along the northern coast of New Guinea.

The measurements are slightly different from those (in parentheses) of the plesioallotype (De Jong, 1947). The specimen is somewhat smaller:

total length of body, inclusive subgenital plate	55 (58 )
length of body (frons to subgenital plate)	41 (41.5)
length of pronotum	32 (33 )
length of anterior part of pronotum	12 (13.5)
length of posterior part of pronotum	20 (22 )
breadth of pronotum inclusive humeral spines	21.5 (24 )
breadth of pronotum without humeral spines	17.5 (19 )
breadth of pronotum at anterior border	7 ( 6.5)
length of antennae	85
length tegmina	73.5 (80 )
breadth tegmina	37 (35.5)
length of wings	70 (74 )
length of anterior femora	16 (18 )
length of anterior tibiae	17.5 (20 )
length of 2nd pair of femora	19.5 (21 )
length of 2nd pair of tibiae	19 (22 )
length of posterior femora	39 (42 )
length of posterior tibiae	38 (44 )
length of subgenital plate	17 (17 )
length of cerci	16 (15.5) <sup>1)</sup>

1) Misprint in description plesioallotype (De Jong, 1947: 247).

The specimen shows an abnormality in the left middle leg which is very short. The length of the femur is only 6.5 mm, that of the tibia 6 mm. From similar appearances in other insects we may assume that this is a newly formed leg after the original leg was destroyed in a previous (larval) stage.

#### **Microsasima** gen. nov.

Type species: *Microsasima stueberi* spec. nov.

In the material collected by W. Stüber for the British Museum (Natural History) in New Guinea there are two specimens of a new species that, according to Karny's key, should be referred to the genus *Phyllophorina*. After a careful study I have decided to separate them in a new genus, for which I propose the name *Microsasima* because of the resemblance to the genus *Sasima*, especially in the appearance of the pronotum. However, the differences are very obvious. The tegmina are not broadened towards the apical half. They are more slender, lanceolate and broadest in the middle. The tegminal pattern shows some complications as there is a reduction of veins

in consequence of the slender shape. The radial vein sends off 4 distinct, almost equal veins; these all reach a further longitudinal vein, which in my opinion for the basal part consists of the medial vein, but which merges into the first subcostal vein (Sc 1) in such a way that it cannot be seen exactly where M bends off to the posterior border of the tegmen, especially as M + Sc 1 sends off a number of almost uniform veins towards the posterior border.

The tympana of the anterior tibiae are slit-shaped as in *Phyllophora*.

The pronotum is distinctly rhombiform with strong lateral spines that are more or less flattened. The lateral lobes are shaped as in *Phyllophorina*, truncated posteriorly, not lobate.

*Microsasima* seems closest allied to *Phyllophorina*.

***Microsasima stueberi* spec. nov. (fig. 2)**

New Guinea: 1♀, Humboldt Bay Distr., 1937, W. Stüber (holotype); 1♀, Humboldt Bay Distr., Bewani Mts., ix.1937, W. Stüber (paratype) (British Museum (N.H.)).

The species is known from two specimens only. They are of small size as compared with most Phyllophorinae. The tegmina are narrower than in any other species of the subfamily known to me.

The general colour is grass green, passing into yellowish along the borders of the pronotum and of the tegmina. From the condition of the holotype I assume that the yellowish green colour in the paratype is due to chemical changes after death. From the colour still present in the specimen we may assume that the general colour in the living animals was grass green with brownish spines and white or yellowish patches on the tegmina. These big patches are situated about one third from the base, covering nearly the entire breadth of the tegmina. Further a smaller corrosion spot is found in the centres of some cells at about one third from the apex.

Posterior legs showing a light reddish brown colour towards the knees. Spines and tubercles along the borders of the pronotum brownish, those along the prozona and mesozona darker, almost black. Eyes globular, brownish. Antennae about  $\frac{3}{4}$  of the total length, slender, and of a light green colour.

Head dorsally between the antennae with some coarse punctulation, which continues posteriorly as 3 irregular lines, one in the middle and one at either side along the sides of the flat dorsal part of the head. Frons and the genae coarsely punctate. Posterior half of the head nearly smooth, bearing only some fine punctations. Antennal scrobes not prominent, almost flat, showing only a small tubercle near the base.

Mouth-parts of the normal shape for the group; the grass green colour well-preserved in these parts.

Prozona and mesozona of the pronotum rather coarsely punctate, the interstices much smaller than the diameter of the round impressions. The remaining part of the pronotum showing a distinct puncturation on the whole surface (except for a thin median line, which is smooth) as well as at the base of the humeral spines, and at the base of the smaller spines along the lateral borders of the pronotum. The lateral lobes shaped as in *Phyllophorina*, punctate as the adjoining dorsal parts. Ventral margin straight and only slightly crenulate near the anterior angle. The posterior border of the lateral lobes obliquely truncated, not lobate. The humeral angle almost evenly curved.

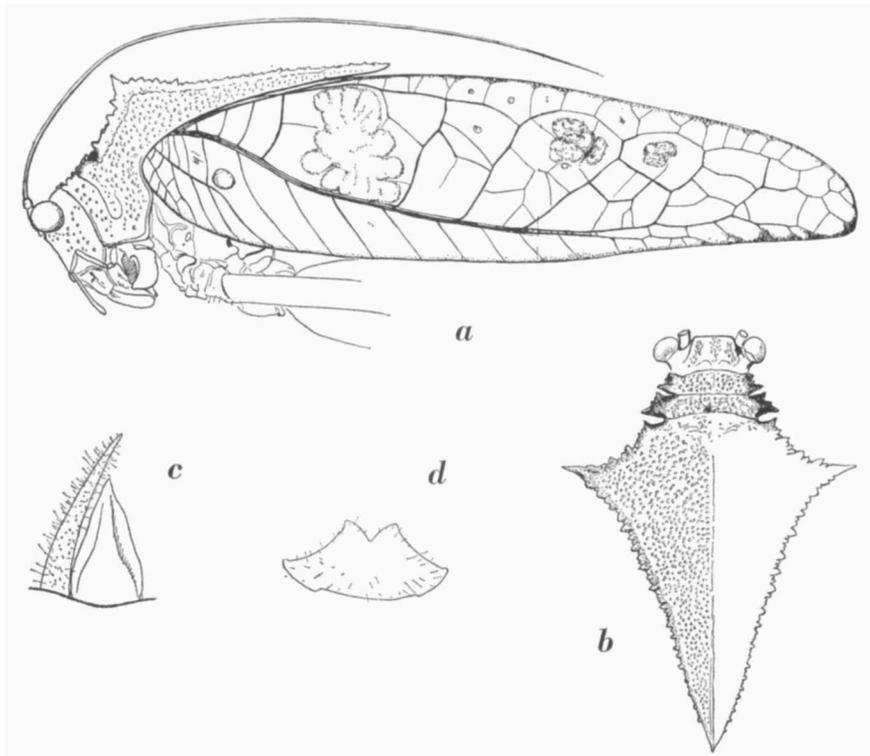


Fig. 2. *Microsasima stueberi* spec. nov., ♀ holotype. a, anterior half in lateral view, and left tegmen; b, head and thorax, dorsal view; c, supra-anal plate and cercus; d, subgenital plate. a-d,  $\times 1$ .

Legs showing the normal structure for the group. The anterior legs smooth dorsally, except for the small terminal spines of the tibiae. Femora ventrally with a short row of 3 sharp spines near the apex on the external margin, and 4 (5) on the internal margin. Genicular lobes each ending in a strong brown spine. The anterior tibiae slender; the tympanal organs slit-shaped as in the

genus *Phyllophora* Thunberg. Ventral armature of the tibiae consisting of 5 spines on each margin, the terminal spine included.

Armature of the middle and posterior legs as follows.

Intermediate legs: femora dorsally smooth, ventro-external margin with 5 (6) small spines, ventro-internal margin smooth; tibiae smooth dorsally except for the terminal spines and a small one on the internal margin slightly below the middle; ventrally both ribs bearing 5 (6) small spines. Posterior legs: femora dorsally smooth, ventrally with a row of 11 (12) sharp spines. Tibiae with rows of rather small spines; excluding the terminal spines the following numbers present: dorso-internal 24 (25), dorso-external 16 (17), ventro-internal 5 (7), and ventro-external 11 (12).

Ovipositor curved in the same way as generally found in the subfamily, slender, forming nearly one sixth of a circle with a radius of about 15 mm. Subgenital plate broadly triangular with a strong incision at the tip; the sides of the incision showing an obtuse angle, sides themselves slightly convex.

Measurements ♀ (in mm):

	holotype	paratype
total length with folded wings	45	49
length of body with ovipositor	39	41.5
length of body (frons to subgenital plate)	24	26
length of pronotum	19	20
length anterior part (to humeral spines)	7	7
length posterior part (behind humeral spines)	13	14
breadth of pronotum, humeral spines included	14	15.5
breadth of pronotum, humeral spines excluded	11	12.5
breadth of pronotum anteriorly	4	4.5
length of antennae	37	38.5
length of tegmina	41	43
breadth of tegmina	11	11.5
length of wings	41	43
length anterior femora	7	8.5
length anterior tibiae	7	8.5
length middle femora	8	9.5
length middle tibiae	8	9.5
length posterior femora	18	19
length posterior tibiae	21	21.5
length ovipositor	16	16.5

### **Phyllophora** Thunberg, 1815

This genus, which is characterized by the rhomboidal pronotum with crenulated borders, a more or less distinct humeral spine, posteriorly lobate lateral lobes, moderately broad subparallel-sided acuminate elytra, and slit-shaped tympana, is represented by a number of taxa, some of which cannot be identified with any of the known species. For that reason I present descriptions here.

**Phyllophora bispinosa** Karny, 1924 (fig. 3)

New Guinea: 1 ♂, Waigeu Island "Waifoï and Mt. Nok", 500 ft, iii.1938; 1 ♂ and 1 ♀, Waigeu Isl., Camp Nok 2500 ft, iv.1938; all Miss L. E. Cheesman (in British Museum (N.H.)).

Female. — I have been able to compare this specimen with the type (♀) and three other females in the Leiden Museum. All agree with Karny's description (1924: 91, 92, fig. 25) except for some variation in the armature of the mesozona of the pronotum. The holotype shows two strong teeth, the other specimens show 2 strong ones and a small one, 2 strong and 2 small ones, and 3 strong ones, respectively. The present specimen possesses 2 strong spines and a smaller one. In the specimens under consideration the smaller

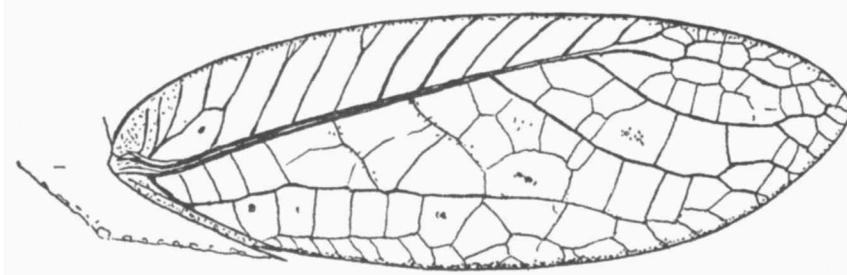


Fig. 3. *Phyllophora bispinosa* Karny, ♂, tegmen.  $\times 2$ .

teeth are situated between the 2 stronger ones. I discussed this problem in an earlier paper (1946: 222, figs. 4 c-i). Though Karny tried to separate the species on the number of teeth on the pro- and mesozona of the pronotum, I do not think this method adequate when more than one specimen are considered. The general shape of the pronotum and elytra, together with the type of armature of the pronotum and legs, constitute better characters for the identification of the species. In some cases the colour pattern may help to identify a species, but generally it is of no importance and appears to be variable or even aberrant. In the present species the shape of the pronotum is as figured by Karny (1924: fig. 25), but the lateral borders of the post-humeral portion are straight. In Karny's figure these borders are slightly curved, unlike the type specimen. In the anterior part of this border the stronger crenulae alternate with two or three smaller ones. In the posterior half only one smaller crenula is found between two stronger ones. This character also shows some individual variation.

Male. — The male of this species, unknown to Karny, was described in my 1946 paper (p. 222). It is now possible to give some additional details from the present material. In general appearance they are very similar to the females but smaller. The elytra are similar, but distinctly more slender

(fig. 3), and the anterior border is less curved than the posterior one. The shape of the pronotum too is slightly more slender than in the female but the lateral borders show the same irregularities in the crenulation. In one male the posthumeral border on one side shows the pattern as described for the female mentioned above, and the other (right) side shows alternating stronger and smaller teeth, except for one interstice, nearly in the middle, where two smaller teeth are found between two stronger ones.

The abdominal appendages are of the shape usual for the genus. The last dorsal segment is broadly incised. This incision surrounds the supra-anal plate. The cerci are strong, and inflated at the base (in this region they bear a large number of short strong bristles), then they bend abruptly, and each is prolonged into a long thin part, which is slightly curved upwards and bears a small sharp spine at the tip. The specimen corresponds with the plesioallotype.

***Phyllophora lanceolata* Brunner von Wattenwyl, 1898**

New Guinea: 1 ♂ and 1 ♀, North New Guinea, Humboldt Bay Distr., 1937; 1 ♂, Humboldt Bay Distr., Bewani Mts., ± 400 m, iv-viii.1937; 1 ♂ and 2 ♀, Hollandia, i.1938; all W. Stüber (all in British Museum); 1 ♂, New Guinea, Staudinger; 1 ♀, Star Range, 1260 m, Sibil Valley, 20.v.1959, Dutch New Guinea Exp. (these 2 specimens in the Leiden Museum).

This species can be separated from the closely related forms by the shape of the pronotum which is rather long with relatively small humeral spines; the lateral borders of the posthumeral part of the metazona are slightly convex.

The tegmina show a somewhat prolonged tip in consequence of the straight apical part of both anterior and posterior margins. The apical angle is more acute than in *P. laminata* Karny (1924: 78, fig. 20).

***Phyllophora heurnii* Karny, 1924**

New Guinea: 1 ♀, North New Guinea, Cycloop Mts., Sabron, nr. Lake Sentani, Camp 1, 1200 ft, vi.1936, L. E. Cheesman; 1 ♂, Hollandia, 300-400 m, i.1937; 1 ♂, Humboldt Bay Distr., Bewani Mts., above 400 m, iv-viii.1937, both W. Stüber (all in collections of British Museum); 1 ♂, North New Guinea, Joka, Lake Sentani, 140°37'E 2°36'S, 20.x.1954, L. D. Brongersma (specimen in Leiden Museum).

Though there are small differences from the types in the Leiden Museum, the above-mentioned specimens should undoubtedly be referred to *Phyllophora heurnii* Karny. The principal differences lie in the details of the venational patterns of the tegmina, but in my opinion they are individual variations. The armature of the legs remains within the limits given by Karny.

A character which also should be mentioned, as in many other species, is the number of spines (or blunt teeth) on the mesozona of the pronotum. This number appears to be subject to more variation than was suspected by Karny.

In his key (Karny, 1924: 23) he mentions: "2'. Mesozona pronoti dentibus duobus vel tribus (raro quattuor) aequalibus vel subaequalibus armata." With *P. heurnii* this may mean: two equal spines, two spines differing in size, three equal spines, two spines and a smaller one, or one spine and a smaller one. These various combinations may occur in specimens from the same region, but even in one specimen two different combinations are sometimes found together. This makes identification rather difficult, but fortunately other characters are less subject to variation.

*P. heurnii* Karny is characterized by strong humeral spines, and a rather slender and flat pronotum with a relatively long posthumeral part, which is bordered by irregular, larger and smaller, blunt spines. The shape of the tegmina is almost symmetrical (anterior and posterior border equally curved). The ♂ subgenital plate is very similar to that of the closely related species, and it shows a small dark spine on the internal apex of the terminal lobes.

***Phyllophora cheesmanae* spec. nov. (figs. 4, 5)**

New Guinea: 4♂, Papua, Kokoda, 1200 ft, Miss L. E. Cheesman (iii.1933, iv.1933, vii.1933, and ix.1933, holotype and 3 paratypes, respectively; in British Museum).

As I cannot identify the present species with any hitherto described in the genus, I consider it new to science, and I take pleasure in dedicating it to Miss L. E. Cheesman, who collected the specimens in Papua, and who did much excellent entomological work.

The species is closely related to *P. angustata* Brunner von Wattenwyl from the Territory of New Guinea (Kaiser Wilhelmsland) but in a number of details it is distinctly different.

Male. — Colour: vivid green. Some parts of head, thorax and tegmina have turned ochraceous, probably as a result of decomposition of tissues after death. The legs as well as the body are partly of a lighter shade of green. The tibiae show a shade of grass green; the anterior ones are sprinkled with black in the basal third around the auditory organs. The posterior femora are light reddish towards the apex.

The head is strongly and deeply punctate on the face and the anterior part of the vertex. In the upper part of the face the surface is wrinkled. The posterior part of the vertex and the genae are almost without puncturation, but also without lustre. The anterior border of the vertex is slightly impressed in the middle, showing two prominences near the antennal bases.

The pronotum is distinctly rhomboid with approximately straight sides, notched anteriorly. The surface is strongly and deeply punctate on pro- and mesozona. The puncturation on the metazona shows no distinct reticular pat-

tern, but in the posthumeral part some six superficial shallow impressions are found as well as, in two specimens, a distinct median line.

The armature of the lateral carinae of the pronotum is as follows: prozona with 3-4 spines of which the posterior one is strongest; mesozona with 3 spines, the third also stronger than the other two; metazona with a great number of subequal blunt spines, of which 9-12 are found before the rather strong and broad humeral spine. The posterior part is bordered with a great many blunt spines. Here too there is no distinct alternation of larger and smaller spines, their sequence is irregular: one, two or even three smaller ones between two bigger teeth. However, these differences are not striking. The apex is flat and rounded, without spines as in *P. angustata* Brunner von Wattenwyl. The posterior part of the metazona is nearly  $1\frac{1}{2}$  times as long as it is broad between the humeral spines ( $1\frac{1}{3}$  times the breadth with the humeral spines included). The anterior and posterior parts of the pronotum make only a very slight angle, which forms an important character for iden-

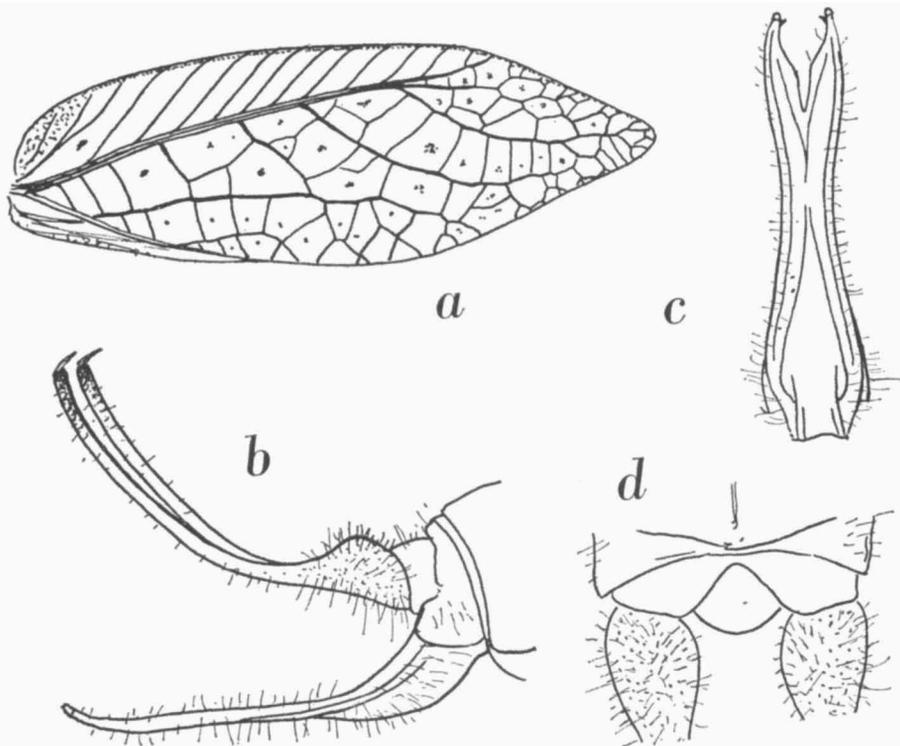


Fig. 4. *Phyllophora cheesmanae* spec. nov., ♂ holotype. a, right tegmen; b, abdominal appendages in lateral view; c, subgenital plate, ventral view; d, abdominal end, dorsal view. a,  $\times 2$ ; b-d,  $\times 7$ .

tification. The lateral lobes show distinct crenulations, even more or less dentate, along the anterior lower corners. Below the humeral angle a distinct blunt lobe is found.

The prosternum bears two somewhat elevated but blunt tubercles. Meso- and metasternum with oval lobes terminating in a distinct tooth. The external borders of the metasternal lobes are finely crenulate. The posterior coxae are thinly transversely ribbed on their ventral surface.

The legs are of the normal shape and proportions. The armature is as follows: all femora dorsally smooth; anterior femora ventro-externally with 3-4, ventro-internally with 4-5 spines; anterior tibiae dorsally smooth, ventral ribs with 6-6 small spines; middle femora, ventro-external edge with 4-7, ventro-internal one with 4 spines; middle tibiae with dorso-internal edge smooth, dorso-external edge with 4-5 spines, ventrally with 7-8 small spines on each rib; posterior femora with 12-14 spines on ventro-external rib, and 6-7 spines on the ventro-internal edge; posterior tibiae ventrally with 10-12 small spines on each rib in their apical two thirds; external rib dorsally with 16-17 small spines, the internal one equipped with a similar number of spines, but with a great number of thin extra spines in the apical part, giving this part a more or less sawlike appearance.

The tegmina are very slender, about  $4\frac{1}{2}$  times longer than broad; the anterior border is only faintly curved, the posterior border curved slightly more strongly, especially in the apical half, but the apical quarter is nearly straight, giving the tegmina a "sharp" appearance, as figured for *P. angustata* in Karny's monograph (1924: 96, fig. 27). The venational pattern (fig. 4) is similar to that of the closely related species. The wings are slightly shorter than, or as long as, the tegmina.

The abdominal appendages of the ♂ are similar to those of most allied species, e.g. *P. bidentata* Karny. The subgenital plate has small black teeth at the internal apex of the terminal lobes, just before the very small concolorous styli. The cerci are somewhat longer than the subgenital plate. They are of the usual type of the genus: the base swollen, then a rather long, curved part, which terminates in a sharp upwardly directed spine. Subgenital plate and cerci covered with a thin but long pilosity which stands almost perpendicularly to the surface. For *P. angustata* Karny mentions: "Cerci und Subgenitalplatte des ♂ auffallend stark behaart". His figure gives insufficient evidence of this "strikingly strong pilosity".

As I have not seen specimens of *P. angustata* Brunner von Wattenwyl I cannot decide whether there are distinct differences in this respect.

In the same collection there are four females that show a strong similarity to the ♂♂ described above. In all probability they belong to the same species,

though at present this is not yet absolutely certain. They also come from Papua, but from a different locality. The female specimens have lost their original colour, and are in rather bad condition, probably in consequence of mould in the tropics. Nevertheless they provide a wealth of information.

New Guinea: 4 ♀, Papua, Mondo, 5000 ft, ii.1934, Miss L. E. Cheesman (allotype and paratypes, in British Museum).

Female. — From the shape of the tegmina the relationship with *P. acuminata* Karny, *P. laminata* Karny, and *P. picta* Karny is very obvious, and the venational pattern, too, belongs to the same group. However, the pronotum shows differences in shape and details that characterize the present species.

From *P. acuminata* Karny, which also occurs in South New Guinea, and with which it has many characters in common, it can be distinguished by the more slender pronotum. The tegmina are somewhat broader than in *P. picta* Karny, and in other characters, too, there are differences (fig. 5).

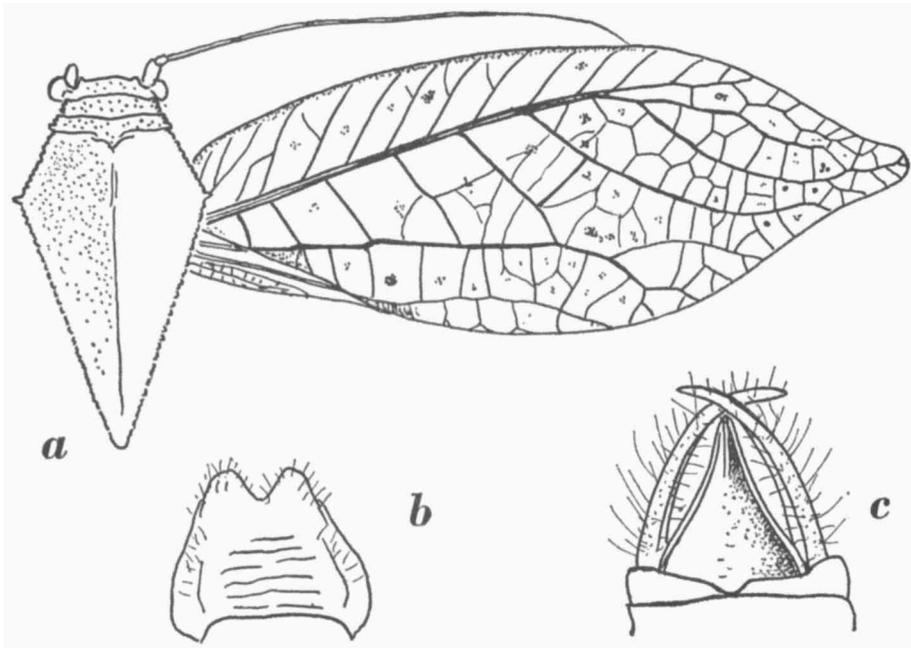


Fig. 5. *Phyllophora cheesmanae* spec. nov., ♀ allotype. a, thorax and right tegmen, dorsal view; b, subgenital plate; c, supra-anal plate and cerci. a,  $\times 2$ ; b, c,  $\times 7$ .

The general colour is ochraceous to light orange brown (green in living insect). Labrum and clypeus are light brown. In one female the subgenital plate is dark brown, in the other three it is ochraceous. The tegmina show

some dark spots along the radial vein in some specimens, in one there even is a corrosion patch. This character is subject to considerable variation, and I do not think it is of primary specific value. As in the ♂♂, all sharp spines are darkened at the apex. This is very obvious in the sharp genicular lobes of all legs. The ovipositor is concolorous with body and legs.

The details of the head are similar to those described for the males, except for the elevations of the anterior part of the vertex near the antennal bases, which are less distinct here.

The pronotum is relatively broader than in the males (in one ♀ it is more slender than in the other three), but otherwise similar. The length of the posthumeral part of the metazona is  $1\frac{1}{4}$  times as long as the breadth between the humeral spines (about  $1\frac{1}{6}$  times the breadth with humeral spines included). The dentition of the lateral borders of the pronotum is similar to that in the males: prozona with 3-4 spines, of which the last is strongest, mesozona with 3 spines, third one stronger than the others, metazona with a great many subequal spines with the same irregularities as described for the males. All spines are more or less hemispherical. The surface of the pronotum shows the same peculiarities as indicated for the males, e.g. structure, shallow impressions, and the nearly flat angle between anterior and posterior part of the pronotum. The lateral lobes resemble those of the males.

The legs, too, show the same pattern of armature as in the males. In these discoloured specimens nothing is found of the red colour of the posterior femora. On the anterior tibiae some black pigmentation is visible in the basal third near the auditory organs.

The tegmina are broader than in the males. Their length is about  $2\frac{1}{3}$  to  $2\frac{1}{2}$  times their maximum width which lies at two thirds from the tegminal base. The venational pattern is similar to that of the females of the species mentioned above for comparison. The anterior and posterior borders of the tegmina are curved in approximately the same way, the posterior one slightly stronger than the anterior one. The apical quarters of both are straight, and these parts meet at the apex at an angle of about  $60^\circ$ .

The abdominal appendages are not characteristic; they are of the usual shape for the genus. The ovipositor is moderately curved, and is shorter than the posterior femora. It is not different in colour from the abdomen and the legs, except at the base where it is light brownish. Probably it is greenish in the living insect. The cerci are slender, curved slightly inwards. The supra-anal plate is triangular, the subgenital plate broadly triangular, incised at the tip.

Although it is not absolutely certain that the females here described belong to the same species as the males described earlier, there is strong evidence that

they are conspecific. The strong resemblance in many characters helps to support this view.

The measurements of the type-series are as follows (in mm):

	males	females
length of whole animal (wings folded)	48 -51	56 -59
length of body	± 22	± 27
length of tegmina	41 -42	48 -51.5
breadth of tegmina	14.5	18.5-20
length of pronotum	19 -20.5	21 -22.5
breadth of pronotum, humeral spines included	10 -11	12.5-14 (11)
breadth of pronotum, humeral spines excluded	8.5- 9.5	11 -12.5 (10)
length of posterior part of pronotum	12 -14	14.5-16
length of anterior femora	8.5	10
length of posterior femora	20.5-21.5	26 (25)
length of antennae	± 35	± 42
length of ovipositor	—	19 -21

**Phyllophora similis** spec. nov. (figs. 6, 7)

New Guinea: 1 ♀, North New Guinea, Cycloop Mts., Sabron, Camp I, 1200 ft, vii.1936 (holotype); 1 ♂, same locality, vi.1936 (allotype); 2 ♀, Jutefa Bay, sea level - 100 ft, ii.1936 (paratypes); 1 ♂, Lake Sentani, Ifar, viii.1936 (paratype); all collected by Miss L. E. Cheesman (all in British Museum); 1 ♀, Star Range, 1260 m, Sibil valley, 6.vii.1959, Dutch New Guinea Exp. (paratype); 1 ♀, Joka, Lake Sentani, 24.x.1954, L. D. Brongersma, Dutch New Guinea Exp. (paratype) (both in Leiden Museum).

As this group of specimens also differs from all other species I studied, I am inclined to consider them to belong to a new species. I do not exclude the possibility that the study of more material may prove a synonymy with some species insufficiently known at present. The species shows the general characters of *Phyllophora*. It is closely related to *P. laminata* Karny and *P. lanceolata* Brunner von Wattenwyl. The main differences are found in the shape of the tegmina which are not faintly excised before the apex, thus forming sort of an elongated apex as in *P. laminata* ♂. In the male the tegmina are narrower than in that species. The difference with *P. lanceolata* is found in the shape of the posterior part of the pronotum, which shows straight borders, whereas in *P. lanceolata* they are slightly convex.

General colour: vivid green to grass green (the animals are partly discoloured after death). Legs and body are of a lighter shade, passing into yellowish.

Female. — Head of normal shape. Face and anterior part of the vertex deeply punctate, more scattered on posterior part of vertex. Anterior part of genae between eyes and mandibles similarly punctate, posterior part almost smooth. Vertex with a blunt elevation near the antennal scrobes. Eyes globular.

Antennae slender, about  $\frac{4}{5}$  the tegminal length. Basal joint as well as the second joint slightly inflated, but showing no spines.

Thorax rhombiform, with straight sides, nearly twice as long as broad at the humeral angle (without the humeral spines). The prozona with 4 spines on the left with a small crenule between the 3rd and the 4th spine, and 4 spines on the right side. The mesozona with only 3 spines of which the 3rd is strongest. On the metazona about 9 crenules are present on the anterior part of the lateral borders, partly interspersed with smaller ones. The posterior part, behind the humeral spine, which is moderately broad ( $60^\circ$ ), with about 28 subequal, distinct crenules extending backwards to some distance from the caudal angle. This angle is distinctly rounded. Distinct punctures present all over the dorsal surface of the pronotum, leaving only a smooth median line and a reticulate pattern on the disk of the metazona. Lateral lobes of the pronotum of same shape as the closely related species. Prosternum with two distinct spines between the anterior coxae. The meso- and metasternum each with two foliaceous blades, rounded anteriorly, and ending caudally into a small blunt white spine.

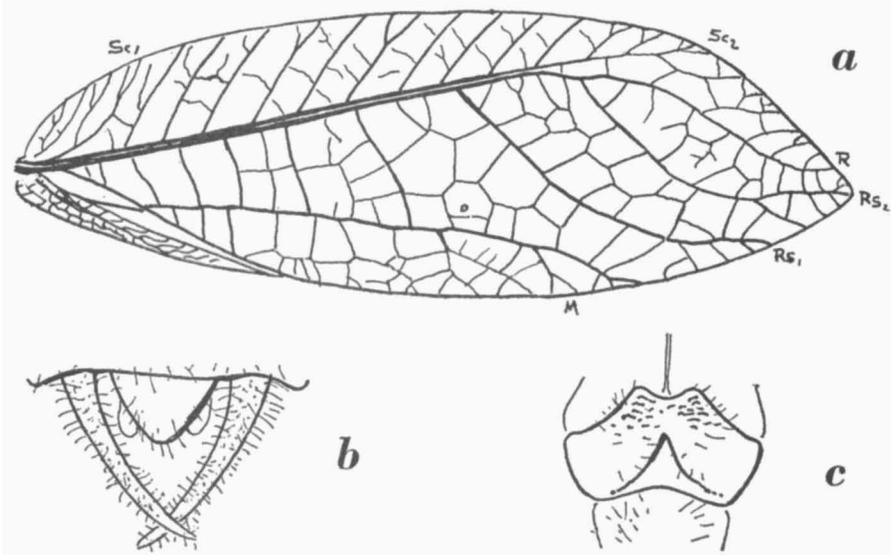


Fig. 6. *Phyllophora similis* spec. nov., ♀ holotype. a, right tegmen; b, supra-anal plate and cerci, dorsal view; c, subgenital plate. a,  $\times 2$ ; b, c,  $\times 7$ .

Ovipositor only slightly curved. Supra-anal plate broad, triangular, notched at the tip. Cerci slender, evenly curved, and tapering towards the tip. Subgenital plate broad, incised at the apex, thus forming two blunt lobes (fig. 6c).

Tegmina lanceolate, broadest in the middle, three times as long as broad.

At about  $\frac{4}{5}$  of the tegminal length the anterior border strongly bent towards the apex, curve about equal to the basal curve of that border; intermediate part only faintly curved. Posterior border more evenly curved, except for the anal area, which looks like an extra structure. This is the part which is hidden below the posterior half of the pronotum when in repose.

The  $Sc_1$  vein reaching the anterior border in the basal fifth. The  $Sc_2$  vein almost straight, and running together with R for about  $\frac{3}{4}$  of the tegminal length, then diverging in such a way that  $Sc_2$  continues in the same direction, reaching the anterior border at  $\frac{4}{5}$  of the tegminal length, and R bending almost parallel with the strongly curved part of the anterior border, reaching it just before the apex.  $Rs_1$  leaving R at  $\frac{2}{5}$  from the base at an angle of about  $60^\circ$ , in the terminal part curved slightly towards the apex but reaching the posterior border at  $\frac{3}{4}$  cm before the apex. The  $Rs_2$  vein originating just beyond the divergence of R and  $Sc_2$ , running between R and  $Rs_1$ , and terminating at the apical tip. Medial vein (M) running through the posterior half of the tegmina, slightly curved to reach the posterior border about  $1\frac{1}{2}$  cm before the apex.

All legs with more or less dark-tipped spines on the genicular lobes. All femora smooth dorsally. Armature of the legs as follows: anterior femora: ventro-external and ventro-internal ribs with 3 spines; anterior tibiae dorsally smooth, ventro-external border with 5, ventro-internal border with 7 spines; middle legs: femora ventro-externally with 4, ventro-internally with 2 spines; tibiae: dorso-external rib smooth, 6 spines on internal one, ventro-external rib with 10, ventro-internal one with 8 spines; posterior legs: femora ventro-externally with 11, ventro-internally with 8 spines; tibiae: dorso-external border bearing 12 spines and 3 small ones, dorso-internal border showing 16 spines and in the apical part some 25 thin ones; ventro-external rib with 10 spines and 2 terminal ones, ventro-internal rib with 11 spines. As usual these numbers, especially the higher ones, somewhat variable. Even left and right often different, e.g. 9-10, 9-11, 10-11, 10-12.

Male. — General colour similar to that of the female. The pronotum, especially the upper part, a slightly darker shade of green than the tegmina. In both ♂ specimens available many parts have lost their original colour, and have become yellowish or yellowish brown.

Shape of the head and prothorax similar to that of the female. Tegmina more slender than those of the male of *P. laminata* that Karny figured in his monograph (1924: 78, fig. 20). In general the tegminal pattern is rather uniform in the genus, even very similar in both sexes.

The abdominal appendages are similar to those of the preceding species, but there are distinct differences: the subgenital plate shows the same general

shape, but the incision is more simple and the lobes do not have a small spine near the apex on the inner border of the incision. In lateral view the cerci are inflated in the basal quarter, then taper gradually into the prolonged thin part, which is curved upwards, terminating in a sharp needle, directed upwards. In *P. cheesmanae* this transition from the base to the distal part is more acute.

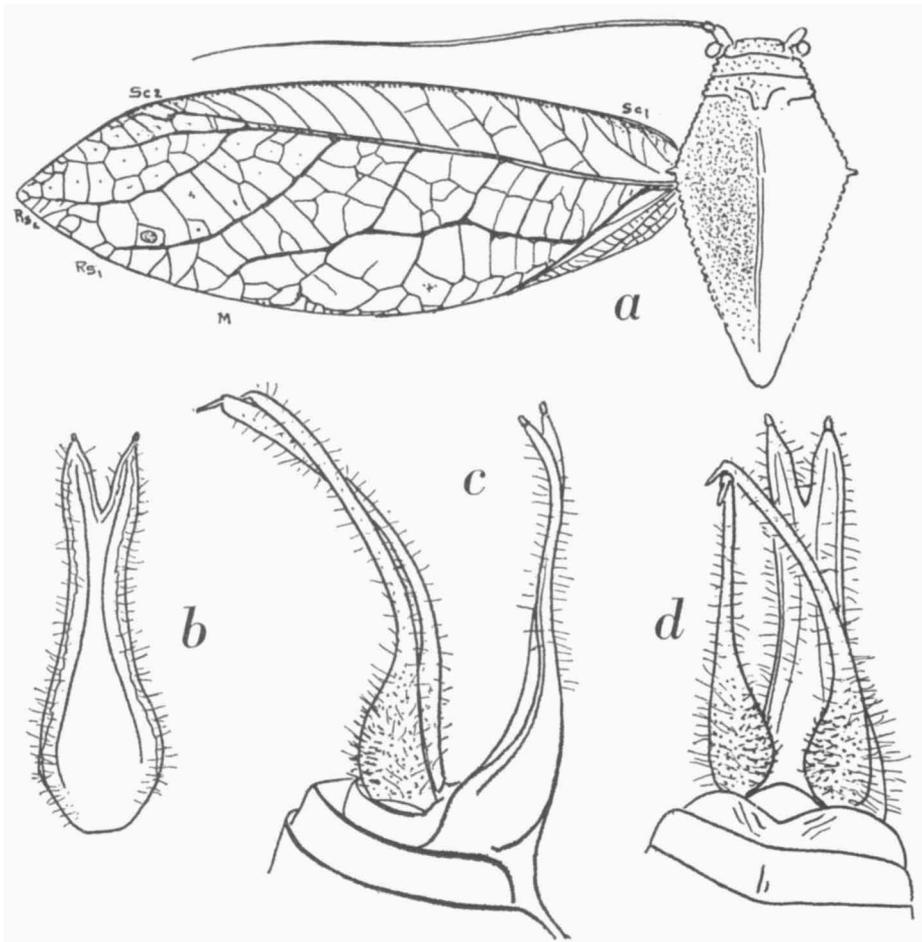


Fig. 7. *Phyllophora similis* spec. nov., ♂ allotype. a, thorax and left tegmen, dorsal view; b, subgenital plate; c, abdominal appendages, lateral view; d, do., dorsal view. a,  $\times 2$ ; b-d,  $\times 7$ .

The armature of the legs is rather similar to that of the female: all femora dorsally smooth. Anterior legs: femora ventrally with 3 spines on each rib; tibiae dorsally smooth, ventrally with 6 and 7 spines on the outer and inner

ribs, respectively; middle legs: femora with 5-6 and 2 spines on outer and inner ventral costae; tibiae dorsally smooth on the outer rib, the inner one bearing 8 spines; ventrally the tibiae with 7 and 6 spines on outer and inner ribs, respectively; posterior legs: femora ventrally with 9-10 spines on the outer rib, and 5 on the inner one; tibiae dorsally with 16 spines on the outer rib and 15 on the inner one with some 25 thin ones in the apical part; ventrally the number of small spines is 12 and 9-10 on the outer and inner ribs, respectively.

Measurements of holotype and allotype (in mm):

	♀	♂
total length	65	55
length of body	35	27
length of tegmina	58	45
breadth of tegmina	27	15
length of wings	54	45
breadth of wings	25	23
length of pronotum	25	21
breadth of pronotum, humeral spines included	15	13.5
breadth of pronotum, humeral spines excluded	13.7	12
length of posterior part of pronotum	17	14
length of anterior femora	11.5	9.5
length of posterior femora	27	24
length of antennae	43	40
length of ovipositor	28	—

Regarding the two new species described above I should like to draw attention to a few details that may help to separate them from *P. papuana* Kästner and *karnyi* Kästner.

In the females of *P. cheesmanae* as well as of *P. similis* the tegmina are relatively much narrower than in *papuana*. In *P. cheesmanae* the male subgenital plate shows small dark spines near the tip of the lobes formed by the apical incision, as in the male of *karnyi*. However, in the former the tegmina are slightly but distinctly "prolonged" in the apical part. The shape of the tegmina in the male of *P. similis* is very similar to that of *karnyi*, but the proportions of the prothorax are different, and the lateral (humeral) spines are smaller than in *karnyi*.

In *P. papuana* and *similis* the female subgenital plate is very similar. In *P. cheesmanae* and *similis* the upper valve of the ovipositor is longer than the lower one. In *P. papuana* the lower one is longest.

#### ***Phyllophora pellucida* Karny, 1924**

New Guinea: 1 ♂, North New Guinea, Ajamaroe, viii.1952, Soleman Palosi; 1 ♂, Japen Island, Scroei, 6.v.1962, W. J. Roosdorp (both specimens in Leiden Museum).

Both these specimens agree with Karny's description, but comparison with the type specimen shows a difference which may be of secondary importance, the tegmina being less translucent than in the type. As the description was made on one specimen only, this character may be an individual peculiarity. As in many cases a much more extensive material will be necessary to get more certainty in this matter.

**Phyllophora boschmai** De Jong, 1964

New Guinea: 2♀ larvae, Enarotali, Wisselmeren, 13.vii.1962, W. J. Roosdorp; 1♀ larva, Kpg. Koegapa, 21.vii.1962, W. J. Roosdorp (Leiden Museum).

When I described and figured the species in 1964 a box of larvae had escaped my attention. Generally larvae are very difficult to identify, but in the present case there is no doubt about their identity. The shape of the pronotum is very characteristic.

**Phyllophorella** Karny, 1924

Karny established the genus for the group of species formerly incorporated in *Phyllophora* and *Hyperhomala*, which are distinguished by the obtuse or subrotundate humeral angle and the very small humeral spine, which may even be lacking. In the present material I found only one species of this genus: *P. ocellata* Karny.

**Phyllophorella ocellata** Karny, 1924

New Guinea: 3♀, Papua, Kokoda, 1200 ft, vii.1933, Miss L. E. Cheesman (in British Museum).

In systematics there are various groups of workers: some are "splitters", others are "lumpers". I think this depends on the circumstances. In Karny's case there was one female specimen from Yamata, British New Guinea, differing by some characters from all other *Phyllophorella* known to him. The main characters are: (i) the distinct black ocellus in the tegminal base; (ii) the wings protruding for some millimetres beyond the tegminal apex; and (iii) the dentition of the lateral borders of the pronotum. Karny expresses his doubt as to the constancy of the ocellus, but he is sure about the other characters. However, when comparing the descriptions and the specimens of a number of species I am inclined to "lumping", as no very convincing characters have been used for identification. Of course this could not be done on the basis of one specimen only. In the material at hand, consisting of 3♀ specimens from Kokoda, the ocelli are lacking but otherwise the specimens agree in all details with Karny's description and figure of *P. ocellata* (1924: 116, fig. 34). Small differences are to be found in the armature of pro- and mesozona of the pronotum, but I regard them as individual variation.

**Hyperhomala** Serville, 1831

As the type-species of the genus was based on an immature specimen (larva) Karny made a new diagnosis for the genus, separating a number of species from *Phyllophora*, and these species are now by him referred to *Hyperhomala variegata* (Brunner von Wattenwyl) with a number of varieties.

The chance to establish the identity of the type-species *Hyperhomala virescens* Serville has been given by Karny's investigations into the literature. The species seems to be common in the islands Woodlark and San Cristoval, according to Montrouzier in his "Essai sur la Faune de l'Île de Woodlark ou Moïou" (1857), but after Boisduval (1835) (and Serville) the typical specimen was taken at Carteret Harbour in New Ireland. When looking at a map one may doubt whether a species really occurs at localities so far apart, as the species of the Phyllophorinae generally are confined to a rather restricted area. For Woodlark Island and New Ireland the occurrence of one species could only be acceptable if it is also found in the intermediate area, but no such data are known to me. The distance from Woodlark Island to San Cristoval (southeastern-most island of the Solomon Islands) is about 1000 km.

When looking critically at the distribution of the Phyllophorinae, we see New Guinea as a centre from which a number of species have spread to East and West, and as a means of transport I think of logs or plants drifting with sea-currents and bridging long distances. In the present case, however, the sea-current comes from the east, turns round the Solomon Islands, and then goes north-east, just opposite to the idea of bridging long distances from west to east.

Another aspect of this problem is that the statements of previous authors are not altogether reliable as to the species. To begin with, the first description is made after a larva, and the larvae of closely related species are very similar and generally not to be identified when not caught with a series of adult specimens. A second point which emphasizes my view on the statements of the previous authors, is found in the descriptions by Boisduval and Serville as reproduced in Karny's paper (1924: 101, 102). Both authors are still convinced that the tegmina (elytra) are grown together and form sort of a box with spined lateral ribs. But Boisduval (1835: 649) writes: "... dont les bords sont tranchants et finement denticulés.", whereas Serville (1839: 545) explicitly states that the description refers to this species mentioned in 1831, and described by Boisduval in 1835, and then writes: "en devant il y a une légère élévation transversale qui se rend d'un angle à l'autre de sa partie la plus large; chaque angle présentant *une épine plus forte* que celles qui garnissent les carènes latérales." Though only larvae are concerned here,

the character mentioned by Serville is not likely to be overlooked by Boisduval. Further Kirby (1899 : 306) remarks rightly concerning "*Phyllophora virescens* (Serville)": "This species is founded on immature specimens, and cannot be identified till fully developed ones are received from the same locality."

Karny sincerely tried to find out all he could about this very dubious species *virescens*, and in an addition (1924 : 137, 138) he cites the description of Montrouzier of "*Hyperhomala virescens* (Boisduval)". That description, however, gives only information about a species of Phyllophorid locust, either from Woodlark Island, or from San Cristoval. Concerning the pronotum Montrouzier writes: "dilaté en une boîte, qui a la forme d'une mitre renversée, . . . caréné sur les côtés et denté; ayant en tout 14 pouces de long et 6 de large dans son plus grand diamètre." I think these measures are wrongly indicated in "pouces" instead of in "lignes."

The french "pouce" or thumb measures 27.07 mm = 12 "lignes" of 2.2558 mm. According to Montrouzier the total length of the animal is "3 pouces" = 81 mm. Length and breadth in "pouces" would result in: 37.9 × 16.2 cm, which I think exaggerated. In lignes or lines it measures 3.1 × 1.35 cm, which seems nearer the truth.

In the description there is a difficulty in interpretation of the passage: caréné sur les côtés et denté. It is not clear whether there is a humeral spine or not.

Notwithstanding the statements of these authors I am inclined to consider *Hyperhomala virescens* still to be a problematic species, with descriptions based on material from very different localities, which probably will appear to consist of three different species. But the proof can only be given by fresh material from the various localities.

As the varieties of *Hyperhomala variegata* (Brunner von Wattenwyl) described by Karny are based on one or two specimens only, Karny expects that more extensive material will possibly prove that he is right, and that some varieties may acquire specific status. Personally I am inclined to unite var. *ornata* Karny, and var. *neptuni* Karny, and to consider var. *horvathi* Bolívar I. a separate species.

As the main characters separating *Hyperhomala* from *Phyllophora* (sec. Karny's key) are to be found in the lateral teeth or crenulations of the pronotum continuing to the caudal apex, and the tegmina showing an almost straight anterior border, the insects can be distinguished rather easily.

In his key to the species Karny mentions the very strong 3rd spine on the lateral margin of the mesozona of the pronotum. This spine is also shown in his figures 28-31. However, in the specimens before me, which undoubtedly

belong to the genus, the strong spine is not the third one; in one specimen it is the fourth, and in another it is the fifth. This may be caused by the fact that one stronger spine is often replaced by two or even more smaller ones in different specimens, or even on the other side of the same specimen. That is why I place some specimens in *Hyperhomala variegata* (Brunner von Wattenwyl) and its varieties. In the key the word "third" should be replaced by "proximal" or "caudal". As this strong spine is generally found in specimens of *H. variegata*, this character might be added to the diagnosis of the species. In *H. horvathi* Bolívar I. it is missing.

The shape of the tegmina is different in ♂ and ♀. In the ♂ they are more parallel-sided with an almost straight anterior border, and the posterior border is strongly curved near the apex. In the ♀ the tegmina are generally broader, and the borders are slightly more curved, especially the anterior one.

***Hyperhomala variegata*** (Brunner von Wattenwyl, 1898) (figs. 8 c, d)

New Guinea: 1 ♀, North New Guinea, Mt. Lina, Cycloop Mts. 1), 3500 ft, iii.1936, Miss L. E. Cheesman (British Museum).

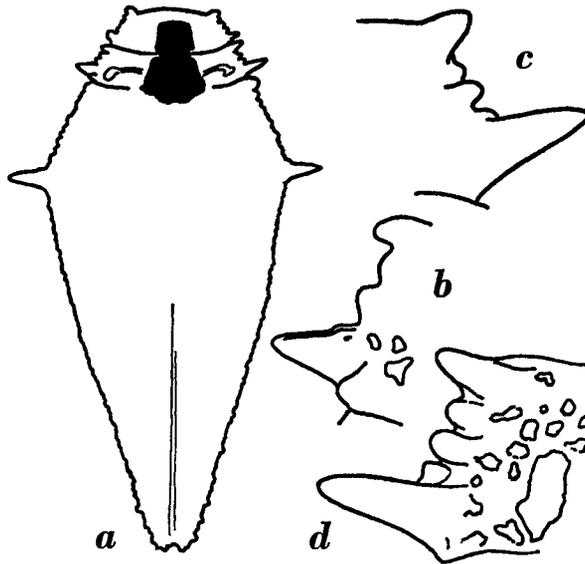


Fig. 8. *Hyperhomala variegata* (Brunner von Wattenwyl); c and d, ♀, mesozona of prothorax, right and left border, respectively; a and b, var. *neptuni* Karny, ♂, a, prothorax, b, do., mesozona, left border. a,  $\times 3\frac{1}{2}$ ; b-d,  $\times 15$ .

1) There seems to be a mistake as to the locality on the label: Mt. Lina is found in the Arfak Mts., south of Doreh in the Vogelkop Peninsula.

In my opinion the above-mentioned ♀ specimen belongs to *H. variegata* though there is a small difference in the number of spines on the lateral margins of the pronotal mesozona (figs. 8 c, d). Nevertheless the shape of the pronotum and of the tegmina, and the distribution of the spines on the pronotum, together indicate its position.

**Hyperhomala variegata** var. **neptuni** Karny, 1924 (figs. 8 a, b)

New Guinea: 1 ♂, North New Guinea, Humboldt Bay Distr., Bewani Mts., ± 400 m, iv-viii.1937, W. Stüber (British Museum).

Except for the complicated last mesozonal spine I see no essential difference between var. *neptuni* Karny and var. *ornata* Karny. I am inclined to unite the two forms, the more so as I have a ♂ specimen before me which is intermediate between the two. It shows the white basal postradial round spot on the tegmina characteristic of *neptuni*, as well as white spots in a number of cells as in *ornata*. The caudal mesozonal spine bears a small basal tooth anteriorly, and a small swelling at the posterior base. I cannot call this a distinct trident as described by Karny. The measurements of the insect are closest to those of *neptuni*.

**Siligofera** Bolívar I., 1903

**Siligofera grandis** (Blanchard, 1853)

New Guinea: 1 ♀ larva, Papua, Mondo, 5000 ft, ii-iii.1934, Miss L. E. Cheesman (in British Museum). 1 ♀, Manokwari, 1952, J. C. Bauwens; 1 ♂ and 1 ♀, Manokwari, 1954, J. C. Bauwens; 1 ♀, Manggoe api, 1952, J. C. Bauwens; 1 ♂, Humboldt Bay, 1910; 1 ♂, Hollandia, spring 1952, T. van Gurp; 1 ♀, Hollandia, 1-10 m, 17.x.1954, Levers (all adult specimens in the Leiden Museum).

Although this species is rather common in New Guinea and the adjacent isles, in fact one of the most abundant Phyllophorinae, it is represented in the Cheesman-collection by one larva (♀) only. In the Leiden Museum 7 more specimens were found, not mentioned in my previous paper (1946) on the subject. Some of these specimens are exceptionally large:

♀ Hollandia, Levers, 1954: length tegmina: 12 cm, thorax: 55 mm

♂ Humboldt Bay, 1910: length tegmina: 10 cm, thorax: 47 mm

REFERENCES

- BOISDUVAL, J. A., 1835. Faune entomologique de l'Océan Pacifique, avec l'illustration des insectes nouveaux, etc. Orthoptères, 2: 647-650, pl. 10 fig. 1, pl. 11 fig. 2. — Paris.
- GRIFFINI, A., 1908. Phyllophorinae del Museo Civico di Storia Naturale di Genova. — Zool. Anz., 32: 641-649.
- HEBARD, M., 1922. Studies in Malayan, Melanesian and Australian Tettigoniidae (Orthoptera). — Proc. Acad. Nat. Sc. Philadelphia, 74: 121-299, pls. 11-22.

- JONG, C. DE, 1946. Orthopterological Notes II. The Phyllophorinae (Orthoptera, Tettigoniidae) in the Rijksmuseum van Natuurlijke Historie, Leiden, and in the Zoölogisch Museum, Amsterdam. — *Zool. Meded.*, 26: 211-230, figs. 1-5.
- , 1947. Orthopterological Notes III. The Phyllophorinae (Orthoptera, Tettigoniidae) in Mr. Willemse's Collection (Eijgelshoven, Limburg) and in the Natuurhistorisch Museum, Rotterdam. — *Zool. Meded.*, 28: 243-249, figs. 1-3.
- KÄSTNER, A., 1933. Die Tettigoniidae des Stettiner Museums. 2. Phyllophorinae. — *Konowia*, 12: 161-191, figs. 1-15, pls. 1-2.
- KARNY, H. H., 1923. On Malaysian Katydid (Gryllacridae and Tettigoniidae) from the Raffles Museum, Singapore. — *Journ. Mal. Br. Roy. As. Soc.*, 1: 116-193.
- , 1924<sup>1</sup>). Monographie der Phyllophorinen. — *Treubia*, 5, suppl.: 1-142, figs. 1-40, pls. 1-4.
- , 1926. Fauna Buruana, Tettigoniidae. — *Treubia*, 7: 145-216, figs. 8-24, pl. 4.
- , 1931. Orthoptera Celebica Sarasiniana. I. Saltatoria. Fam. Tettigoniidae. — *Treubia*, 12, suppl.: 4-140, figs. 1-70.
- KIRBY, W. F., 1899. Notes on the Orthopterous genus *Phyllophora*. — *Ann. Mag. Nat. Hist.*, (7) 4: 302-311, 1 text-fig., pl. 6.
- MONTROUZIER, P., 1857. Essai sur la faune de l'île de Woodlark ou Moïou (1851-1852): 1-226, + index. — Lyon.
- SERVILLE, A., 1839. Histoire naturelle des insectes, Orthoptères: i-xviii, 1-776, pls. 1-14. — Paris.
- SHIRAKI, T., 1930. Some new Species of Orthoptera. — *Trans. Nat. Hist. Soc. Formosa*, 20 (111): 327-355.
- WILLEMSE, C., 1953. On a Collection of Orthoptera from the Solomon Islands, chiefly from the Institut Royal des Sciences Naturelles de Belgique. — *Bull. Inst. Roy. Sc. Nat. Belg.*, 29 (7): 1-27, figs. 1-17.

---

1) Karny's paper contains a comprehensive list of literature concerning the sub-family up to August 1921.