

**SCHOENOTENINAE OF THE NETHERLANDS STARS
RANGE EXPEDITION 1959 TO CENTRAL NEW GUINEA
(LEPIDOPTERA, TORTRICIDAE)**

by

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With 18 text-figures

This paper is dedicated to Prof. Dr. L. D. Brongersma on the occasion of his 65th birthday.

During several collecting expeditions of later years by this museum to the former Dutch New Guinea, organized and directed by Dr. L. D. Brongersma, a considerable number of Microlepidoptera has been collected upon my request. Among these a special place occupy the Schoenoteninae, a characteristic group of the Tortricidae, chiefly confined to New Guinea and Australia.

The somewhat turbulent history of the Schoenoteninae has been aptly summarized by I. F. B. Common (1965). The definitive assignment of the subfamily has been much hampered, chiefly by the three following features: (1) the isolated position of the present group, as compared with other subfamilies of the Tortricidae, with regard to the structure: neuration, absence of ocelli, roughly scaled fore wing, etc.; (2) the evidence of their being a very natural group — and at the same time, (3) the extraordinary diversity of the male genitalia. Described as a family (Diakonoff, 1952), the Schoenoteninae were sunk to the rank of subfamily (Common, 1958), and later to that of a tribe of the subfamily Chlidanotinae (Diakonoff, 1960).

In the course of later years new facts came to light, allowing a reconsideration of the systematic position of the group.

The steadily increasing number of Lepidopterous families, without distinct indications of their mutual relationships and true systematic position, threatened to form a handicap for the study of the systematics in this order of insects. Probably owing to this course, a tendency has been noticeable among the students of Lepidoptera to lower the existing taxa gradually. In the present case, however, I am satisfied that an inverse course should be followed: the group at issue should be returned to the subfamilial rank, Schoenoteninae, allied with, but independent of the Chlidanotinae. This latter taxon is comparatively little known and therefore still rather enigmatic. But my recent,

as far unpublished study of this peculiar group, brings me to the conviction that it forms a distinct, long searched for connection between the superfamily Tortricoidea and some exotic representatives of a group, currently indicated by the name Choreutinae, and considered a subfamily of the Glyphipterygidae. I hope to return to this concept at another place.

The following features drastically and sufficiently separate the Schoenoteninae from all other Tortricidae: (1) absence of ocelli; (2) termination of the median branch (stem of the media) in the fore wing *above* the origin of vein 5 (M_3); and (3) the genital characters of the two sexes. The assumption that Schoenoteninae may be related to the chiefly Palaearctic tribe Cnephasiini (Common, 1958) is, in my opinion, incorrect. Furthermore, I am now satisfied that the forms from Madagascar, assigned by me to the present group, are, in fact, Tortricinae.

Returning to the present material, it has been collected, if not otherwise indicated, in the, before 1959 unknown, territory of Central New Guinea, viz., Stars Range, either at the Base Camp, Ok Sibil, at 1250 m above sea level, or at diverse bivouacs, as indicated below. The specimens have been collected at light, chiefly by Dr. L. D. Brongersma, Dr. W. Vervoort and Mr. C. van Heijningen, but incidentally also by other members of the Expedition.

There have been collected 14 species of the Schoenoteninae, belonging to ten different genera. Of these one genus and 12 species proved to be new to science. Two more species, collected in other parts of New Guinea have been described in the Appendix.

The material is deposited at the Rijksmuseum van Natuurlijke Historie at Leiden, Netherlands.

Neotenes astromontana spec. nov. (fig. 1)

♂ 14 mm. Head whitish touched with creamy. Palpus long, over twice diameter of eye; white, median segment suffused with grey from above, except lower edge and tip; terminal segment long, slender, pointed. Thorax creamy, anteriorly touched with very pale tawny. Abdomen white.

Fore wing oblong-suboval, moderately broad, costa curved, apex obtusely pointed, termen gently sinuate, oblique. White, hardly touched with greyish, towards base with a faintest creamy suffusion. Costa with about eight round, slightly suffused slaty-grey dots, alternating with minute grey points, all about equidistant; very pale and ill-defined grey marbling over entire wing; jet-black sparse scales forming following markings: an irregular larger spot towards base below costa; a little oblique series of 4-5 points at about 1/5 of wing; an oblique outwards-convex line from 1/5 of costa to dorsum beyond

middle, mixed with grey and broadly interrupted: between vein 12 and radial, below median and well above dorsum; a third, more oblique line of black points from below costa at 2/5, reaching to upper edge of cell; indica-



Figs. 1-2. Male genitalia, holotypes. 1, *Neotenes astromontana* spec. nov.; 2, *Stenotenes aspasia* spec. nov.

tion of a larger grey suffusion below $3/4$ of costa; grey marginal dots on ends of veins around and in apex. Cilia white.

Hind wing and cilia snow-white.

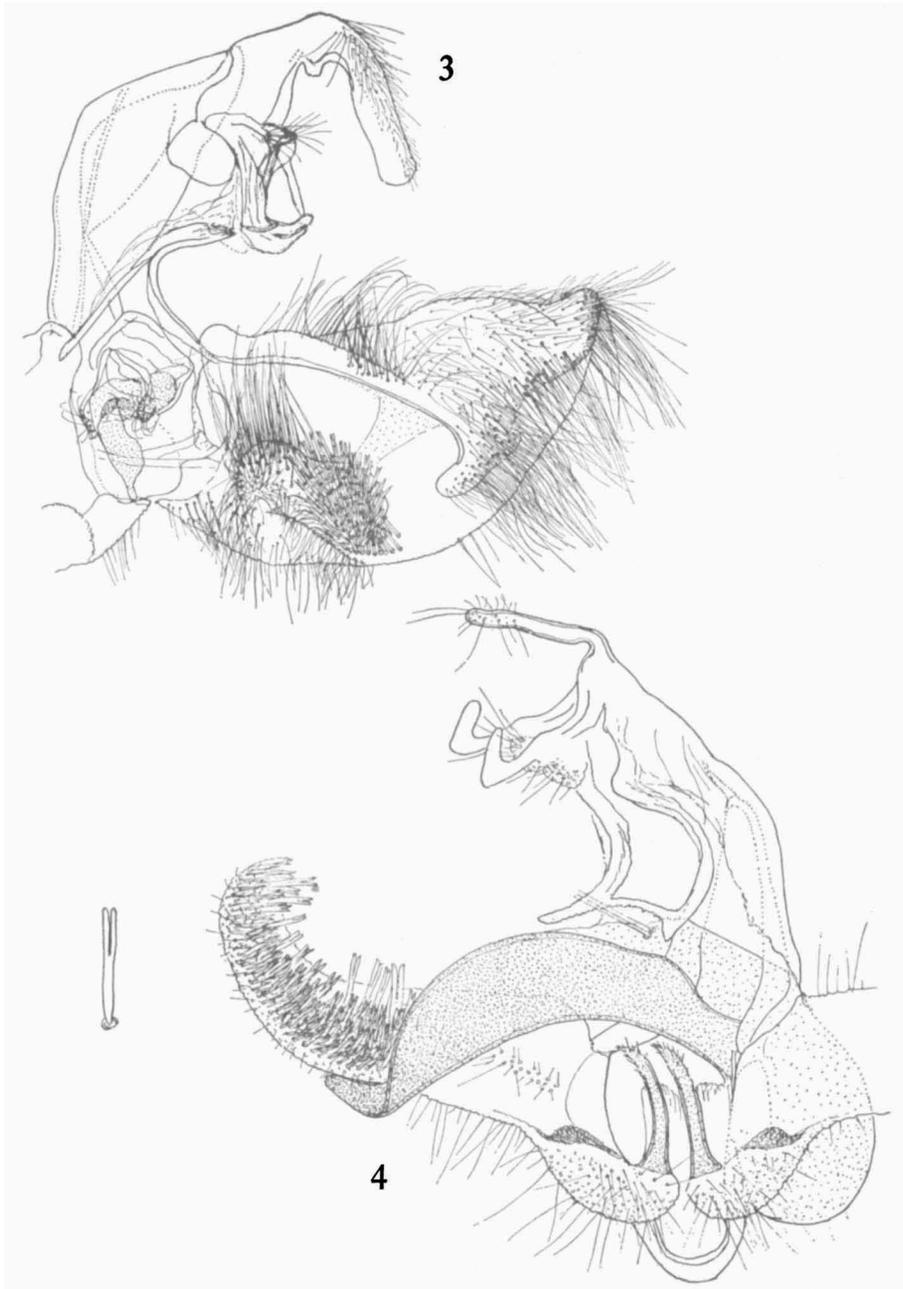
Male genitalia. Tegumen short, conical. Uncus distinctly sclerotized, a semicircular base with 3-4 long bristles on each side dorsally (broken in mount) and two flat and slightly out-curved apical horns, directed forward (ventrad); basal plate of uncus with a round submembranous knob on each side; horns scalloped towards top on inner side. Socius parietal, small, laterad from base of horn. Valva narrowed, concave at base; sacculus prominent, towards apex with bifid spines, with a triangular basal process; costa with simple spines. Cucullus oblong-oval, moderately curved. Aedeagus strong, sclerotized, top split lengthwise, right point long and slender, acute, coecum hyaline.

Stars Range, Bivouac 40, 2350 m, 18.vii.1959, 1 ♂, holotype, genit. slide 8417. Allied to the type-species, *N. canescens* Diakonoff, from the Snow Mountain Range.

Stenotenes aspasia spec. nov. (fig. 2)

♂ 13-14 mm. Head creamy. Palpus creamy, laterally, except tops of segments, suffused with blackish. Thorax creamy, anterior half suffused with black. Abdomen white, with a creamy tinge.

Fore wing oblong-oval, rather narrow, costa curved throughout, more so at extremities, apex obtusely pointed, termen straight, oblique. Creamy, finely strigulated transversely with irregular, sub-zigzag pale tawny lines; costa towards base with three rather approximated round black dots, edged with pale tawny; costa from before middle to apex with six larger similar dots, gradually becoming smaller and more approximated posteriorly; first of these spots preceded and followed by two minute transverse black marks; second to last spots alternating with a single such mark; ultimate spot apical; base of wing, except towards edges, more suffused with pale tawny-greyish; some irregular black markings well below costa and above dorsum at $1/5$ of wing, indicating edge of basal patch; central fascia just beyond $2/5$, spindle-shaped, (ends rounded), interrupted above middle and constricted in fold; pale greyish-tawny, irregularly edged and dusted with black, median fourth entirely black, with concave upper edge; a vertical series of three round dots of greyish-tawny suffusion, finely edged with black dusting, from sixth costal spot to dorsum before tornus (beyond $2/3$ of wing), lower two spots interconnected, last spot slightly shifted posterad; an oblong subterminal, similarly coloured spot, from vein 7 to 4; a very narrow interrupted marginal black line. Cilia creamy with a submedian series of black dots.



Figs. 3-4. Male genitalia, holotypes. 3, *Cornuticlava heijningeni* spec. nov. ; 4, *Rhabdotenes dicentropa* spec. nov., with, left, a furcate bristle, more enlarged.

Hind wing paler, white with pale golden gloss. Cilia concolorous.

Male genitalia. Tegumen cylindrical, slender. Uncus narrow, little hooked, socius very small, parietal. Gnathos, an oval porrected plate from base of tegumen, pointed top denticulate, before top erect, cup-shaped and cylindrical, sclerotized tuba analis. Transtilla strong, trapezoidal. Vinculum very large, higher than tegumen and uncus, base truncate; a second transtilla, inverted-V-shaped, ventrad from first. Valva higher than broad, membraneous; sacculus $2/3$, sclerotized, top with acute cusp, from its base a long slender harpe, running basad; cucullus small, narrowed, but distinct; costa short, supported by a sclerotized fold, top knob-like, with a dense group of clavate, asteroid bristles. Aedeagus thin, long and angulate, apical half slender, undulate; cornuti, one large spike and a patch of very dense, hair-like, curly(?) bristles.

Stars Range, Ok Sibil, 1260 m, v.1959, 1 ♂, holotype, genit. slide 8399; the same, 2.v.1959, 1 ♂, paratype (without abdomen). Allied with the type-species. An interesting and welcome addition to this remarkable genus.

Cornuticlava heijningeni spec. nov. (fig. 3)

♂ 17 mm. Head white, vertex pale fuscous. Palpus white, strewn with blackish scales, basal half blackish. Thorax white, slightly suffused fuscous (imperfect). Abdomen cream-coloured.

Fore wing oblong, dilated, costa slightly curved, apex moderately rounded, termen gently convex, oblique. White with a creamy gloss, markings grey-fuscous. Basal third of costa suffused with grey and marked with four indistinct blackish marginal spots, a subcostal spot opposite third costal; faint transverse suffusion before $1/3$, indicating edge of basal patch; a semioval suffused patch on middle of costa, including two blackish marginal dots, preceded and followed by one such spot; terminal third of wing with the usual four rather irregular spots, arranged in a lozenge: costal, subapical, largest, suboval, with three marginal darker dots; an oblong spot beyond cell, a transverse irregular spot before middle part of termen, and a slightly inwards-oblique transverse mark on end of dorsum; a series of small longitudinal marks along termen, between ends of veins; irregular rather extended grey-fuscous clouding along dorsum, tending to become transversely fasciate. Cilia whitish with a submedian series of grey-fuscous dots.

Hind wing glossy white, posterior half with a faintest grey marbling, being sparse grey dotting of underside showing through. Cilia white.

Male genitalia. Tegumen moderately long, sclerotized, dilated. Uncus strong, hooked, top oblong-truncate. Socius, a sclerotized short knob. Gnathos with thick, moderately long, sinuate arms, at base rounded-prominent above,

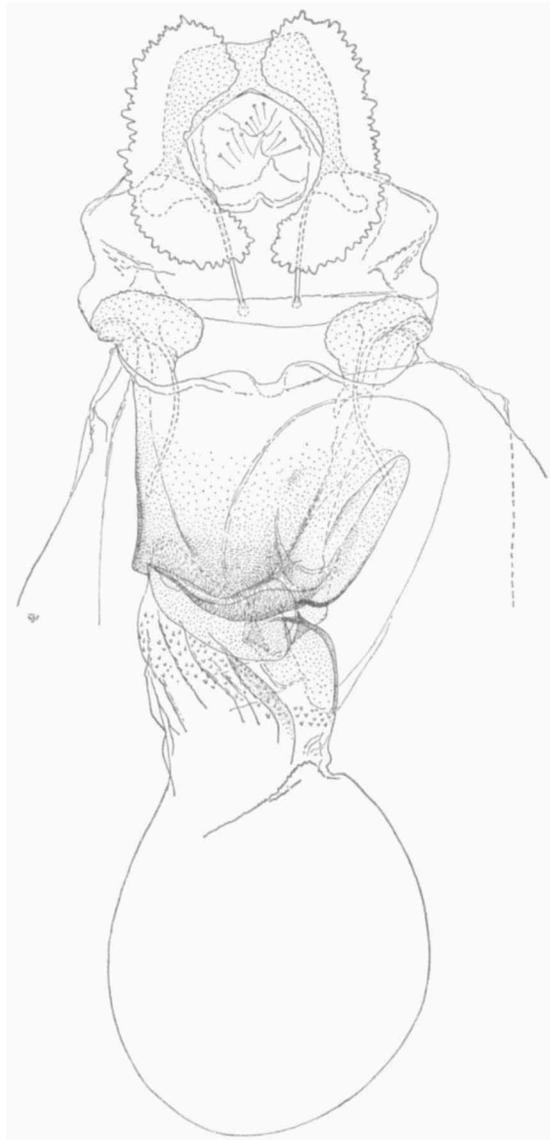


Fig. 5. Female genitalia of *Rhabdotenes dicentropa* spec. nov., allotype.

top with three flat transverse sclerites. Transtilla inverted-Y-shaped, strongly sclerotized, but slender. Valva with costa curving over disc as a triangular flap, with anterior edge thickened and ending in a free process, curved basad; posterior edge of costa long-bristled; sacculus short, forming a double, strongly bristled tumescence. Aedeagus very short.

Stars Range, Bivouac 40, 2330 m, 18.vii.1959, 1 ♂, holotype, genit. slide 8410. The single specimen has the anterior half of both fore wings rather defaced, but the genitalia are very distinct. Apparently related to the type-species, *C. chrysoconis* (Diakonoff), from Snow Mountain Range, but quite distinct by the colouring and the genitalia.

Dedicated to Mr. C. van Heijningen, head technician of the museum, zealous collector of insects during the Expedition.

Schoenotenes pallida Diakonoff

Diakonoff, 1954: 51, fig. 45(♀). — 1960: 54.

Distribution. Snow Mountain Range, Iebele River, 2250 m.

Stars Range, Bivouac 39a, 1500 m, 1♀, genit. slide 8416. Also from: Northeast New Guinea, Eastern Highlands District, Kubor Range, Nono-Minj Divide, Wimba, 1950 m, vii.1963 (W. Vink leg.), 1♀, genit. slide 8425. The species is very characteristic by the large and stiff double broad collar around the ovipositor. The males are still unknown and the generic position of the species, therefore, remains uncertain.

Rhabdotenes dicentropa spec. nov. (figs. 4-5)

♂ 16 mm, ♀ 18 mm. Head white, collar suffused with grey except at base. Palpus white, median segment with a dark grey spot on middle of upper edge, extended into a blackish lateral suffused patch, terminal segment with blackish base. Thorax white, patagia suffused with grey. Abdomen creamy-white.

Fore wing suboval, moderately broad, costa curved throughout, least in middle, most before apex, apex obtusely angular, termen straight above, rounded beneath, moderately oblique. White, touched with creamy, markings dark slaty-grey. Costa with ten irregular roundish spots, alternating with minute subcostal points; first and second spots more or less interconnected into a larger spot; numerous transverse strigulae or single dark grey scales regularly scattered over wing, less distinct in cell; first discal stigma large, round or oval, over lower half of cell at 1/3 of wing length, sometimes darker-edged; second discal stigma just beyond cell, at 2/3 of wing length, round, larger, sometimes reduced to light dusting or absent; a slender, more or less interrupted, slightly sinuate line from eighth costal spot, furcate below middle, usually anterior leg detached, ends to end of dorsum and to middle of tornus, respectively; a slender, spindle-shaped, subvertical mark before upper third of termen, connected with ultimate costal dot; sometimes this mark extended and forming together with lower parts of preceding lines a subterminal fascia from apex to tornus. Cilia white with some eight grey dots in a submedian series, upper dot touching apical edge.

Hind wing and cilia glossy snow-white.

Male genitalia. Hami triangularly hooked. Socii rather thick, distinctly prominent. Gnathos with projecting angles and serrulate middle part. Valva slender, narrowed and curved; sacculus thickened at base and with an obtuse process; cucullus with bifid spines along thickened lower edge. Anellus lobes long, slender, flattened, edge serrulate towards pointed top. Aedeagus huge, sclerotized, a smooth corrugated sclerite, with pointed and curved top, directed to the right.

Female genitalia. Eighth tergite forming a wide, moderately high and in middle constricted collar. Bases of anapophyses dilated into transverse large bodies with subserrulate surface. Ostium wide. Lamella antevaginalis extended, with twice-sinuate edge, notched in middle. Colliculum very wide, truncate-funicular, at base with peculiar sclerotized folds, projecting at the right side. Cestum, a broad sclerotized ring, separated from colliculum by a constriction. Corpus bursae small, subspherical.

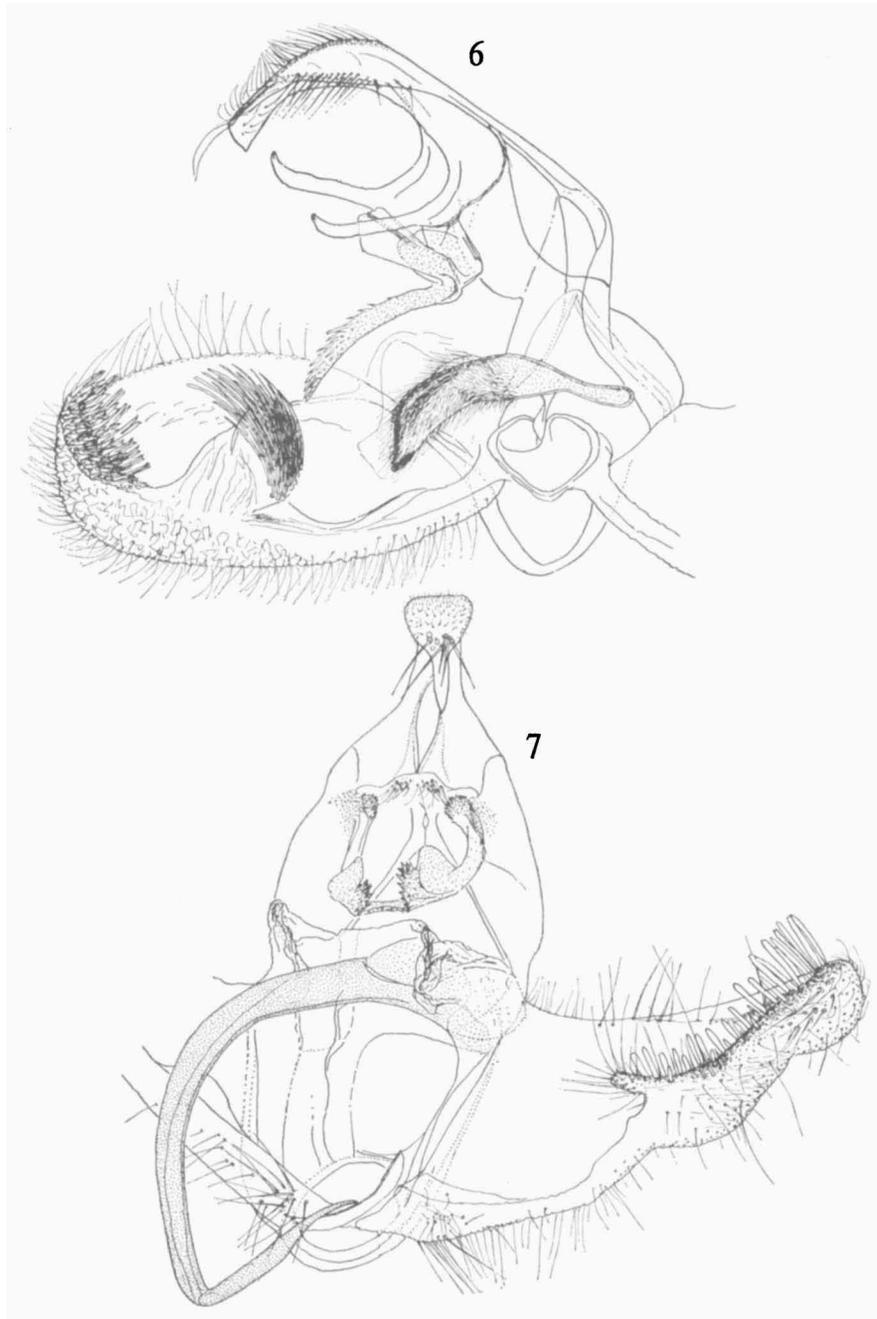
Stars Range, Ok Sibil, 1260 m, vi.1959, 1 ♂, holotype, genit. slide 8402; paratypes: the same locality, 2, 11 and 21.vi.1959, 3 ♂, genit. slides 8422, 8408, 8421, respectively; the same, 25.iv.1959, 1 ♂, genit. slide 8603; the same locality, 21.vi.1959, 1 ♀, allotype, genit. slide 8423. Closely allied to *R. arachnodes* (Diakonoff), from the Wissel Lakes, but smaller and distinct by genitalia.

Female differing only by the costal dots being slightly darker than other markings.

Camptenes vervoorti spec. nov. (fig. 7)

♂ 18 mm. Head and thorax creamy, speckled with light brown. Palpus long, little dilated; creamy, median segment except base and tip, light brown, terminal segment with a brownish median band. Abdomen greyish-white.

Fore wing oblong-suboval, costa curved throughout, more so towards base, apex subobtusate, termen hardly sinuate above, almost straight, oblique, short-rounded below. Intense cream-colour with a gently golden gloss, markings light brown, along costa grey-fuscous. Anterior half of costa with six grey-fuscous dots alternating with minute transverse strigulae, anterior four larger, wedge-shaped, following small; posterior half of costa with five larger round dots, posteriorly becoming slightly smaller, similarly alternating with minute costal marks; first of these spots median, preceded and followed by double small marks; an oblique short band of ferruginous-brown suffusion from second costal dot, to upper edge of cell, continued by two fuscous round spots in an oblique series across lower half of cell; an irregular rather narrow streak of light brown suffusion from 1/4 of costa towards end of dorsum, but not exceeding fold, with anterior edge



Figs. 6-7. Male genitalia, holotypes. 6, *Brongersmia polytropha* spec. nov.; 7, *Campotenes vervoortii* spec. nov.

well defined and scalloped, posterior edge indefinite; an obliquely triangular small patch on middle of costa not reaching cell; a very faint dilated streak of sparse brownish speckling, curving downwards beyond end of cell; some brown marbling below posterior fourth of costa; a suboval fasciate subterminal spot, followed by a submarginal row of dots; terminal edge narrowly dark, with small marks on ends of veins; dorsum faintly marbled with light brown, forming a denser patch at 1/4. Cilia creamy-white a submedian row of brownish dots.

Hind wing and cilia glossy snow-white.

Male genitalia. Tegumen and uncus sclerotized, uncus hooked, top abruptly produced into an acute point. Socius small, subparietal. Gnathos strong, U-shaped, bases projecting and denticulate, each arm with a suboval rising lobe, followed by a dentate plate. Transtilla, a broad semiannular band with vertical lateral ridges. Valva quickly narrowed, colliculum sclerotized, ventral edge with a basal process and strong spines posteriorly. Aedeagus slender and very long, curved and at apical fourth angulate.

Stars Range, Bivouac 40, 2350 m, 29.vii.1959, 1 ♂, holotype, genit. slide 8405. Allied to the type-species, *C. beryllodes* (Diakonoff) comb. nov., differing by the shape of gnathos, by single-pointed uncus, minor differences of genitalia and by colouring.

Dedicated to Dr. W. Vervoort, member of the Expedition and zealous collector.

Brongersmia gen. nov.

With the external characters of *Schoenotenes* Meyrick, 1908, but considerably differing by the specialized male genitalia.

Tegumen moderately sclerotized, narrowed. Uncus strong, hooked, median part slightly dilated and spoon-shaped, apical part narrow, concave below, top truncate; strong submarginal rows of bristles, two longer subapical bristles. Hami strong, porrected, tops curved upwards and pointed. Socii below the bases of hami, very small round tumescences. Gnathos complicated, with a median, rather short part with a pair of inner, sclerotized, oblong-oval porrected processes and an outer part of similar processes, but more hyaline and longer; point of gnathos single, porrected and drooping, acute and spinose over upper surface. Transtilla slender, rising-triangular. Valva oblong-oval, concave; costa thickened, sacculus with a large elevated process at top, anteriorly with a patch of dark bifid spines; cucullus at apex with a similar, inwards-concave rounded process, clothed with bifid bristles. Aedeagus moderate, with posterior half densely haired, top down-curved, coecum penis rather long, narrowed and clavate.

Lobi anales strong, corrugated and bristly. Eighth segment sclerotized, with strongly plicate (probably expansile) wall, conical sterigma inverted-trapezoidal, similarly plicate. Ostium bursae cylindrical, orifice with a flat ring; lamella antevaginalis proper with a broad median gully, flanked by elevated ridges; at the proximal end of this, a pair of oval sclerites behind the lamella and a large V-shaped sclerotized and aciculate plate over the lower part of sterigma, with chalice-shaped inner folds. Ductus bursae simple. Corpus bursae oval, signum small, a subhyaline oval sclerite.

Type-species, *B. polytropa* spec. nov.

A form, apparently intermediate between *Campotenes* Diakonoff, with similarly complicated gnathos but also with long hami and double harpes, and *Barygnathella* Diakonoff, with similarly double harpes, but with very short or obliterate hami. The dentate process of gnathos is unique.

***Brongersmia polytropa* spec. nov. (figs. 6, 9)**

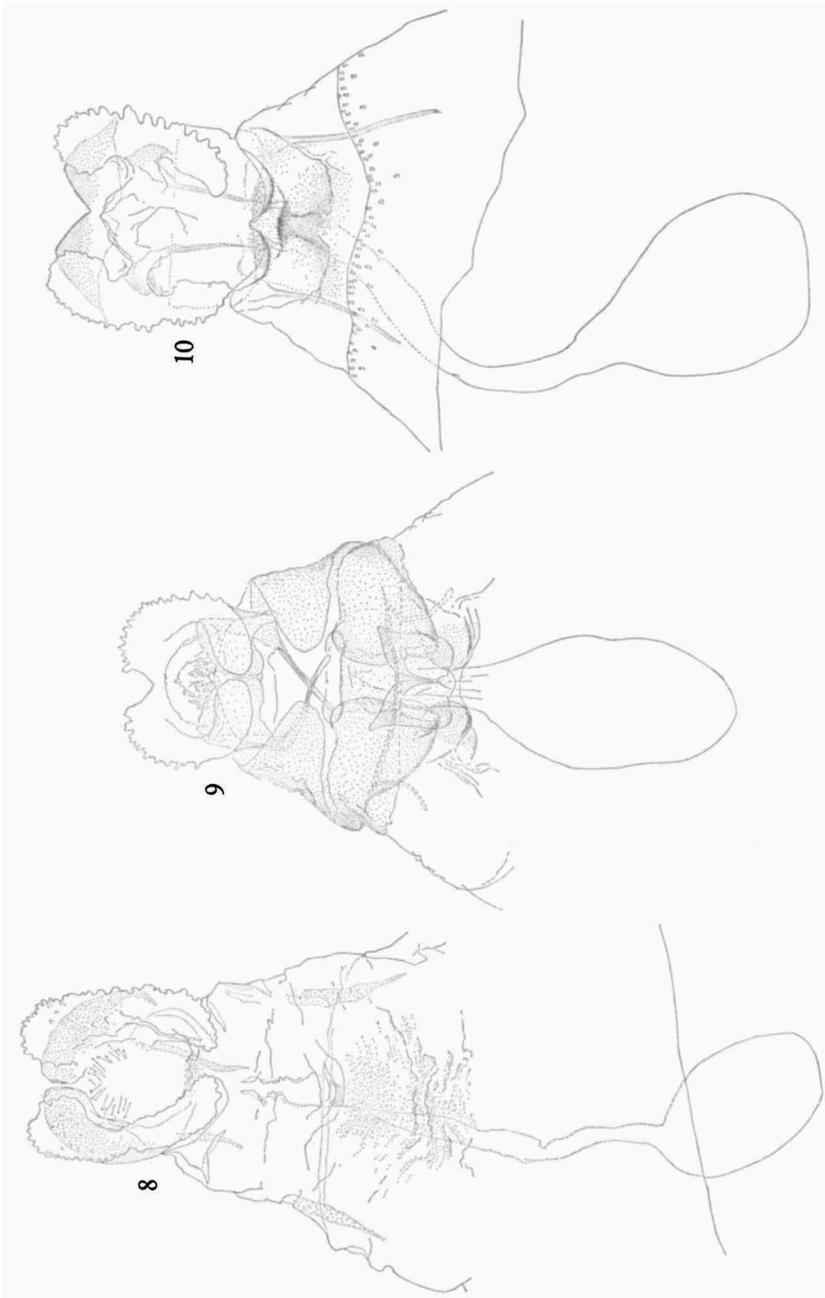
♂ 16 mm. Head white, face creamy, vertex with a thick pale grey tuft parted by white. Palpus white, median segment suffused fuscous, upper edge of this and of terminal segment except its tip, dark grey. Thorax white, along middle and on tegulae slightly suffused with slaty-grey. Abdomen white.

Fore wing oblong-suboval, costa curved, apex rounded, termen straight above, rounded beneath, oblique. White, scales along veins roughly raised; markings dark grey, somewhat paler in disc and towards termen. Wing dusted with minute grey points and sparsely strewn with roundish dots and fragments of marbling; extreme base of costa with a pale fuscous dot, followed by two oblique streaks of black dusting, a small black dot between these; a rounded spot on middle of costa, paler below; costal spot darker and larger than preceding, erected-subsemicircular, including a white costal dot and with short irregular appendages, below and posteriorly, respectively; terminal spot erected, spindle-shaped, almost touching costal spot, below with a slender stalk to tornus; disc with some round dots on anterior half, more or less arranged in three longitudinal series; a moderate T-shaped mark across middle of cell; discal patch large, paler grey, erect-oval, below narrowly connected with a slender vertical mark in tornus; dorsum moderately suffused with grey; apex and termen narrowly edged with dark grey. Cilia pure white, with a series of submedian dark grey small dots.

Hind wing and cilia glossy white.

Male genitalia, as described with the genus above.

♀ 14-18 mm. Similar to the male, markings variable, being diversely extended; sometimes entire wing rather retinate with pale grey (slide 8430), or markings paler grey, terminal spot cut by a little oblique line of ground



Figs. 8-10. Female genitalia. 8, *Barygnathella prosecta* spec. nov., holotype; 9, *Bromgermia polytropha* spec. nov., allotype; 10, *Barygnathella plagiosona* spec. nov., allotype.

colour, so forming two subparallel spindle-shaped marks. In defaced specimens most markings, except costal, quickly disappear altogether.

Female genitalia, as described with the genus above.

Stars Range, Ok Sibil, 1260 m, 4-21.vi.1959 and 8.viii.1959, 1 ♂, holotype, genit. slide 8400, 1 ♀, allotype, genit. slide 8430; 11 ♀, paratypes, genit. slides 8415, 8418, 8419, 8420, 8424, 8427, 8428, 8429.

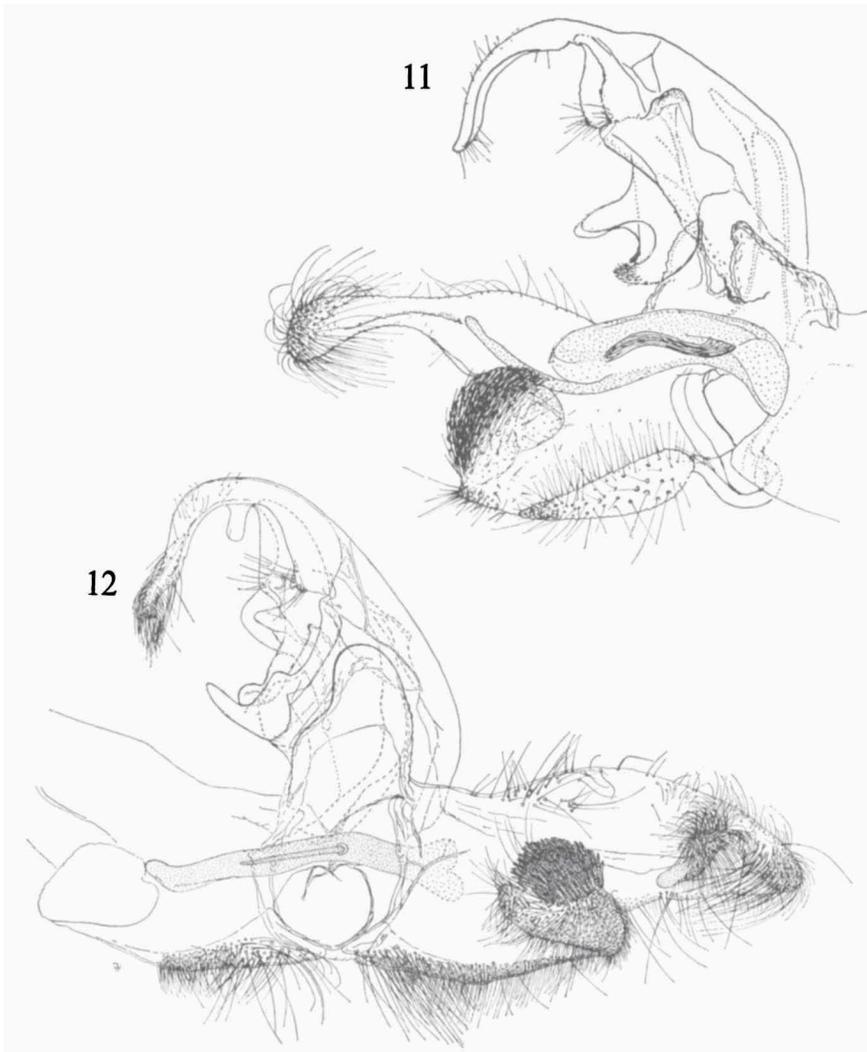
Barygnathella pulverulosa spec. nov. (fig. 11)

♂ 18-20 mm. Head blackish-fuscous mixed with white. Palpus brownish, mixed with white. Thorax grey mixed with white. Abdomen whitish, infuscated and glossy, paler towards base.

Fore wing oblong-subtriangular, costa curved, strongest towards base, apex rather pointed, termen long, oblique, sinuate. White, densely marbled with grey, so as to reduce the ground colour mostly to roundish spots of diverse size. Markings deep purplish-fuscous. Costa suffused throughout over halfway cell, and as far as end of vein 10; a white slender semi-circular mark at $1/3$, another at $2/3$ of costa, the second preceded and followed by a marginal white dot. Basal third of costa darkly suffused as far as upper edge of cell and containing a couple of subcostal white dots beyond base; posterior $2/3$ of costa from well beyond preceding suffusion to end of vein 10 similarly dark, thus forming the base of a costal triangle, irregular top of which rests on closing vein and lower angle of cell as a roundish irregular spot; centre of triangle occupied by blotches of ground colour, interrupting middle third of anterior edge of patch; a small white marginal dot beyond and before costal angles of patch, respectively, and a subcircular white costal mark beyond its middle; a small dark costal dot before apex, connected with an irregular subterminal fasciate patch not quite reaching tornus; an irregular prostrate-V-shaped mark in disc beyond base, top posterad, legs connected with costal and dorsal suffusion, respectively, top followed by an obliquely-transverse dark spot at $2/5$, below middle of disc; numerous oblique transverse strigulae forming moderately dark marbling along dorsum and interconnecting all markings, so as to obscure them; a slightly raised white round spot just before lower angle of cell. Cilia white, lower half with broad pale fuscous bars ending in black marks which are arranged in a submedian series.

Hind wing, vein 3 from before angle, 3 and 4 separate; pale fuscous-grey, darker towards apex, tornal half glossy, whitish.

Male genitalia. Very similar to those of *B. anthracospila* (Diakonoff), but differing by a longer and more slender uncus and by rather heavier and



Figs. 11-12. Male genitalia, holotypes. 11, *Barygnathella pulverulosa* spec. nov.;
12, *B. phanerosema* spec. nov.

thicker gnathos with shorter median processes; cornutus shorter, less pointed and sinuate.

Stars Range, Bivouac 42, 3400 m, 16.vii.1959, 1 ♂, holotype, genit. slide 8403.

Very near *B. anthracospila* (Diakonoff), from Snow Mountain Range, from 3250 to 3800 m altitude. This group of species truly belongs to the high mountain fauna.

***Barygnathella phanerosema* spec. nov.** (fig. 12)

♂ 17-18 mm. Head creamy, mixed with pale vinaceous on vertex. Palpus light vinaceous-brown with whitish lower edge, terminal segment purplish with white tip. Thorax creamy-white, collar and shoulder touched with vinaceous. Abdomen pale creamy-ochreous.

Fore wing oblong-subtriangular, costa curved anteriorly and before apex, apex pointed, termen sinuate, oblique, rounded beneath. White with faintest cream tinge, more than anterior $\frac{3}{4}$ pale vinaceous, becoming deep fuscous-vinaceous posteriorly. Costa along dark part with ten deep vinaceous-fuscous dots, those along posterior half of costa larger and wedge-shaped; a quadrate mark on middle of costa, indicated by deep purple narrow edge, dilated in angles; broad posterior, deep vinaceous edge of dark area represented by the three anterior of the four lozenge-forming spots which are confluent, well-defined posteriorly; this edge shaped as a W on its side; median costal mark connected by a purple curved line with this edge above its middle; elsewhere dark area marbled with deeper vinaceous (paratype with a semioval median costal spot and an oval larger patch in centre of wing — apparently rubbed in holotype); dark fuscous marbling along dorsum, concentrated into a darker patch at $\frac{1}{4}$ of dorsum; white terminal area speckled, with deep vinaceous, and marked with the same colour, as follows: costa with two subtriangular dots, ultimate apical, subterminal spot conspicuous, obliquely pear-shaped, slightly below middle; a marginal row of subconfluent triangular dots on ends of veins. Cilia creamy-white, with strongly suffused purplish dots in submedian series.

Hind wing creamy-white, glossy, towards angle faintly marbled with pale grey, a darker suffused grey dot on costa before angle, a minute point in apex. Cilia glossy, creamy-white.

Male genitalia. Tegumen sclerotized, with triangularly projecting shoulders. Uncus hooked, long, top slender, truncate, a median ventral process. Socius very small, parietal. Gnathos strong, arms broad, gradually dilated, point single; before this, a semioval lobe along upper edge. Transtilla erected-oval, high. Valva with costa prominent, a hairy harpe subapical, with a sclerotized basal process. Sacculus over $\frac{1}{2}$, more sclerotized, top with a constricted oval knob crowned with round patch of dark bifid spines. Aedeagus slender, rather straight, with a subsinuate obtuse top; cornutus, a single straight dagger.

Stars Range, Bivouac 40, 2350 m, 19.vii.1959, 1 ♂, holotype, genit. slide 8404; the same, Ok Sibil, 1260 m, 28.vii.1959, 1 ♂, paratype. Superficially resembling *B. rhodantha* (Diakonoff) from Snow Mountain Range, 2800 m

(wing expanse 23 mm), described after a single female, but much smaller, with markings duller grey-fuscous.

Barygnathella acrogonia (Diakonoff)

Schoenotenes acrogonia Diakonoff, 1954: 67, figs. 437, 453, 454.
Barygnathella acrogonia; Diakonoff, 1960: 63.

Distribution. Snow Mountain Range, Lake Habbema, 2600-3200 m.

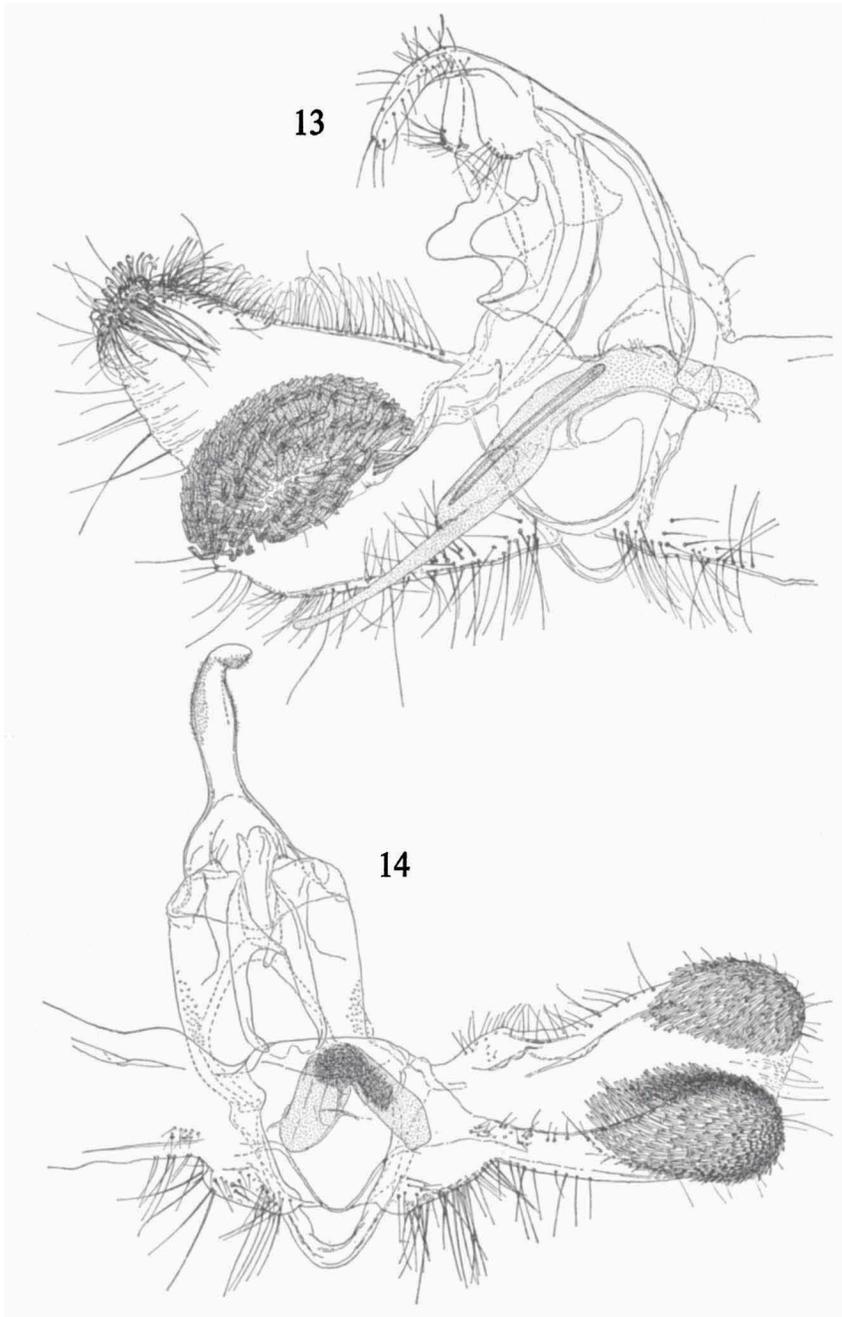
Stars Range, Bivouac 40, 2350 m, 18.vii.1959, 3 ♂, genit. slide 8409. Similar to the typical material, but smaller, with costal spot more extended posteriorly by greyish suffusion.

Barygnathella plagiozona spec. nov. (figs. 10, 13)

♂ 15 mm. Head creamy, mixed with fuscous-brown. Palpus fuscous-brown, basal, and base of median segments, creamy. Thorax creamy, densely mixed with purplish-brown. Abdomen pale grey or pale greyish-white.

Fore wing oblong-truncate, little dilated, costa moderately curved at extremities, straight in middle, apex moderately pointed, termen hardly sinuate, straight, oblique. Creamy, with a silky gloss, markings dark fuscous-vinaceous or purplish. Basal patch over 1/4, indicated on upper third only by a grey suffusion with four blackish marks on costal edge; outer edge of patch indicated by an angulate series of blackish, raised round dots, from 1/6 of costa, obliterate above dorsum; a similar shorter row of dots beyond base; central fascia indicated by a slightly inwards-oblique, gently narrowed band, occupying median fifth of costa and limited by fold, rather light fuscous with a vinaceous tinge; this band marked with blackish-purple thus: two oblong spots on costal edge and a wedge-shaped patch of raised scales, from below costa to below fold, wedge narrowed to half of width of fascia along median third of disc, conspicuous, a thick raised tuft just above fold; anterior edge of central fascia notched at upper 1/3; costal spot formed by ill-defined fuscous suffusion, accentuated by several blackish dots along its margins, largest on upper edge, lower edge outwards-oblique; anterior spot ill-defined, connected by transverse strigulae with supraternal and sub-terminal spots, both of which are dissolved in one or two transverse short and dark streaks; more transverse interrupted strigulating and dotting occupying terminal and apical parts of wing; terminal edge narrowly fuscous. Cilia whitish, sprinkled with faint fuscous dots.

Hind wing with veins 3 and 4 short-stalked; glossy creamy-white, apical and costal half becoming dull and faintly marbled with very pale grey. Cilia creamy-white.



Figs. 13-14. Male genitalia, holotypes. 13, *Barygnathella plagiozona* spec. nov.;
14, *Epitrichosma aureola* spec. nov.

Male genitalia. Resembling those of *B. argentea* Diakonoff, but uncus longer and more slender, top distinctly but shortly bifid. Gnathos much larger, with larger median processes, top ladle-shaped, not denticulate. Transtilla high, with much smaller median notch. Valva rather similar, but top more rounded, harpe at top of sacculus larger. Aedeagus shorter but its apical process longer. Cornutus, one straight, long spine.

♀ 19 mm. Similar to the male but denser marbled throughout with grey-fuscous. Basal patch more distinctly suffused, its edge less angulate; central fascia brighter, tinged ferruginous, its dark wedge reaching costal edge above, fascia below with a slender purple strigula to dorsum beyond middle; posterior markings formed by faint purplish-grey suffusion but dark-edged, edges of tornal spot continued to costa, irregularly outcurved above.

Hind wing glossy pale grey, cilia paler.

Female genitalia. Lobi anales paired, anterior pair broad, with angular tops, longer than posterior pair of lobes. Sterigma rather broad, inverted-trapezoidal, upper edge of lamella antevaginalis folded ventrad and forming a flat band with a median prominence, concave on each side of this; convex aciculate field below this edge, covering a median longitudinal impression with aciculate surface; lamella postvaginalis small, hyaline and aciculate. Ductus bursae in middle with longitudinal striation. Corpus bursae spherical and simple.

Stars Range, Bivouac 40, 2350 m, 17.vii.1959, 1 ♂, holotype, genit. slide 8406; the same, 18.vii.1959, 1 ♀, allotype, genit. slide 8407 and 1 ♂, paratype, genit. slide 8412.

Barygnathella prosecta spec. nov. (fig. 8)

♀ 15 mm. Head very pale vinaceous-ochreous. Antenna more ochreous. Palpus long, gradually curved downwards beyond middle, porrected; pale vinaceous-ochreous, outwardly suffused with brownish, except tips of segments. Thorax pale tawny-fuscous. Abdomen pale ochreous.

Fore wing oblong, rather narrow, costa curved at base, less so towards apex, apex angularly obtuse, termen almost straight, little oblique above, short-rounded below. Glossy yellowish-white, sparsely strewn with dull pale fulvous or pale tawny transverse blotches, not forming transverse strigulae; these blotches becoming dark fuscous towards apex; markings fuscous-black: a slightly outwards-oblique straight fascia at 1/5 of wing, with distinctly dilated extremities; three conspicuous spots arranged in a triangle, anterior spot on middle of costa, semioval, largest; lower, on upper angle of cell, oval, posterior irregular, well before angle, followed by three grey costal dots; the last spot emitting an almost continuous vertical tawny-fuscous

little zigzagged line from its posterior lower angle, to dorsum before tornus; a similar, shorter line before termen. Cilia yellowish-white, with a submedian row of very indistinct grey points.

Hind wing paler than fore wing, glossy, paler towards base, cilia concolorous.

Female genitalia. Lobi anales rather long and slender, dilated above, with a finely aciculate lower lobe, below and behind each anal lobe. Sterigma membranous; ostium, a very small vertical split with moderate elevated edges; from middle of ostium a slender horizontal fold on both sides, another, finer fold above this; lamella antevaginalis membranous, with prominent middle of lower edge and concave sides. Anapophyses rather broad and short, acutely pointed. Ductus and corpus bursae simple, corpus bursae spherical.

Stars Range, Bivouac 40, 2350 m, 19.vii.1959, 1 ♀, holotype, genit. slide 8401. A characteristically coloured and marked species. Its true position cannot be ascertained without males.

Epitrichosma Lower

Epitrichosma Lower, 1908: 320. — Fletcher, 1929: 83. — Diakonoff, 1939: 214 (syn. of *Schoenotenes*). — Common, 1965: 686.

Type-species. *Epitrichosma neurobapta* Lower, 1908 (Australia).

The present genus is closely allied to the preceding by having similar valva and general facies of the insects, being usually small, with rather narrow, oblong-rounded fore wings, with raised and thickly scaled veins upon naked wing membrane; the last mentioned character, however, is not quite constant.

The differences with *Barygnathella* Diakonoff are as follows: narrower fore wing, with a narrower and more pointed cell, with vein 2 originating from well beyond $2/3$ of lower edge of cell and vein 3 from far before angle of cell, while in *Barygnathella* the neuration of the fore wing is similar to that of *Schoenotenes* Meyrick, viz., vein 2 from before $2/3$, vein 3 from angle.

The male genitalia differ in having an extended gnathos of different shape: while in *Barygnathella* it is a diversely developed, V-shaped hook, the arms with median or submedian flat processes, in *Epitrichosma* the gnathos is H-shaped, the median processes, usually small and pointed, points more or less intertwined, the unpaired median transverse rod is entirely concealed behind the vertical lateral bars and usually invisible; the lateral rods are parallel, so that the gnathos has a paired appearance, as against that in *Barygnathella*.

I am satisfied that, except the two species described below, also two more, formerly assigned to *Barygnathella*, actually belong to the present genus:

Epitrichosma mellosa (Diakonoff, 1956): 649 (♂♀, Snow Mountain Range, N. Guinea), comb. nov., and

Epitrichosma helioconis (Diakonoff, 1948): 519 (♂♀, Sumatra), comb. nov.

Superficially the species of *Epitrichosma* are recognizable by small size, olive-green or yellowish tinge and thickly scaled veins of the fore wing, raised above the naked and hyaline membrane of the wing. This peculiar scaling, although characteristic for many small species of the Schoenoteninae (e.g., *Diactenis*, *Proactenis*, etc.) is not confined to the present subfamily, certain representatives of the Tortricinae, Carposinidae and Copromorphidae also often being similarly scaled. As chiefly species of small size are concerned, (except for the Copromorphidae), the scaling may have some ecological explanation.

Epitrichosma aureola spec. nov. (fig. 14)

♂ 12.5 mm. Head light ochreous, face paler. Palpus light ochreous, terminal segment pale ochreous. Thorax light ochreous. Abdomen normally scaled, rather dull pale golden-yellow, with deep ochreous-golden reflections.

Fore wing suboval-truncate, little dilated, moderately broad, costa curved throughout, more so anteriorly, apex obtusely pointed, termen gently convex above, broadly rounded beneath; less than basal half of costa with a fold of appressed long scales, rather thick and brushy anteriorly; veins thickened with roughly raised scales; pale ochreous, except towards base and terminal sixth, suffused with brighter yellow-ochreous. Costa throughout suffused with this colour; an oblong-subtriangular light fuscous spot on costa beyond base, indistinctly continued across wing by fuscous-brownish dusting, so as to form a regularly curved broad edge to basal patch ending on 1/4 of dorsum; a suffused light fuscous transverse fascia from middle of costa, gently dilated downwards and regularly curved to second fourth of dorsum, along this connected with preceding fascia; median third of posterior edge projecting to 4/5 of wing and entirely including patch beyond cell and that above tornus; costal patch ill-defined in right wing, in left wing indicated by its narrow, ferruginous edge, subquadrate; posterior half of right wing with five black marginal dots, becoming more approximated and smaller posteriorly (obliterate in left wing); pretornal spot large and rounded, touching lower third of termen below; termen with minute blackish marginal

strigulae on ends of veins; all markings more or less accentuated by dark brown dusting (being apical halves of scales). Cilia glossy pale ochreous with dull basal half.

Hind wing with discoidal vein between bases of 5 and 6 inwards-angulate, a median branch from angulation perceptible almost to base. Veins 3 and 4 and 6 and 7 connate, respectively; thinly clothed with hair-like scales, semi-hyaline, all veins thickened and raised with scales, except along margins and on dorso-tornal third of wing which is evenly covered with normal, smooth, yellow-ochreous scales, opaque; all veins between cell and marginal fifth orange, raised; costa and termen smooth, glossy pale yellow-ochreous, opaque. Cilia glossy light golden-ochreous, basal half deeper ochreous-yellow.

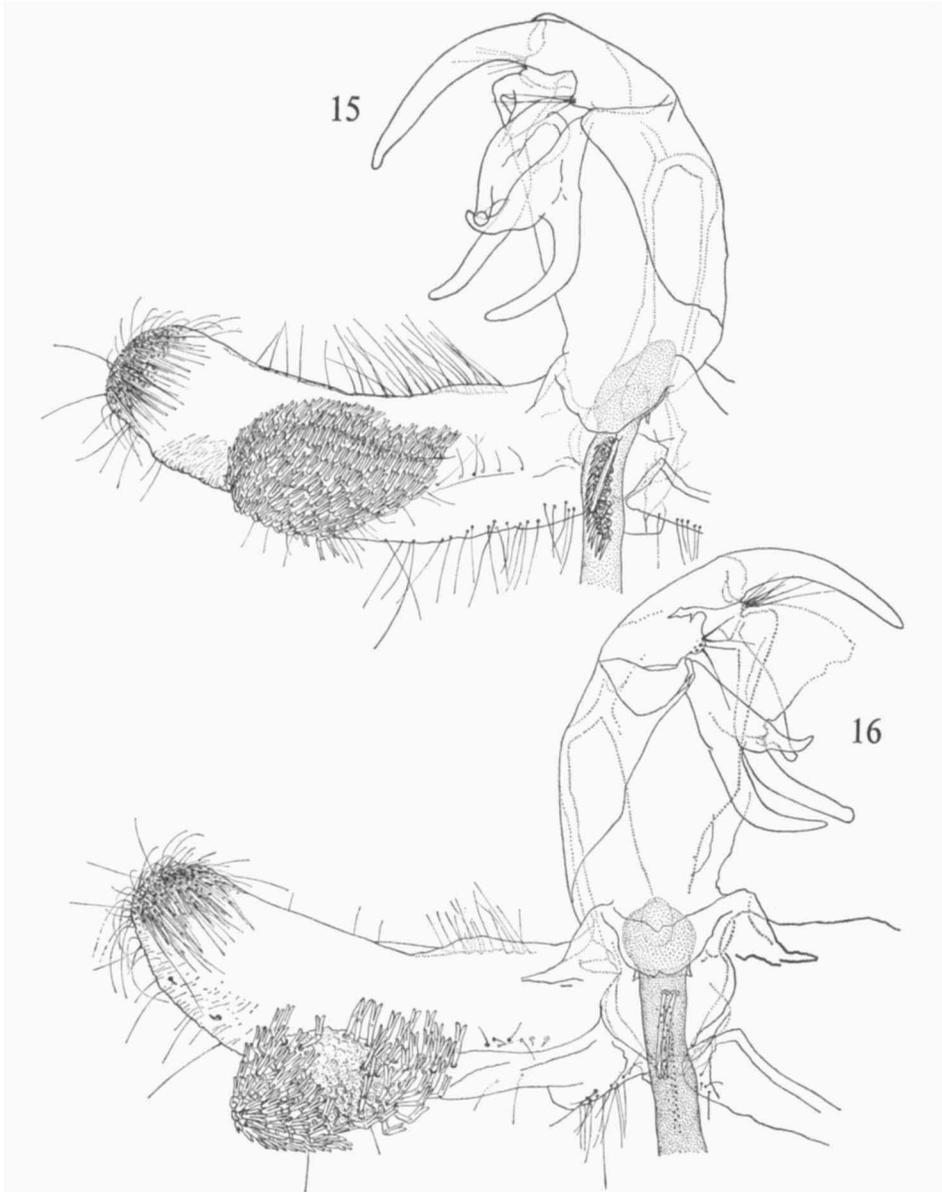
Male genitalia. Uncus at base narrower than top of tegumen, its hook curved only towards top, dilated in middle, with finely punctulate surface; socii very small, rigid knobs. Gnathos with a broad horizontal basal part, upon middle of which the separate arms, each with a triangular knob at base and a long slender and pointed pending part with a moderate sub-triangular process above middle of inner edge. Transtilla, a simple, slightly down-curved band. Valva truncate, each costa and sacculus with a thickened edge, terminating in a thick, densely bristled harpe. Aedeagus moderate, rather curved, with a very dense patch of small and thin cornuti.

Stars Range, Ok Sibil, 1260 m, 2.vi.1959, 1 ♂, holotype, genit. slide 8397. Apparently nearly allied with *E. metreta* Common, from Queensland and New Guinea, Amazon Bay, but differing by the shape of the uncus (a simple hook in that species, not dilated in middle, nor narrowed at apex), by normally scaled abdomen and by the absence of any olive or green tinge (not due to discoloration, because I received the specimen soon after capture, in quite fresh condition).

***Epitrichosma lira* spec. nov. (figs. 15, 16)**

♂ 10-13 mm. Head creamy-white, vertex with faint tawny-olive tinge. Palpus creamy, median segment, except base and tip, dark fuscous, terminal segment fuscous. Thorax creamy, suffused with pale fuscous and speckled with darker, shoulder fuscous. Abdomen very pale yellowish or greyish-olive.

Fore wing oblong, rather narrow, slightly dilated, costa gently curved at extremities, straight in middle, apex pointed, termen slightly rounded, oblique. Creamy-white, roughly scaled, all veins being thickly clothed with slightly raised scales. Basal patch to 1/5, edge slightly inwards-oblique: suffused with fuscous and mixed with pale olive-green, strewn with a few



Figs. 15-16. Male genitalia of *Epitrichosma lira* spec. nov. 15, holotype; 16, paratype, genit. slide 8398.

blackish, raised dots; an oblong-semioval narrow, moderate, dark brown spot on 2/5 of costa, connected below with an irregular patch of well-defined blackish irroration in middle of disc, anterior edge continued by a slender

streak to middle of dorsum; a pale fuscous-purplish marbling or suffusion filling out space between basal patch and above-mentioned dark markings, which represent central fascia; a narrowed patch of pale olive-green suffusion along posterior half of costa, with four dark brown roundish costal dots; a pale brown fifth dot before apex; an outwards-oblique and gently outwards-convex band of pale fulvous suffusion from below $2/3$ of costa to tornus, speckled with dark brown along lower third; a round, dark brown terminal spot, moderate but well-defined; the whole wing finely marbled or strigulated with minute fulvous transverse strigulae. Cilia creamy, with a submedian row of faintest tawny points.

Hind wing creamy-white with a bright golden gloss, middle of disc with faint pinkish reflections. Cilia yellowish-white.

Male genitalia. Uncus moderate, gradually narrowed, but top abruptly pointed. Socius, a small triangular process. Gnathos with arms slender, pending, curved at $2/3$, with porrected acute points, median processes large, broad at base, extreme base constricted, tops gradually pointed, directed submesad and entangled. Transtilla, a U-shaped band, with robust triangular extremities. Valva with cucullus rather rounded, with a moderate patch of bristly hairs, sacculus with a large apical harpe. Aedeagus slender, pistol-shaped, basal half broader. Cornuti, a long sheaf of dense curved spines, and one to two long, straight spines.

Stars Range, Bivouac 40, 2350 m, 18.vii.1959, 1 ♂, holotype, genit. slide 8411. Ok Sibil, 1260 m, vii.1959, 2 ♂, paratypes, genit. slides 8398 and 8595. Probably closely allied with *E. metreta* Common, but differing by the male genitalia and the superficial characters: absence of a hairy fold along base of costa of the fore wing, normally haired abdomen, etc.

Saetotenes (Saetotenes) metagrapha (Diakonoff)

Diakonoff, 1954: 50, fig. 429 (*Schoenotenes*). — 1960: 58 (*Saetotenes*).

Distribution. Snow Mountain Range, 1200-1800 m.

Stars Range, Base Camp, Ok Sibil, 1250 m, 12.vi.1959.

APPENDIX

Descriptions of two schoenotenid species follow here, originating from localities in New Guinea other than those of the Stars Range Expedition.

Rhabdotenes vinki spec. nov. (fig. 17)

♂ 17 mm. Head pale grey (imperfect), face white. Palpus white, median segment except tip and base, pale grey. Thorax pale ochreous (imperfect). Abdomen white.



Figs. 17-18. Male genitalia, holotypes. 17, *Rhabdotenes vinki* spec. nov.; 18, *Saetotenes (Anthophalodes) atresta* spec. nov.

Fore wing oblong-suboval, rather broad, costa curved at base and apex, apex obtuse, termen curved, oblique. Pure white, sparsely marbled and dotted pale grey. Markings along costa, dark grey, in disc, pale grey tinged olive, finely edged with darker grey. Anterior half of costa with seven dark dots of diverse size: three small at base, fourth: a larger transverse blotch, centred with pale olive, except on costa and connected with a similar oval longitudinal spot along upper edge of cell; an irregular prostrate lozenge-shaped spot below this, in and below fold; fifth costal dot small; sixth moderate, seventh larger, connected by some dark dotting below costa with a faint pale grey-olive curved moderate fascia, running very oblique to upper angle of cell, thence dilated, to dorsum before tornus, convex posterad; this fascia formed of a series of round spots of diverse size, dark-edged and more or less contiguous, on lower half of wing becoming olive-yellowish; posterior half of costa with six dark grey dots, first minute, other equal and equidistant, ultimate apical; a large, oval, pale grey-olive spot in disc beyond $2/5$, obliterate on upper half, and some longitudinal grey marbling between this and fold; subterminal spot large, yellowish-olive, anterior edge slightly scalloped; a series of suffused grey dots between this and termen; some irregular grey marks below posterior fourth of costa; dorsal edge dotted with grey. Cilia white, less than lower half with pale grey-olive bars, ending in small black transverse marks, in a submedian line.

Hind wing and cilia glossy snow-white.

Male genitalia. Similar to those of *R. croceosema* (Diakonoff) but easily discriminated by the longer uncus, much shorter, wrinkled and not haired socii, a triangular, dentate process at the base of sacculus, the basal lower angle of cucullus strongly produced and beset with long, truncate spines, and aedeagus more slender, with an extremely long and slender apical point and a small subapical spine.

Northeast New Guinea, Eastern Highlands District, Kubor Range, Nono-Minj Divide, Wimba, 1950 m, 27.viii.1963 (W. Vink leg.), 1 ♂, holotype, genit. slide 8426. Related with *R. croceosema* (Diakonoff), from Wissel Lakes Region, Central Western New Guinea and from Snow Mountain Range.

Dedicated to the collector, Dr. W. Vink, Botanist of the Rijksherbarium, Leiden, Netherlands.

Saetotenes (Anthophalodes) atresta spec. nov. (fig. 18)

♂ 15 mm. Head white touched with fuscous on vertex. Palpus white, median segment with an oblique suffusion laterally, upper edge dark fuscous,

terminal segment with dark fuscous upper edge. Thorax glossy silvery-white. Abdomen glossy white.

Fore wing oblong, little dilated, costa curved, more so at base, apex moderately pointed, termen gently sinuate, oblique. White with a silky gloss, with numerous short transverse dark grey strigulae, anteriorly slightly outwards-oblique and tending to form two parallel but distant transverse lines, well beyond base and beyond $1/5$, respectively, posteriorly strigulae short, vertical, costa with a grey suffusion at base and some ten small suffused dark grey spots; median spot larger, blackish, with some dark grey dotting below costa, extending in an ill-defined patch to well before apex; a dark brown oblique narrow band from $2/5$ of costa to middle of dorsum, linear and interrupted, ill-defined along upper half, lower half broader, distinct, rather spindle-shaped, in middle with a large round, much raised tuft of orange scales (in fold); a smaller similar tuft before $1/3$ of fascia; a third, very faint orangeish tuft on upper angle of cell; a small patch of orangeish suffusion just below fold from beyond base; some vertical strigulae on dorsum, a slender and irregular preterminal spindle-shaped spot, narrowly connecting eighth costal dot with tornus, blackish; a dark grey small subapical strigula. Cilia white, with traces of small dark dots (imperfect).

Hind wing and cilia glossy snow-white.

Male genitalia. Uncus robust, hooked, top clavate, with a short point below and a pencil of bristles above. Socius small, parietal. Gnathos rather short, V-shaped, arms with short subapical lobes, top with a small, densely dentate plate. Transtilla, a moderate band, together with triangular erect labides, long-aciculate. Valva oval, sacculus simple at base, top with a large prominence covered with long flat spines, at the inside emitting a long, curved and hooked furcate spine; costa thickened, with a sheaf of smooth dense bristles curved downward over disc. Aedeagus small, sinuate, coecum turned up, top down; cornutus, one slender long spine.

Northeast New Guinea, Marobo District, Wau, 1200 m, 10.i.1967, in Malaise trap, 1 ♂, holotype, genit. slide 8365. Allied to the other two known species, from Snow Mountain Range; a welcome addition to this interesting subgenus.

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