

DESCRIPTIONS OF NEW GENERA AND SPECIES OF THE  
SO-CALLED GLYPHIPTERYGIDAE SENSU MEYRICK, 1913  
(LEPIDOPTERA)

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With 49 text-figures

In the course of a revision of the so-called family Glyphipterygidae sensu Meyrick, 1913, for the series "Microlepidoptera Palaearctica", several new taxa came to light. In order to facilitate the edition of the revision and to publish these new taxa without further delay, they are being described below. Using this opportunity, descriptions of non-Palaearctic new taxa are being added.

The whereabouts of the type-specimens are indicated at the end of each description. The author is greatly obliged to the authorities of the museums concerned, for the loan of the material, and for the permission to keep some duplicates for the collection of the Leiden Museum.

The figures have been made by the artists, Messrs. A. C. M. van Dijk, The Hague, and J. Wessendorp, this museum, and some by the author.

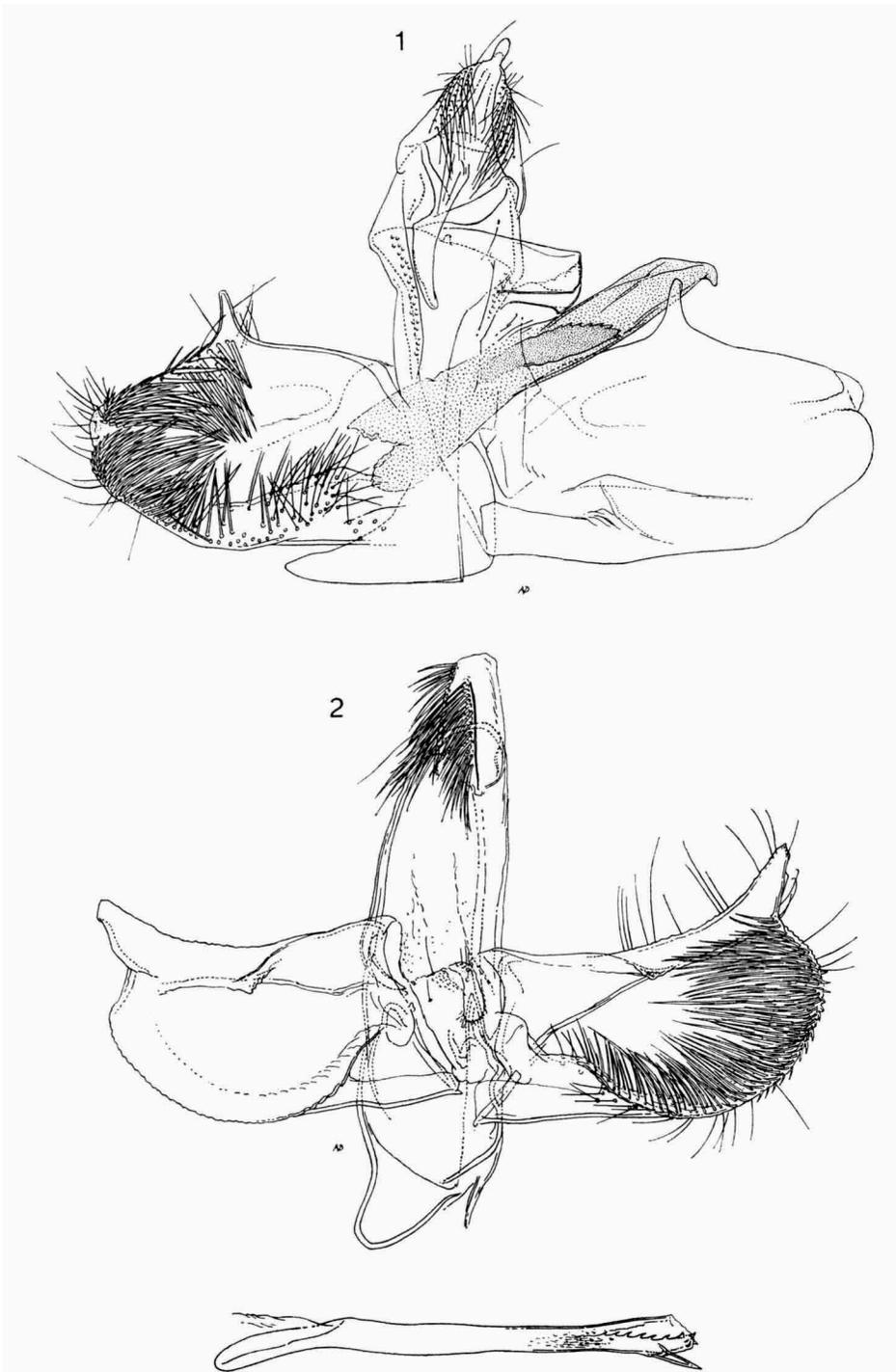
CHOREUTIDAE

**Anthophila dischides** spec. nov. (fig. 1)

(δισχιδής = divided)

♂ 13 mm. Head light glossy fuscous, face below pale grey, vertex dusted with pale ochreous. Antenna dark fuscous, pale-ringed, ciliations 1. Palpus rather long, curved and ascending; fuscous, basal segment white, median segment with a submedian and an apical white ring, dilated towards apex; terminal segment with a median white ring, tip obtusely pointed. Thorax fuscous, strewn with pale ochreous points. Abdomen dark fuscous, dorsum grey-fuscous towards base, dull.

Fore wing broadly sublanceolate, dilated, broadest at 3/4, costa curved at base, rather straight beyond base, curved again along posterior third, apex rather pointed, termen convex, oblique, rounded below. Fuscous, partially finely irrorated with light greyish (pale tips of scales), along fold and on posterior half suffused with deeper glossy brownish-purple. A very faint and



Figs. 1-2. Male genitalia of Choreutidae, holotypes. 1, *Anthophila dischides* sp.n.; 2, *Choreutis monognoma* sp.n., with below, aedeagus.

broad inwards-oblique subbasal transverse band of pale greyish irroration; a slightly inwards-oblique faint pale grey transverse band from 2/5 of costa, beginning with an inwards-oblique pale ochreous marginal mark; a second similar mark before 2/3, forming a vertical small blotch to upper edge of cell, rather brighter ochreous, more or less continued across wing by a pair of irregular zigzag faint lines, ending with a similar transverse blotch, faintly ochreous, on dorsum, slightly shifted anterad; posterior fourth of wing darker, suffused brownish-purple, especially towards wing margins and apex, strewn with small pale grey dots (tips of scales). Cilia fuscous-bronze, with less than basal half dark brownish-purple.

Hind wing little over 1, modified: obtusely pointed, with termen rather sinuate: prominent opposite ends of veins 3 and 4, tornus forming a distinct prominent lobe; fuscous at base, beyond middle becoming golden-brown-purple, deeper purple and more glossy along margin and in apex; a moderate, yellowish, rather faint transverse median streak from 2/3 of costa to dorsum just beyond tornus, sinuate in middle. Cilia fuscous, gradually becoming whitish along lower half of termen to before tornus, yellowish-fuscous and long along dorsum.

Male genitalia. Tegumen strong, rather long. Uncus conical, with rolled edges, hooked, with a slender, naked point. Gnathos strong, hooked, as long as 1/2 tegumen. Vinculum very strong, bent rectangularly, with a conical apex. Valva oval, rather broad, costa with a rising median process, densely bristled beyond this, cucullus very small: a rounded knob, opposite this bristling interrupted, very dense again below this, to top of sacculus which is thinly bristled, with a basad projection at middle of upper edge. Aedeagus straight, with clavate base and short hooked point. Cornuti, a dense sheaf of spines.

China, Li-kiang, Province of North Yunnan, 12.vii.1934 (H. Höne), 1 ♂, holotype, genitalia slide 9425 (in Bonn Museum).

A modestly coloured species of the *A. fabriciana* relationship, very distinct by modified hind wing and not branched aedeagus.

**Choreutis monognoma** spec. nov. (fig. 2)

(μονο = single, γνῶμος = marking)

♂ 14 mm. Head dark fuscous-grey, banded above with whitish, ciliations 1. Palpus dark fuscous-grey, basal segment with a whitish base, median segment with a roughish tuft towards apex below and a slender median whitish band, terminal segment rather long, subobtuse, with a whitish base and tip. Thorax dark fuscous-bronze, median edge of tegula narrowly white, posterior half of thorax with three marginal whitish dots in isosceles triangle.

Abdomen dark grey, glossy, posterior edges of segments greyish in certain lights, anal tuft black.

Fore wing rather long and slender, costa gently curved, apex pointed, termen almost straight, hardly sinuate, very oblique, long. Rather deep grey-fuscous, with a silky gloss and a distinct fulvous hue in certain lights. Median third sparsely strewn with rather irregular large silvery metallic scales, slightly tending to form a couple of wide loops and longitudinal series; some finer silvery dusting in a subterminal fascia below apex and towards base below costa. White dots sparse and arranged in three parallel, inwards-oblique transverse series as follows: a moderate mark on  $1/3$  of costa, a small dot in cell and an inwards-oblique small mark on  $1/3$  of dorsum; a second, larger white triangular dot on costa before  $2/3$ , an outwards-oblique white streak along closing vein, with both ends a trifle dilated and rounded, an ill-defined suffused transverse mark before  $2/3$  of dorsum; a slender outwards-oblique costal mark halfway between preceding and apex and a minute longitudinal mark just above end of dorsum; a small suffusion in apex, continued downwards by silvery dusting; some sparse white scales scattered here and there and obscuring edges of white marks. Cilia white with a dark fuscous-bronze basal third and a suffused white line along base from below apex to above tornus, cilia in apex and tornus suffused throughout with fuscous-bronze.

Hind wing sub-semipellucet, grey with some bronze gloss, apex and upper part of termen moderately dusted with blackish; a strongly suffused large whitish spot just before middle of termen, extending halfway towards cell. Cilia white with a fuscous basal third, in apex and along dorsum pale fuscous throughout.

Male genitalia. Tegumen robust, high and rather narrow, top rounded. Tuba analis short, less than  $1/2$  tegumen, socii, thin series of bristles; base of tuba analis, a slender dark circular rim. Vinculum strong, oblong, with a moderate saccus. Valva darkly sclerotic, oblong, rather broad, with sub-parallel edges; posterior half of costa more sclerotic, forming a pointed apical process with dilated base; cucullus gradually rounded, prominent, with a thickened and bristly edge in middle of sacculus, crossing disc of valva basad in a narrowed ridge. Aedeagus long and slender, straight except basal  $1/3$ , forming a coecum penis; a strong oblique spine below and before top; cornuti, a median series of small denticulations.

U.S.S.R., Altaï Region, Kurai Range near Aktash, upstream Yarla-Yara River, 2600 m, mountain tundra (Y. Kostyuk), 10.vii.1976, 1 ♂, holotype, genit. slide 9898 (in Leningrad Museum); 7.vii.1976, 1 ♂, paratype (in Leiden Museum).

An interesting new member of the genus, apparently an extreme member of the *myllerana* group, very characteristic by the male genitalia.

**Choreutis calliclisa** spec. nov. (fig. 3)

(καλλος = beautiful, κλισις = curvature)

♂ 11 mm. Head light greyish-olive, face below white. Antenna dark fuscous, white-ringed, scape light fuscous-olive, white dorsally. Palpus white, tuft of median segment streaked with dark brown, terminal segment dark brown in front. Thorax deep brownish-bronze, apex paler, fuscous. Abdomen deep purple-bronze, posterior segment grey with a strong glassy gloss in certain lights.

Fore wing broad, subtriangular, strongly dilated, costa gently curved, more so at base and along apical fifth, apex subrectangular, obtusely pointed, termen gently sinuate above, rounded beneath, oblique. Deep brown, with reddish-golden reflections, metallic markings pale silvery-blue. Costa with three white marks, first minute, at 2/5, inwards-oblique, second similar, at 3/5, outwards-oblique, third much larger, obliquely oblong-triangular, at 3/4;

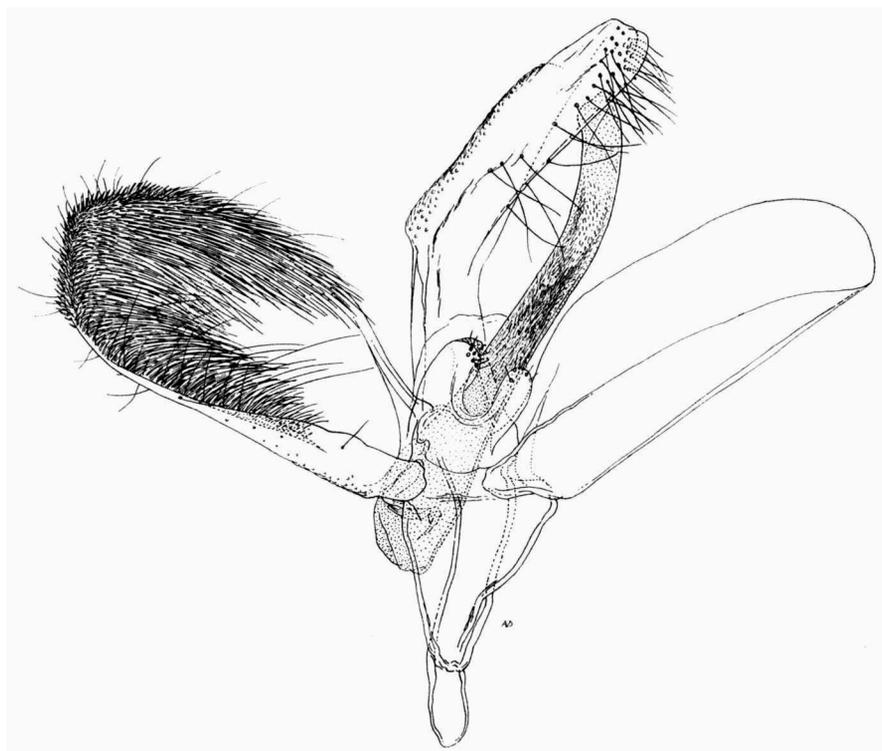


Fig. 3. *Choreutis calliclisa* sp.n., ♂ holotype, genitalia.

a triangular large patch of pale bluish-white dusting occupying less than median third of dorsum, becoming irregular and patchy below; an angulate deep yellowish-golden transverse fascia, filling out space between second and third costal marks and running towards middle of termen, halfway this obtusely angulate, running towards dorsum before tornus, lower end curving basad, to  $4/5$  of dorsum; this fascia edged along anterior side with a moderate metallic fascia interrupted in angulation and limited by fold; a round metallic dot on end of cell in middle of disc, another, smaller outwards-oblique metallic mark on dorsum before  $4/5$ ; posterior edge of fascia only with a short streak below third costal mark and a dot in fold; an attenuated metallic submarginal streak from costa before apex, parallel to upper half of termen. Cilia with basal half concolorous with ground colour, apical half white with dark fuscous-brownish tips, tree bars of ground colour over the whole length of cilia: in apex, below middle of termen, and in tornus.

Hind wing reddish-brown-bronze, becoming lighter towards base, a moderate, slender, crescentic submarginal mark below middle of termen. Cilia with basal half concolorous, with a minute pale basal line, apical half white with bronze apical band and bronze bars in apex and in tornus, respectively, cilia along dorsum bronze.

Underside of forewing with three white costal marks slightly enlarged. Underside of hind wing deep brown-bronze, dorsum lighter golden bronze; metallic markings: a thick oblong spot in posterior half of cell, line along posterior half of vein 1c, an oblong spot on  $2/3$  of costa and a submarginal series of large confluent spots in a submarginal row from costa to vein 1c, costal spot largest.

Male genitalia. Tegumen rather narrow, moderately long; upper half angularly bent, oblong-triangular. Tuba analis projecting  $1/3$  of bent part beyond it. Vinculum robust, arms dilated basad, flat. Saccus  $1/3$  of vinculum, flattened, with a rounded top. Valva concave, thick, oval, base moderately narrowed, entire edge beyond this narrowed part with dense, long and slender recurving hair-bristles. Aedeagus rather long, gradually dilated along basal fourth, gently curved along apical half, top simply rounded. Cornuti, numerous fine aciculae.

China, Hungshan, Province Hunan, 15.iv.1933 (H. Höne), 1 ♂, holotype, genit. slide 9423. In Bonn Museum. Superficially resembling *C. sehestediana*, but with broader, more dilated fore wings and entirely different male genitalia.

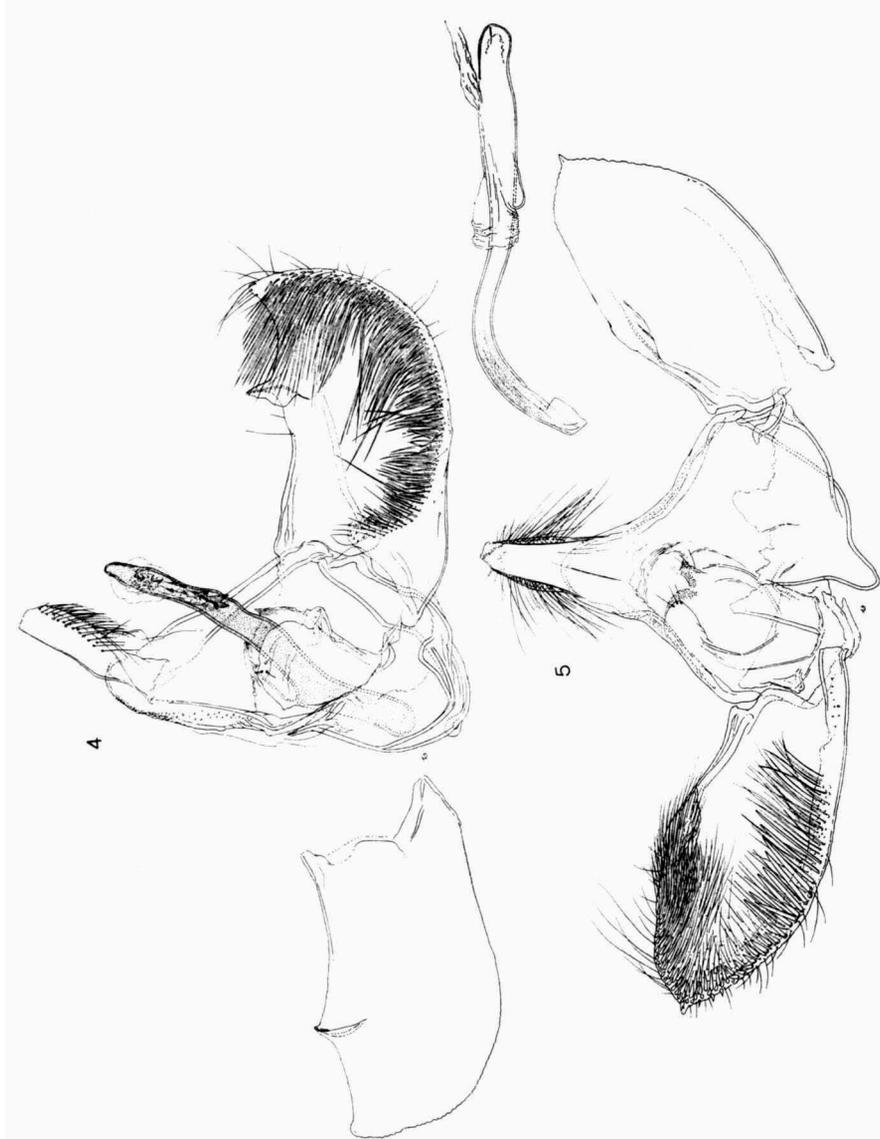
A deep bronze brown species with bluish markings and a distinct deep golden fascia. Very distinct is the metallic, instead of white mark in the hind wing and the metallic markings of its under side.

**Choreutis radians** spec. nov. (figs. 4, 7)

♂ 10-12 mm. Head white, mottled with brownish, less so on face, vertex with a white parting. Antenna dark fuscous ringed with white. Palpus moderate, porrected; basal segment white; median with a long fringe below, compressed laterally, white, closely striped with 5-6 blackish stripes, except on white basal third; last stripe apical, upper edge of segment white mixed with brownish, terminal segment slender, pointed,  $\frac{2}{3}$  median, white mixed with brown. Thorax white, densely and regularly marbled with fulvous-brown, tips of tegulae less densely marbled. Abdomen light ochreous-grey, with a slight gloss, anal tuft whitish.

Fore wing oblong-triangular, little dilated, costa gently curved, apex obtuse, termen moderately convex, oblique. White, regularly mottled with brown, pure white along costa between markings. Six transverse reddish-coppery bands, mottled with paler, darker on costa, edges rather suffused: first band subbasal, straight, strongly outwards-oblique, from base of costa to  $\frac{1}{4}$  of dorsum; second band closely beyond this, subparallel, gently concave below middle anteriorly and less oblique; both these bands with parallel edges; third band wedge-shaped, slightly broader on costa than preceding, inwards-oblique to fold, ending there and almost touching second band; two more similar marks on costa before apex, reduced to subquadrate spots, being strongly invaded from below by whitish dusting of ground colour, merging into this below costa; space between third and fourth marks on costa largest, other interspace tolerably equal; a large triangular jet-black patch above tornus, slightly less than lower posterior fourth of wing, with a limited coarse creamy network: a streak along upper edge, moderately curving downwards posteriorly and so cutting off a black dash above posterior upper angle; a curved branch anteriorly, cutting off a large black dash of the anterior upper angle; a less regular subhorizontal streak, originating from fold, with short projections above and below, invading a concavity of lower edge of black patch above tornus; black patch containing two oblique series of large, somewhat irregular brilliant mercury-metallic spots with a pale violet tinge: first series from anterior lower angle of patch, forming by one isolated lower and two contiguous upper spots; second series beyond preceding, shorter, one oblong irregular mark and a round dot on posterior end of black dash. An inwards-oblique series of irregular paler mercury-pinkish metallic spots in disc before middle, their shape and size variable. Cilia bronze-coppery with a silky gloss, rather lighter than the wing, with three darker coppery-fulvous parting lines.

Hind wing rather light, reddish-fuscous, suffused with deeper fuscous



Figs. 4-5. Male genitalia of *Choreutis* Hübner. 4, *C. radicans* sp.n., holotype; 5, *C. hadro-gastra* sp.n., paratype, slide no. 9721.

towards apex, throughout with a golden-bronze gloss. Cilia fuscous with a reddish fuscous darker basal band and a faint paler basal line.

♂ 11-12 mm. Very similar to the male, but three anterior transverse bands yellowish-golden, and second almost converging on dorsum; fourth and fifth marks rather darker fuscous. Hind wing slightly darker. Otherwise as male. The black subternal patch may be more or less deeper emarginate below, the creamy retination more or less turning yellowish on lower half and the quite variable brilliant spots be more or less interconnected.

Male genitalia. Tegumen rather strong, triangular. Arms of vinculum twice as broad as those of tegumen. Saccus short, blunt. Tuba analis moderate, slender, socii moderate, not very dense. Valva semioval, moderately broad, costa at  $2/3$  with a triangular rising cusp, with a median keel in disc, beyond this costa concave, cucullus rounded, apex pointed upwards, sacculus simple, bristled along inner edge, these bristles merge in longer bristles along inner edge of cucullus; a median sinuate ridge running along centre or disc, not connected with keel of process of costa, strongly curved at base of valva. Aedeagus slightly bent at end of coecum penis which is less than  $1/3$ , moderately thickened; posterior part of aedeagus rather slender, gently narrowed, little curved, top obtusely pointed. Cornuti, a rigid longitudinal sclerite, denticulate along lower edge, teeth becoming larger anteriorly.

Female genitalia. Ovipositor short and broad, lobi anales broadly semioval. Apophyses short. Seventh and eighth segment little sclerotized, sterigma, a rectangular moderate sclerite with excavate upper edge. Ostium large, simple, circular edge a slender dark rim. Signum absent.

Afghanistan, Paghman, 30 km NW von Kabul, 2500 m, e. l. 15.vi.1965. Larva on leaves of *Nepeta konigbergeri* Rech. (Kasy & Vartian), 1 ♂, holotype, genit. slide 8130; the same label, allotype, ♀, genit. slide 9888; paratypes 3 ♂, 4 ♀, slides 8131 ♀, 9889 ♂ (in Vienna and Leiden Museums).

An elegant, distinct species, related to the *holotoxa* group, but not closely.

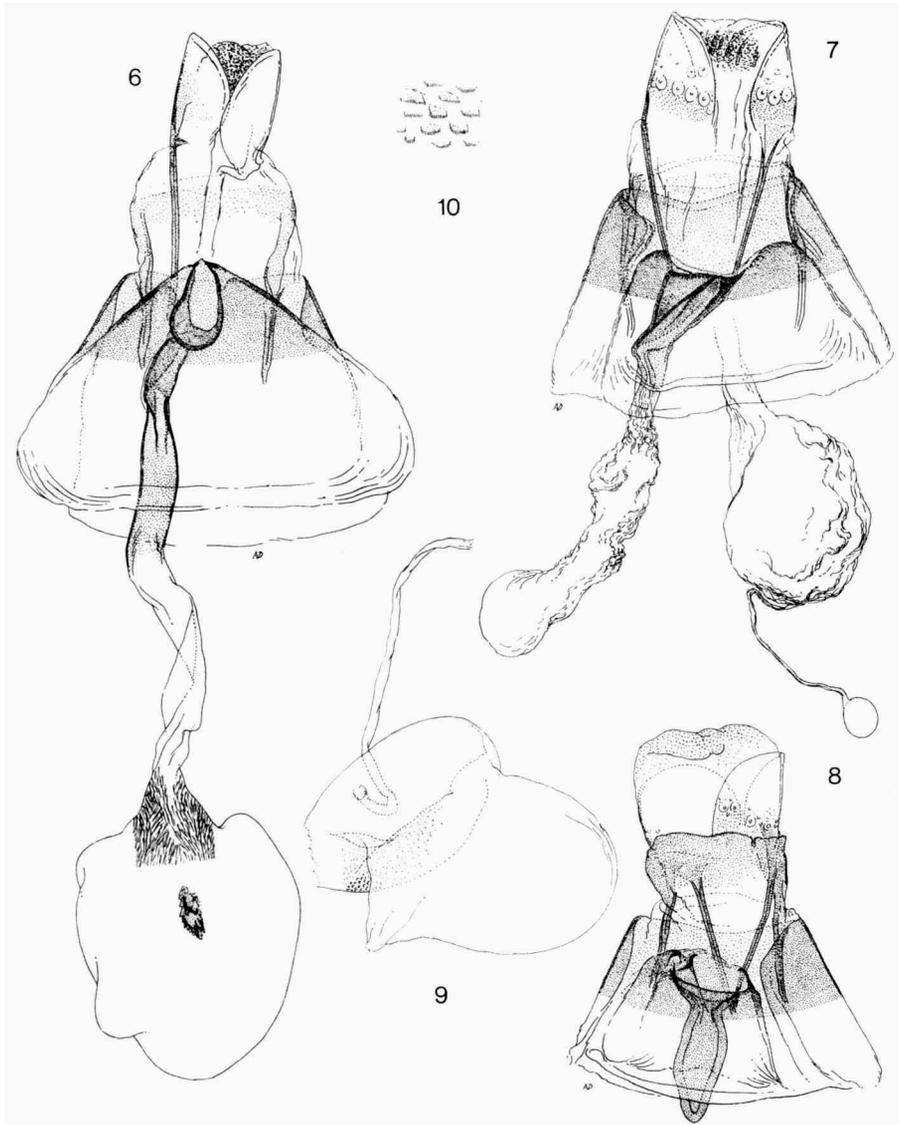
**Choreutis hadrogastra** spec. nov. (figs. 5, 6)

(ἀδρός = strong, γαστήρ = abdomen)

♂ 11,5 mm. Head fuscous-brown, mixed with a few pale grey scales, vertex paler fuscous, face and orbits edged with white below. Antenna purplish, banded with white above, ciliations over 1. Palpus rather long, obliquely ascending, with a long brush of spreading scales below, terminal segment smooth, pointed; basal segment white with a deep purplish apical band, median segment purplish, with a narrow basal and an apical white band, apical segment purplish, mixed with white, base white. Thorax purplish-fuscous, tegula with inner edge narrowly edged with white. Abdomen purplish-fuscous, glossy.

Fore wing broad, dilated, costa curved throughout, apex obtuse, termen curved, oblique. Deep brownish-purple, glossy, suffused darker along costa. Costa with three white subtriangular dots, first and second minute, third larger, at  $1/3$ , before  $2/3$  and beyond  $3/4$ , respectively; other markings thin, sparse, blue-metallic: a moderate sinuate blue or silvery line from second costal dot towards upper angle of cell, interrupted there, thence curving around end of cell to the lower angle, thence sinuate, to minute white dot on

4/5 of dorsum; space between second and third dots filled out by an orange-tawny fascia, from below costa to above tornus, often much suffused, sometimes indefinite; a transverse band of inconspicuous whitish dots at 1/3; some blue scales scattered below costa, in a larger group below the



Figs. 6-10. Female genitalia of *Chorantis* Hübner, allotypes. 6, *C. hadrogastra* sp.n.; 7, *C. radians* sp.n.; 8, *C. atrox* sp.n.; 9, the same, bursa copulatrix; 10, the same, structure of the wall of corpus bursae, strongly magnified.

second, in a smaller group, below the third costal dot; a row of some three blue dots along median third of wing; a denser submarginal group in apex and along upper third of termen, a single blue point above tornus, another before end of dorsum. Cilia deep purple along lower third, elsewhere whitish with a blackish suffused parting line along  $2/3$ , big deep purple bar in apex and along third fourth of termen and on end of dorsum.

Hind wing bronze-purple, on basal half becoming lighter fuscous-purplish, a brilliant mercury submarginal round spot below vein 2. Cilia white, with bronze-purple, basal third and a suffused purplish parting band along  $2/3$ , from purple tornus to fuscous-purple apex.

Male genitalia. Tegumen broad at base, narrowed and rounded at top, uncus, tuba analis rather narrow, conical, finely long-bristled laterally. Vinculum large and broad, with a short, moderate saccus. Anellus large, sclerotic oval, top membranous bifid thickening with fine hairs. Valva oblong-oval, costa thickened at base, slightly prominent in middle, just below this prominence several dark scale-like sclerotizations forming a depressed harpe, partly concealed under long straight bristles along posterior half of costa; these bristles gradually passing to short spines along entire cucullus (which is otherwise not indicated); apex with a short acute spine; sacculus along median part with long straight, subobtuse spines. Aedeagus long and slender, gradually narrowed, apical half scythe-shaped, cornuti fine aciculations in a central sheath.

♀ 11,5 mm. Similar to the male, but slightly differing as follows. Head slightly paler and duller (in certain lights). Palpus with pale grey instead of white colour.

Fore wing with a large subcentral triangular patch of whitish dusting, not quite reaching costa. Costal white marks similarly located but short-fasciate instead of triangular, therefore more distinct. Metallic markings similar, but coarser, instead of fine lines, series of roundish separate dots; the series from the second costal mark similarly sinuate around end of cell, both thence distinctly continued by two larger dots below and before lower angle of cell and in fold; preterminal metallic scale group less extended. Cilia darker bronze, with only a few scattered white scales.

Hind wing and cilia as in male, with the same characteristic single submarginal metallic spot below vein 2.

Female genitalia. Ovipositor rather small, cylindrical, apophyses, both pairs robust. Seventh segment sclerotic, sternite with a projecting and angular posterior edge, under top of which, inside the sclerite, an oval rather small ostium with sclerotic broad edge. Colliculum sclerotic and distinct, longer than sterigma, irregularly constricted at upper  $1/3$ . Ductus bursae

short: as long as colliculum. Corpus bursae strongly long-aciculate inside, depressed-ovoidal, with rounded upper angles and triangular middle of upper edge. Signum scobinate.

U.S.S.R., Maritime district, Nature Reserve "Kedrovaya Pad", 10.viii.1974 (Ermolaev), 1 ♂, holotype, genit. slide 10009; the same, 1 ♂, paratype, genit. slide 10006. Holotype in Leningrad Museum.

Japan, Honshû, Kyoto, Hanasa, 2.vi. 1951 (A. Mutuura), 1 ♂, paratype, genit. slide 9721; Takao, Tokyo-fu, 28.v.1932 (S. Issiki), 1 ♀, allotype, genit. slide 9776. Allotype in Washington Museum.

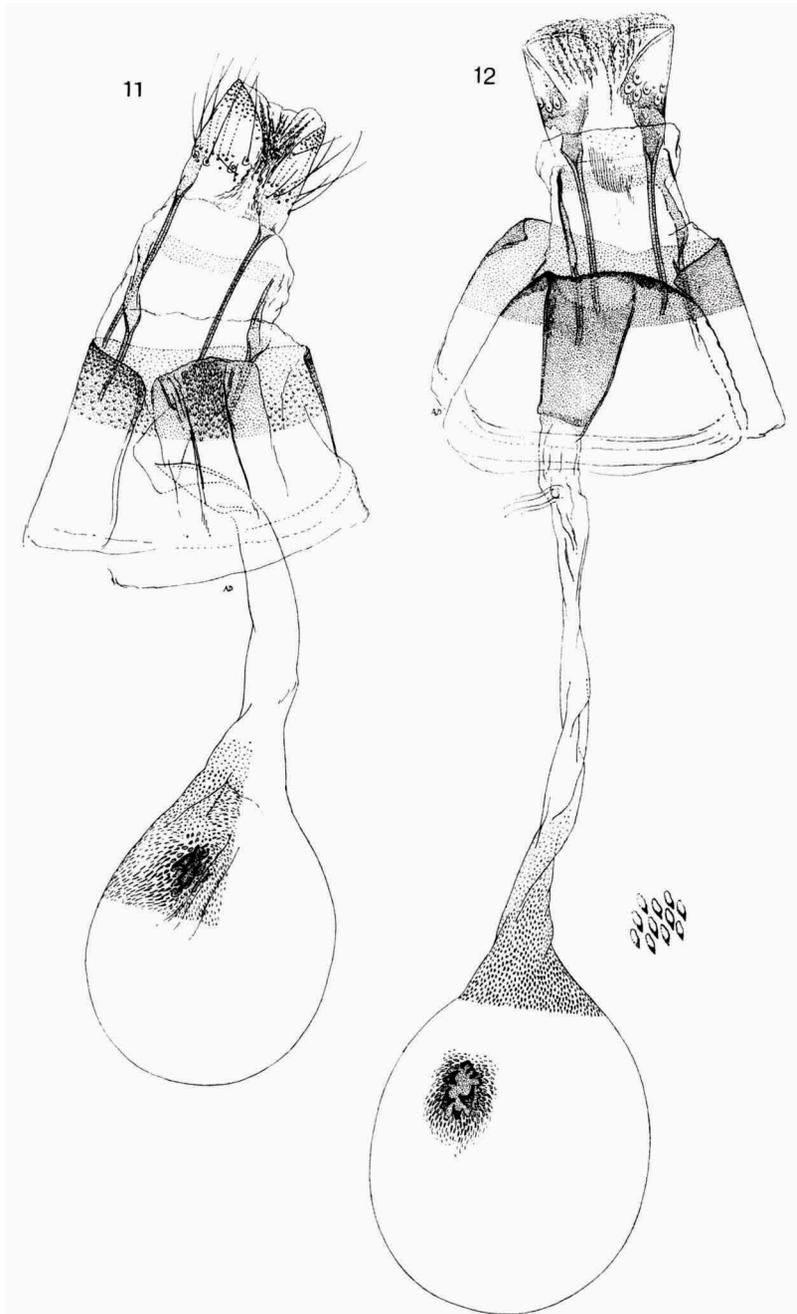
A drak species of the *ultimana* group, characteristic by reduced metallic markings and white dusting in the male and the presence of a rather large submarginal metallic spot in the middle of the hind wing in the two sexes. The genitalia are very distinct.

**Choreutis arisema** spec. nov. (fig. 12)

(ἀπλοσημος = very distinct)

♀ 12 mm. Head light tawny-ochreous, mixed with white around bases of antennae, face white. Antenna purple, white ringed, scape light tawny-ochreous. Palpus long, subascending, basal segment and base of median white, median segment beyond base strongly dilated by a long projecting flat fan-like tuft of scales, pale tawny-fuscous, tuft dark fuscous, a white subapical ring, a shorter single fuscous scale pencil above this, extreme apex white, terminal segment acute, fuscous-grey, slightly marbled with white. Thorax fuscous-tawny, a postmedian white narrow band, tegula finely white-edged anteriorly, mixed with whitish (beyond this thorax dark-grey), extreme apex brilliant mercury. Abdomen fuscous-bronze, becoming darker posteriorly, posterior edges of segments narrowly pale glossy grey, segments 6-7 above brilliant mercury, venter black, edges of sternites 2-3 white, each with a median white spot, of other segments dusted with white, anal tuft jet-black. Posterior tibia black, with a broad median and a narrow apical band of coarse white dusting, posterior tarsus white, black-banded.

Fore wing oblong-suboval, rather broad, costa curved anteriorly flattened before apex, apex obtuse, termen almost straight, hardly convex, little oblique. Basal patch 1/3, below fold narrowed to half, deep purple, edged with brilliant silvery, white on costal edge, base of wing suffused with light ochreous mixed with whitish scales, a second brilliant metallic irregular transverse line across middle of patch; remainder of costa to well before apex tawny-ochreous, below not reaching middle of disc; divided in two by upper part of a strongly angulate metallic silvery line from a white dot before 2/3



Figs. 11-12. Female genitalia of *Choreutis* Hübner, holotypes. 11, *C. brunescens* sp.n.; 12, *C. arisema* sp.n., with, right, structure of the wall of corpus bursae, strongly magnified.

of costa, directed towards middle of termen; part of wing before line deeper tawny, along costa infuscated; part of wing beyond line bright orangeish-ochreous, subtriangular, its pointed end adjacent to pointed top of an erected, subpentagonal whitish-ochreous spot, below limited by fold and finely edged anteriorly and below by metallic-silvery; dorsum below fold purplish-fuscous with a suffused orangeish streak just above fold from beyond base and subtriangular orange-tawny spot before end of dorsum, edged anteriorly with metallic silvery; an irregular inwards-oblique patch of bluish-white sparse dusting, from above centre of wing to beyond middle of dorsum; metallic scales between edge of basal patch and dorsum; remainder of wing deep purple with a conspicuous terminal band, bluntly projecting anterad above middle and sparsely scattered with whitish scales along termen. Cilia deep purple, with a subbasal and a subapical narrow white interrupted band.

Hind wing purple-bronze, becoming paler fuscous-bronze on basal  $2/3$ , paler towards base. Cilia whitish, basal third deep purple with a fine pale basal line, a broad subapical purple band, almost obliterate from below apex to middle of termen, cilia along dorsum golden-fuscous.

Female genitalia. Ovipositor broad, rather short. Anapophyses moderate, slender. Postapophyses very thin, longer, ends curved, acute. Eight segment sclerotic, moderate, sternite strongly and densely covered by scale follicles; especially sclerotic along posterior edge, its middle gently depressed, hardly concave. Colliculum, a large sclerotic broad tubular funnel, little narrowed, sides gently convex, gently curving to the left. Ductus bursae membranous, just below colliculum with a ring-like, incomplete aciculate small cestum. Corpus bursae moderate, thin wall long-aciculate. Signum, one small, scobinate sclerite.

Nepal, Prov. No. 2 East, Bhandar unter Thodung, 2200 m, 2.viii.1934 (W. Dierl), 1 ♀, holotype, genit. slide 9662. In Munich Museum.

The species is nearest to *C. delicata* Arita, from Japan, which outwardly it resembles closely.

### **Choreutis brunescens** spec. nov. (fig. 11)

♀ 10 mm. Head pale olive-grey, frons opalescent, darker in certain lights. Antenna fuscous, white-ringed, scape pale olive-grey. Palpus glossy white, streaked with light tawny-olive, except at base and apex of median segment, basal segment white, apical segment with a median light tawny-olive band. Thorax deep brownish-fuscous with an olive hue, anterior half slightly strewn with whitish scales, a postmedian curved whitish band, narrowed mesad, interrupted in middle. Abdomen glossy black-grey, dusted with

yellowish, posterior edges of segments banded with grey. The edge of sixth segment whitish, sides and venter whitish.

Fore wing oval-truncate, rather broad, costa gently curved, obliquely curved on posterior fifth, apex rounded-rectangular, obtusely pointed, termen almost straight, hardly convex above, rounded below. Deep brown, slightly streaked longitudinally with paler. Anterior  $3/5$  of costa with a broad attenuated fuscous streak and with three white dots: first minute, at  $1/3$ , second larger, outwards-oblique, just beyond  $3/5$ , third obliquely wedge-shaped, twice as long as second, before  $3/4$ ; an inwards-oblique oblong patch of coarse white dusting, from just before centre of disc to  $1/3$  of dorsum; a yellowish-tawny ill-defined streak along fold from its  $1/4$  to beyond middle; metallic markings broad, silvery, on posterior half of wing touched with pale violet: a transverse series of irregular spots beyond base, from below costa to above dorsum, a group of scales below first white costal dot, a thick strongly oblique streak from second white dot across upper  $1/3$  of wing, a shorter, less oblique pointed streak from third costal dot and a thick inwards-oblique streak from below and between ends of these two streaks, to fold above dorsum well before tornus; a slender vertical mark on dorsum beyond  $2/3$ , a smaller spot above this in middle of disc, a small group of scales in tornus and a vertical large blotch from costa before apex along upper half of termen; second and third costal spots and their metallic appendages filled out with tawny-yellow, a blotch of the colour also beyond inwards-oblique metallic streak. Cilia with basal half dark brown, an interrupted series of small white scales along extreme base from below apex to dorsum, posterior half of cilia light fuscous-grey, basal half of this mixed with white, dark brown blotches extending over entire length of cilia in apex, below middle of termen and in tornus, respectively.

Hind wing tawny-grey with a golden gloss, inwards apex and termen becoming darker bronze-brown. Cilia white with dark fuscous tips, a blackish-fuscous subbasal band and a narrow pale basal line.

Underside of fore wing with the three costal spots rather faint, somewhat elongate and slightly enlarged. Hind wing with pale violet-silvery metallic scales: in centre of disc, an oblong patch, a few scales on middle of vein 1c (absent in left wing), a rounded spot on  $2/3$  of costa and a submarginal thick row of dots from below end of costa to vein 1c.

Female genitalia. Ovipositor cylindrical, rather short. Anapophysis short, slender, spindle-shaped, postapophysis straight and very slender. Eighth segment sclerotized, sternite laterally separated, forming a trapezoidal sterigma, its median third limited by a dark narrow ridge on each side, beset with scales, while rest of sternite is smooth. Ostium a little differentiated broad

cup. Colliculum a moderate slightly curved cylindre. Ductus bursae moderate, rather wide. Corpus bursae pear-shaped, wall punctulate. Signa two, one larger and darker, another hardly perceptible: irregular, plicate sclerites, the larger with long-dentate upper surface.

Japan, Unzen, 23.iv.1937 (H. Höne), 1 ♀, holotype, genit, slide 9511. In Munich Museum.

A deeply brown-coloured species, resembling *C. myllerana* group, but judging from the genitalia actually nearest to *C. ussurica* Danilevski.

**Choreutis atrox** spec. nov. (figs. 8-10, 14)

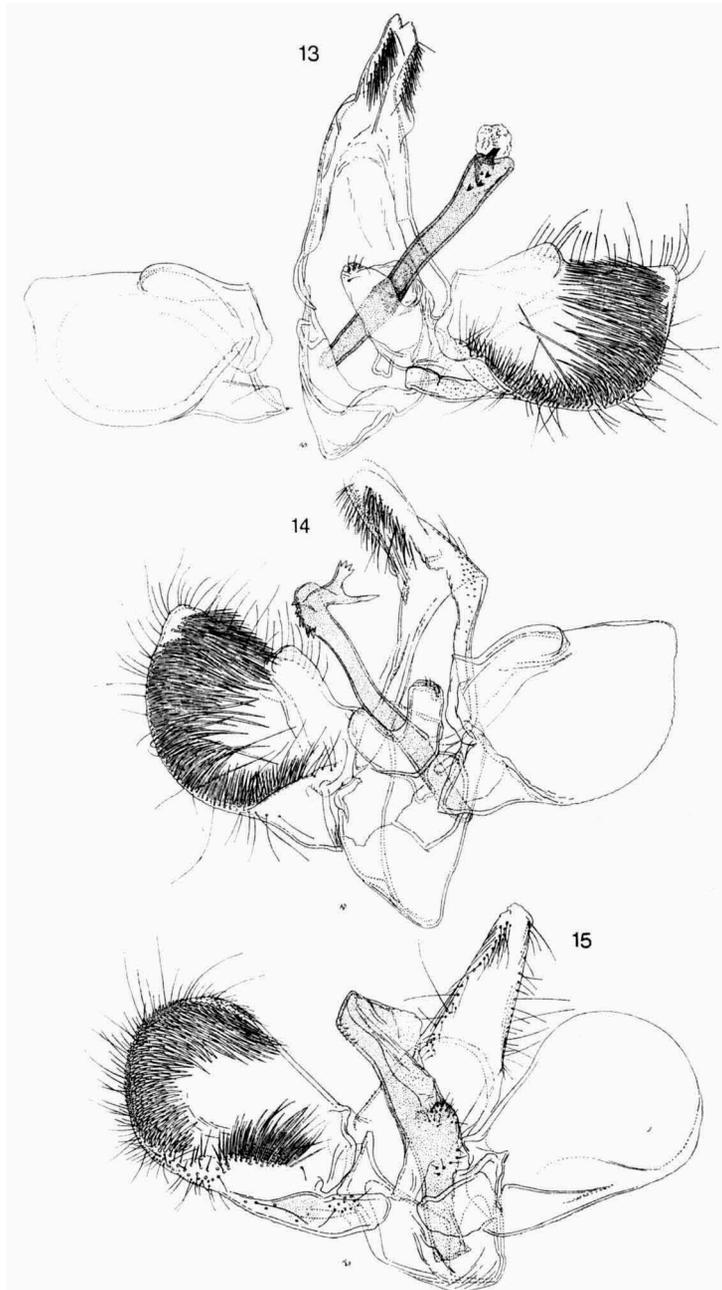
♂, 12 mm. Head and thorax dark grey. Antenna unicolorous grey, cilia-tions 2. Palpus white, terminal segment blackish. Abdomen dark fuscous, posterior edges of segments light grey. Posterior tibia pale fuscous (partly denuded).

Fore wing oblong-suboval, costa slightly curved at base, depressed towards apex, apex obtusely pointed, termen almost straight above, little rounded below, oblique, dorsum rounded. Light fuscous-grey. Basal patch small, over 1/6, suffused with deeper grey, broad central space unevenly fuscous-grey, partly suffused with dark fuscous, especially on lower half anteriorly; second transverse band at 2/3, snow-white, rather slender, broader along costal third, with a posterior angulation at 1/3, narrow along median fourth, on lower third curved posterad, to dorsum well before tornus; a blackish-fuscous subterminal band from costa to tornus, broadly interrupted above middle, mixed with a few glossy silvery scales, some more scattered over central space. Cilia blackish-grey with a white basal line extending around apex.

Hind wing light fuscous-grey, darker towards apex. Cilia whitish-fuscous, with darker fuscous tips and a subbasal band, basal line pale.

♀ 12,5 mm. Head fuscous-grey, densely mixed with whitish. Antenna fuscous, ringed with white, scape paler fuscous-grey. Palpus rather long, curved, ascending; white, median segment with a rough apical tuft pale fuscous, terminal segment over 1/2 median, ascending, subobtusely; white, apical half dark fuscous. Thorax dark fuscous, posterior half suffused with pale ochreous, a slender white postmedian transverse band, top suffused with white. Abdomen dark fuscous, posterior edges of segments light grey.

Fore wing suboval-truncate, costa curved at base, angularly prominent at 2/3, posterior third almost straight, apex obtusely rectangular, termen hardly sinuate, almost straight, oblique. White, densely dusted and suffused with deep fuscous-brown and partly with pale ochreous, total effect being rather



Figs. 13-15. Male genitalia of Choreutidae, holotypes. 13, *Choreutis chionocosma* sp.n.; 14, *C. atrox* sp.n.; 15, *Eutromula hypocroca* sp.n.

deep fuscous-brown. Costa suffused with fuscous-grey; two irregular white transverse fasciae, first slender and rather ill-defined, from before  $1/3$  of costa, to  $1/3$  of dorsum, obtusely angulate posterad below costa and including a short horizontal white streak, projecting on both sides and exaggerating the angulation, with a rounded white spot below this, almost interrupted in fold, slender on dorsum and preceded by a subtriangular faint marginal spot of whitish suffusion; second transverse fascia from before  $2/3$  of costa to  $2/3$  of dorsum, rather broad and parallel-sided on upper  $1/4$ , thence divided in two, with anterior half straight, posterior forming a semioval loop, both converging in and limited by fold, continued to dorsum by a slender streak from below fold; anterior edge of this fascia coarsely serrate, posterior mixed with silvery metallic scales and appearing interrupted by these; pale ochreous suffused spots arranged thus: filling out basal patch before first white fascia except on costal  $1/4$ ; some ill-defined longitudinal streaks between white fasciae above middle of disc; wing beyond second fascia filled out with brighter light ochreous, suffused with dark fuscous, also filling out the loop of the white fasciae and including a blackish-fuscous, suffused, sinuate transverse fascia from costa halfway between second fascia and apex, to middle of termen and along this, to tornus; this fascia slightly narrowed downwards, but transversely dilated on costa posterad and below costa with a paler (grey) suffusion extending basad to white fascia above its loop; bright silvery scales forming irregular groups all over wing, in a transverse ill-defined row across basal patch, above middle of disc, across second white fascia at its upper  $1/4$  and along its loop; a pair of large dots in fold posteriorly, below  $1/5$  of costa; beyond upper half of posterior blackish fascia and a few scales in tornus. Cilia whitish with a dark fuscous basal third, a dark fuscous blotch below middle of termen extending over whole length of cilia, a blackish similar blotch in tornus, tips between these blotches blackish.

Hind wing rather dark fuscous-grey with a bronze-golden gloss, darker fuscous-bronze on apical and on tornal fourths, slightly paler greyish in cell. Cilia white with a fuscous subbasal band and a pale basal line, tips partly infuscated, cilia along lower half of dorsum and in tornus denser mixed with grey-fuscous.

Male genitalia. Nearest to those of *C. intermedia*. Tegumen high, rather narrow, robust, with strong lateral edges. Vinculum shorter, strong, triangular, with broad edges, shorter than tegumen. Valva broadly suboval, with slightly constricted base of cucullus and obtusely pointed, projecting cucullus, basal half of costa tumescent, strongly dilated at base, top of tumescence rounded; margin of valva densely bristled, bristles abruptly becoming long beyond base, basal bristles short, in a discal oblique ridge. Anellus large,

V-shaped. Aedeagus about as long as valva, slender, slightly undulate, coecum penis  $1/3$ , apex moderately clavate, dentate below a huge bifid horn on right side, left furcation denticulate.

Female genitalia. Ovipositor short and broad. Eighth segment darkly sclerotized. Ostium, a broad subspherical cup in its upper (caudal) edge. Colliculum oblong, spindle-shaped, thick-walled, with rounded lower end. Ductus bursae with a small loop above, rather narrow. Corpus bursae ovoid, simple. Receptaculum seminis large, little smaller than this.

East Afghanistan, Hindukush, Ejan, Salangtal, 2050 m, 11.x.1952 (J. Klapperich), 1 ♂, holotype, genit. slide 9536. — SE Afghanistan, Safed Koh, S Seite, Kotkal, 2350 m, 19-23.vi.1965 (H. G. Amsel), 1 ♀, allotype, genit. slide 9426 (in Bonn and Karlsruhe Museums).

The species slightly resembles *Choreutis intermedia* Rebel (Alai Range) by general appearance, but is actually quite distinct by the two white transverse bands and other markings, and especially, by the strongly armed aedeagus. The single male specimen is strongly rubbed, but sufficiently distinct by the white second band and by the male genitalia.

***Choreutis chionocosma* spec. nov.** (fig. 13)

(χιών = snow, κόσμος = ornament)

♂ 13 mm. Head fuscous-grey mixed with white, crown ochreous-tinged, parted with white. Antenna grey-fuscous, narrowly ringed with white, scape ochreous-tinged. Palpus with basal segment white, median and terminal greyish, with a white base, both dilated apicad and roughish frontally. Thorax dark grey-fuscous, tegula with edge and apical half white, a broad median band on each side with a triangular posterior projection, and a narrower simple apical band, white. Abdomen fuscous with a golden opalescence, posterior edges of tergites silvery-white.

Fore wing triangular-lanceolate, dilated and pointed, costa little curved except at base, distinctly prominent at  $2/3$ . Rather dark fuscous anteriorly, streaked with tawny-yellowish and dusted white, posteriorly becoming rather bright ochreous-tawny; markings snow-white, dark fuscous and pale pinkish-mercury. Basal patch not reaching  $1/3$ , edge very obtusely angulate; snow-white, costal edge narrowly suffused with grey, emitting a broad, subbasal transverse band, slightly outwards-oblique, cut in fold, much suffused below fold, becoming obliterate on dorsum; a snow-white moderate transverse band at  $2/3$ , directed to end of dorsum, limited by fold, broader along its costal fourth, more than second fourth forming an oval, broken posteriorly, third fourth slender; a small white transverse mark before  $3/4$  of dorsum, limited

above by fold; broad space between basal patch and fascia ochreous-tawny, along median third anteriorly with irregular dark fuscous spots of such scales, from below costa to above dorsum, lower of these shifted anterod, all preceded by a zigzag irregular streak of brilliant mercury-metallic scales, making an anterior loop between each pair of dark spots; brighter ochreous streaks along and above fold, respectively; posterior third of space rather evenly strewn with roundish white scales, except on costa; posterior third of wing, beyond white fascia, rather bright tawny-orange along and towards costa, paler yellowish elsewhere; oval emargination of white fascia filled out with white dusting with a dark dot above and one below, an inwards-oblique dark fuscous transverse streak from below costa to above tornus, twice broadly interrupted just above middle, gently narrowed downwards; these dark markings irregularly surrounded by a mercury zigzag line extending anterod on top and in middle emitting a slender horizontal branch to and inside top and bottom of oval emargination of white streak; similar mercury scales connecting dorsal white mark with tornus; white suffused marks on costa beyond basal patch and beyond white fascia, respectively; white dusting along extreme margin of costa, apex and termen. Cilia light fuscous mixed with white, two slender darker parting lines, basal third darker fuscous, regularly barred with white.

Hind wing whitish, gently suffused with pale tawny-fuscous, veins, apex and an alternated marginal band to tornus suffused deeper fuscous-tawny. Cilia creamy, a tawny-fuscous subbasal and a similar narrower subapical band, cilia around tornus light tawny-fuscous with a narrow pale basal and another, submedian line.

Male genitalia. Tegumen high, robust, top rather rounded. Tuba analis broad and short, top emarginate, socii dense. Vinculum broad and wide, saccus triangular, broad and short. Valva semioval, broad, costa with a rounded semielevated process, apex of cucullus rectangular, lower part strongly rounded; densely bristled with long spiny bristles except the naked apex; sacculus broad, almost triangular at base,  $1/2$ , evenly bristled throughout. Aedeagus straight, moderate, top gradually dilated, cornuti some four scattered non-deciduous thorns. Anellus, a large rigid subcardiform sclerite, broadly conical, open above (saddle-shaped), with a rectangular basal appendix.

Afghanistan, Paghman, NW of Kabul, 2500 m, 12 & 15.vi.1965 (Kasy & Vartian), 1 ♂, holotype, genit. slide 8133; paratypes, the same data, but 3 & 5.vi. and 12 & 15.vi.1965. 3 ♂. Type in Vienna Museum, paratype in Leiden Museum.

**Peotyle** gen. nov.

(πηρός = a relative, τύλη = knot)

With the characters of *Choreutis* Hübner, [1825], but with a different labial palpus: with median segment moderately tufted below, but with terminal segment obtuse, and with different male genitalia, socii rather short and pointed, anellus huge, cylindrical, with denticulate latero-apical lobes and with aedeagus moderate, rigid, undulate dorso-ventrally, as well as laterally, with a strongly dilated and concave, obliquely spoon-shaped and denticulate apex.

Female genitalia unknown.

Early stages and bionomics. Unknown. Adults flying at high altitudes in the mountains, vi and vii.

Type-species, *Choreutis atmodesma* Meyrick (Assam).

The genus has two closely allied species from high mountains. The rather large and narrow-winged species resemble Cochylidae, the whitish fore wings have two light brown transverse bands, including limited black markings. Especially characteristic by the huge tubular, almost barrel-shaped anellus. The position of the genus apparently is intermediate between *Choreutis* (with pointed and long-tufted palpus and long and slender aedeagus, with a moderate anellus), and *Eutromula* (also tubular, but smaller anellus, heavier aedeagus, stronger vinculum, etc.). However, only the discovery of the female genitalia will allow of a definitive decision in this respect.

Key to the species of *Peotyle*, based on superficial characters

- 1. Fore wing white, banded with pale fuscous-tawny and blackish; occurs in Kashmir . . . . . *atmodesma*
- Fore wing light tawny-brown, lighter in disc, darker on costa; occurs in Tibet . . . . . *batangensis*

Key to the species of *Peotyle*, based on male genitalia

- 1. Valva with a thickened ridge along costa from base, its end clavate, with a crescentic lower process . . . . . *atmodesma*
- Valva with a subcostal, longitudinal flap in disc, ending in a free sub-obtuse lobe . . . . . *batangensis*

**Eutromula hypocroca** spec. nov. (fig. 15)

(ὕπό = under, κρόκος = saffron)

♂ 13 mm. Head light grey. Antenna dark purple, white-ringed. Palpus moderate, slender, only roughish in front; white, median segment with some

four fuscous transverse bands and some dusting, terminal segment with a submedian and an apical fuscous ring. Thorax light grey (defaced). Abdomen pale fulvous-crimson with a strong golden gloss, banded whitish. Anterior and median tibia whitish. (Posterior tibiae missing).

Fore wing oblong-subtriangular, rather broad, costa curved throughout, apex subobtusate, a trifle prominent, termen rounded, indistinctly more rounded and prominent in middle, little oblique. Light ochreous-grey, moderately dusted with darker fuscous and striated with white (dark fuscous scales with white tips!), partly densely dusted with white. Basal patch indefinite; first band from a white dot before  $1/3$  of costa, outwards-oblique, strongly suffused and ill-defined, formed of fuscous scales with white tips, gradually dilated downwards; white dense dusting, broad, curved and a broad transverse band of dark grey-fuscous suffusion from before middle to before apex and from before middle of dorsum, to tornus, anterior edge strongly rounded-concave above; inwards-oblique below; this dark transverse suffusion including the second band, formed of white dense dusting, broad, curved and outwards-convex, from two faint white dots on costa before and beyond  $2/3$ , so being a double band, anterior narrower, posterior wider and whiter; this band strongly oblique, almost horizontal, below costa, angulate below costa before apex, thence vertical to dorsum just before tornus; a narrowed marginal band from apex to above tornus, light golden-ochreous-orangeish. Cilia (strongly rubbed) light grey mixed with fuscous, with a dark ferruginous-vinaceous suffused basal band.

Hind wing bright orange-tawny, brighter towards apex, dorsum paler, suffused with grey. Cilia light ferruginous with a darker ferruginous basal third, on both sides edged with a pale line.

Male genitalia. Tegumen moderate, broad, with a rounded top. Tuba analis long, slightly narrowed, with very few small bristles. Vinculum robust, darkly sclerotic, subquadrate, lower angles slightly rounded, upper with slender short rising processes. Valva broad and short, cucullus broadly rounded, bristly all around the posterior third of valva; costa narrow, sacculus  $1/2$ , oblong-oval at base; an oblique oblong tumescence of disc with weak bristles above, beyond and parallel to sacculus. Anellus cylindrical, rather long, moderately broad, top rounded and split through middle dorso-ventrally. Aedeagus rather short, anterior half narrower, subclavate, with an apical small thorn, posterior half forming coecum penis, membranous above, at end denticulate below.

Nepal, Kathmandu-Chauni, 1400 m, 22.iv.1973 (W. Dierl), 1 ♂, holotype, genit. slide 9544. In Munich Museum.

The single specimen is worn, but distinct by the orange-tawny hind wings

and the vinaceous-ferruginous colour of a part of the cilia and the abdomen. The rounded valva is also quite characteristic.

***Eutromula bathysema* spec. nov. (fig. 17)**

(βαθύς = deep, σῆμα = marking)

♀ 12,5 mm. Head and scape of antenna brownish-olive, strewn with a few pale scales. Antenna brownish, becoming deep purple posteriorly, ringed throughout with white. Palpus moderate, subporrected, projecting  $\frac{1}{2}$  diameter of eye beyond head; median segment dilated posteriorly by some three appressed short tufts below, terminal segment subobtusate; dark slaty grey, basal segment white, median with white base and fine transverse white lines along tops of each of the three tufts, apical line broader; terminal segment with two minute transverse lines. Thorax light greyish-tawny, scattered with a few pale grey scales. Abdomen grey-tawny. Posterior tibia light golden-fuscous, dusted with white, apical tuft dark fuscous, a median whitish ring.

Fore wing broadly triangular, costa strongly curved, minutely scalloped along posterior half to well before apex, apex obtusely rectangular, termen gently scalloped, prominent and convex slightly above middle, little oblique. Light tawny-vinaceous, partly slightly suffused with pale ochreous, towards termen suffused with deeper vinaceous. Basal patch to  $\frac{1}{4}$ , ill-defined, slightly more greyish-tinged, edge straight, vertical, with a small median fuscous suffused spot, edge followed by faint lighter grey suffusion; a suffused and rather ill-defined dark fuscous median zigzag band, moderately broad along upper half, narrow below, on costa parted by a short white suffused small fasciate mark, followed on costa by another smaller such dot, edged on both sides by dark fuscous suffusion; ill defined very fine and sparse white dusting forming a transverse band from middle of costa to tornus, more distinct above; a few dark purple specks strewn on posterior half of wing; termen deeper vinaceous-brassy with a reddish-bronze gloss, a marginal blackish suffused band from  $\frac{1}{4}$  of dorsum to tornus. Cilia dark fuscous with a slight bronze gloss, with white tips except opposite apex, middle and tornus, forming narrow crescentic apical streaks which exaggerate apparent scallopes of termen; costal cilia before apex with a white narrow streak.

Hind wing dull reddish-brown with a slight bronze sheen, apex darker, centre of wing with an oblong faint paler patch, extending from upper edge of cell to vein 1c, from slightly beyond base to  $\frac{3}{4}$  of wing length. Cilia pale fuscous, a grey-fuscous darker narrow subbasal band, posterior  $\frac{2}{3}$  of cilia along lower  $\frac{2}{3}$  of termen to before tornus suffused with glossy bright ferruginous; cilia along dorsum and in tornus grey-olive.

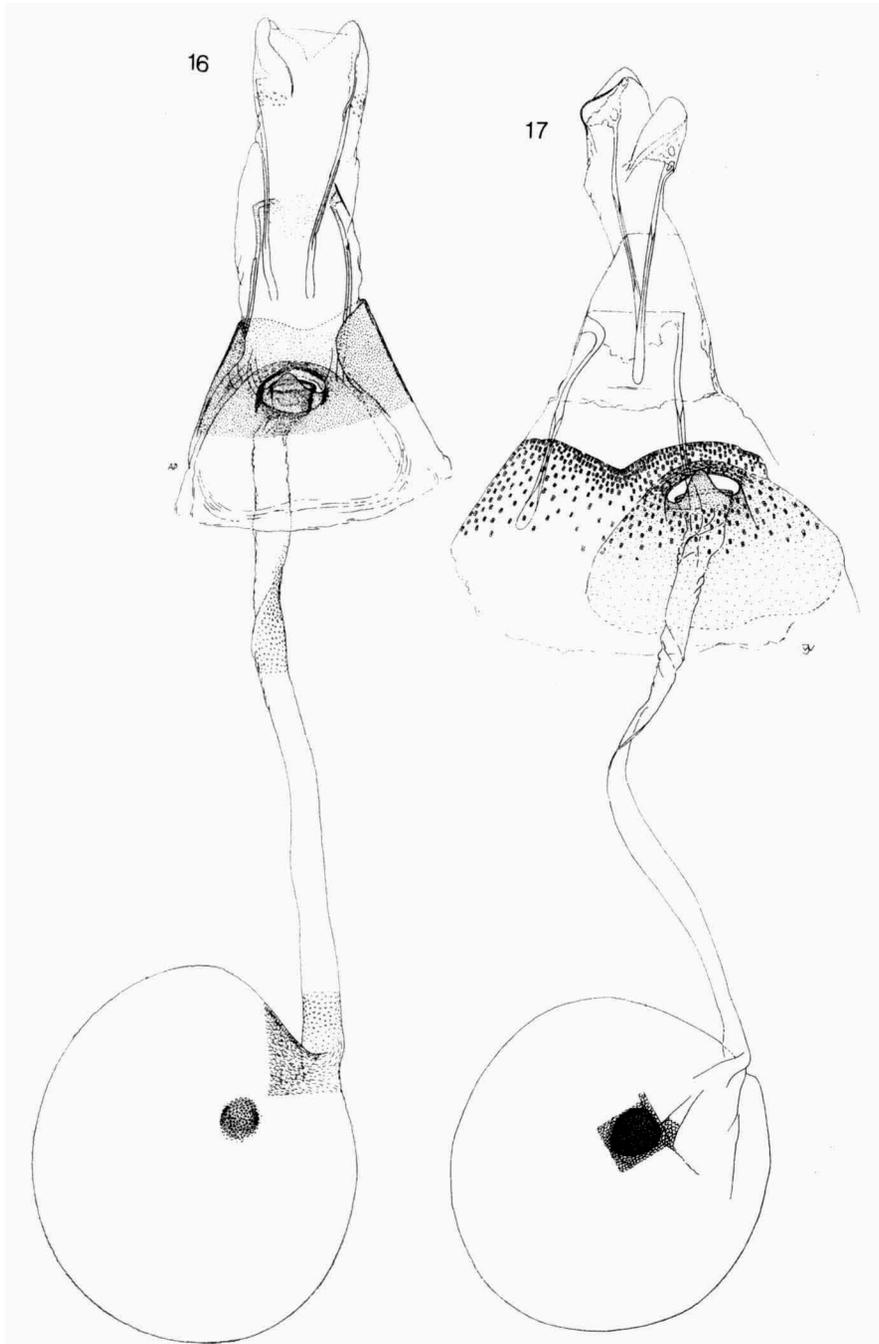


Fig. 16-17. Female genitalia of *Eutromula* Frölich, holotypes. 16, *E. mesolyra* sp.n.; 17, *E. bathysema* sp.n.

Female genitalia. Very similar to those of *E. mesolyma* sp.n. Ovipositor distinctly longer, apophyses more slender and longer, with more slender, less dilated bases. Ostium, a circular opening, lamella antevaginalis semiannular, more depressed, but median process of upper edge very high, higher than diameter of ostium proper. Ostium sclerotic, round, colliculum a short cylinder, with deeply emarginate ventral wall, more so than in *mesolyma*. Ductus bursae membranous, little dilated above, narrower punctulate along its lower 2/3, corpus bursae punctate to honeycomb-like. Signum, a rather small denticulate subcardiform sclerite with rolled down upper edge.

China, Li-kiang, Province N Yunnan, 3.ix.1935 (H. Höne), 1 ♀, holotype, genit. slide 9651; 2 ♀, paratypes, genit. slide 9660, with the same labels, but date: 14. viii.1935. Holotype in Bonn Museum. (one paratype without abdomen).

Deceivably similar to *E. nemorana*, but smaller, brighter vinaceous tinged and with the female genitalia closely approaching those not of *nemorana* but of *E. diana*, but still very distinct. As to the female genitalia nearest allied to *E. mesolyma* sp.n., but superficially that species resembles not *nemorana* but *hyligenes* most! Superficially *mesolyma* differs by a broader, greyish-tinged fore wing, with (seemingly) less scalloped termen and a greyish hind wing. Perhaps also allied to tropical **Eutromula achyrodes** Meyrick, comb. nov., from India, but the colouring and markings are with many discrepancies.

**Eutromula mesolyma** spec. nov. (fig. 16)

(μέσος = middle, λῦμα = dirt)

♀ 13 mm. Head fuscous-grey. Antenna black, white-ringed. Palpus dark grey, basal segment white, median mixed with white towards middle above, extreme top white, apical segment with two minute whitish rings; moderately curved, appressed to face, apical segment subporrect. Thorax grey suffused with tawny. Abdomen fuscous, venter paler.

Fore wing broadly subtriangular, costa curved, flat before apex, apex rectangular, termen rounded, little oblique. Rather light grey, finely striated pale grey (tips of scales); two ill-defined straight transverse bands of warm brown suffusion, little contrasting, first just submedian, slightly outwards-oblique, second terminal, slightly broader, both interconnected along lower third of wing; edge of basal patch indicated by a scalloped blackish line at 1/4 to fold; a rather conspicuous spot of black suffusion on middle of costa, slightly outwards-oblique, rounded-oval, indistinctly surrounded by ferruginous suffusion, more distinct below spot, not reaching dorsum, black spot cut by a slender leaden-grey outwards-oblique line from its middle, on costal edge whitish, and followed by a vertical light grey fascia to 1/3, on

costal edge narrowly whitish; costa beyond this to apex blackish, with a narrow whitish streak along costal edge well before apex. Cilia (somewhat rubbed) with a slight projecting tooth above middle of termen and a smaller tooth in each apex and tornus; brown-fulvous, suffused with dark fuscous towards base, extreme tips white between teeth.

Hind wing rather deep fuscous, with a bronze tinge, deeper bronze towards apex, becoming paler fuscous towards base, a straight ill-defined streak of still paler grey along lower edge of cell from beyond base to  $3/4$  of wing; basal  $2/3$  of costa greyish-white. Cilia bronze-fuscous with a pale median line, basal half of cilia darker bronze.

Female genitalia. Seventh segment sclerotic throughout. Apophyses gradually and moderately flattened and dilated at end. Sterigma in ventral side of seventh sternite, a semicircular opening with slightly darker dorsal edge, ventral edge forming a smooth, rather high lamella antevaginalis, in middle produced caudal in a regular triangular, moderately obtuse lobe; ostium proper represented by a darkly sclerotic short vertical cylinder with thickened upper edge, passing into a short colliculum, at end abruptly curved ventrad and to the left wall of colliculum, obliterate below ostium on ventral and left side. Ductus bursae simple, straight rather long, along lower  $2/3$  subrigid, with regularly punctulate wall. Corpus bursae subspherical, curving upwards. Signum, a moderate scobinate sclerite.

China, Szechuan, Mt. Shin-kai-si, 4400 ft. (D. C. Graham), 1 ♀, holotype, genit. slide 9650; 1 ♀, paratype, with the same data, without abdomen. In Washington Museum and in Leiden Museum.

Unfortunately no males are available. Superficially the female resembles slightly *E. hyligenes*, but the hind wing is unicolorous and the genitalia in the latter are entirely different. Actually nearest to *E. diana*, but quite differently marked, with a duller, purplish-grey hind wing (in *diana* rather bright reddish-purple) and with broader fore wing.

**Litobrenthia** gen. nov. (figs. 18-22)

(λίτος = simple, *Brenthia* = generic name)

Head moderately compressed fronto-caudally, with smoothly appressed scales, roughish on vertex and collar. Ocellus moderate, posterior. Proboscis short, reduced, shortly and thinly scaled towards base. Antenna over  $1/2$ , long-ciliate in male, ciliations over 2. Maxillary palpus imperceptible. Labial palpus moderate, slender, short-scaled, terminal segment slightly flattened dorsoventrally, moderately curved and ascending far from face, terminal segment little shorter than median. Thorax with smooth scales. Abdomen with a considerable anal tuft.

Fore wing triangular, being strongly dilated, costa little curved, apex and tornus similarly rounded, termen gently rounded. Vein 1b furcate along basal  $\frac{1}{3}$ , 2 from rather near angle, 4 closer to 3, 7 separate, to termen just below apex, 9 and 10 stalked, stalk from upper angle of cell, 11 from far before middle (from beyond  $\frac{1}{3}$  of cell), chorda and median branch absent.

Hind wing broadly triangular, over  $\frac{3}{4}$ , without cubical pecten. Vein 1a weak, 1b strong, excurved, furcate at base, 1c vestigial except its marginal  $\frac{1}{4}$ , 2 from close to angle, angle acute, discal vein concave, 3 and 4 connate from angle, 5 diverging at base, 5-7 tolerably sinuate, long, discoidal strongly receding, 8 strong and straight.

Male genitalia. Tegumen, a simple, rather thin bow. Tuba analis short and spherical, naked. Vincallem together with a rather long, robust saccus, caliciform. Valva simple, broadly semioval, finely haired throughout, costa straight, edge thickened, top broadly rounded, sacculus indefinite. Juxta, a large simple plate, soldered with anellus; this, a gully-shaped short sclerite with thickened sides, formed by hairy, finger-shaped lobi anales. Aedeagus

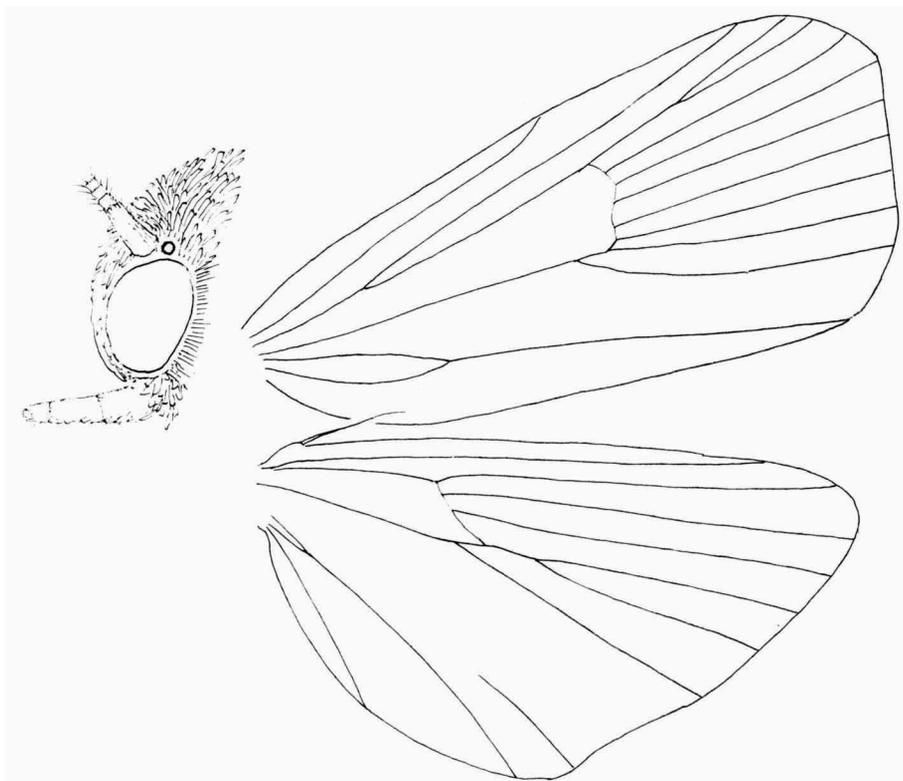
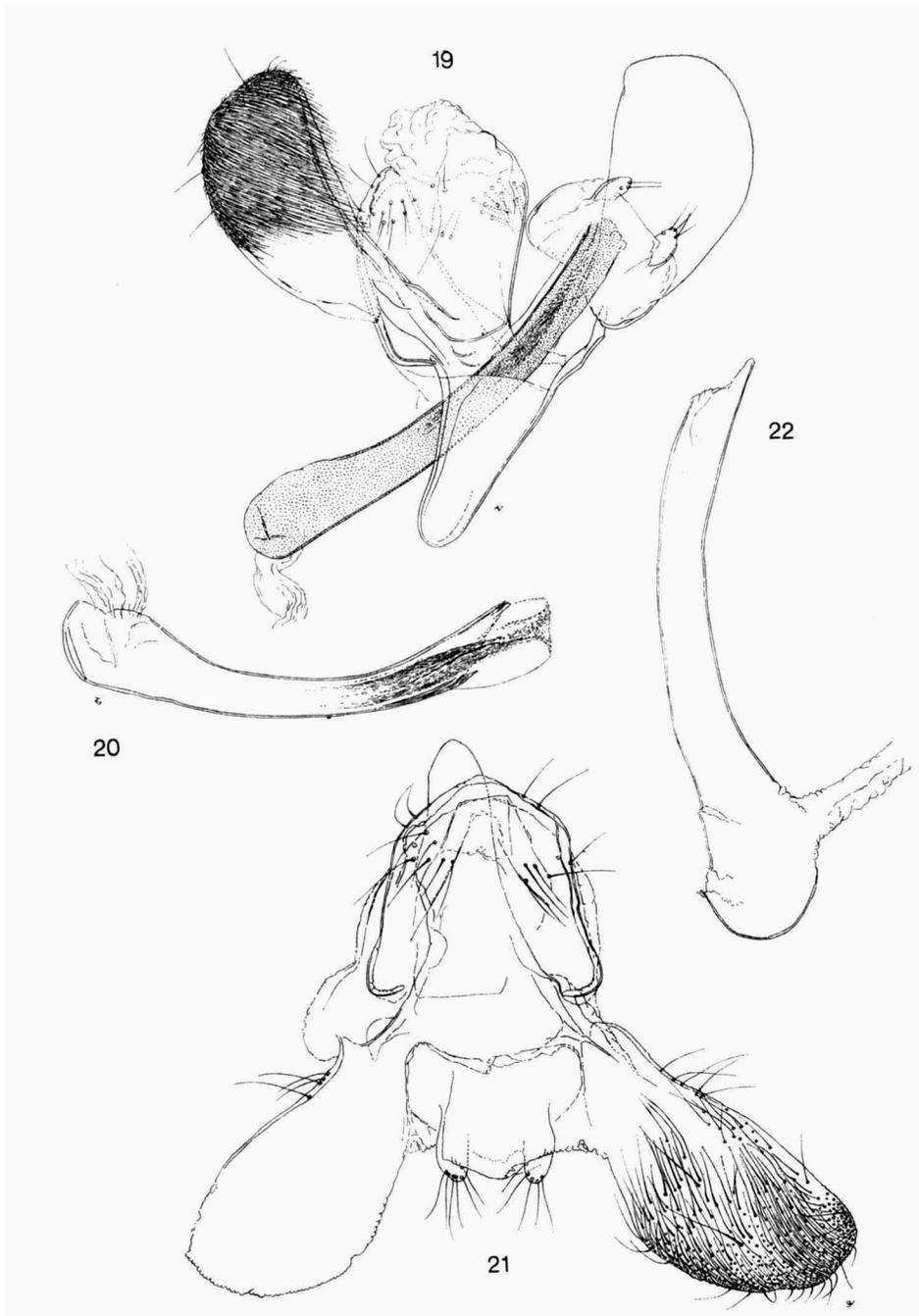


Fig. 18. *Litobrenthia japonica* (Issiki) comb. n., head and wing neuration, ♂.



Figs. 19-22. *Litobrenthia japonica* (Issiki), male genitalia. 19, of paratype, slide no. 9546; 20, the same, aedeagus; 21, of the holotype; 22, the same, sketch of aedeagus.

simple, gently curved, coecum penis dilated, top obliquely truncate. Cornuti, a median band of fine aciculae.

Female genitalia. Ovipositor oblong-oval, tortricoid, lobus analis oblong, densely bristled only along margin, with rather small bristles. Postapophysis rather short, end dilated. Anapophysis shorter, simple. Ostium, a simple membranous funnel. Colliculum, a short dark tube, hardly twice as long as broad. Ductus bursae simple. Corpus bursae elongate-pear-shaped. Signa two: a small patch of denticulations and below this a complicated large sclerite, formed by two triangular plates at right angles to one another, largest of these with a triangular central cavity.

Type species, *Brenthia japonica* Issiki (Japan).

The type-species has exactly similar facies, markings and even general superficial characters with these in *Brenthia*, differing only by the peculiar stalking of the veins 9 and 10 in the fore wing — but besides, so completely different genitalia in the two sexes from those in *Brenthia*, that all these similarities must be ascribed to remarkable convergence, perhaps to mimicry, and the present species must be separated in a distinct genus.

***Brenthia nephelosema* spec. nov. (fig. 23)**

(νεφέλη = mist, σημά = marking)

♂ 14 mm. Head glossy light fuscous, lower edge of face white, vertex roughish. Antenna fuscous, white-handed above, scape white below. Palpus robust, little curved, porrect, terminal segment almost as long as median; basal segment whitish, median white with a narrow basal and a broader subapical fuscous ring, terminal segment with suffused fuscous basal and apical bands, extreme tip white. Thorax fuscous with a bronze gloss and slight whitish opalescence. Abdomen fuscous-bronze, posterior edges of segments narrowly silvery-white, venter and oval tuft below, white.

Fore wing oblong-subtriangular, gradually dilated, costa little curved, apex rounded, termen rounded above and below, almost vertical in middle. Rather dull purplish-fuscous; markings formed of whitish dusting, tending to form finest horizontal striation. A narrow strongly suffused transverse stria at 1/5, outwards-convex, gently inwards-oblique; an incomplete transverse vertical band at 1/3, forming a faint cloudy spot halfway costa and fold, slightly extended posterad and a larger suffused such spot just below fold, pointed below, not reaching dorsum; a circular white mark around upper angle of cell, less distinct at the sides; a suffused suboval erect mark below this, formed of two lateral white spots and a single brighter suffusion just below fold; a very faint small dusting beyond these marks; a narrow fasciate group of brilliant green-blue scales below central fourth of costa and a round

blotch of such scales in disc between circular mark and preterminal band; terminal velvety black band broad, surrounded by a bronze rather narrow edge appearing paler than ground colour, with two narrow, a trifle inwards-oblique striae of this colour, cutting black band in three unequal blotches; upper blotch smaller, rounded anteriorly, pointed posteriorly, second blotch with anterior edge obliquely rounded, posterior irregularly serrulate, third blotch 1.5 times as large as second, anterior edge concave, posterior serrulate and convex; bright violet dots before posterior edge of black band: two dots in first, two in second and three in third blotch; a conspicuous white suffused roundish spot on anterior edge of terminal band, at the anterior end of second transverse line. Cilia fuscous-bronze, with a darker basal third in certain



Fig. 23. *Brenthia nephelosema* sp.n., ♂, holotype, genitalia.

lights, a broad white bar over posterior  $2/3$  in apex, a smaller such bar above tornus.

Hind wing concolorous with fore wing, costa with a pale silvery-grey marginal streak; a suffused oblique suboval discal spot at  $2/5$ , touching costal streak; a very faint transverse paler fuscous and suffused preterminal band from costa well before apex to tornus, between vein 3 to 6 abruptly shifted towards termen and including a spindle-shaped, rather narrow white stria; extreme ends of transverse band with faint metallic small spots; a blue-violet metallic submarginal streak before apex. Cilia fuscous with whitish-ochreous basal line, an oblique, dilated faint whitish-ochreous streak above dorsum and a white similar streak opposite white preterminal stria.

Male genitalia. Strongly sclerotized, with valvae soldered together along ventral edge and not possible to flatten. Therefore difficult to read and describe. Tegumen small, spherical, pendunculi thin, shoulders thickened, a short hairy uncus present. Vinculum indefinite. Valva with ventral half ending in a huge outwards-curved horn, dorsal half (costa) with a slender mesad-curved prong; between these a small conical cucullus; disc with excurved complicated median folds, forming the harpes. Anellus paired, about 8-shaped, tops separate, dilated and hairy. Aedeagus not traceable.

China, Fukien, 16.v (Suenson), 1 ♂, holotype, genit. slide 9921. In Caradja Collection, Nat. Hist. Mus. "Grigore Antipa", Bucarest. 1 ♂, paratype, with identical data, with the abdomen missing.

The rather large species is characterized by the suffused white spot in the middle of the anterior edge of the preterminal band. The Japanese species *B. yaeyamae* Arita has a similar but more basad-shifted white discal spot, but is much smaller and has entirely different male genitalia which in *B. nephelosema* are highly specialized and completely baffling. It would be interesting to know what the females are like.

***Brenthia tetartodipla* spec. nov.** (figs. 24-25)

(τέταρτος = fourth, διπλόδ = double)

♂♀ 10 mm. Head greyish-fuscous with a purplish-fulvous opalescence, face becoming white below, orbits white. Antenna fuscous, white-ringed. Palpus rather long, little ascending, slightly compressed, little diverging, light fuscous, whitish at base, median segment with a suprmedian and an apical white ring, apical segment with a median white ring. Thorax fuscous with a stronger reddish-purple gloss. Abdomen bronze-fuscous banded with white, venter white in male, narrowly banded with silvery in female.

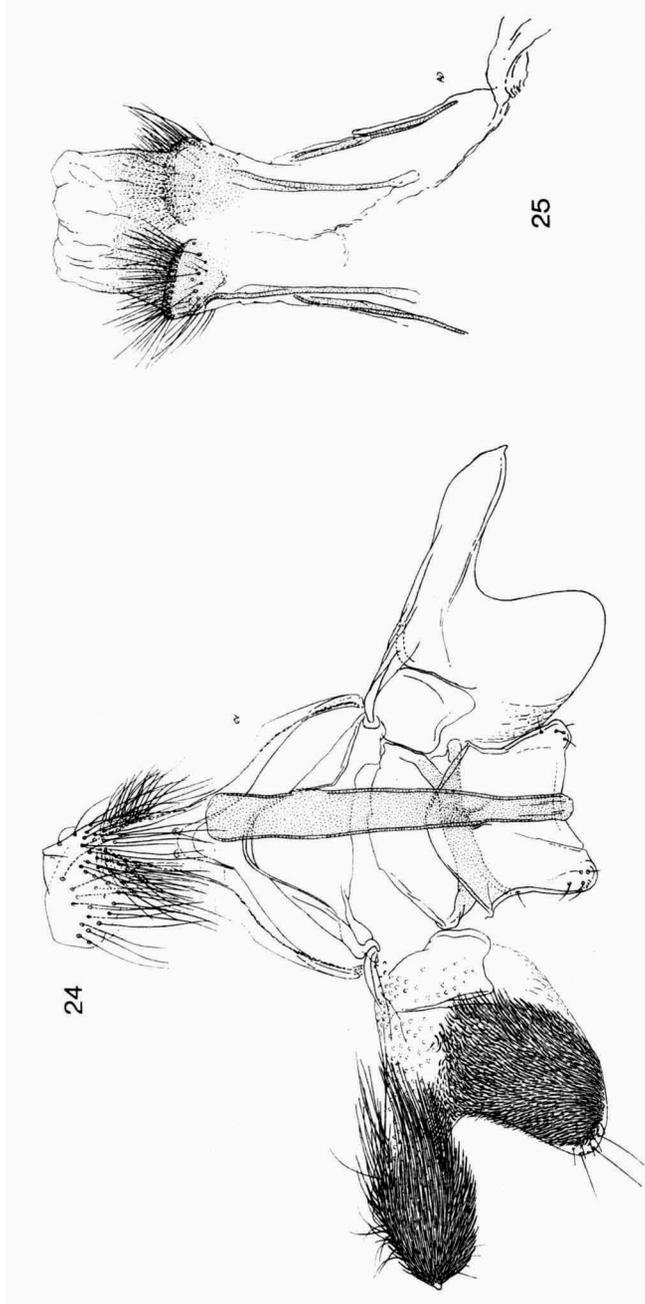
Fore wing subtriangular, truncate, rather broad, costa moderately curved, apex strongly rounded, termen rounded, little oblique. Rather deep brownish-

fuscous, marked with transverse, more or less scalloped lines of whitish irroration. A transverse-suboval mark beyond base, with a slender appendix below not reaching dorsum, posterior edge of mark twice convex; an ill-defined spot of whitish dusting beyond and below  $2/5$  of costa, posteriorly connected with a strongly sinuate, moderate fascia, curving outwards, then inwards, to  $2/5$  of dorsum; a second similar, less sinuate and subparallel fascia from below  $2/3$  of costa to  $3/5$  of dorsum; a third transverse fascia from before  $3/4$  of costa to well before end of dorsum, both ends curving posterad, middle part rather rounded, convex posteriorly; terminal band jet-black and broad, from posterior part of costa to tornus, moderately broad above, gradually dilated to below middle thence slightly narrowed, parallel to edge of wing, narrowly edged anteriorly by a continuous creamy line and cut by the same colour, somewhat obliquely, into seven unequal blotches; first black spot minute and compressed, second many times larger, third larger than second, fourth again larger than third and double, apparently two spots melted together, following spots growing gradually smaller; each blotch with large brilliant violet-silvery metallic dots. Cilia with basal third darker greyish-fuscous, median third lighter fuscous, apical third pale fuscous.

Hind wing with lower half of termen slightly prominent opposite ends of veins 3 and 1b, concave in between, fuscous, slightly paler than fore wing, terminal half darker fuscous; a whitish transversely oval discal spot of white dusting almost filling out centre of oval, before and below middle of costa; a suffused whitish fascia slightly more posterad than halfway between cell and termen, more sinuate than termen, from costa well before apex to tornus, interrupted between veins 7 and 6, and hardly so, below vein 3; a brilliant violet-silvery submarginal line from costa just before apex to vein 2. Cilia with basal third deep fuscous with a pale tawny basal line, exaggerating prominences of termen, remainder of cilia lighter fuscous with three oblique white fasciate patches: opposite apex, before first terminal prominence and in the following concavity.

Male genitalia. Tegumen acutely triangular, pendunculi very slender, moderately curved. Vinculum very short, passing into saccus which is broadly triangular, with rounded top. Valva moderate, cleft in an obliquely rising, densely bristled, clavate cucullus part and a horizontal, spindle-shaped, long-bristled sacculus part; basal part of valva (valvula) distinctly demarcated from disc of valva. Anellus large, subquadrate in outline, sclerotized, with a dark annular basal part. Aedeagus long and slender, gradually narrowed, coecum penis narrowed, slender.

Female genitalia. Only partly intact. Lobus analis normal, convex. Both apophyses pairs slender and rather short.



Figs. 24-25. *Brenthia tetartodipha* sp.n., genitalia. 24, ♂, holotype; 25, ♀, ovipositor of allotype.

China, Prov. Chekiang, West Tien-mu-shan, 19.v.1932, 1♂, holotype, genit. slide 9549; 12.v.1932, 1♀, allotype, genit. slide 9548 (H. Höne) (In Bonn Museum).

Judging from the male genitalia the species is closely allied with *B. cyanaula* Meyrick, from Ceylon, but differing by the tegumen being broader, especially the legs (pedunculi) and the sacculus part of the valva being almost twice as broad as in the present species, clavate, with top broadly rounded.

## IMMIDAE

### **Alampla** gen. nov. (figs. 26-29)

(*ala* = wing, *amplus* = wide)

Head with smoothly appressed scales. Ocellus apparently absent. Haustellum very weak, short. Antenna in both sexes under 1/2, moderately thickened throughout, tip abruptly pointed; minutely ciliate; scape without pecten. Palpus moderate, flattened dorso-ventrally, curved and ascending, median segment with roughish, appressed scales, terminal segment shorter than median, pointed in male, obtuse in female. Thorax smooth, Posterior tibia smooth. Abdomen with tortricoid apodemes on first sternite.

Fore wing very broad, oblong-triangular, costa curved, apex rectangular, termen gently rounded, little oblique. Vein 2 from 4/5 of cell, 3 from angle, 7 separate, to termen, 11 from before middle, chorda absent.

Hind wing without a cubital pecten, slightly over 1, broadly semioval, cilia rather short. Vein 2 from beyond 2/3, 3 from angle, 4 remote, 5 parallel, above middle of discoidal, 6 and 7 stalked.

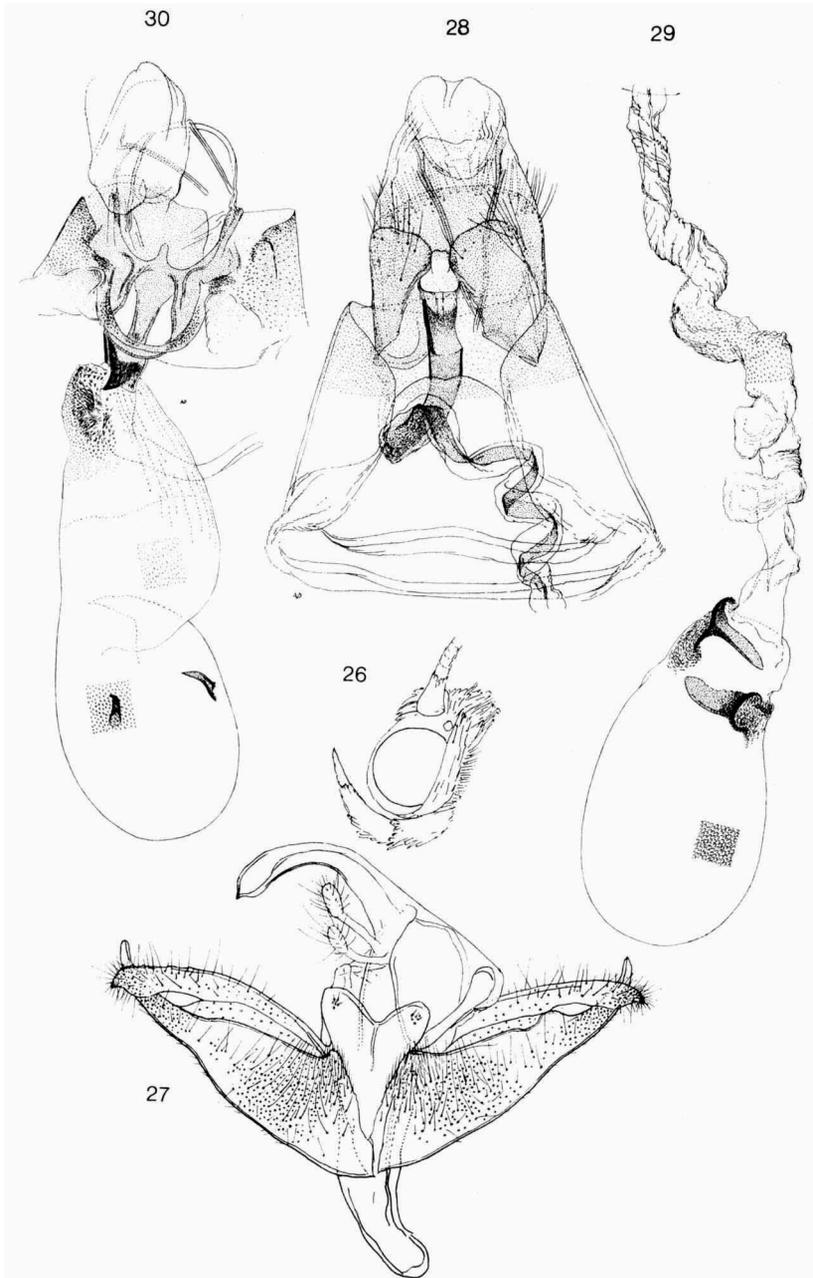
Male genitalia. Tegumen rather short, triangular. Uncus, a strong long hook with subclavata top. Socii, two clavate and rather long slender appendages. Vinculum extended in a robust saccus, about as long as uncus. Valva with a broad, concave base, narrowed posteriorly, costa produced into a free downcurved arm, sacculus broad, simple, top with a long, upcurved hook. Anellus, strong, erected-sub-cardiform, upper edge emarginate. Aedeagus simple, straight, subclavate, coecum penis moderate.

Female genitalia. Eight segment sclerotized. Ostium small, with a tubular or narrow funnel-shaped colliculum. Ductus bursae very long and tortuous or moderate and straight, wall granulate, with a band-like or a sheath-like cestum. Corpus bursae pear-shaped. Signa two, tortricoid hollow horns or flat triangular plates.

Type species, *Imma palacodes* Meyrick (Formosa = Taiwan).

The distribution is: tropics of Southern Asia and the southeastern border of the Palaearctic region up to 1800 m in Nepal.

An interesting novel form, easily recognizable by the short antennae and



Figs. 26-30. Features of Immidae. 26. *Alampla palaeodes* (Meyrick) comb. nov., sketch of head; 27, the same, genitalia ♂, holotype (After Diakonoff, 1968); 28, the same, genitalia ♀, allotype; 29, the same, ductus and corpus bursae. 30, *Imma flammula* sp.n., ♀ genitalia, holotype.

the tortricoid genitalia in the two species; especially the paired signum is striking. Probably more species belonging here may be discovered among species described in *Imma* Walker. So broad are the wings of the known forms that they strongly resemble some dark Lycaenidae or Rhiodinidae! The affinity with the Tortricidae seems to be firm and manyfold. The dorso-ventrally flattened labial palpi, on the other hand, resemble those in *Glyphipterix*.

Beside the type species also *Imma arcifraga* Meyrick, from Taiwan and the following species belong here.

***Alampla tetrope* spec. nov. (fig. 31)**

(τετρα = four, ὄψ = eye)

♀ 15 mm. Head deep brownish-fuscous, face and frons between bases of antennae mixed with white. Antennae deep purplish-fuscous, ringed with white. Palpus curved, ascending close to face, reaching above middle of eye, slightly flattened dorso-ventrally, terminal segment obtuse. Deep purplish-fuscous, basal segment white, median with a suprmedian and an apical white ring, terminal with a median white ring and a white tip. Thorax brownish-fuscous. Abdomen deep purple-fuscous, venter white. Posterior tibia and tarsus deep purple-fuscous, broadly banded with white along articulations and spurs.

Fore wing with veins 7 and 8 separate, broad, strongly dilated, ovate-triangular, costa curved, apex obtuse-rectangular, termen rounded, little oblique. Dark purplish-fuscous, anteriorly more dull blackish-fuscous, posteriorly slightly lighter brownish-fuscous with a bronze gloss. A slightly outwards-oblique transverse erected-oval white discal spot just beyond and parallel to closing vein, rounded on both ends, gently narrowed downwards, from vein 11 to vein 3; a small whitish inwards-oblique mark beyond 2/3 of costa, with a metallic blue dot below it; a couple of similar dots below costa halfway between preceding and apex and a close series of such dots before termen from vein 7 to tornus. Cilia deep fuscous-purple, basal third deep blackish-purple throughout, upper 2/3 white below apex and above tornus, lower white patch longest.

Hind wing deep purplish-fuscous, darker than fore wing, suffused with dark purple; an ill-defined paler fuscous marginal streak from around apex to tornus, preceding by a narrower similar streak, from about vein 7 to 2, slightly diverging and dilated downwards; a narrow blue-metallic line, throughout edging marginal streak anteriorly; an erected-triangular suffused whitish discal spot, slightly before middle, from costa, with truncate base on lower edge of cell. Cilia with basal third dark fuscous-purple, throughout,

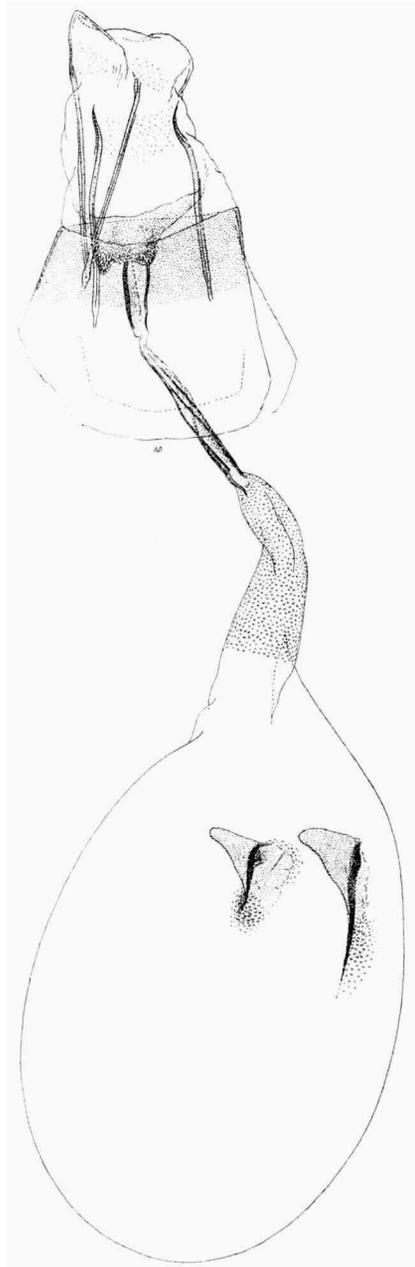


Fig. 31. *Alampla tetrope* sp.n., ♀ genitalia, holotype.

elsewhere paler fuscous, white around apex and upper third of termen, mixed with white over middle third along middle of termen. Under side of hind wing with discal spot larger, erected-oval, below this a slender vertical stria to above tornus, whitish mixed with metallic scales, blue metallic sub-terminal line thicker, preceded by another (not visible on upper side).

Female genitalia. Ovipositor rather slender, moderate. Eighth segment sclerotic. Ostium small. Colliculum, a slender funnel, darkly sclerotic. Ductus bursae moderately long, gradually dilated, wall finely granulate, upper third with a sclerotic cestum, being two narrow longitudinal sheath-like folds. Signa two, triangular fin-like dark sclerites, upon a punctate weak basal plate.

Nepal, Kathmandu Valley, Godavari, 1600-1800 m, 5.vi.1967 (Dierl & Schacht), 1 ♀, holotype, genit. slide 9604. In Munich Museum.

The species is characteristic by the pattern of white spots in both fore and hind wings, it is smaller and differently coloured than the type species, but the facies is the same, while the female genitalia have the ovipositor shape, the long sclerotic colliculum and the double signum in common. But the two species are not closely allied, suggesting the existence of a long series of transitional forms, unknown at present.

***Imma flammula*** spec. nov. (fig. 30)

♀ 13-16 mm (holotype 14 mm). Head pale yellow, orbits deeper ochreous. Antenna grey-fuscous. Palpus long, recurved, tip of median segment exceeding upper edge of eye, little dilated, with smoothly appressed scales, roughish along tip, terminal segment acute, 1/3 median; pale yellow, slightly brighter above, with a medio-ventral greyish-violet stripe from base to apex. Thorax greyish-purple, edges of tegulae mixed with orange, apex with an orange longitudinal spot. Abdomen dark fuscous with a purple hue, banded with bright yellow, venter white, anal tuft dark purplish-grey.

Fore wing suboval-truncate, rather broad, costa curved posteriorly, apex rounded, termen rounded, vertical above, more rounded below. Dark fuscous, very gradually becoming darker towards costa. Costa with a triangular spot just before middle, gently rounded, base slightly extended anterad along costal edge, pale yellow, dusted with orange; a larger, inverted-cardiform transverse patch below and slightly beyond this; pale yellow, tip and base suffused with orange, tip rather pointed, reaching 2/3 across disc, base with a slender premedian notch, so formed anterior leg truncate and shorter than posterior; this not reaching termen; basal part of wing with five brightly orange spots; a longitudinal streak along basal fifth, from beyond base, half-way between costa and fold; another, more slender streak along fold and

second fifth of wing length; an oval spot beyond and slightly below upper streak; a round spot obliquely below second streak, above dorsum; an outwards-curved, broader obliquely transverse streak from fold beyond base to 1/4 of dorsum; terminal part of wing with a strongly curved transverse series of some ten horizontal orange, almost interconnected marks, more or less slenderly pointed anteriorly, irregularly suffused posteriorly, arranged from below 2/3 of costa to above tornus, the series more curved above; a paler orange oval longitudinal spot before and adjacent to this row above its middle. Cilia dark fuscous, posterior half whitish.

Hind wing lighter fuscous than fore wing, with a ferruginous tinge; a pale yellow, lozenge-shaped discal spot over lower angle of cell, rather elongate along lower edge of cell anterad and along basal part of vein 2 posterad, lower angle indefinite, upper angle with a faint suffused pale line along discoidal vein. Cilia as in fore wing.

Female genitalia. Ovipositor oval and fleshy, broad and short. Eight sternite enlarged and sclerotized, forming a complicated sterigma: a central, X-shaped thickening, with a small process in middle above, a large narrowed one below (forming something of two letters W with bases against each other); a broadly U-shaped ridge around the lower W, forming the ostium. Colliculum rather short, asymmetrical, narrowed below, aciculate, Ductus bursae obliterate. Corpus bursae sausage-shaped, at top left with aciculations. Signa two, subequal curved horns without basal plates.

Males unknown.

Nepal, Province Nr. 2, East, Jiri, 2000 m, 13.viii.1964 (W. Dierl), 1 ♀, holotype, genit. slide 9542, 2 ♀, paratypes, genit. slide 9541. — Helmu Gebiet, Gusum Bunjyang, 2600 m, 3.ix.1967, 2 ♀, paratypes (W. Dierl). In Munich and Leiden Museums.

A distinctly marked species, with the dorsal spot of the shape of the flame of a candle. This species varies rather strongly in size, the holotype is 14, one paratype is 13 mm, the largest paratype, 16 mm (genit. slide 9541).

**Phycodes penitis** spec. nov. (fig. 27)

(πηγίτις = weaver)

♂ 24.5 mm. Head leaden-grey, vertex purple. Antenna dark grey. Palpus snow-white, terminal segment leaden-grey. Thorax brownish-purple, rather large, tegula with inner edge narrowly whitish. Abdomen purple-black, venter white, edges of segments black, pleurae black, anal tuft light grey.

Fore wing long and narrow, scarcely dilated, costa straight anteriorly, slightly curved and prominent along posterior third, apex rounded, termen almost straight, little oblique. Deep grey-purple, towards base gradually

becoming suffused with grey, transversely striolated throughout (tips of scales). Markings formed by minute transverse striolation, cloudy and including small round dots of ground colour; a faint greyish suffusion in middle of disc beyond  $1/4$ ; a transverse, moderate hardly outwards-oblique band of pale grey striolation, gently outwards-convex; upper part from costa to fold dusted with purplish except lateral edges; band between fold and vein  $1a+b$  extended anterad to  $1/3$  of wing length and including four round dots of ground colour in a horizontal row; a cloudy and faint irregular greyish outwards-curved and oblique band from before  $3/4$  to tornus, interrupted in fold. Cilia unicolourous dark grey-purple.

Hind wing over  $2\frac{1}{2}$  times breadth of fore wing, apex rounded, termen regularly rounded throughout. Deep brassy-purple, lighter than fore wing and more reddish tinged, with basal faintly paler, posterior half of cell with suffusedly pale lower and posterior edge; a faint clavate streak along central third of cell  $1a$ . Cilia glossy, creamy, basal half deep brassy-purple.

Male genitalia. Tegumen rather short, strongly concave. Vinculum triangular, with a thick edge, as long as tegumen. Tuba analis cylindrical, rather wide, dorso-proximal  $2/3$  sclerotic and bristly. Anellus, a rhomboidal opening with sclerotic edge. Valva broadly oval, costa sclerotic throughout, with posterior third forming a free curved long hook, not reaching tip of valva which is rather narrowed. Aedeagus shaped as an elongate cornucopia, with a short-hooked and narrowed top. Cornuti, one large and numerous smaller triangular teeth.

Borneo, Sarawak, Malinau, near Mt. Malu, Nov., 1910, 1 ♂ holotype, genit. slide 7601. In Leiden Museum. A large species, distinct by the genitalia and the markings. Probably allied with *P. minor* Moore.

**Phycodes tertia** spec. nov. (fig. 33)

(*tertianus* = belonging to the third)

♀ 22 mm. Head polished, brilliant golden with strong pinkish, rosy and prismatic reflections; collar thin, white. Antenna black, with prismatic gloss, flagellum flattened dorso-ventrally along basal half. Palpus snow-white, apical segment black, tip flattened laterally and rounded, with grey opalescence. Thorax rather lengthened; very smooth, with strong golden reflections in certain lights, changing to moss-green in others; densely marked with numerous irregular white spots strongly resembling fine lace, especially on broad notagium. Abdomen purple-black, ringed with whitish, fringe of posterior edges of segments 3-7, and 8th tergite dusted with white (narrow edges of scales), venter white.

Fore wing oblong-subtruncate, costa straight along basal  $3/4$ , gently curved

thence, apex subrectangular, termen straight, little oblique. Blackish-purple, covered with fine undulating transverse lines, becoming less dense on posterior  $2/5$ . A jet-black, dull transverse band at  $1/3$ , moderate, gently outwards-convex, slightly dilated along its lower half; a faint grey fasciate shadow beyond and parallel to this fascia; irregular patches of deep purple ground colour, occupying about posterior  $2/5$  of wing and arranged thus: an irregular broad, slightly outwards-oblique band, from before  $3/5$  of costa, to end of dorsum, interrupted above middle, so forming two irregular patches, both surrounded by ill-defined, cloudy smaller spots, costa with some ten subquadrate small spots, becoming larger and more or less confluent along posterior fourth; a dark patch of ground colour in tornus, less strigulated with white. Cilia purplish-black, moderately glossy.

Hind wing deep purple with a silky gloss; yellowish white, suffused discal markings as follows: a narrow line along upper edge of cell from beyond base, not reaching middle; an oblong-oval larger almost horizontal patch along lower half of cell, occupying about second fourth of greatest wing length; a small suboval interneural spot above middle of vein 1b. Cilia yellowish-white with a fuscous basal band except on costa, cilia around apex and along dorsum fuscous throughout.

Males unknown.

Female genitalia. Ovipositor very long, robust. Lobus analis membranous, top short-bifid. Postapophysis very long and slender. Anapophysis with posterior half furcate. Ninth tergite, a slender longitudinal sclerite. Ostium, a simple, darkly sclerotized funnel. Colliculum, a small triangular sclerite. Ductus bursae moderate, cestum, a slender band-like sclerite. Corpus bursae subspherical, large simple; ductus seminalis originating from centre of ventral side.

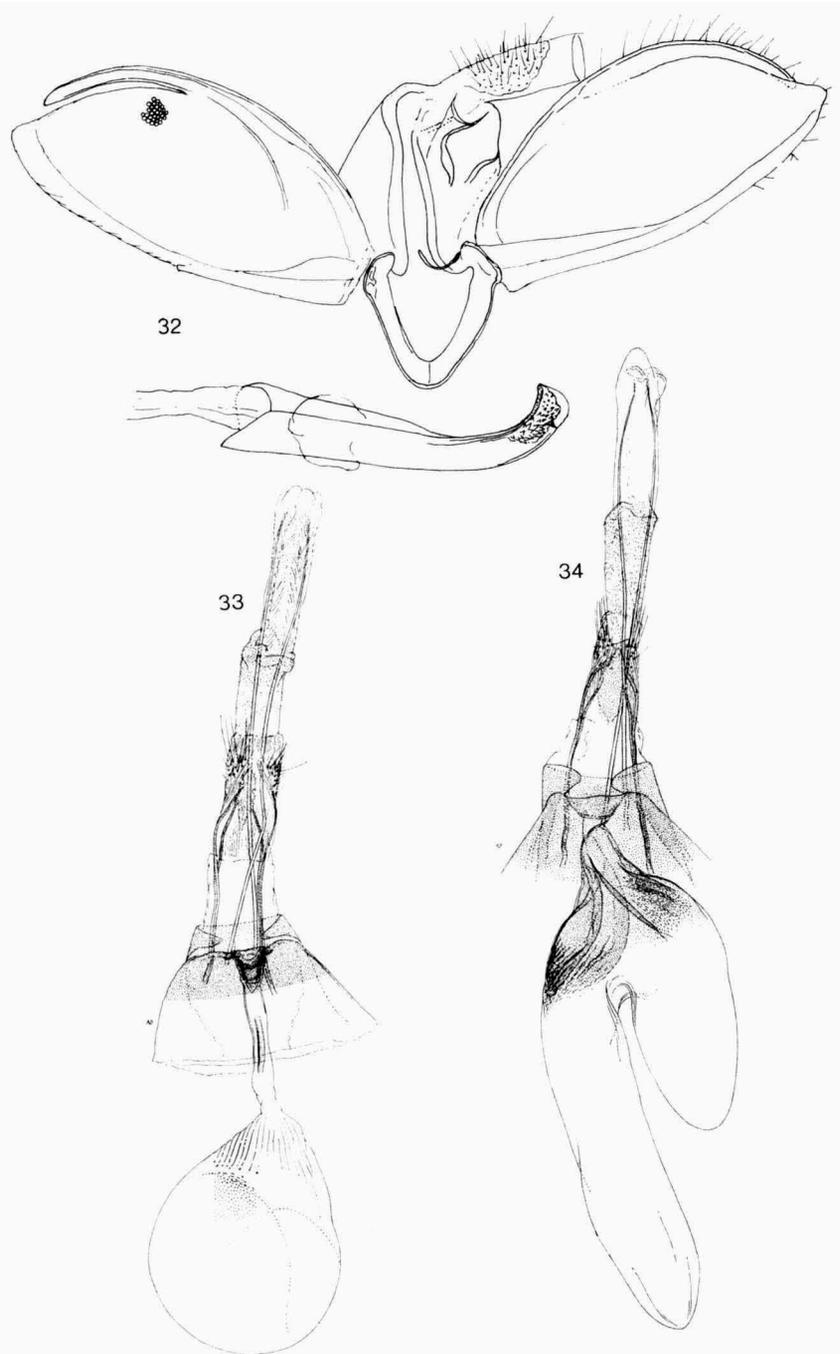
East Afghanistan, Nuristan, Bashgultal, Mangul, 1250 m, 18.vii.1952 (J. Klapperich), 1 ♀, holotype, genit. slide 9388; 1 ♀, paratype, with identical data. In Karlsruhe Museum.

A large species with narrow fore wings and sparsely marked hind wings.

**Phycodes omnimicans** spec. nov. (fig. 34)

(*omnis* = entire, *micare* = to glisten)

♀ 15.5 mm. Head bronze-colour with a brilliant green sheen, vertex apparently dull bronze (covered with glue). Orbit below with a snow-white tuft of projecting scales. Antenna black. Palpus with basal segments flattened and dilated, brilliant pale green, terminal segment moderate (less than  $1/4$  rest of palpus), pointed, black. Thorax thick, enlarged, smooth; fuscous-grey, with a pinkish opalescence, appearing finely motley (paler edges or



Figs. 32-34. Genitalia of *Phycodes* Guenée, holotypes. 32, *P. penitis* sp.n., ♂; 33, *P. tertiana* sp.n. ♀; 34, *P. omnimicans* sp.n., ♀.

tips of scales). Abdomen pale ochreous-greyish with a golden gloss, venter except bases of segments glossy white, turning faint yellowish posteriorly, tip of abdomen dark grey.

Fore wing oblong-subtruncate, broadest at  $4/5$ , costa straight except at base, gently prominent beyond base and more strongly, at  $4/5$ , apex obtusely pointed, termen straight, hardly convex, little oblique. Deep purplish-fuscous, this ground colour lightened by fine whitish dusting, anteriorly forming numerous slender transverse lines (white tips of scales), posteriorly, a much less dense speckling; a slightly outwards-oblique darker fuscous-purplish transverse fascia, rather faint, erected-suboval, becoming narrow on costal  $1/4$  or  $1/5$ , wing before fascia dusted with paler, beyond fascia an ill-defined whitish dusting along fascia from above middle extending posteriorly, below reaching tornus, but nowhere well defined; beyond this wing becoming deep fuscous-purplish, with only sparse, light speckling, rather denser over an oval area between cell and apex; fine transverse striae on costal edge pure white. Cilia unicolourous fuscous-purple with a purple gloss.

Hind wing deep dull brownish-purple, becoming gradually paler basad, cell from beyond base much paler greyish, dusted with purplish, base of wing and base of dorsum semipellucant. Cilia light fuscous-grey, darker fuscous around apex, around tornus and along dorsum, with less than basal third throughout forming a deep brownish-purple basal band.

Female genitalia. Ovipositor long, rather thick, lobus analis membranous. Anapophyses very thin, postapophyses furcate. Ninth tergite, an oblong longitudinal sclerite. Ostium, a broad, shallow cup, lamella postvaginalis membranous and devoid of scales, with a convex structure.

China, Ichang, 21.iv. 1934 (H. Höne). In Bonn Museum.

A rather obscure species, characteristic by its brownish-purple tinge and moderate silky gloss more over fore than over hind wings, with obscured discal spots. Colliculum absent. Ductus-bursae short, plicate. Corpus bursae extremely large, inequally inverted-U-shaped, left arm extending through the whole abdomen to the basal segments, right arm broader and half as long; top of corpus bursae with several unequal flattened and strongly sclerotized folds, two of these, on the left side, forming large semioval sclerite, wall partly aciculate, partly plicate.

#### GLYPHIPTERYGIDAE

##### **Glyphipterix amseli** spec. nov. (figs. 35, 44)

♂ 13.5-16 mm. Head deep blackish-brown with a strong leaden gloss. Antenna blackish; serrulate in male. Palpus long, strongly curved and ascending, tip reaching base of antenna, terminal segment slightly longer than

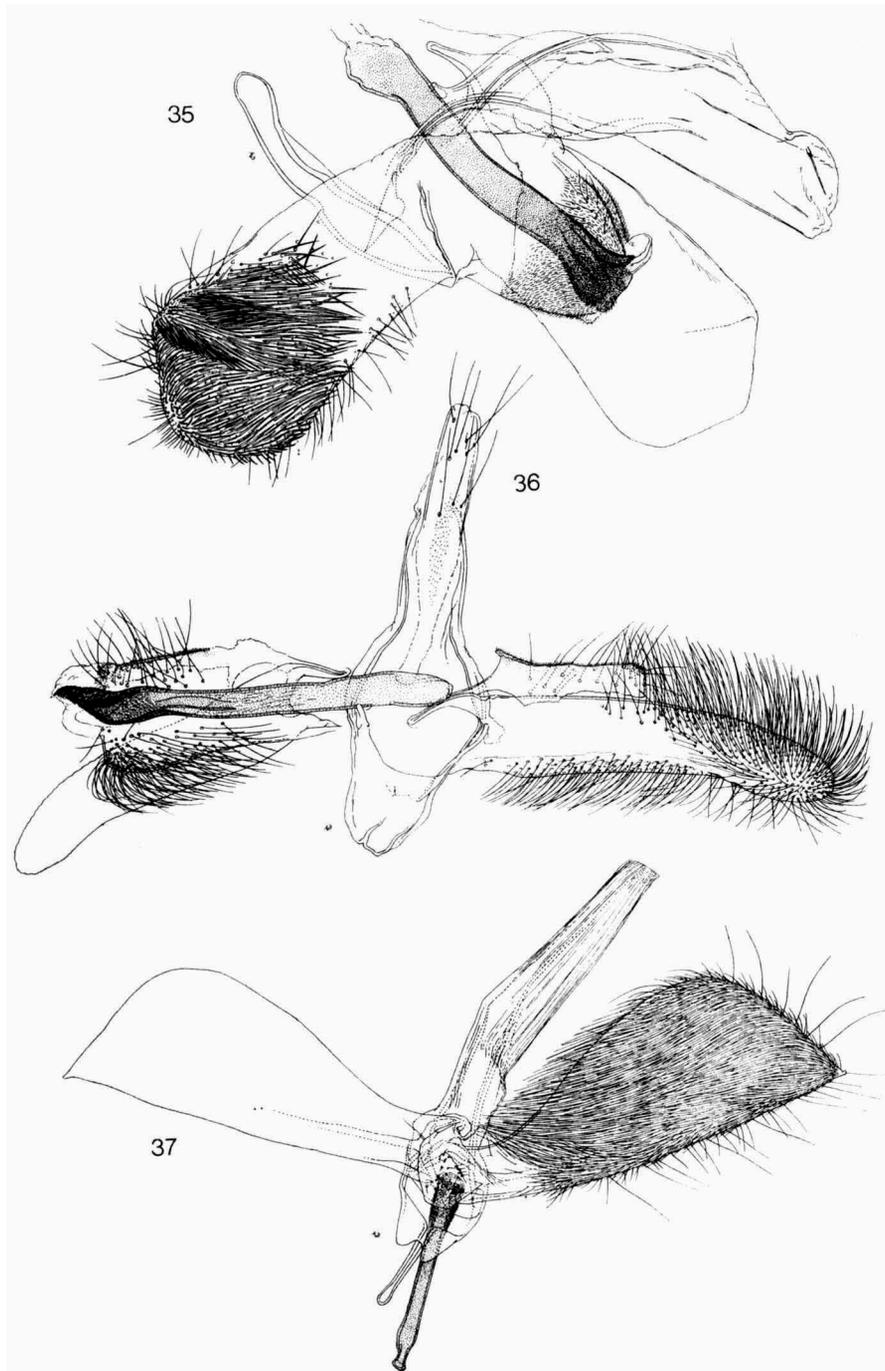
median, with a few projecting scales in front, tip acute; blackish-brown. Thorax blackish-brown, polished, with a strong leaden shine. Posterior tibia dark fuscous, glossy spurs whitish. Abdomen dark glossy fuscous, venter and apical tuft paler.

Fore wing oval, rather broad, gently dilated and broadest at  $4/5$ , costa gently curved throughout, apex strongly rounded and ill-defined, termen rounded. Anterior  $2/3$  of wing deep fuscous, strongly and evenly mixed with pale grey, more mixed below fold. Costa with a small suffused white dot in middle, another smaller dot before  $2/3$ ; posterior third of wing suffused with yellow-orange, rather obscured with sparse fuscous dusting, edge of this suffusion ill-defined, its upper half almost vertical and outwards-convex, its lower half very oblique, to dorsum above tornus, stronger suffused; some nine pale leaden-metallic spots very pale bluish on anterior  $2/3$ , pale green, on posterior  $1/3$ , with a bright gloss, well-defined, slightly elevated and narrowly edged with dull dark fuscous; these spots arranged thus: a faint roundish spot just below costa beyond base, another small round spot beyond this below fold; a couple in a vertical series at  $1/3$ , erect, above and below fold, respectively, upper largest; an inwards-oblique largest, oval spot along end of cell, followed by a pair of round dots above end of dorsum; greenish spots: two large parallel outwards-oblique oblong-oval spots just below costa, and an oblong subquadrate spot on lower end of termen, extending over basal half of cilia. Cilia elsewhere light tawny, with a subbasal blackish band and irregularly blackish tips.

Hind wing rather broad, suboval, dull bronze-brown, becoming paler towards base. Cilia pale tawny-ochreous, basal half dark brownish, tips slightly mixed brown.

Male genitalia. Tegumen slender. Tuba analis large and broad. Vinculum moderate, with a robust, slightly clavate saccus which is shorter than aedeagus. Valva broad, rather short, dilated and rounded at the top, with over posterior half rather densely covered with thin, basad-directed moderate bristles, forming an appressed tuft at upper end of costa and a small one along end of opposite edge. Anellus, a large coloured cone, with fine, dense aciculae towards top. Aedeagus as long as valva, rather straight, twice gently sinuate: before top and before base, apical fourth sclerotized, top dilated and truncate, with dense short aciculae. Cornutus, a rather short tube.

♀ 14-17.5 mm. Paler than male, less regularly dusted with fuscous. All metallic spots larger, transverse, four discal parallel, slightly inwards-oblique and narrowed below, spot at base of costa absent, additional dot on middle of costa, posterior subcostal pair longer and more slender; other spots as in male; all spots uniform pale blue-violet. Otherwise similar to male.



Figs. 35-37. Male genitalia of *Glyphipterix* Hübner, holotypes. 35, *G. amseli* sp.n.; 36, *G. octatoma* sp.n.; 37, *G. danilevskii* sp.n.

Female genitalia. Lobi anales subtriangular, postapophyses long and slender. Ninth sternite sclerotized, posterior edge bristly, side lobes developed, semioval, aciculate and bristled. 8th sternite simple, with a moderate median emargination, enclosing ostium which shows as a slightly coloured round disc. Ductus bursae simple, a narrow tube. Corpus bursae ovoid, wall gently punctate, ending in a slightly coloured and gently dilated cylindre with small folds at end and surrounded by a hyaline body.

China, Province Chekiang, West Tien-mu-shan, 1500 m, 15.v.1932, 1 ♂, holotype, genit. slide 9208; 1 ♀, allotype, 30.v.1931, West Tien-mu-shan, genit. slide 9209; 13 ♂, 1 ♀, paratypes. Types in Bonn Museum, paratypes in Karlsruhe and Leiden Museums.

A large broad-winged species with unusual markings superficially resembling *G. molybdora* Meyrick, 1912, from Ceylon.

Dedicated to Dr. H. G. Amsel, Landessammlungen für Naturkunde, Karlsruhe, the initiator and Editor-in-Chief of the series "Microlepidoptera Palaeartica", in acknowledgement of his never ceasing interest for and great support of this undertaking.

**Glyphipterix octatoma** spec. nov. (fig. 36)

( οκτά = eight, τομος = cut)

♂ 10 mm. Head pale grey touched with ochreous. Antenna dark fuscous, subserrulate. Palpus short, little curved; dark brown with four slender white transverse lines, tip laterally white. Thorax grey-fuscous, collar pale grey with golden-pinkish opalescence. Agdomen glossy grey, venter with pale bands along posterior edges of segments, anal tuft pale yellowish.

Fore wing oblong-triangular, rather broad, costa little curved at extremities, gently curved in middle, apex obtusely pointed, termen sinuate: concave below apex, rounded below. Deep fuscous-bronze, towards base rather dull darker grey, posteriorly more glossy purple. Costa with six slender whitish streaks, first and second oblique, gently sinuate, across upper 1/3 of wing; third and fourth about 1/2 length of preceding, somewhat less oblique, streaks 1-5 tolerably equidistant, gently dilated at base; fifth and sixth streaks approximated, wedge-shaped, slightly converging and about vertical; dorsum with a slender, little curved, little oblique white transverse streak in middle, reaching exactly centre of wing; a second smaller, subparallel, shorter streak on end of dorsum; tips of all these streaks, except third to sixth costal, all tipped with brilliant metallic pale green; as slender streak above median third of termen, a pair of larger round dots between fourth costal and second dorsal streaks, a minute dot beyond the upper of these dots and a blotch on termen just below apex all brilliant metallic green or

violet, as also are extreme tips of the ultimate four costal streaks. Cilia white, towards tornus gently infuscated, basal half glossy creamy-golden with tips dark purplish-fuscous, cilia above apex with a black marginal strigula ("Schwänzchen" present).

Hind wing purple, on basal  $\frac{1}{3}$  becoming grey, with a silky gloss. Cilia fuscous with a purple gloss, around apex with darker basal half and more purplish-tinged.

Male genitalia. Tegumen slender, twice as high as broad, with lower half triangularly narrowed, upper half cylindrical. Tuba analis shorter than tegumen, at top with a couple of bristles. Vinculum  $\frac{3}{4}$  height of tegumen, Y-shaped, massive "stalk" as broad as high, gently narrowed. Saccus absent, represented by a slight incision and a median ridge. Valva narrow, sublancoolata, cucullus gently curved downwards and rounded, haired on posterior half except along lower edge. Aedeagus slightly longer than valva, straight, gradually and gently dilated towards base, top gently sinuate, dilated and obliquely truncate, darkly short-spined. Cornutus slender, spindle-shaped. Anellus rather wide, subcylindrical, about  $\frac{1}{2}$  as long as aedeagus.

China, Province Chekiang, West Tien-mu-shan, 26.vi.1932 (H. Höne), 1 ♂, holotype, genit. slide 9255. In Bonn Museum.

Superficially resembling one of *G. equitella* group of species, but with very distinct male genitalia.

***Glyphipterix danilevskii* spec. nov. (fig. 37)**

♂ 7.5-8.5 mm. Head blackish-bronze? (rubbed). Palpus bronze-black, rather short, little curved, obliquely pending, rather thickened throughout with appressed scales, bristly projecting below and at apex, terminal segment short, very slender, almost linear, acute, much shorter than median. Antenna  $\frac{2}{3}$ , glossy grey. Thorax bronze-black, glossy. Posterior tibia bronze-golden, faintly banded with creamy. Abdomen black, with faint opalescence, venter with silvery bands extending over pleurae; anal tuft large, pale golden-ochreous with grey base.

Fore wing narrow, lanceolate, costa gently curved throughout, apex pointed, termen not notched below apex, very oblique and gently convex. Deep golden-bronze, with crimson reflections, finely dusted and mixed with glossy fuscous-grey towards base. Costa with five white wedge-shaped transverse marks, not quite similar in right and left wing; anterior three marks thicker, equidistant, little oblique, semicrescentic, first rather before middle, second median; in right wing first and second together forming an oblong blotch, with lower angle obliquely projecting across wing; in left wing

first mark almost obliterate, second as large as third; fourth and fifth marks more straight and slender, gently inwards-oblique, crossing cilia; left wing with an oblong prostrate spot on middle of dorsum (absent in right wing); three equidistant silvery-white irregularly rounded spots along termen, anterior at  $2/3$  of wing, last above upper  $1/3$  of termen; brilliant white-silvery metallic scales on ends of four posterior costal marks and a similar discal dot above and before second terminal spot; apex filled out with deep reddish-purple. Cilia white, on costa and above apex dark bronze throughout, only basal half dark bronze around apex and along termen to turnus, white-notched below apex, cilia on end of dorsum white throughout.

Hind wing narrow-lanceolate, semipellucent, golden-bronze, paler towards base. Cilia light glossy fuscous.

Male genitalia. Tegumen darkly sclerotized at the sides, larger top part becoming submembranous, disappearing in tuba analis. Vinculum equally sclerotized, subspheroidal, very robust, lower part deeply funnel-shaped, on each side with a triangular lobe, between tops of these lobes, emarginate. Sacculus straight, slender, rather short (about as long as vinculum), and moderately clavate. Valva large, strongly dilated, evenly fine-bristled to before base, lower end angulate, a simple short point. Aedeagus over  $2 \times$  length of saccus, straight, top gradually thickened, upper  $1/3$  short-spined, cornutus a short cylindre.

Caucasus, Karaganda, 40 km off station Zhana-Arka, 22.vi.1960 (Kerzhner), 1 ♂, holotype, genit. slide 9253; 1 ♂, paratype, with identical data. In Zool. Institute of the Academy of Sciences of the USSR, Leningrad. (Leningrad Museum).

A small, narrow-winged and very distinct species with unproportionally huge male genitalia superficially of the type of *G. bergstraesserella* group, but actually standing quite isolated. The two specimens available are slightly damaged, which might explain discrepancies of the markings in the right and left fore wings.

### **Glyphipterix dolichophyes** spec. nov. (figs. 38-39)

(δολιχός = long, φυή = form)

♂ 10 mm. Head and thorax light bronze, face purplish-grey (antenna broken). Palpus rather long, moderately curved, porrected, flattened dorso-ventrally, pointed; basal segment white, with two oblique fuscous-purple streaks posteriorly, median segment deep fuscous-purple with a narrow basal a broader subapical white ring, apical segment white, fuscous-purple below. Abdomen light grey-fuscous venter with whitish bands along posterior edges of segments, anal tuft grey-fuscous.

Fore wing sublanceolate, rather dilated, costa curved towards apex, apex rounded-prominent, termen gently sinuate below apex, gently curved below, oblique. Pale fuscous-bronze, markings with suffused darker edges, wing posteriorly along margins rather broadly suffused with blackish-grey-purplish, this suffusion extending along dorsum almost to base of wing. Costa with six distinct white striae, accentuated by suffused darker margins; three anterior striae equidistant, more slender and longer, first from before  $2/5$ , each following less oblique, third short; second clavate by thickened, brilliant violet scales along posterior half, second stria with a metallic tip and a large round spot of such scales below and slightly posterad from its top; three posterior streaks approximated to each other, wedge-shaped, becoming less oblique, dark-edged only anteriorly, broader, especially the fourth, first to fourth streak equidistant, fourth to sixth much closer together and almost equidistant; dorsum rather before middle with a long and slender semi-crescentic and oblique white streak, with distinctly constricted extreme base, tip metallic, just above middle of disc; a second, less oblique thick dorsal mark, straight and metallic throughout, obtuse top not reaching middle of disc, directed towards but not reaching round discal spot; an oval thick metallic spot just before lower half of termen, from tornus; a small metallic mark in subapical concavity of termen. Cilia (worn) white, with basal  $2/3$  pale fuscous-bronze, with darker apical suffusion, a white small wedge, a white bar opposite base of second dorsal mark, apparently a black marginal line above apex.

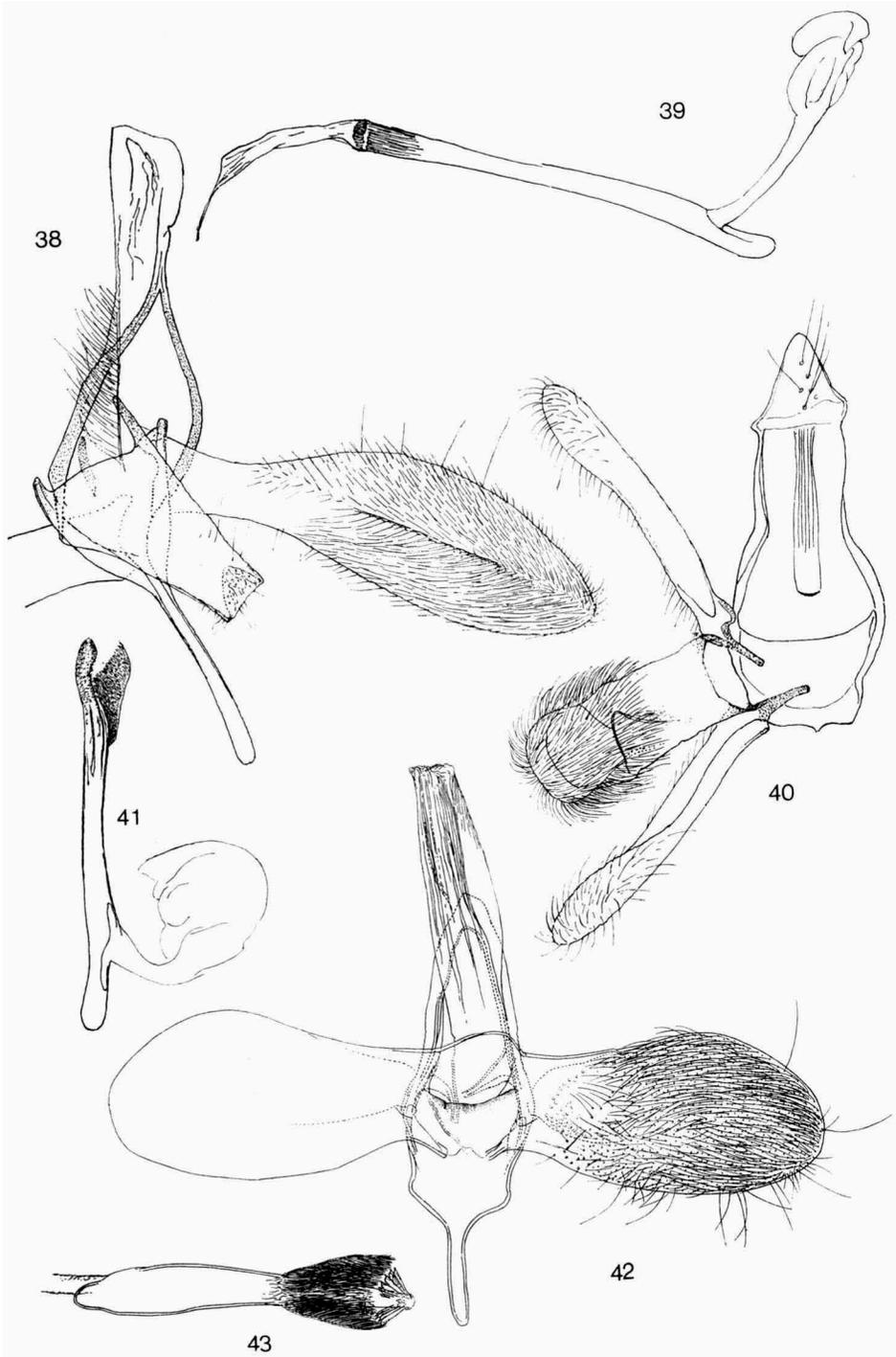
Hind wing rather dull purplish-bronze. Cilia fuscous, silvery along costa.

Male genitalia. Tegumen semioval, narrowed, pedunculi (side rods) distinctly sclerotized, robust. Tuba analis almost as long, basal half roughly haired laterally. Vinculum, an equilateral triangle with sclerotic edges and a long, thin saccus over  $2 \times$  as long as vinculum. Valva rather long, slightly oblique, ovate-lanceolate, posterior half haired, with a median slender ridge, base gradually but considerably narrowed, with a long sclerotic processus basalis and a shorter process at base of (indefinite) sacculus. Anellus, a rather short sack (about  $1/3$  length of valva), apex bristly (partly turned inwards in mount). Aedeagus long and slender, straight, apical third with dense cornuti and a crown of larger crochets.

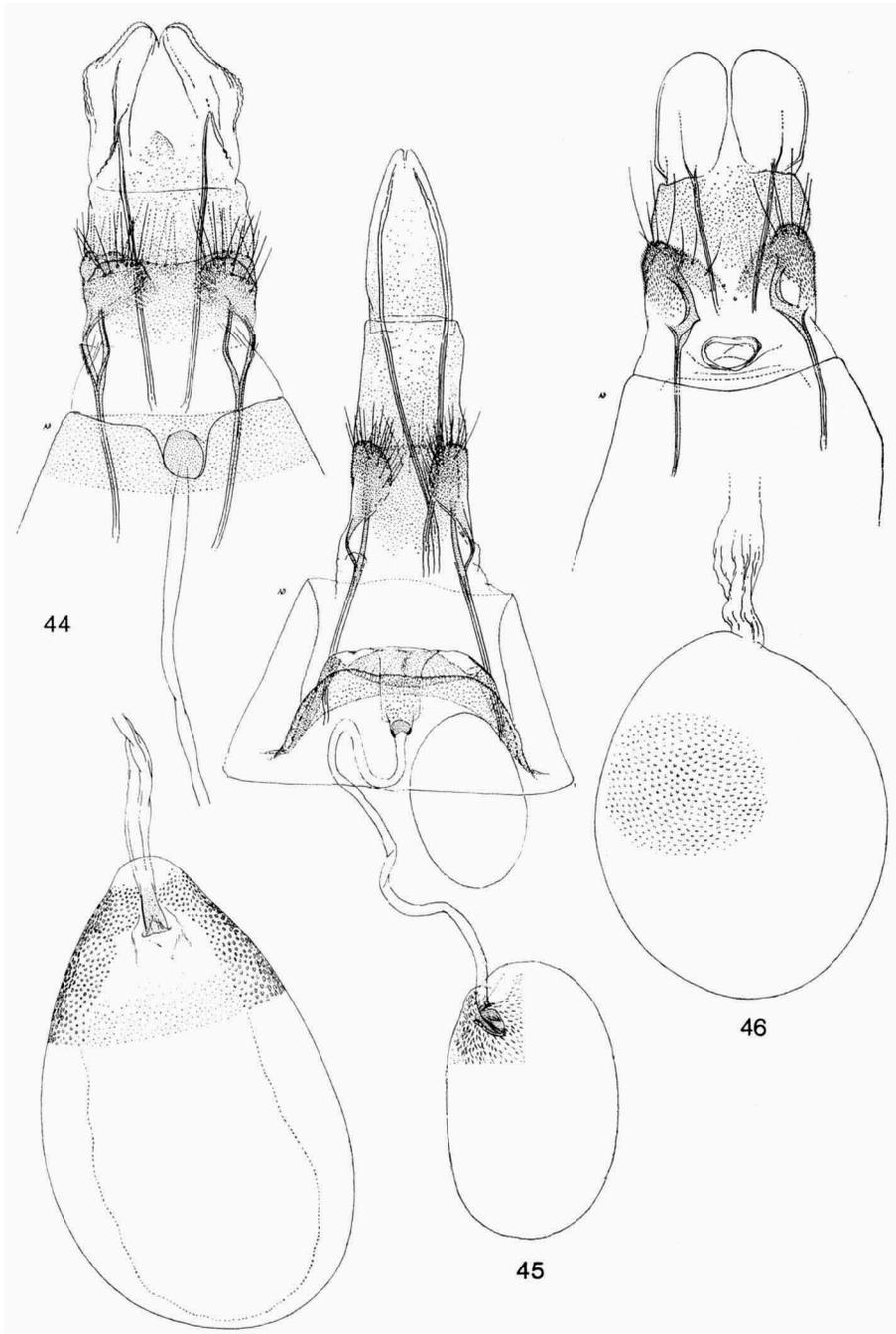
Female genitalia unknown.

China, Lungtan near Nanking, Prov. Kiangsu 28.v.1933 (H. Höne), 1 ♂, holotype, genit. slide 9946; 1 ♂, paratype, genit. slide 9728. In Caradja Collection, Museum of Natural History "Grigore Antipa", Bucarest.

The species belongs to the *equitella* group, with the long, thin saccus, but differs by sclerotic tegumen, long aedeagus and the pattern of the fore wing.



Figs. 38-43. Male genitalia of *Glyphipterix* Hübner, holotypes. 38, *G. dolichophyes* sp.n.; 39, the same, aedeagus; 40, *G. chionosoma* sp.n.; 41, the same, aedeagus; 42, *G. deliciosa* sp.n.; 43, the same, aedeagus.



Figs. 44-46. Female genitalia of *Glyphipterix* Hübner. 44, *G. amseli* sp.n., allotype; 45, *G. oxydonta* sp.n., holotype; 46, *G. deliciosa* sp.n. allotype (unstained).

The species has been identified with *G. xyridota* Meyrick from Assam, presumably by that author, but the similarity is slight and superficial: in *xyridota* the dorsal mark is thicker and less pointed and the costal striae arranged and shaped differently. The exact similarity of the markings of the two available specimens of the present new species supports my view.

***Glyphipterix chionosoma* spec. nov.** (figs. 40-41)

(χιών = snow, σῶμα = body)

♂ 9 mm. Head snow-white. Palpus white, flattened dorso-ventrally, rather curved and ascending. Antenna fuscous, short-ciliate, scape white. Thorax white (damaged). Abdomen silvery-white throughout, venter with anterior narrow suffused grey bands.

Fore wing sublanceolate, costa little curved except before apex, apex rounded, termen gently sinuate, strongly oblique. Light purplish-fuscous, posterior half except along costa brighter purple-coppery. Basal 1/4 of wing suffused with white on lower 2/3, edge ill-defined, costa with six rather slender white transverse lines in two groups of three, first three equidistant, rather long, first and second oblique, third almost vertical, first from before middle, third from 2/3 of costa; second group of three almost equidistant lines from 1/4 to before apex, lines shorter, vertical, posterior gently inwards-oblique; a large white triangular dorsal spot before middle, acute top to middle of disc, outwards-oblique, anterior edge rounded above dorsum, straight above, posterior edge little inwards-oblique, gently concave (this spot divided from basal white suffusion by a suffused band of ground colour); a small faint second dorsal mark halfway between spot and tornus, silvery and suffused, inwards-oblique; four distinct silvery metallic spots in disc, two smaller before lower part of termen, lower of these just above tornus; a larger round spot straight below top of third costal streak, above 2/3 of disc; fourth dot smaller, below and before tip of fourth costal streak; apex filled out with dull black. Cilia with lower half glossy light fuscous-bronze apical line, posterior half of cilia whitish with tip along lower half of termen suffused with fuscous, a fuscous-purplish streak along tips above apex ("Swänzchen").

Hind wing with basal half and cilia white, apical half and cilia densely dusted with fuscous, edge of this dusting strongly suffused, irregular.

Male genitalia. Tegumen with basal half broad, slightly narrowed, upper half narrower, cylindrical, top (tuba analis) triangular, with a median frontal row of very long bristles. Vinculum short, inverted-trapezoidal; saccus, a minute knob. Valva very narrow, slender, only top slightly dilated, oval; processus basalis strong. Anellus a wide tube, 3/4 length of valva, with a produced truncate lower "lip" with a thickened, hairy edge. Aedeagus about

the length of valva, straight, top clavate, almost spoon-shaped, emarginate, spiny.

Female genitalia unknown.

China, Province Kiangsu, Shanghai, 11.v.1933 (H. Höne), 1 ♂, holotype, genit. slide 9945. In Caradja Collection, "Grigore Antipa" Museum in Bucarest.

Unfortunately a single, badly spread specimen. The species is very characteristic by the silvery-white head and body, very unusual in the genus, while the genitalia are noteworthy for the slender narrow valva, truncate and short vinculum and an almost absent saccus. The affinity is obscure.

**Glyphipterix deliciosa** spec. nov. (figs. 42, 43, 46)

(*deliciosus* = lovely)

♂ 9-10 mm. Head and thorax slaty-grey, with a strong pinkish opalescence; face and frons broadly edged laterally with snow-white, fringe behind eye white. Antenna glossy white, grey above. Palpus long, slender, smooth, curved and subporrect, its length over breadth of head (in profile); median segment pale grey, terminal segment as long as median, snow-white, in front a black line. Posterior leg black, articulations banded with white. Abdomen blackish, venter banded with silvery-grey over posterior edges of segments.

Fore wing oblong-suboval, moderate, little dilated, costa gently curved at extremities, straight in middle, apex rounded, termen slightly notched below apex, convex below notch. Deep fuscous-purple, glossy, about posterior third of costal half of wing partly suffused with tawny-orange. An inwards-concave pale yellow vertical transverse streak at 1/6; costa beyond this with six pale yellow marks, becoming almost white on costal edge: a dot beyond 2/3, continued to middle of wing breadth by a brilliant pale bluish-green irregular slightly inwards-oblique streak; a pair of rather distant fasciate and outwards-curved marks just beyond middle of costa, anterior of these longer, continued by yellow to middle of disc beyond 2/3, ending with a slender second yellow longitudinal strigula; second whitish mark short, continued by brilliant metallic green, ending in violet, parallel to and as long as the preceding transverse yellow striga; three following whitish marks rather wedge-shaped, moderately approximated, in a subapical group, preceded and each continued by thick tawny-orange-suffusion to above middle of disc, with three metallic dots, beyond end of first, below end of second and below and well beyond end of third of these marks, respectively; lower half of wing with pale violet-purple metallic marks, arranged thus: a dot below fold and a vertical mark beyond this, below the first metallic costal

mark, the vertical mark on middle of dorsum; two inwards-oblique fasciate marks in transverse pair, below second metallic costal mark; space between these and dorsal vertical mark filled out with 3-5 irregular yellow dots; a large, erect-triangular brilliant purple patch in tornus, reaching halfway across wing. Cilia glossy light fuscous-grey, with a fuscous subapical band and whitish tips.

Hind wing glossy purplish-bronze. Cilia fuscous-bronze, apical half around apex of wing and upper part of termen whitish-fuscous.

♀ 9.5-11 mm. Similar to male, but the transverse fascia straight and white, preceded by a small pale mark on costa beyond base. Other markings well-defined and somewhat larger than in male.

Male genitalia. Tegumen rather long, elongate-subtriangular, gradually narrowed towards top which is slightly rounded, sides slightly constricted and subconcave at above  $1/4$  and less so, below apex. Tuba analis long, exceeding tegumen over  $1/2$  its length. Vinculum less than  $1/2$  tegumen, subquadrate, sides concave beyond middle, shoulders so moderately rounded-prominent; saccus shorter than vinculum, gently narrowed above base, top simply rounded. Valva oval, somewhat narrowed on basal fourth, evenly fine-bristled throughout except towards base. Anellus, a simple, submembranous semicircular plate, with gently concave upper edge. Labides with narrow top part less than  $1/2$  their length. Transtilla proper simple, an almost rounded erect sclerite. Aedeagus moderate, as long as tegumen, vinculus without saccus; subconical anteriorly, with rather narrow base, gradually narrowed towards top; top beset all around with subapical flat crochets directed basad, below these a wide and thick funnel-shaped hyaline vesica, densely and finely long-spined on the inside, with spines directed posterad.

Female genitalia. Lobus analis large, suboval, subconcave, distinctly sclerotized. Postapophysis straight and very slender. Ninth sternite with rounded lateral tumescences, aciculate and with long bristles; apophysis slender, top with thick internal furcation. Ostium bursae, a simple round orifice with slender but distinct margin. Ductus bursae simple, hyaline, rather wide. Corpus bursae simple, ovoid, with a simple wall.

China, Province Chekiang, West Tien-mu-shan Range, 25.v.1932, (H. Höne), 1 ♂, holotype, genit. slide 9195; 1 ♀, allotype, 23.v.1932, genitalia slide 9106; paratypes, the same labels, 6 ♂, 3 ♀, 21.v.-16.vi.1932; paratypes, the same labels but East Tien-mu-shan, 1 ♂, 1 ♀, 28.v. and 31.v.1932 (all by H. Höne). Type in Bonn Museum.

An elegant species, easily recognizable by the colouring and markings and by the peculiarities of the aedeagus and the ovipositor. Its exact position seems to be isolated.

**Glyphipterix oxydonta** spec. nov. (fig. 45)

(ὀξύ = sharp, ὀδόντις = tooth)

♀ 10 mm. Head and thorax light dove-grey with a faint lilac opalescence. Antenna fuscous. Palpus rather long, moderately curved, somewhat dilated towards middle, smooth; white, median segment with two broad, oblique lateral purplish bands, terminal segment shorter than median, with a subbasal and an inwards-oblique median dark purplish band, apical half in front dark purple. Abdomen glossy light grey, venter distinctly white-banded.

Fore wing oblong-suboval, costa hardly curved at base, more curved at apex, apex obtusely pointed, termen sinuate, concave below apex, gently rounded below, oblique. Anterior half light dove-grey with faint violet opalescence, posterior half purplish-bronze with reddish reflexions. Posterior half of costa with six white, oblique, anterior purple-edged marks, first to third equidistant and slightly converging, each following being less oblique, second twice as long as the other; fourth to sixth in a close group slightly more distant from third streak, again converging among themselves, almost twice as broad as the others, but shorter, wedge-shaped, posterior smallest, subapical; a large white pear-shaped median dorsal spot with top narrowly erected and outwards-curved, reaching above middle of wing, suffusedly edged on both sides with dark purplish; a thick slightly oblique metallic blotch before end of dorsum, little outwards-oblique, top rounded; between this and fourth costal mark (but before the top of latter), two round metallic dots; two more such dots along and before termen and a point in notch of termen; tip of second costal streak also with a metallic dot; apex with a dull black spot. Cilia (imperfect) white, basal part light fuscous, with a strong purple gloss and suffused black tips.

Hind wing glossy bronze-fuscous, apical half strewn with dark brown scales, becoming less numerous towards base, basal half greyish-tinged. Cilia fuscous-bronze.

Female genitalia. Ovipositor rather broad, top slender, lobi anales slender, apophyses slender. Ninth segment with large, broad, semioval lateral lobes, moderately sclerotized and haired along edges. Apophyse with lateral branch shaped nodule-like. Sterigma formed by a large semioval flap with thickened lateral edges, over its top, another, wrinkled flap folding forwards, with a darker median longitudinal fold. Ostium bursae, very weak and entirely transparent, colliculum similar, a rather narrow funnel, ending in a strong sclerotized ring, open frontally. Ductus bursae long and narrow, with at its base a roundish, somewhat irregular colliculum.

The paratype has the dorsal spot rather narrower and is paler all over. The pair of females from Hoengshan are entirely similar to this paratype,

except that the terminal dots are united in a single subterminal short streak; the sterigma of one of these Hoengshan specimens is similar to that of the holotype, but the colliculum lacks the sclerotized small ring and the cestum is slightly smaller; these minor differences do not allow, in my opinion, of a separation of the Hoengshan form even as a subspecies, because its superficial appearance is entirely similar to that of the Tien-mu-shan paratype.

China, Province Chekiang, West Tien-mu-shan, 18.v.1932 (H. Höne), 1 ♀, holotype, genit. slide 9256; 1 ♀, paratype, the same data. — Province Hunan, Hoengshan, 24.v.1933 (H. Höne), 2 ♀, paratypes, genit. slide 9248. In Bonn Museum.

Belonging to the *G. semiflavana* group, judging from the characteristic sterigma.

***Glyphipterix sulcosa* spec. nov. (fig. 48)**

(*sulcosus* = with many grooves)

*Glyphipteryx heptaglyphella* Amsel, 1935, Veröff. Deutsch. Uebersee & Kolonial Mus. 1: 353. (nec. Le Marchand, 1925).

♂ 10 mm. Head (rubbed) and thorax light olive-fuscous with a golden gloss. Antenna fuscous, finely subserrulate. Palpus rather long, compressed dorso-ventrally, curved and ascending, median segment rather thick, hardly roughish along lower side, but less than  $1\frac{1}{2} \times$  as thick as terminal segment in lateral aspect, terminal segment as long as median, pointed; white, median segment with two parallel, very oblique lateral dark fuscous striae, terminal segment with a basal, a subbasal not oblique stria and a frontal parting dark fuscous line along its apical half. Abdomen rather light fuscous-grey, venter glossy white, anal tuft very pale ochreous.

Fore wing rather narrow and long, sublanceolate, costa gently curved at base, more so before apex, apex obtuse but rather narrow, appearing prominent, termen very oblique, gently concave below apex, gently rounded below. Pale greyish-olive-golden, glossy, on apical half becoming suffused with reddish-purple. Costa from slightly before middle to before apex with seven slender, pure white transverse streaks, hardly with deeper purplish suffusion; first streak largest, almost twice as thick as second, more oblique, just not reaching middle of disc, tip truncate; second slender, shorter and less oblique, with dilated base, slightly converging with first; following three streaks short, almost evenly spaced, and a trifle less distant than first and second, tolerably vertical and straight, fifth slightly outwards-curved, with base rather subcostal; two last streaks more wedge-shaped, more approximated, ultimate shortest; dorsum with a gradually curved long thickish streak from just before middle, rather little oblique and gradually arched,

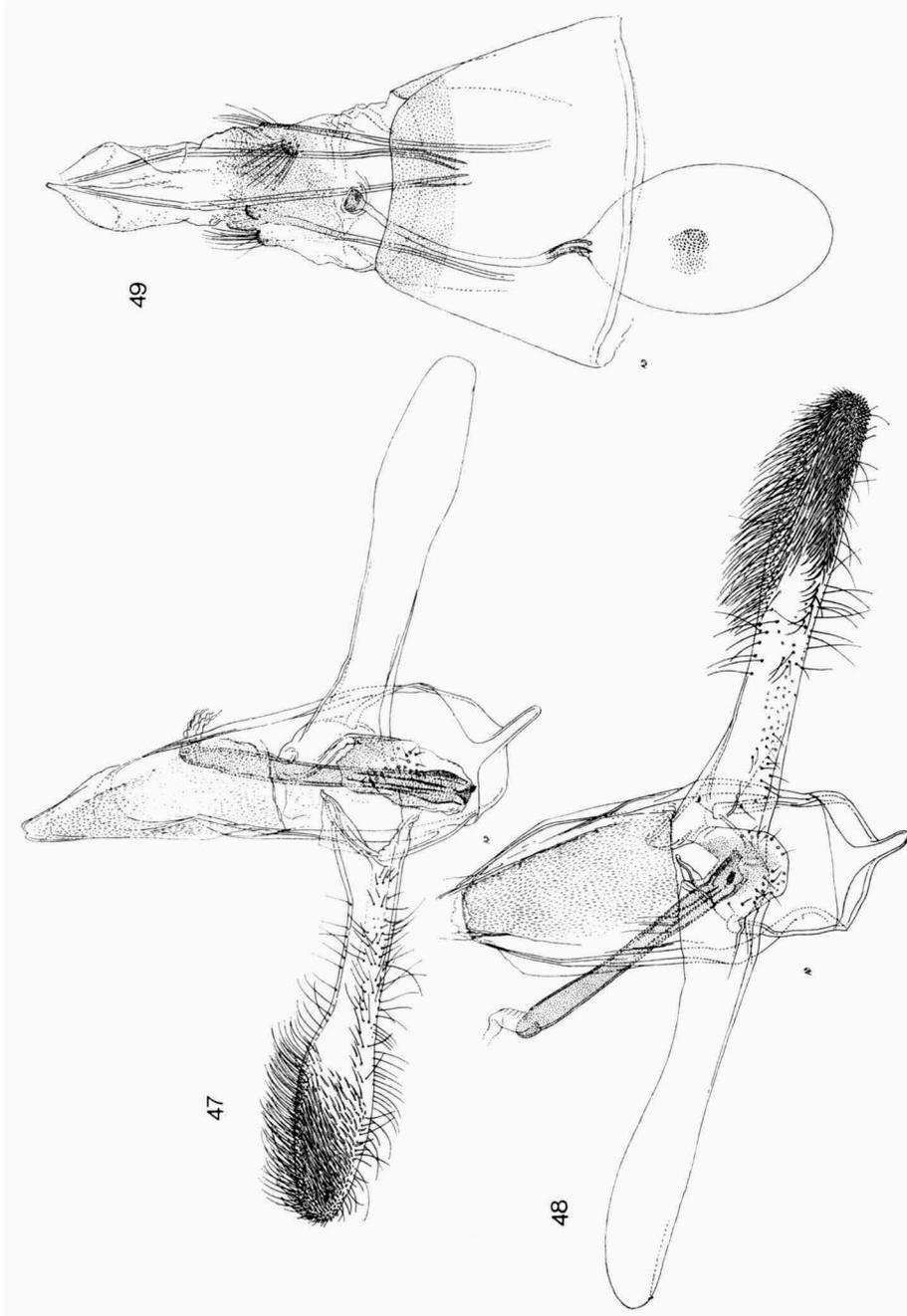
by far not reaching tip of first costal streak and ending slightly before that tip; a subtriangular white spot on and a few metallic points in disc above it, top of streak not reaching middle of disc; a more or less confluent couple of silvery metallic spots along and before middle of termen, a small dot below apex on white notch of cilia, preceded by a few points in disc; apex of wing dull black. Cilia (imperfect) whitish slightly mixed with light fuscous, basal half deep glossy fuscous-grey with blackish tips, a white notch below apex, costal cilia before apex white opposite white streaks, cilia on end of dorsum with a white bar. A black marginal line around apex (Schwänzchen present but worn).

Hind wing broadly lanceolate; light fuscous-grey, paler grey along base; with a silky gloss. Cilia fuscous, with basal half darkened around apex.

Male genitalia. Tegumen broad and moderately high (in middle broader than  $2 \times$  high). Vinculum moderate,  $\frac{1}{2}$  as high as tegumen; upper lateral knobs distinct, lower edge very little pointed, with a thick margin. Saccus short but strong, longer than the thickness of margin of vinculum. Valva very narrow, long, longer than tegumen, vinculum and saccus together, base strongly dilated and excised, upper basal process strong, exceeding lower process; costa gently concave beyond base, gently convex on outer half, top simply rounded; sacculus almost straight. Cucullus on top above lower edge distinctly short-bristled. Aedeagus rather short, straight gently dilated on ends, cornutus tubular.

Sardinia, Tempio, Paus, 6.v.1933 (H. G. Amsel), 1 ♂, holotype, genit. slide 9211. In Karlsruhe Museum.

The unique slightly rubbed specimen has been identified by Dr. Amsel as *heptaglyphella*, with which superficially it agrees very closely. The minor differences may be summed up once more, being rather slight. First, the median segment of palpus in *heptaglyphella* is rather compressed laterally (which is unusual) and therefore in lateral aspect appears much broader (over  $2 \times$ ) than the apical segment at base; in *sulcosa* both segments are flattened as usual (dorso-ventrally) and laterally seem to be of about similar thickness. Second, the dorsal streak is more gradually arched, therefore less oblique and also thicker than in *heptaglyphella* and not reaching to below tip of second costal streak. Third, the hind wing is decidedly different: broadly lanceolate, with costa markedly less curved than termen, while the hind wing in *heptaglyphella* is narrower, narrowed more gradually, with the very slight curve of costa and termen tolerably similar. The male genitalia of the two species, of course, present the decisive difference: while in *heptaglyphella* the saccus is reduced to a minute stump, in *sulcosa* it is short, but well-developed. In this respect *sulcosa* approaches *G. umbilici*, but in that



Figs. 47-49. Genitalia of *Glyphipterix* Hübner. 47, *G. talhouki* sp.n., ♂, holotype;  
48, *G. sulcosa* sp.n., ♂, holotype; 49, *G. talhouki* sp.n., ♀, allotype.

species the valva is more clavate, vinculum and saccus longer and aedeagus different.

**Glyphipterix talhouki** spec. nov. (figs. 47, 49)

♂ 8 mm. Head light fuscous-olive with a golden gloss, sides of vertex very slightly edged with whitish. Antenna deep glossy fuscous, whitish beneath. Palpus moderately long, curved, diverging, flattened dorso-ventrally, white, median segment with two oblique lateral bands across posterior half, terminal segment with two transverse bands on basal half, apical half in front parted by fuscous-purplish streak. Thorax light fuscous-olive with a golden gloss.

Fore wing rather narrowly lanceolate, costa gently curved, more so posteriorly, apex rounded, termen convex, very oblique. Fuscous-golden olive, on basal third light fuscous-olive, on posterior half becoming deeper fuscous-golden, end purplish. Markings broad, moderately pointed, pure white, and metallic silvery, edged throughout with fuscous-purple; posterior half of costa with five white streaks, first median, stronger oblique, straight, to below middle of wing; second rather approximated, also straight, less oblique, converging with first but for the narrow purplish edge; third shorter, more wedge-shaped, before  $3/4$ , slightly closer to second than to fourth, tipped with silvery; fourth broader, wedge-shaped, closely followed by fifth, similar but smaller, divided only by purplish edge; apex with a black semicircular spot; dorsal mark broad, semilunar, basal part almost vertical, apical horizontal, tip rather abruptly narrowed in an acute cusp, reacting to top of first costal streak but for purplish edge; second dorsal streak straight, pointed, little oblique, dark-edged, converging with tips of first and second costal streaks but for dark edge and reaching beyond both these tips; an oblong-oval leaden mark along middle of termen; an obliquely-transverse pair of minute silvery dots in disc beyond apex; a wedge-shaped whitish-silvery mark on termen beyond apex, forming the usual "notch". Cilia whitish, more than basal half infuscated, a suprmedian fuscous band, suffused below, a dark marginal strigula around apex.

Hind wing light brown-fuscous, darker on apical half, towards base pale grey. Cilia pale fuscous-grey.

♀ 11 mm. Similar to the male, with fore wing slightly broader, and darker, purplish edges to markings being less distinct, consequently; all costal streaks silvery-tipped, especially second and third, being silvery over more than half their length; subapical terminal mark entirely silvery; first dorsal streak somewhat robuster and more conspicuous than in male, of equal shape. Otherwise as male.

Male genitalia. Tegumen high and rather narrow, lateral rods (pedunculi)

sclerotized throughout, forming a regular bow at top. Tuba analis moderate, narrowed. Vinculum semioval, as high as broad, less than  $1/3$  high of tegumen, with prominent side knobs, base with a ridge. Sacculus slender, moderately long, about  $1/2$  high of vinculum. Valva long and very narrow, oblong-spoon-shaped, sparsely but stiffly bristled, except at base, processus basalis long. Aedeagus moderate, about  $1/2$  length from tip of saccus to tip of tuba analis, top moderately dilated, hyaline, denticulate, base hardly thickened. Anellus, a moderate submembranous cylindre.

Female genitalia. Ovipositor cuspidate rigid, lobus analis triangularly semioval, with an acute point. Postapophysis long, robust, anapophysis  $2/3$  as long. Eighth sternite with a pair of median bristles, each flanked by a rounded bristly lobe. Ostium, a small rounded cup. Ductus bursae very slender, cestum slender, plicate, tube with slightly dilated trifid base. Corpus bursae oblong-ovoidal, signum, a weak rounded central scobination.

Lebanon, Aley, 10.v.1942 (A. S. Talhouk) 1 ♂, holotype, genit. slide 9578. — Sin-el-Roummaneh, 6.vii.1940 (A. S. Talhouk), 1 ♀, allotype, genit. slide 9572. In Leiden Museum.

The species resemble, rather *G. minorella crassilunella* Rebel, but differs by dark edges to white markings, by much more approximated and both longer and convergent first and second costal streaks, by shorter, more approximated and almost triangular fourth and fifth streaks etc., but also by the distinct genitalia in the two sexes. The male genitalia resemble those of *G. umbilici* Hering, but the valva is longer, with narrower base, in the present species; besides, *umbilici* is much smaller.

*G. talhouki* actually belongs to the *G. minorella* group of species.

Dedicated to the collector, Prof. Dr. A. S. Talhouk of Beirut.

#### REFERENCE

DIKONOFF, A., 1938. Microlepidoptera of the Philippine Islands. — U.S. Nat. Mus. Bull., 257: 1-457, figs. 1-216.

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