

A NEW GENUS AND NEW SPECIES OF SAILERIOLINAE (Hemiptera: Urostylidae)¹

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Abstract: The Saileriolinae has consisted of the single species *Saileriola sandakanensis* China & Slater (from Borneo). We have added to the subfamily a new species of *Saileriola*, *S. hyalina* Schaefer & Ashlock (VietNam), and a new genus and species, *Ruckesona vitrella* Schaefer & Ashlock (Thailand).

China & Slater (1956) described a new subfamily, Saileriolinae, of the Urostylidae, based on a single male specimen. The Urostylidae were then thought to represent primitive pentatomids, close to the origin of the superfamily and, perhaps, to that of other related groups as well. More recent studies on the superfamily show the Urostylidae to be some distance from the origin of the Pentatomoidea (although primitive), and suggest the Saileriolinae may be the more primitive of the two urostylid subfamilies (Schaefer, work in progress). More knowledge of the Saileriolinae would clearly be valuable for a better view of the Pentatomoidea as a whole.

Recently, Ashlock discovered in the B. P. Bishop Museum a long series representing a new genus in the subfamily, as well as two additional specimens of *Saileriola*, one representing *S. sandakanensis* China & Slater, and the other representing a new species. We shall describe the new genus and species here, redescribe *Saileriola*, and discuss the relationships of the genera, including such aspects of the new genus' morphology as are pertinent to this limited discussion. Schaefer will present elsewhere a fuller account of saileroline morphology, relationships, and phylogenetic significance, as part of a general study of pentatomoid morphology and higher classification.

Subfamily SAILERIOLINAE China and Slater

Size small (2.5-4.5 mm). Head declivent. Antennifers slightly dorsal to eye, annuliform, more or less semicircular, visible dorsally. Ocelli closer to one another than distance between ocellus and an eye. Eyes close to posterior angles. Antennae 5-segmented, I long, III very small (fig. 1). Lateral sutures of vertex present, ill-defined (fig. 2, 3). Legs simple; meso- and metacoxae separated by a distance nearly 2× their length, procoxae 1/2 this distance apart. First and 3rd tarsal segments longer than second; claws widely divergent, narrow; arolia bristle-like, pseudarolia large and flap-like, both divergent. Scutellum swollen anteromedially. Apex of corium extending well beyond apex of abdomen, corium semi-hyaline. Subcosta, hamus, 1st anal, postcubitus and secondary veins absent from hindwing (fig. 4). Metathoracic scent gland

1. Specimens included in this study are results of fieldwork supported by grants to Bishop Museum from the U. S. National Science Foundation (G-2127), and from the U. S. Army Medical Research and Development Command (DA-MEDDH-60-1).
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opening at meso-metasternal border; opening long, slit-like, transverse; no peritreme (but edges of slit slightly flared) or evaporative area. Ventral rim of ♂ genital capsule prolonged posteriorly (fig. 5-7); lateral margins of capsule slightly prolonged as a pair of "teeth." Aedeagus simple; vesica apparently absent; sperm reservoir large, well sclerotized. No trichobothria on abdominal sterna III and IV; some other trichobothria lost (see generic descriptions); trichobothria when paired arranged anteroposteriorly; trichobothrial cluster posterior and well medial to spiracle.

Included genera: *Saileriola* China & Slater, and *Ruckesona* n. gen.

Table 1. Hindwing venation in the Sailerolinae (Davis' 1961 terminology).

	<i>Saileriola</i>	<i>Ruckesona</i> (fig. 4)
Sc	—	—
R	+	+
M	+	+
hamus	—	—
Cu	—	+
antevannal (Leston 1953 terminology)	—	+, nearly to posterior cubital furrow
cubital furrow(s)	posterior only	posterior only
secondary veins	—	—
PCu	—	—
1A	—	—
2A	—	+

KEY TO THE SAILERIOLINAE

- Head with a median, well-defined sulcus on vertex (fig. 2); ocelli closer together than diameter of one ocellus ***Saileriola*** — 2.
Head without a median sulcus on vertex (fig. 3); ocelli separated by at least 3 ocellar diameters; Thailand ***Ruckesona vitrella****
- Head, pronotum, scutellum and clavus mahogany brown, strongly contrasting with hyaline corium and membrane; antennal I longer than head plus thorax; Borneo
..... *Saileriola sandakanensis* China & Slater
Entire insect deep yellow-brown, without contrasting color pattern; antennal I subequal to head plus thorax; Viet Nam ***Saileriola hyalina****

Genus *Saileriola* China and Slater

Head greatly declivent, long, greatest length (lateral) equal to width including eyes; vertex with a sharply defined deep median sulcus basally, with more shallow lateral sutures bearing punctures and extending from anterior limit of median sulcus around base of antenniferous tubercle; ocelli on a single raised tubercle or each on a separate tubercle; interocellar distance less than width of an eye; antennal segment I longer than or subequal to head plus thorax, III very short, about as long as broad; bucculae ending abruptly before base of head, diminishing or greatly increasing in height posteriorly, widest part about equal to thickness of antennal

* Described as new.

segment I at middle. Prothorax fairly well defined into anterior and posterior lobes; anterolateral margin explanate, crenulate or entire. Scutellum with bulbous swelling anteromedially, from which runs posteriorly a very low incomplete carina. No meso- or metasternal carina. Hemelytra impunctate on disc of corium; membrane with veins indistinct, about 5 present. Hindwing with 2 longitudinal veins (Table 1). Abdominal segment 2 with a spiracle (*vide* China & Slater 1956). Paired abdominal trichobothria absent from sterna III and IV; 1 on sternum VII; 2 each on sterna V and VI. Parameres elongate, curved (fig. 8).

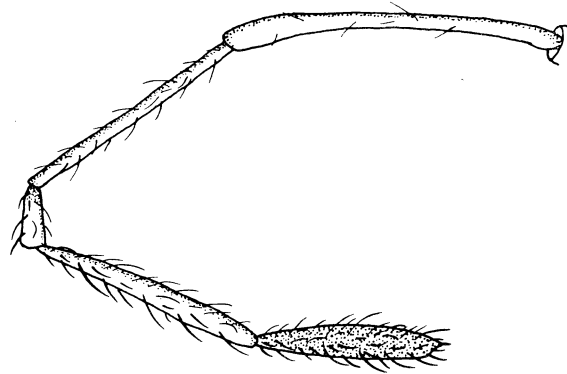


Fig. 1. Antenna of *Ruckesona vitrella*.

Type species: *Saileriola sandakanensis* China & Slater 1956; Monobasic.

Saileriola sandakanensis China and Slater

Head, thorax, scutellum, clavus, and coarse punctures on corium adjacent to claval suture and along inner margin of embolium bright mahogany brown. Corium and membrane hyaline. Antennae apparently smooth, without hairs. Body coarsely punctured as follows: head, thorax, scutellum basally and laterally, median basal portion of clavus, a single series on corium along claval suture and a 2nd series running through corium lateral to embolium. Ocelli on single tubercle, closer together than width of an ocellus. Antennal I longer than head plus thorax⁴. Bucculae greatly increasing in height posteriorly. Labial segment I extending to base of head; II to between mesocoxae; III onto abdomen; IV to sternum 4. Anterior border prothorax entire, with spine near posterior margin of anterior lobe, and another at lateral angle. Scutellar swelling moderate. Paramere long, strap-like, clavate (fig. 3a, China & Slater 1956).

Measurements: Table 2.

MATERIAL EXAMINED. 1 specimen (♂), SABAH (N. Borneo) Goman Tong Caves, 22-26.XI.1958, T. C. Maa (BISHOP).

Saileriola hyalina Schaefer and Ashlock, new species Fig. 2.

Head, thorax, and scutellum deep yellow-brown, except as follows: thorax darker anteriorly, darkening to clear brown anterolaterally on low lateral callus. Mid-scutellar carina pale; clavus darker; corium and membrane hyaline. Antennal I pubescent, pale yellow (II-IV missing). Legs pale yellow, lightly haired. Body coarsely punctured as follows: head, pronotum (except calluses), scutellum (except raised basal area, midline, and lateral margins), corium (punctures smaller); 2 lines of punctures on clavus, another line on corium adjacent to clavus. Ocelli on separate tubercles which together are borne on slightly raised area; interocellar dis-

4. The antennae of *S. sandakanensis* are figured but not described in the original description, and our only representative of the species is lacking all but the 1st 2 antennal segments. The 1st is described by China & Slater as "longer than length of head and pronotum combined," but in our specimen it is 1.5 mm long, nearly 1/2 as long as the entire insect itself!

Table 2. Measurements of adults of Sailerolinae (in millimeters).

	<i>Ruckesona vitrella</i> n. sp. (holotype ♂)	<i>Ruckesona vitrella</i> n. sp. (type series, ♂♂, 16 specimens)	<i>Ruckesona vitrella</i> n. sp. (type series, ♀♀, 8 specimens)	<i>Saileriola sandakanensis</i> China & Slater (based on 1 specimen)	<i>Saileriola hyalina</i> n. sp. (based on 1 specimen)
Total length	3.28	3.56 (3.28-3.84)	3.67 (3.44-4.08)	3.28	2.50
Head length: dorsal aspect	0.25	0.29 (0.25-0.35)	0.31 (0.28-0.38)	0.45(type ³ : 0.50)	0.40
Head length: lateral aspect	0.65	0.68 (0.65-0.73)	0.69 (0.65-0.72)	0.72(type ³ : 0.80)	0.75
Head width ¹	0.75	0.78 (0.75-0.83)	0.81 (0.78-0.82)	0.75(type ³ : 0.78)	0.73
Interocular width	0.48	0.49 (0.45-0.50)	0.50 (0.48-0.52)	0.45(type ³ : 0.48)	0.42
Pronotum width ²	1.80	1.86 (1.72-1.96)	1.96 (1.88-2.08)	1.44(type ³ : 1.43)	1.60
Pronotum length	0.68	0.70 (0.60-0.72)	0.72 (0.68-0.84)	0.52(type ³ : 0.50)	0.58
Scutellum length	0.72	0.73 (0.72-0.76)	0.78 (0.72-0.84)	0.56(type ³ : 0.62)	0.70
Apex clavus to apex corium	1.12	1.17 (1.08-1.24)	1.19 (1.04-1.28)	1.16(type ³ : 1.02)	1.08
Apex corium to apex membrane	0.48	0.57 (0.44-0.64)	0.56 (0.48-0.60)	0.62(type ³ : 0.50)	0.52
Antennal segment					
I	0.75	0.83 (0.75-0.85)	0.82 (0.80-0.88)	1.52	1.40
II	0.58	0.59 (0.58-0.63)	0.59 (0.58-0.60)	0.82	—
III	0.20	0.20 (0.18-0.23)	0.20 (0.20-0.22)	—	—
IV	0.58	0.61 (0.58-0.65)	0.62 (0.60-0.65)	—	—
V	0.55	0.56 (0.55-0.60)	0.58 (0.55-0.60)	—	—
Rostral segment I	0.25	0.24 (0.20-0.28)	0.25 (0.22-0.28)	0.25	0.30
II	0.25	0.23 (0.20-0.28)	0.25 (—)	0.40	0.42
III	0.22	0.28 (0.22-0.30)	0.30 (0.28-0.38)	0.50	0.28
IV	0.30	0.29 (0.25-0.30)	0.32 (0.30-0.38)	0.30	0.30

¹ between outer border of eyes² at widest point³ from China & Slater (1956)

tance 2.5 diameter of an ocellus. Antennal I subequal to head plus thorax. Bucculae diminishing in height posteriorly. Anterolateral border of prothorax slightly crenulate, without spines. Scutellar swelling very low. Labium short and thick, I reaching base of head, II just attaining mesothorax, III onto metathorax, IV just attaining abdomen. Paramere elongate, constricted in middle, not clavate (fig. 8).

Measurements of holotype: Table 2.

Holotype ♂ (BISHOP 8950), Viet Nam, 7 km SE of Dilinh (Djiring), 990 m, 2.V.1960, R. E. Leech.

Disposition of holotype: B. P. Bishop Museum, Honolulu, Specimen in poor condition, in glycerine in vial, genitalia in separate vial on same pin.

With respect to several characters *Saileriola hyalina* is intermediate between the other 2 species of the Saileriolinae; indeed, superficially, *S. hyalina* looks more like *Ruckesona vitrella* than it looks like its congener, *S. sandakanensis*. Nevertheless, we consider the characters it shares with *S. sandakanensis* (Table 3) to be more fundamental than those it shares with *R. vitrella*. We therefore prefer to include it in the former genus. More material is needed, however, both of *S. hyalina* and of *S. sandakanensis*, to determine if our provisional decision is the right one.

Genus *Ruckesona* Schaefer and Ashlock, new genus

Head moderately declivent, greatest length (lateral) less than width including eyes; vertex without median sulcus basally, with slight lateral sutures bearing punctures and curving from in front of each ocellus to anterior margin of antenniferous tubercle; ocelli on slightly raised tubercles, farther apart than width of an eye; antennal segment I longer than head but shorter than head plus prothorax, segment III short, about four times longer than wide; bucculae extending to near base of head, height uniform, less than thickness of antennal segment I at middle. Prothorax poorly defined into anterior and posterior lobes; anterolateral margin explanate, crenulate, crenulations more pronounced anteriorly, without acute projections, except

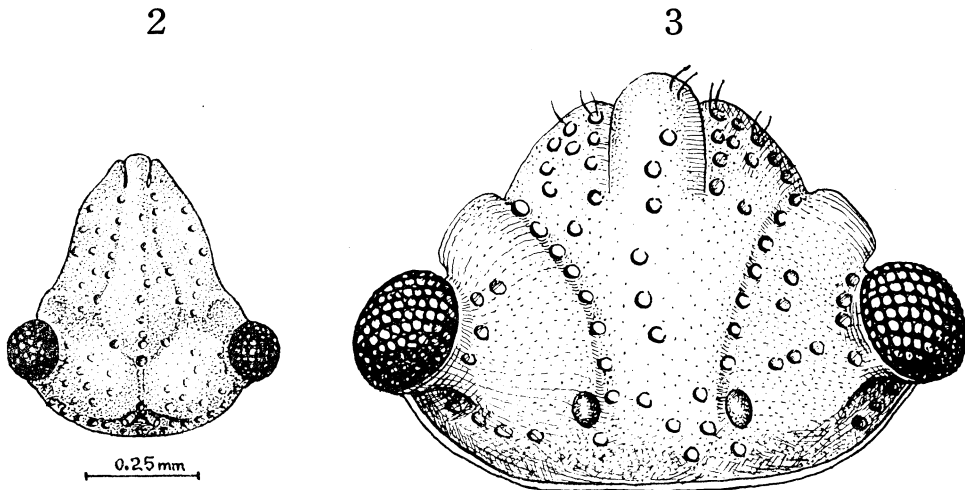


Fig. 2. Head of *Saileriola hyalina*. Fig. 3. Head of *Ruckesona vitrella*.

Table 3. Comparison of *Saileriola hyalina* n. sp. with other saileriolines
(Note: a check indicates *S. hyalina* resembles the condition
in the column checked).

	<i>Saileriola sandakanensis</i>	intermediate	<i>Ruckesona vitrella</i>	different altogether
head: sutures	X			
head: declivity	X			
interocellar distance		X		
ocellar tubercle		X		
length antennal I		X		
buccula	X			
prothorax	X			
prothorax: anterior margin		X		
scutellum			X	
coloration			X	
trichobothria	X(?)			
meso-, metasternal carina	X			
venation	X			
corial punctation				X
paramere				X
genital capsule				X
total length				X(smaller)
head length (lateral): body length				X
head length (lateral): head width	X			
head length (lateral): pronotal length	X			
head length (lateral): antennal I	X			

at lateral angle. Scutellum with low almost impunctate swelling anteromedially, from which runs posteriorly a low impunctate carina. Slight broad mesosternal carina; no metasternal carina. Hemelytra with punctures randomly spaced on disc of corium; membrane with veins indistinct, more than 5 present. Hindwings with 5 longitudinal veins (fig. 9, table 1). Abdominal segment II without spiracle. Paired abdominal trichobothria absent from sterna III, IV and VII; 2 each on sterna V and VI. Parameres short, straight, slightly clavate (fig. 9).

Type species: *Ruckesona vitrella* Schaefer & Ashlock, n. sp.

Diagnosis. *Ruckesona* n. gen. may most easily be distinguished from *Saileriola* by the absence of a medial vertex suture and the shorter antennal segment I in the former, and by the greater loss of veins in the hindwing of the latter,

This genus is named in honor of the late Herbert Ruckes, for whom we both had the greatest admiration and respect.

Ruckesona vitrella Schaefer and Ashlock, new species Fig. 3, 4, 9, 10.

Head, thorax, scutellum deep yellow-brown, except as follows: pair of clear brown calluses anterolaterally on prothorax, midline of scutellum with faint orange streak, clavus brown; corium

and membrane hyaline. Antennae lightly haired; I-III yellow, IV deep brown but yellow basally. Body coarsely punctured as follows: head, pronotum (except calluses), scutellum (except midline and raised basal area), corium; two rows of punctures on clavus, another row on corium adjacent to clavus. Labium thick, short, just attaining abdomen; segment I just reaching base of head, II onto mesothorax, III onto metathorax.

Measurements of holotype: Table 2.

Measurements of type series (including holotype): Table 2.

Holotype ♂ (BISHOP 8951), Thailand: NW, Chiangmai, Doi Suthep, 1278 m, 29.III.-4. V. 1958, Palm at water margin, T. C. Maa, No. 297. Paratypes: 14 ♂♂, 6 ♀♀, same data as holotype. 1 ♂, 1 ♀ (paratypes), Thailand, Chiangmai, Doi Suthep, 900 m, 14. XI. 1957, J. L. Gressitt. 1 ♀, Thailand, NW, Chiangmai, Fang, 500 m, 12 - 19.IV.1958, T. C. Maa, No. 390.

Disposition of holotype: B. P. Bishop Museum, Honolulu (No. 8951).

Disposition of paratypes: B. P. Bishop Museum, Honolulu; U. S. National Museum; British Museum (Nat. Hist.); Museum National d'Historie Naturelle (Paris); Collections of P. D. Ashlock, C. W. Schaefer, and J. A. Slater.

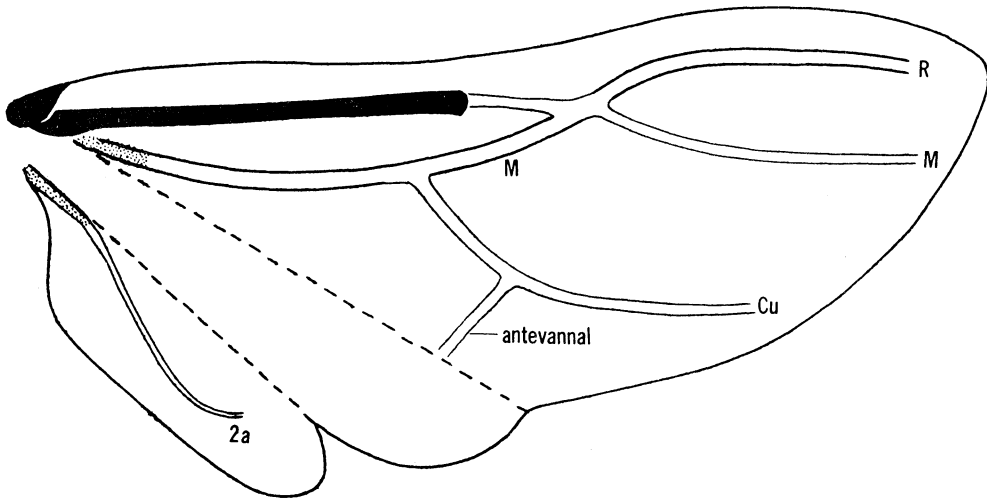


Fig. 4. Hindwing of *Ruckesona vitrella* (diagrammatic).

Ruckesona vitrella nymphs: 2nd and 5th instars were available. The specimens were somewhat shrivelled, particularly the 5th instars, and some measurements are approximate.

2nd instar (2 specimens): Body ovoid, impunctate. Head, antennae, and legs yellow-brown, tylus and juga darker. Thorax brown. Abdomen red laterally, more or less heavily suffused with brown medially. Eyes red. Lateral suture of vertex just discernible. Thorax deflexed, slightly explanate, not crenulate. Ecdysial line red, extending from base of head to abdomen, broadening posteriorly. Wing-pads very slightly developed. Scent-gland orifices indistinct, between 4th and 5th and 6th terga.

Measurements: Table 4.

MATERIAL EXAMINED. 1, Thailand: NW, Chiangmai, Doi Suthep, 1278 m, 29. III.-4. V.

Table 4. Measurements of nymphs of *Ruckesona vitrella* n. sp. (in millimeters).

	2nd Instar (2 specimens)	5th Instar (5 specimens)
Total length ¹	1.40 (1.37-1.42)	2.15 (2.00-2.30)
Head length: dorsal aspect	0.23 (-)	0.25 (0.22-0.30)
Head length: lateral aspect	0.38 (-)	0.55 (-)
Interocular width	0.39 (0.38-0.40)	0.48 (0.45-0.50)
Head width ²	0.52 (0.50-0.55)	0.70 (0.65-0.75)
Prothorax length	0.16 (0.155-0.165)	0.38 (0.36-0.40)
Mesothorax length	0.16 (0.155-0.165)	0.30 (-)
Metathorax length	0.088 (0.085-0.090)	0.12 (-)
Metathoracic wingpad length	—	0.62 (0.52-0.75)
Abdomen width	1.05 (-)	1.45 (1.30-1.58)
Antennal segment length:		
I	0.42 ³	0.65 (0.60-0.68)
II	0.30 ³	0.65 ³
III	0.32 ³	0.50 ³
IV	0.38 ³	0.50 ³
Rostral segment length:		
I	—	0.22 (-)
II	—	0.20 (-)
III	—	0.18 ³
IV	—	0.22 ³

¹ approximately corrected for curvature

² between outer borders of eyes

³ based on a single specimen

1958, Palm, at water margin, T. C. Maa. No. 297. 2, Thailand (NW), Doi Suthep, 1278 m, 29.III.-4.V.1958, Water margin, T. C. Maa.

5th instar (5 specimens): Head, legs, prothorax, and abdomen deep yellow-brown suffused

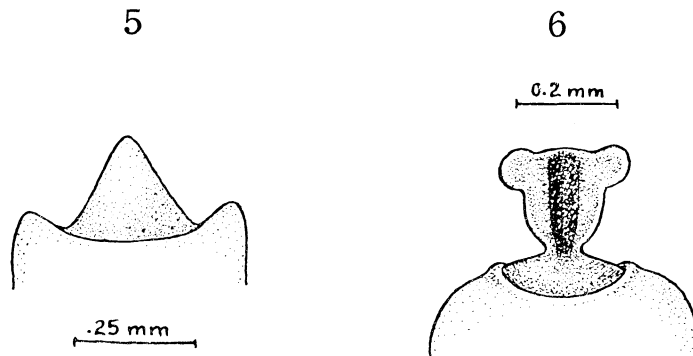


Fig. 5. Posterior border of genital capsule of *Saileriola sandakanensis* (dorsal view). Fig. 6. Same of *Saileriola hyalina* (dorsal view).

with darker brown. Pterothorax and wing-pads dark brown. Antennal segments I-III deep yellow-brown, I and II reddish distally, IV dark brown. Eyes brown-red. Tylus, spot on jugum, spot medial to each eye, dark brown. Anteroposterior division of prothorax perceptible. Ecdysial line visible, as a sulcus from base of head to abdomen. Thorax explanate, not crenulate. Lateral sutures of vertex present, without punctures. Wing-pads well developed, to 2nd abdominal tergum.

Measurements: Table 4.

MATERIAL EXAMINED. 5 specimens from Thailand, NW, Chiangmai, Doi Suthep, 1278 m, 29.III-4.V.1958, Palm, at water margin, T.C, Maa, No. 297.

Biology: Nothing is known of the biology of the Sailerolinae. A label attached to most specimens of *Ruckesona vitrella* reads "palm at water margin"; and microscopic examination of the green gut contents of both nymphs and adults reveals fragments of what appear to be chloroplasts. These insects apparently do not feed exclusively upon sap, but also take in chloroplasts, from the leaves and/or stems of palms.

Of specimens collected over roughly one month, only 2 were early instars, and 4 of the 5 5th instars appeared ready to eclose. This suggests a seasonal breeding time: if breeding were year-round, a wider variety of immature stages would be expected. Of course, this is a small bug, and the greater likelihood of collecting adults than young nymphs should be considered.

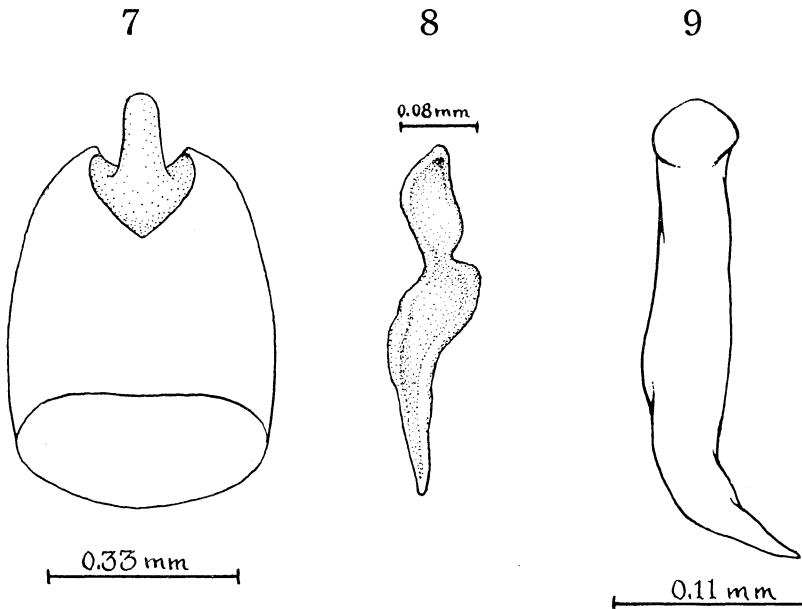


Fig. 7. Genital capsule of *Ruckesona vitrella* (dorsal view). Fig. 8. Paramere of *Saileriola hyalina*. Fig. 9. Paramere of *Ruckesona vitrella*.

DISCUSSION

Superficially, the Sailerolinae and the Urostylineae are not at all alike. Closer study,

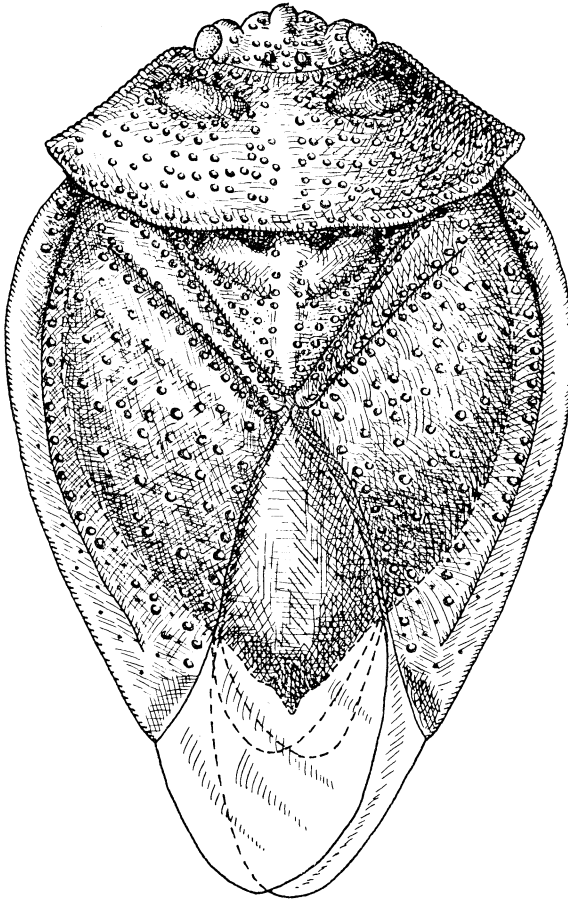


Fig. 10, Holotype of *Ruckesona vitrella*.

advanced, but we have no females of *Saileriola* with which to compare them.

Acknowledgements: We are grateful to Katherine B. Pique and Stephani Schaefer for the illustrations, to Mr Richard Allen for taking the measurements, and to the B. P. Bishop Museum (Honolulu) for the specimens upon which this study was based. We also thank Dr J. A. Slater (Biological Sciences Group, University of Connecticut) for reading the manuscript and for useful discussion. The work was supported by U. S. National Science Foundation grant GB-5985 (to C. W. S.).

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however, suggests that they may be related, and the reasons are discussed by China & Slater (1956). Briefly, members of the 2 subfamilies have in common the placement of the antennae (dorsal to the midline of the eye), the annulate antennifers, the proximity of the ocelli, the sutures of the vertex, and the general structure of the genital capsule. There are several important differences between the 2 subfamilies, particularly with regard to trichobothria and female genitalia, but a fuller account of the relationships of these groups is reserved for later.

With respect to only 3 characters can it be readily stated that *Ruckesona* or *Saileriola* is advanced. The former has lost all but 2 hindwing veins, and is more advanced in this regard, *Saileriola* retaining five (fig. 4, Table 1). Also, the loss in *Ruckesona* of the second abdominal spiracle, is an advanced character-state compared to the retention of this spiracle in *Saileriola*. However, *Saileriola* has lost the 7th sternal trichobothria and, with respect to this character, is the more advanced. There is no basis for deciding whether other differences are advanced or primitive. Some features of the *Ruckesona* female genitalia may be

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