

**REARRANGEMENT OF CERTAIN GLYPHIPTERYGIDAE  
SENSU MEYRICK, 1913, WITH DESCRIPTIONS  
OF NEW TAXA  
(LEPIDOPTERA)**

by

**A. DIAKONOFF**

Rijksmuseum van Natuurlijke Historie, Leiden

With 45 text-figures

In 1913, Edward Meyrick removed several genera from his compound family Yponomeutidae and united them in a new group, "Glyphipterygidae". After 1954, this name has been used generally, often in the emended spelling "Glyphipterigidae". The family name was not new but used by Meyrick in an entirely different sense. Former authors (Zeller, 1839; Stainton, 1854; Frey, 1856, etc.) indicated with the name "Glyphipterygidae" only one of the two main groups of Meyrick's enlarged concept, viz., the "Glyphipteryginae" or the "Glyphipterygidae sensu stricto".

In spite of its existence during quite a long time, Meyrick's family "Glyphiteryginae" proved to be an unsatisfactory combination. In later years, especially recently, its highly heterogeneous character became more and more apparent and its slow but steady demolition started: one after another genus was transferred to different, often remote, families. This is not surprising, because Meyrick used for the combination of his group only superficial characters, viz., wing venation, external anatomy and even superficial resemblance. Modern lepidopterists, armed with the data on internal anatomy, especially those of the genital characters, attacked the group vigorously.

During a revisionary study of the group for a volume of the series "Microlepidoptera Palaearctica", the present author was also confronted with the necessity of still further changes and of a revision of most of his earlier statements concerning this group.

The present paper represents the results of one of these major changes, viz., the removal of tortricoid elements from Meyrick's "Glyphipterygidae" and their transfer to the tribe Hilarographini Diakonoff, 1977, of the subfamily Chlidanotinae Diakonoff, 1960, of the family Tortricidae Latreille [1802-1803].

This is also the first record of the peculiar chiefly tropical subfamily Chlidanotinae in the Palearctic and Nearctic regions.

Although the Chlidanotidae as a family have been defined by Meyrick as far back as 1906, the group remained obscure until recently. Then slowly the Chlidanotinae, originally regarded as local and limited, gained interest and proved to be widely distributed and numerous. So Diakonoff's notes (1948b, 1960), Clarke's illustrations of Meyrick's types of chlidanotid species (1963) and Common's revision of the Australian representatives (1965) gradually appeared. The tribe Polyorthini was erected by Obraztsov in 1966, but placed in the Tortricinae. It has been further defined and relegated to the Chlidanotinae by Diakonoff (1974), while the description of the Hilarographini Diakonoff followed in 1977.

Recently Razowski (1976) sunk the Chlidanotinae as low as a subtribe of the Tortricinae with which I am unable to agree. In my opinion the Chlidanotinae represent a subfamily, considerably differing from the Tortricinae, consisting of an evolutionary series of four tribes, ranking from the highest specialized Schoenotenini, through Hilarographini and Polyorthini to less, but still considerably aberrant, Chlidanotini. To my taste the lumping of the Chlidanotinae with the Tortricinae (the actual result of Razowski's action), contradicts all our detailed evidence, so laborously assembled, of the genital characters of these groups. Besides, we do not know anything yet about the musculature of the male genitalia of the Chlidanotinae. This feature has been used lately in modern studies of Lepidoptera phylogeny to great advantage. (Danilevsky & Kuznetsov, 1968; Kuznetsov & Stekolnikov, 1973; and Razowski himself, 1976). Neither do we know yet, alas, the larval stages of the species concerned.

The first to make an allusion to the relationship of the "Chlidanotidae" and the "Glyphipterygidae" was Edward Meyrick himself. In 1906 he stated (p. 412) that: "The family is in fact intermediate between the Phaloniadae [= Cochyliidae] and Epiplemidae [= Olethreutinae] on the one hand, and the Plutellidae [at that time containing his later "Glyphipterygidae"] on the other, and appears to indicate the real genetic transition between these groups". In 1914 he says (p. 1): "The family Glyphipterygidae is a natural group of considerable systematic importance, since it gives immediate origin to the *Eucosmidae*, *Chlidanotidae* and *Heliodinidae* and from the first of these the three other families of the *Tortricina* are derived". So Meyrick is conscious of the connection, but his arguments are vague: he is deprived of the excellent evidence of the genital characters and is unaware of the fact that the half of his "Glyphipterygid" genera belong not only in different

families, but even in remote superfamilies, as we are satisfied at present. The "relationship" is rather the consequence of his unjustifiable including of chlidanotine genera into his motley family "Glyphipterygidae".

In the present paper a new genus of the Hilarographini is described for the reception of two species, formerly attributed first to *Simaethis* Leech, then to *Mictopsichia* Hübner [1825]. Besides, another new genus had to be erected for four more surmised *Mictopsichia* species from tropical Asia. The genus *Hilarographa* Zeller, 1877, has already been transferred from the so-called Glyphipterygidae to the same tribe Hilarographini of the subfamily Chlidanotinae of the Tortricidae (Diakonoff, 1977). At present, using this opportunity, eleven South Asiatic species are assigned to *Thaumato-grapha* Walsingham, regarded as distinct from *Hilarographa*, eight of them being described as new.

Several species treated here possess a character entirely new to the superfamily Tortricoidea, viz., the haustellum being more or less densely short-scaled towards base. This important feature might demand separation of the species involved. The character is often extremely difficult to observe and is easily overlooked; its development is clearly variable; and in other allied superfamilies it may be present or absent within a single group, in the same way. However, the scaling of the haustellum is not the single feature, characterizing the group of the above genera: also the general facies, the bright and deep colouring and markings of both fore and hind wing, the often more curved, dorso-ventrally flattened labial palpi, the enlarged ocelli, the not stalked veins 8 and 9 in the fore wing and the normal course of the discoidal vein in the hind wing, all separate the Hilarographini from other Chlidanotinae.

#### ACKNOWLEDGEMENTS

The present conclusions are the result of prolonged considerations and of discussions with my colleagues, mainly at the occasion of the 15th International Congress of Entomology, 1976, in Washington, D.C., U.S.A. It is a pleasure to express here my thanks to them all, for their interest, help and advice, and loan of material. I thank Dr. J. F. Gates Clarke, Dr. Donald H. Duckworth, Dr. Donald R. Davis, U.S. National Museum, Natural History; Dr. Ronald H. Hodges, Department of Agriculture, Washington, D.C.; Dr. J. D. Bradley and Dr. K. Sattler, British Museum (Natural History); and also my colleague-reviser of New World Glyphipterygidae, Mr. John B. Heppner of Florida, at the time working at the U.S. National Museum, and several others, especially the reviser of the family in Japan, Mr. Yutaka

Arita, Department of Agriculture, Meijo University, Nagoya, Japan, and last but not least, my sponsor, Dr. H. G. Amsel, Editor-in-Chief of the "Microlepidoptera Palaeartica", Landessammlungen für Naturkunde, Karlsruhe, Germany, for his unfailing interest in the revision and for obtaining a grant of the Deutsche Forschungs Gemeinschaft for a visit to the Washington Museum.

The figures have been made by Mr. A. C. M. van Dijk, the Hague, Mr. J. J. A. M. Wessendorp, of this Museum, and by myself. The whereabouts of the types and other material are mentioned under each species.

TORTRICIDAE Latreille [1802-1803]

CHLIDANOTINAE Diakonoff, 1960

Hilarographini Diakonoff, 1977

**Mictopsichia** Hübner (figs. 1, 3-4, 8)

*Mictopsichia* Hübner, [1825], Verz. bek. Schm.: 374. — Meyrick, 1913: 24. — 1914: 5. — Walsingham, 1914: 303. — Fletcher, 1929: 140. — Arita, 1971: 37-38, figs. 1-3.

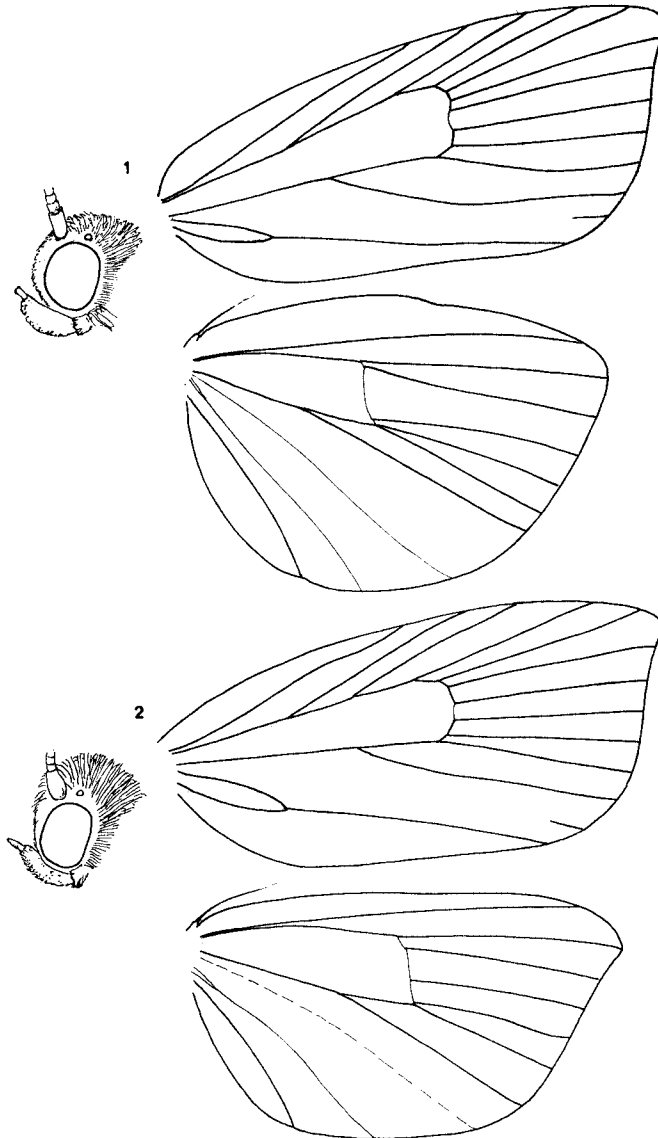
Type-species: *Phalaena Tortrix hubneriana* Stoll, 1782 (by subsequent designation of Walsingham, 1914).

The type-species is a gaudy-coloured, Central-American insect, rare in European collections and therefore little known. For this reason a re-description is presented here.

Head with very short, loosely raised scales. Ocellus posterior, rather large. Haustellum moderate, naked. Maxillary palpus rather short, curved, sub-ascending, appressed to face, reaching middle height of eye; median segment moderately dilated by smoothly appressed scales, forming a small roughish edge below; terminal segment short, smooth, truncate. Antenna  $1/3$ , moderately thickened in male, finely biciliate, ciliations under  $1/2$ ; scape slightly thickened, cylindrical, with very short, roughish scales. Thorax with a slight posterior crest, appearing smooth because of a strong watery gloss. Abdomen normal. Posterior tibia with thin loosely projecting bristly hairs above and beneath.

Fore wing broad, oblong-suboval, dilated, apex obtusely pointed, termen gently concave above, rounded, below; smooth, with bright and metallic colours. Vein 1b furcate over less than  $1/3$ , 2 from  $2/3$ , 3 from angle, 4 separate, closer to 3, 7 separate, to termen, 8 from angle, 9 from  $3/4$  distance 10-8, 10 from middle distance 11-9, 11 from slightly before middle, chorda and median branch absent.

Hind wing rather over 1, without a cubital pecten, broadly semioval, 1c



Figs. 1-2. Head and wing neuration of Hilarographini. 1, *Mictopsichia hubneriana* (Stoll), ♂, 2, *Mictocommosis nigromaculata* (Issiki), ♂.

fold-like, 2 from 2/3, 3 and 4 connate from angle, 5 closely approximated, 6 and 7 separate, considerably approximated towards base.

Male genitalia. Tegumen moderate, subconical, ventral edge with a strong arcuate sclerotic edge (pedunculi), dilated, with sinuate bases. Uncus apparently absent, replaced by straight cylindrical pair of hairy socii. Gnathos, a sclerotic circle. Transtilla slender, curved and dilated laterally. Vinculum broad and short. Valva, with a produced subobtuse top, costa gently curved, sacculus submembranous, outer edge prominent at 1/3, disc before middle with a dense group of brush-like, penicillate, flat bristles, most with six ends. Aedeagus robust, subcylindrical, gently dilated towards base, top, a large, curved hook.

Female genitalia. Ovipositor lobes oblong-oval, rather slender and subsclerotic. Both pairs of apophyses thin and short. Sterigma elongate, lamella postvaginalis crowned by an aciculate band, W-shaped and sclerotic; lamella antevaginalis, a dark rim, on upper surface beset with long, stiff aciculae. Ostium wide; colliculum membranous, forming an ample ostium, with a diverticle on the right side, as wide as the origin of ductus bursae; this forming a strong sclerotic loop above its middle, actually being a cestum of unique shape, with a longitudinal split throughout along its entire length. Corpus bursae ovoidal. Signum, a strong hook, thorny along lower edge, with serrulate top and a round basal plate, continued downwards by a pair of parietal linear scobinations (resembling a double lamina dentata).

The type species is brightly coloured and large, with metallic markings and with rather unusual characters of external anatomy. Remarkable are modified bristles of the valvae. The genus differs from the Asiatic and Palaearctic *Mictocommosis* gen. nov., chiefly by the widely differing genitalia. The penicillate bristles are very similar to those in the Schoenotenini and the Sesiidae.

**Mictocommosis** gen. nov. (figs. 2, 5-7, 9)

(μικτός = mixed, κομμώσις = ornament)

*Mictopsichia* Arita, 1971 (nec Hübner [1825]): 37, figs. 1-3.

Head with loosely appressed scales, side-tufts on vertex loosely spreading, projecting in a roughish tuft between bases of antennae. Ocellus posterior, large, protruding. Haustellum short, finely scaled towards base. Antenna in male moderately thickened, with dorsal edge slightly scaled, segments of flagellum broader than high, many segments with a rod-like process on posterior upper angle; short-ciliate in male, simple in female, scape without pecten. Maxillary palpus minute, 3-segmented, with a large basal and two

minute apical segments. Labial palpus moderate, curved and subascending, not quite reaching base of antenna, median segment with appressed scales, hardly roughish along lower edge, sub-spindle-shaped, rather compressed laterally, terminal segment less than  $1/3$  median, slender, smooth, subobtuse. Thorax smooth. Abdomen normal, with tortricoid basal apodemes. Posterior tibia with smoothly appressed scales, above and beneath with sparse loosely raised hair-scales.

Fore wing broad, truncate, costa curved towards ends, apex subobtuse, termen distinctly sinuate above, rounded below, vertical. Vein 1b furcate along  $1/3$  of its length at base, 2 from  $2/3$ , 3 from angle of cell, 4 closer to 3, 7 separate, to termen, 8 from upper angle of cell, 9 from midway 8-10, 10 from beyond  $2/3$  of cell, 11 from  $1/3$ , chorda and media in cell absent.

Hind wing broad, over 1, rounded-subtrapezoidal, without cubital pecten. Vein 1b furcate at base, 1c with basal half obliterate, 2 from before  $2/3$ , 3 and 4 connate from angle, 5 parallel, submedian, 6 and 7 remote, subparallel, 8 soldered at base with upper angle of cell.

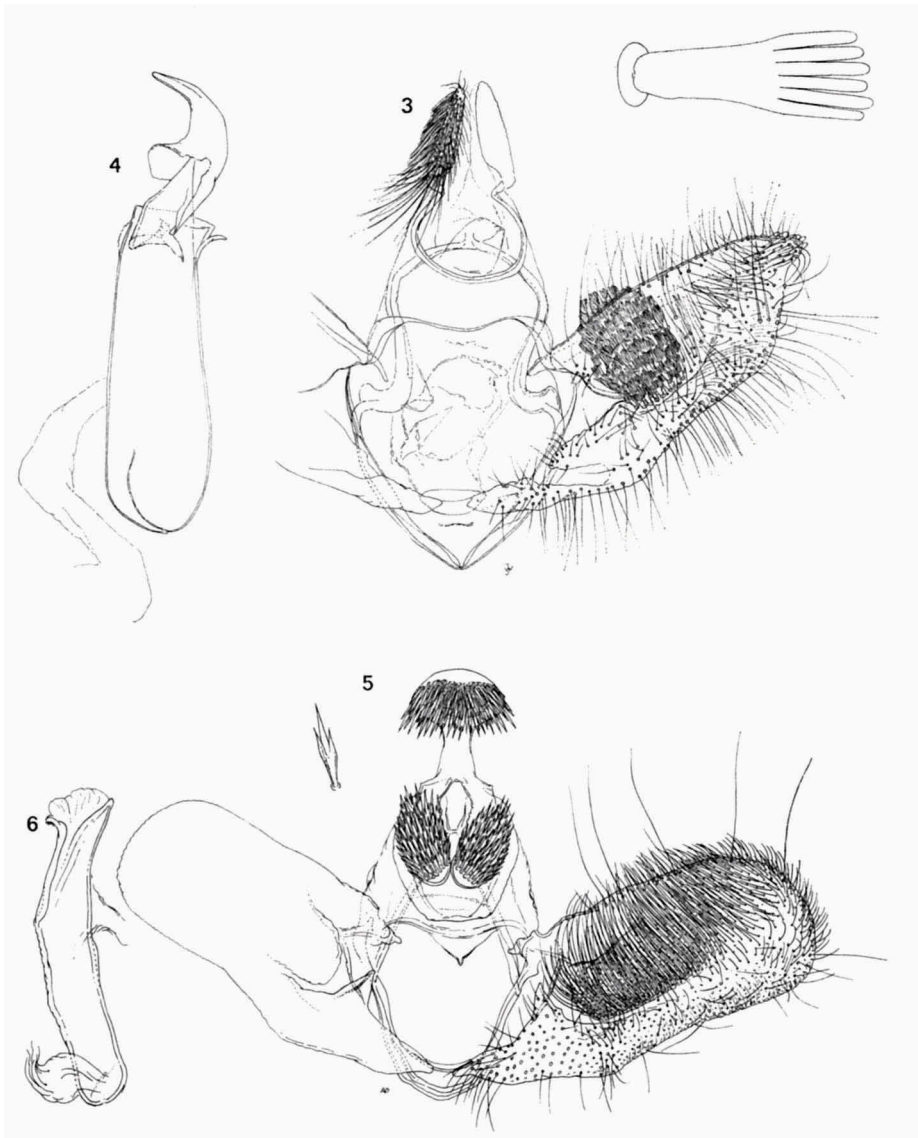
Male genitalia. Tegumen moderate, narrowed. Uncus large, clavate, bristled below top. Socius large, oval-clavate, with strong flat trifid spines. Gnathos slender, pending, end with a transverse rod. Transtilla, a slender straight bar, dilated in middle below. Vinculum slender. Valva oblong-oval, thinly bristled all over, a suprmedian longitudinal band of denser and longer fine bristles; sacculus broad, to middle, with a triangular basal cusp. Aedeagus moderate, spindle-shaped, slightly curved. Cornuti apparently absent.

Female genitalia. Lobus analis oblong, tortricoid, with a pointed top and a narrowed mesad-curved lower lobe. Ninth segment, a sclerotic ring, narrowed ventrally and split in middle. Sterigma, a transverse inverted-trapezoidal, corrugated, finely aciculate sclerite, with a median vertical tumescence, upper edge of sterigma emarginate in middle, lower edge with rounded angles, concave in middle. Colliculum sclerotic, round. Ductus bursae simple, long. Corpus bursae ovoidal. Signum, a tortricoid horn with a slender basal plate, below extended in a slender lamina dentata, reaching to bottom of corpus bursae.

Type-species: *Simaethis nigromaculata* Issiki, 1930 (Japan).

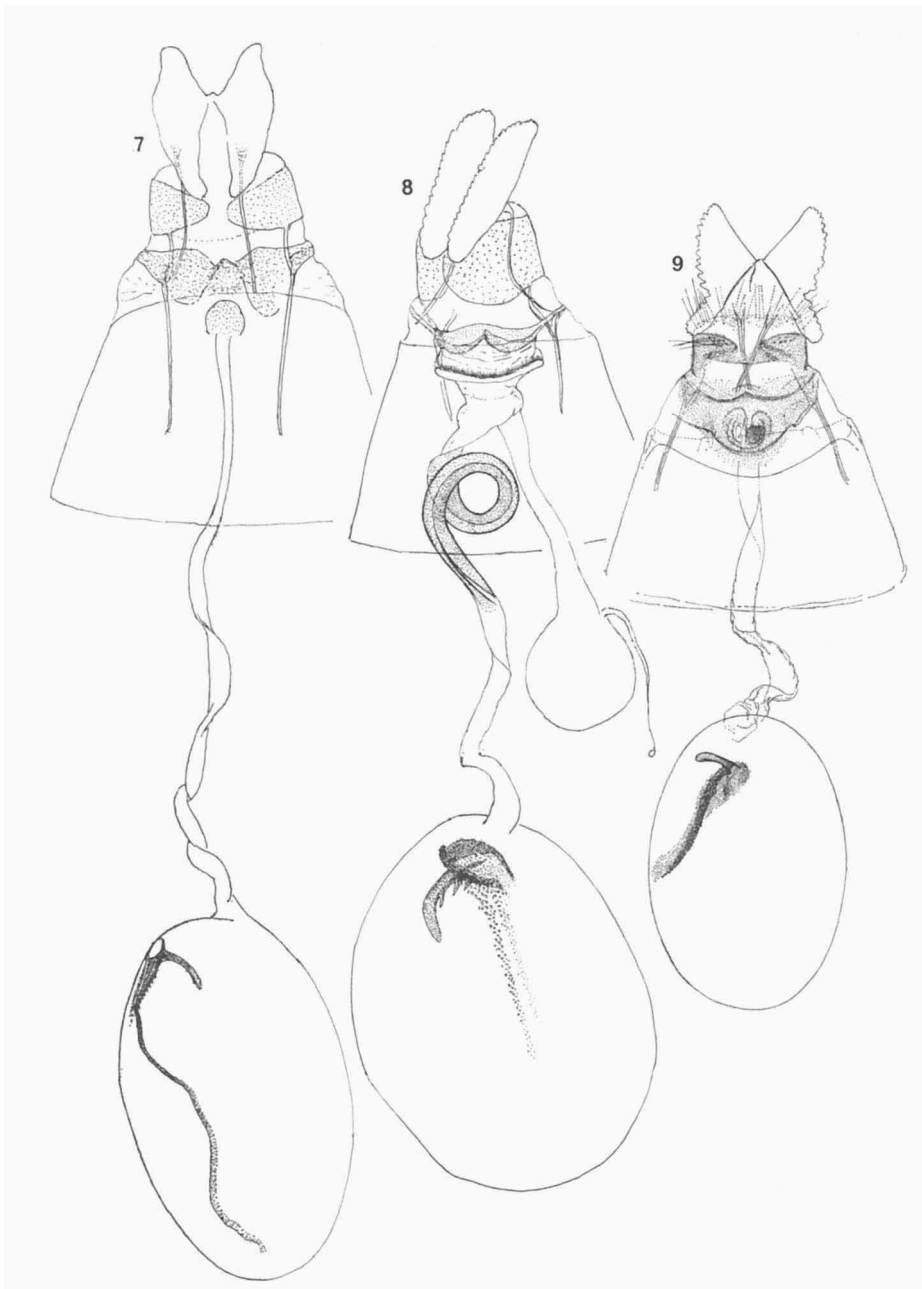
An interesting novel form with a series of unusual characters, such as scaled haustellum, spiny socii and bright and metallic colours, probably connected with diurnal life habits. So unusual is the facies of this species that in collections it got lost among the gaudy diurnal or semidiurnal Choreutidae.

Probably all broad-winged South-Asiatic species, described by Meyrick as



Figs. 3-6. Male genitalia of Hilarographini. 3, *Mictopsichia hubneriana* (Stoll), genit. 357 J. B. H., with, above, hand-shaped bristle from valva, more magnified; 4, the same, aedeagus; 5, *Mictocommosis nigromaculata* (Issiki), genit. 8134, with a trifid bristle of socius, more magnified; 6, the same, aedeagus.





Figs. 7-9. Female genitalia of Hilarographini. 7, *Mictocommosis nigromaculata* (Issiki), genit. 157 Y.A.; 8, *Mictopsichia hubneriana* (Stoll), genit. 9885; 9, *Mictocommosis stematias* (Meyrick), genit. 9874.

"*Mictopsichia*" belong here, except the narrower winged species, assigned to the new genus *Nexosa* below.

Key to the species of *Mictocommosis* gen. nov.

1. Hing wing with costal half fuscous, an orange band along apex and termen . . . . . *nigromaculata*  
 — Hind wing with costal half light yellow and orange, with three suffused black costal marks before apex . . . . . *stematias*

***Mictocommosis stematias*** (Meyrick) comb. nov. (fig. 9)

*Mictopsichia stematias* Meyrick, 1921, Zool. Med., 6: 178.

Holotype, ♀ (Gen. no. 9874, A. Diak.) Celebes, Bonthain (black ink, P.C.T. Snellen's hand)/ M 428 (ink; Meyrick's det. no.)/ Type (green)/ Holotype, ♀ *Mictocommosis stematias* (Meyrick), det. A. Diakonoff, 1977/ Type (red)/. In Leiden Museum.

Female genitalia. Ovipositor lobes acutely triangular, lower lobes slender, straight. Apophyses rather short. Sterigma, a transverse band, dilated in middle, upper edge in middle with a small dark rim, lower edge semicircular, convex, also rimmed. Ostium central, round, upper edge with pending median process. Colliculum sclerotic, spherical. Ductus bursae simple, rather wide. Corpus bursae large, oblong-ovoidal. Signum, a moderate hook on a basal plate, which at one side is continued by a long lamina dentata of flat oval scales.

Rather similar to *M. nigromaculata* Issiki, but larger, with brightly orange, less marked hind wing and distinct genitalia.

***Nexosa*** gen. nov. (figs. 10-14)

(nexusus = complicated)

Head with loosely appressed scales, face smooth, tufts on vertex roughly spreading. Antenna over  $\frac{1}{2}$ , moderately thickened in male, biciliate, ciliations over 1, scape thickened, smooth. Haustellum rather short, short-scaled. Ocellus large, prominent, posterior. Labial palpus moderate, rather slender, subporrected, median segment little curved, rather smoothly short-scaled, a short ventral crest-like ridge, terminal segment very short, smooth, drooping. Thorax smooth-scaled. Posterior tibia smooth-scaled, scales bristly at apex. Abdomen normal, with tortricoid apodemes.

Fore wing obling-truncate, rather narrow, dilated, apex obtuse, termen almost straight (hardly concave below apex), oblique. Vein 1b short-furcate at base (along less than  $\frac{1}{5}$ ), 2 from  $\frac{2}{3}$ , 3 from angle, 4 very close to 3,

remote from 5, 7 separate, to termen, 8 from upper angle of cell, 10 from 1/3, 11 from before middle, chorda absent, median branch indicated.

Hind wing 1, semioval, without a cubital pecten, vein 1c weak, 2 from 2/3, 3 and 4 connate from angle, 5 little curved, submedian, 6 and 7 separate, straight, slightly converging towards base, 8 free from base.

Male genitalia. Tegumen sclerotic, strongly concave; uncus long slender and curved, top clavate; below base of uncus a flattened cordiform projection, angles produced and rounded, middle of edge with a curved and porrect process, similar to uncus but shorter; actual shoulders of tegumen truncate, at right angles to cordiform plate, sclerotic, in front produced into undulate strong dark hami, sparsely long-bristled in middle, these bristles apparently representing socii, top of hamus naked, pointed. Gnathos sub-sclerotic, V-shaped, end denticulate. Vinculum moderate, V-shaped. Transtilla sclerotic, a strong band. Valva oblong-oval, cucullus often with a polyorthine split, inner costal edge with a strong sclerotic ridge along basal 2/3, apical 1/3 long-bristled. Sacculus less than 1/2 broadly triangular, caudal end sclerotic.

Female genitalia. Seventh, eighth and ninth segments sclerotic and rigidly joined together. Lobi anales slender, ovipositor being spindle-shaped. Caudal edge of eighth segment hairy. Seventh sternite inverted-triangular, edge sclerotic, two aciculate lateral lobes. Ostium, a small cylindre, aciculate inside.

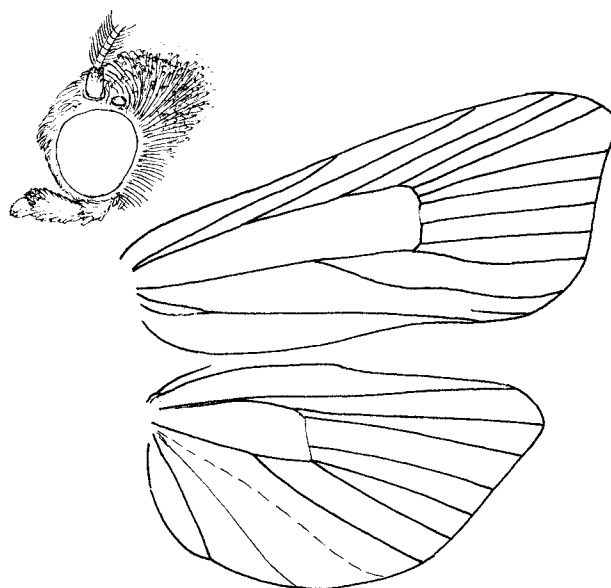


Fig. 10. Sketch of head and wing neuration of *Nexosa marmarastra* (Meyrick), ♂.

Ductus bursae rather short, with a large diverticle right below ostium and a single sinuation below this. Corpus bursae simple, rather small, ovoidal. (Raered specimen, preserved before copulation).

Type-species: *Mictopsichia marmarastra* Meyrick, 1932 (Java).

A specialized novel form, easily discerned from all other in the tribe Polyorthini by the complicated tegumen portion of the male genitalia and the simple venation. The sclerotization and fusion of the genital segments of the female, together with the presence of the characteristic polyorthine diverticle of the ductus bursae and the split valva assign the genus to the present tribe beyond doubt. There are, however, no obvious coremata, but the valvae are distinctly split at the posterior portion; in this respect the genus resembles *Cnephastis* Razowski, that also has split valvae but no coremata.

#### Key to the species of *Nexosa*

1. Fore wing with two silvery transverse fasciae . . . . . *picturata*
- Fore wing with three silvery transverse fasciae . . . . . 2
2. Fore wing with second fascia much closer to first . . . . . *aureola*
- Fore wing with three fasciae tolerably equidistant . . . . . 3
3. Hind wing basal half purplish-fuscous, strewn with whitish small spots  
*marmarastra*
- Hind wing basal half white, sparcely dotted with dark fuscous *hexaphala*

#### ***Nexosa marmarastra*** (Meyrick) comb. nov. (figs. 10, 12, 14)

*Mictopsichia marmarastra* Meyrick, 1932, Exot. Microlep., 4: 272. — Clarke, 1969: 183, pl. 91 figs. 3-3b (wings, genitalia ♂ type figured).

Holotype, ♂/Seneng, Java, K. .8.31/Genit. Slide No. 9238/. In British Museum (Natural History).

Central Java, Telawa, [teak forest], 4.viii.1935, no. 1537 (L. G. E. Kalshoven); "daoeng ganggang" [on leaf of *Ficus hirta* Vahl.], 1 ♂ (abdomen missing). (In Leiden Museum).

East Java, Tengger Range, Mt. Smeroe, southern slope, Ranoe Daroengan, 800 m, bred from larva on leaves of an unnamed jungle shrub, e l. 13.iii.1940 (A. Diakonoff), 1 ♀, metalotype, genit. slide 9868. (In Leiden Museum).

The female, metalotype, is in all respects similar to the male, except that the antenna is less thickened and short-biciliate.

The genitalia of the two sexes, as described with the genus above.

**Nexosa aureola** spec. nov. (fig. 11)

(aureolus = lovely)

♀ 11 mm. Head pale ochreous, vertex suffused with purplish. Antenna pale ochreous, striped with purplish above, scape purplish, pale ochreous in front. Palpus ochreous, median segment with a subapical, dorso-lateral, purplish point, terminal segment purplish. Thorax purplish. Abdomen ochreous, posterior third with tergites purplish-fuscous, anal tuft bronze, venter light yellow, sternites 1-2 light orange.

Fore wing oblong-subtruncate, rather dilated, costa hardly curved, apex moderately pointed, termen sinuate above, rounded below. Tawny-fuscous, becoming yellow on base and costa, above tornus rather obscured with dull fuscous, a large, semioval, ill-defined patch on dorsum not reaching middle of disc, fuscous with numerous, straight and parallel, oblique series of small whitish-ochreous dots, denser anteriorly; basal patch to less than  $1/4$ , ill-defined, indicated by two fuscous, parallel, slightly dilated streaks, upper costal, lower just above base of fold; an irregular, suffused dark and subquadrate spot on middle of costa, dark fuscous, becoming black on costal edge; this spot followed by three black suffused costal dots, tolerably equidistant, from before  $2/3$ , last well before apex; second of these dots continued in a narrowed series to dorsum well before base; three transverse, moderate bluish-leaden streaks, narrowly edged with blackish suffusion: first longest, from costa, slender above, gently convex posteriorly, from just beyond middle of costa, to above dorsum before tornus; second metallic streak from below costa beyond first costal dot, parallel to preceding streak, reaching to vein 6; this streak thickest, straight, from below third costal dot to vein 3 before termen; a slender transverse metallic mark before apex, edged with black anteriorly; a narrow, black marginal streak around apex and along termen and tornus. Cilia purplish-black, pale fuscous along termen between veins 4-5.

Hind wing light yellow, on posterior  $1/3$  becoming pale orange, bright orange on apical  $1/4$ , coarsely and sparsely marbled throughout with purplish, tending to form quadrate blotches; marbling on terminal third becoming deep black, extended and confluent, in apex forming an oval, just submarginal larger black patch, surrounded by bright orange; these black markings tending to form parallel subquadrate terminal blotches, from below apical patch to before tornus; rounded, containing along their middle a series of some five large rounded, slightly elevated, brilliant silvery spots and a second parallel, submarginal series of minute elongate metallic marks. Cilia along costa and around apex purple, with a purplish-black basal fourth,

elsewhere orange, with five purplish oblong transeverse spots along termen; in tornus and along dorsum cilia pale purplish, with a darker basal band.

Female genitalia. Close to those of *N. marmarastra* Meyrick, moderately sclerotic and hairy throughout. Lobus analis concave, together their lower halves forming a funnel, rather hairy and bristly. Ninth segment forming a thickened collar, postapophyses straight, robust, rather short. Eighth segment enlarged, bristly along edges, anapophyses short. Sterigma, a large, subsclerotic funnel, flattened dorso-ventrally, two semioval, hairy lobes above, a sclerotic funnel below, with a truncate end. Ductus bursae moderate, straight, corpus bursae very small; a large membranous diverticle at upper 1/3 of ductus bursae, with ductus seminalis close to its origin. Signa absent.

British New Guinea, Hydrographer Mts., 2500 ft., March, 1918 (Eichhorn Bros.), 1 ♀, holotype, genit. slide 9896. In the Collection of the Cornell University, Ithaca, N. Y., U.S.A.

***Nexosa picturata* (Meyrick) comb. nov. (fig. 13)**

*Mictopsichia picturata* Meyrick, 1912, Exot. Microl., 1: 35. — Clarke, 1969: 184, pl. 92 figs. 3-3b (holotype wings, genit. ♂ illustr.).

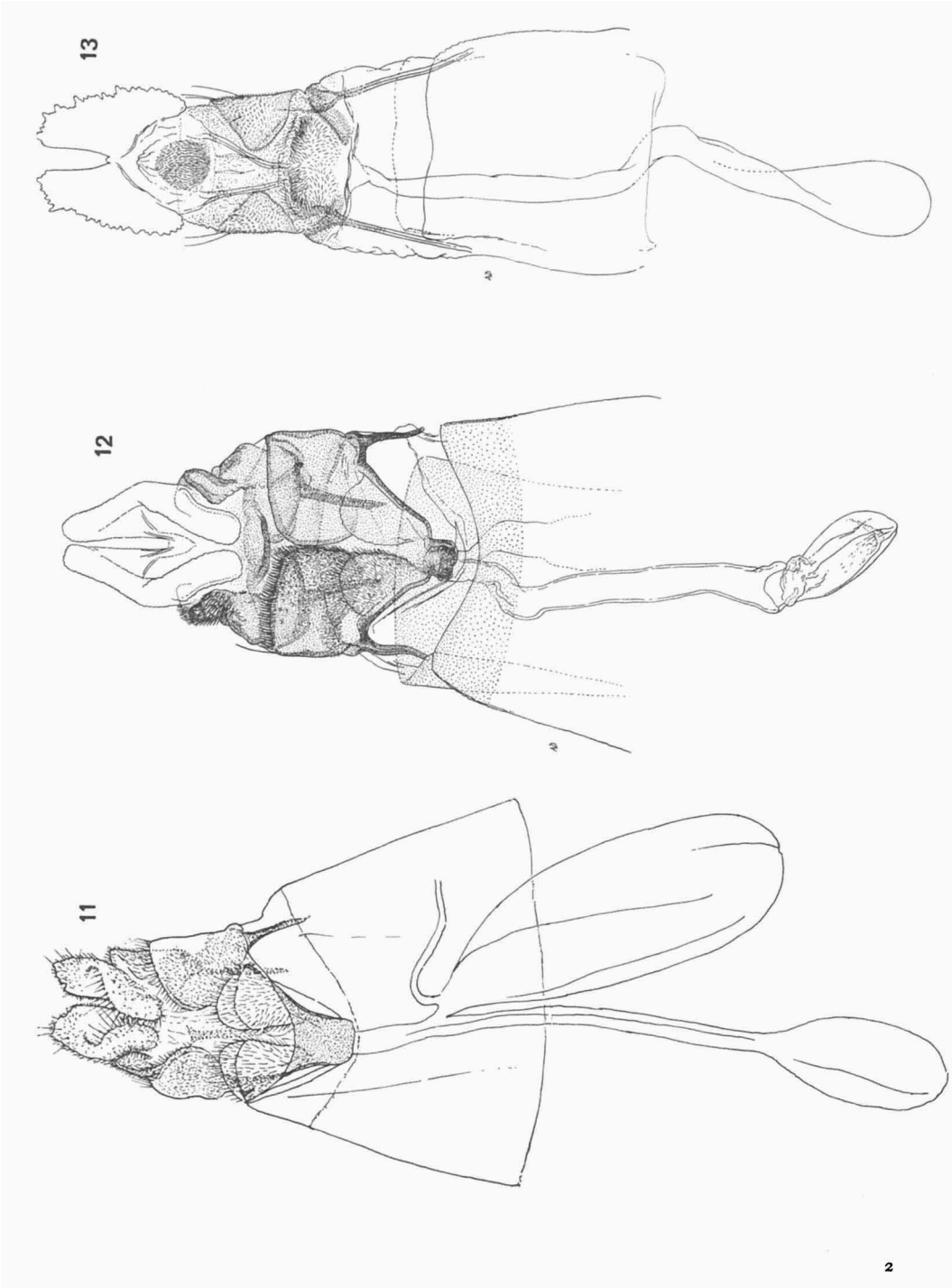
Holotype, ♂/Assam, Khasi Hills, .10.1906/Genit. Slide No. 9237/. In British Museum (Natural History). (Teste J. F. G. Clarke).

West-Java, 800-900 m, Tjikadjang, Bandjarwangi, 7-10.iv.1939 (M. A. Lieftinck), 1♀, metalotype, genit. slide 9874. In Leiden Museum.

The female metalotype again is very similar to the above cited illustration of Clarke (fig. 3); the antenna is less thickened and short-biciliate, as in the preceding species. The present species is somewhat surprising: although superficially it is very much similar to *N. marmarastra* (Meyrick) and the neuration is about congruent, the genitalia in the two sexes are considerably different. Are those in *marmarastra* clearly polyorthine, the genitalia of *picturata* resemble rather those of Schoenotenini, the nearest allied tribe.

Male genitalia. Tegumen small, as compared with vinculum which is extended, without a saccus. Uncus moderate, pointed, little curved. Hami sclerotic, moderate, acutely pointed. Socii and gnathos apparently absent. Valva moderate, thickened at base, simple. No coremata. Aedeagus slender, moderately curved.

Female genitalia. Ovipositor lobes oblong-oval, tips rounded. Anal tube with a bristly papilla. Eight segment subsclerotic, elongate, aciculate. Lamella postvaginalis, a broad, aciculate membranous transverse band. Ostium small, funnel-shaped, without colliculum. Ductus bursae moderate, rather shorter than the strongly elongate, sclerotic seventh sternite. Corpus bursae oblong, sausage-like, rather small.



Figs. 11-13. Female genitalia of *Nerosa* g. nov. 11, *N. aureola* sp. n., holotype; 12, *N. marmarashtra* (Meyrick), genit. 9868; 13, *N. picturata* (Meyrick), genit. 9876.



Figs. 14-15. Male genitalia of Hilarographini. 14, *Nexosa marmarastra* (Meyrick), with below, left, aedeagus, genit. 9863; 15, *Thaumatographa ferox* (Meyrick), genit. 9869.



**Nexosa hexaphala** (Meyrick) comb. nov.

*Mictopsichia hexaphala* Meyrick, 1912, Exot. Microl., 1: 36 (Ceylon). — Clarke, 1969: 183, pl. 91 fig. 2 (holotype: wings figured).

Holotype ♀/Maskeliya, Ceylon, .5.06/. In British Museum (Natural History). (Teste J. F. G. Clarke).

Only the holotype is available. The genitalia are illustrated by Clarke. Characteristic is the long, slender signum.

The species is probably allied to *N. picturata* (Meyrick).

**Hilarographa** Zeller (figs. 16, 18-20)

*Hilarographa* Zeller, 1877, Horae Soc. ent. Ross., 13: 187.

Type species: *Phalaena Tortrix swederiana* Stoll, 1782, by subsequent designation of Walsingham, 1897 (Surinam).

This centenarian has been erected for a South American species, but has been used by Meyrick since also for South Asiatic and African species of similar facies. Lord Walsingham defined two allied genera, *Thaumatographa* for the South American and *Idiothauma*, for the African species, respectively, but Meyrick sunk both as synonyms of *Hilarographa* Zeller. Recently the Palaearctic species have been revised under the generic name *Hilarographa* (Diakonoff & Arita, 1976).

A critical comparison of the type species of *Hilarographa* and *Thaumatographa* revealed that they have sufficient minor differences rather to be considered distinct genera, in spite of certain superficial similarity. My colleague, J. B. Heppner, is going to publish this soon in his revision of the New World species (of *Hilarographa*) while in the following pages some South Asiatic species are treated, better assigned to *Thaumatographa* Walsingham. The Palaearctic species obviously belong to the last genus. Probably the African species of this group of gaudy coloured, apparently diurnal species, should be assigned to *Idiothauma* Walsingham.

The differences of *Hilarographa* and *Thaumatographa* may be summed up thus. To the former belong large and robust species with bright colours in simpler markings and with a more tortricoidal shape of the fore wings, with a gently curved termen. The *Thaumatographa* species are smaller, less robust, more slender, with stronger dilated, more triangular fore wings, usually a highly intricate pattern of transverse stipes and a gently sinuate termen; its slight concavity below the apex is considerably exaggerated by a whitish wedge-shaped transverse marginal mark, extending over cilia.

The labial palpi in *Hilarographa* are moderate, curved and ascending, rather smoothly scaled and not flattened. In *Thaumatographa* the labial palpi

are peculiar: rather slender and long, hardly dilated basad and more or less distinctly flattened dorso-ventrally, at least towards apex, in the type species so flattened throughout; curved and ascending close to face, but not appressed to it. The curvature of the palpi may vary in diverse species, but their being flattened and finely rough-scaled can always be traced. The flattened palpi is a peculiar feature, not known to me from any other group of the Tortricoidea, except for a single example, cited by Meyrick (1914: 2, in *Laspeyresia primigena* Meyrick). It is a typical characteristic of the genus *Glyphipterix* Fabricius (superfamily Copromorphae).

Finally the male genitalia differ by the uncus in *Hilarographa* being more or less subsclerotic at base, so that in mounts it can be turned upwards and so flattened. In *Thaumatogeta* the uncus is always rigid, a strongly curved and porrect hook, that cannot be flattened out in that way, but has to be mounted sideways. Besides, the socii in the first genus are flattened, rather broad, with rounded tops and densely long-bristled throughout, especially along the lateral margin. In *Thaumatogeta* the socii are of two types: either thick, sclerotic and strongly pointed, or slender and long, rod- or even ribbon-like, subsclerotic, especially in the Palaearctic species; both these types in *Thaumatogeta* are but thinly bristled.

The difference of neuration, proposed by Lord Walsingham for the

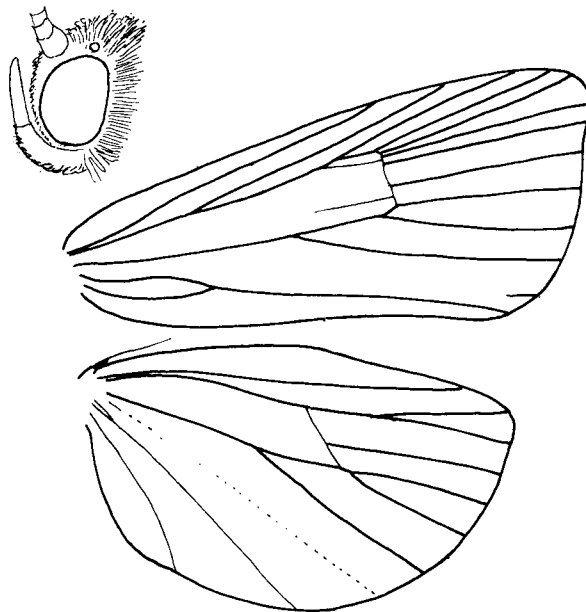


Fig. 16. Sketch of head and wing neuration of *Hilarographa swederiana* (Stoll), ♂.

separation of *Thaumato-grapha*, viz., the veins 7 and 8 being stalked in the type-species, *T. zapyra* (Meyrick), does not apply to most species of that genus, where these veins are separate, in the same way as they are in *Hilarographa*.

**Hilarographa swederiana** (Stoll) (figs. 16, 18-20)

*Phalaena Tortrix swederiana* Stoll, 1782. in Cramer, Papillons Exot., Suppl.: 75, pl. 16 fig. 5.

The brightly coloured Central-American species which is the type of this large and widely distributed, chiefly tropical genus may be redescribed as to its generic characters for the same reason as explained for the type of *Mictopsichia*.

Head rather smooth-scaled, vertex with closely appressed scales, collar slightly roughish. Antenna about 1/2, thickened, more so in male, minutely ciliate, scape short, rounded. Ocellus posterior, large. Haustellum vestigial, naked. Maxillary palpus imperceptible (1-segmented?). Labial palpus rather long, moderately curved, steeply ascending close to face, exceeding base of antenna, with smoothly appressed scales, median segment with a slight roughish keel in front, terminal segment shorter than median, in front appearing flattened, gradually pointed. Thorax smooth, rather enlarged. Abdomen normal. Posterior tibia smooth, a short whorl of bristly scales at apex.

Fore wing oblong-subtruncate, rather broad, dilated, costa little curved, apex obtuse, termen concave, almost notched below apex, rounded below. Vein 1b furcate along basal 1/3, 2 from beyond 2/3, 3 from before angle, distant from 4, 4 from angle, 6-9 approximated at base, 7 close to 8, separate, to termen, 8 from angle, 10 from 4/5 of distance 11-9, 11 from before 2/3 of cell, chorda from before 10 to above 7, median branch traceable at end.

Hind wing broadly semioval, over 1, without cubital pecten, 1c fold-like, 2 from 2/3, 3 and 4 short-stalked from angle, 5 submedian, 6 and 7 stalked from angle.

Male genitalia. Tegumen broadly cylindrical, sides continued ventrad until they touch mesally along a thickened rim. Uncus spindle-shaped, acute. Hamus rigid, slender, with dilated, concave base; socius shorter than hamus, oblong-clavate, along edge densely long-bristled. Gnathos, a moderate transverse oval rod. Vinculum short, compressed. Transtilla large, W-shaped, lower points aciculate. Valva suboval, broadest before middle, upper half of disc with a patch of thin bristles, tufted before middle. Aedeagus thin, slender, rather small, gently narrowed, without coecum penis.

Female genitalia. Ovipositor elongate, lobus analis oblong-oval, subrigid, surface granulate. Postapophyses rather long, thin, simple. Corpus bursae

spherical, a much smaller, pear-shaped additional sack. Signum, a round concentric patch of small scobinations.

Material studied. Costa Rica, Heredia, 3 km S Puerto Viejo, 22/26.xi.1971, P. A. Opler, OTS no. 26801. J. B. H. [eppner fecit, no.] 357, 10/75, 1 ♂; the same, no. 26800, J.B.H. 358, 1 ♀. In National Museum of Natural History, Washington D.C., U.S.A. (Teste A. Diakonoff).

### **Thaumato-grapha** Walsingham

*Thaumato-grapha* Walsingham, 1897, Trans. ent. Soc. London, 1897: 52.

Type species: *Hilaro-grapha zapyra* Meyrick, 1886, by original designation.

Head with more or less closely appressed scales. Ocellus posterior, often enlarged, protruding. Haustellum developed, more or less scaled at base. Antenna in male usually long-ciliate, segments with basal semicircle of cilia, often some segments with a single fronto-lateral prong. Maxillary palpus very small, four-segmented. Labial palpus moderately long, recurved, ascending, but not appressed to face, about apical half or more usually flattened dorso-ventrally (rostro-caudally), with more or less closely appressed hair-scales, median segment longer than apical. Chaetosema absent. Thorax normal, smooth. Abdomen normal, with a basal articulation of tortricoidal apodemes. Posterior tibia with appressed scales, sometimes slightly projecting above.

Fore wing broad, oblong-truncate, apex obtuse, cubital vein in female with

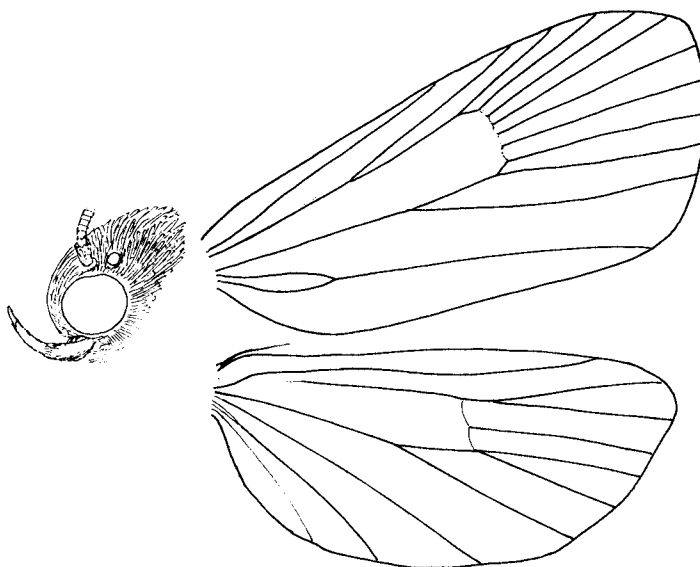


Fig. 17. Sketch of head and wing neuration of *Thaumato-grapha oenobapta* sp. nov., ♂.

a retinaculum. Vein 2 from towards angle, 3 from angle, 7 to apex or termen, 8 to costa, seldom 7 and 8 stalked, 11 from before middle. Median branch vestigial, chorda sometimes traceable, usually traceable at ends.

Hind wing broadly semioval, 1 or over 1, without a cubital pecten. Vein 2 from well beyond middle, 3 from angle, 4 close to angle, 6 and 7 separate and distant, 8 from base. Median branch absent.

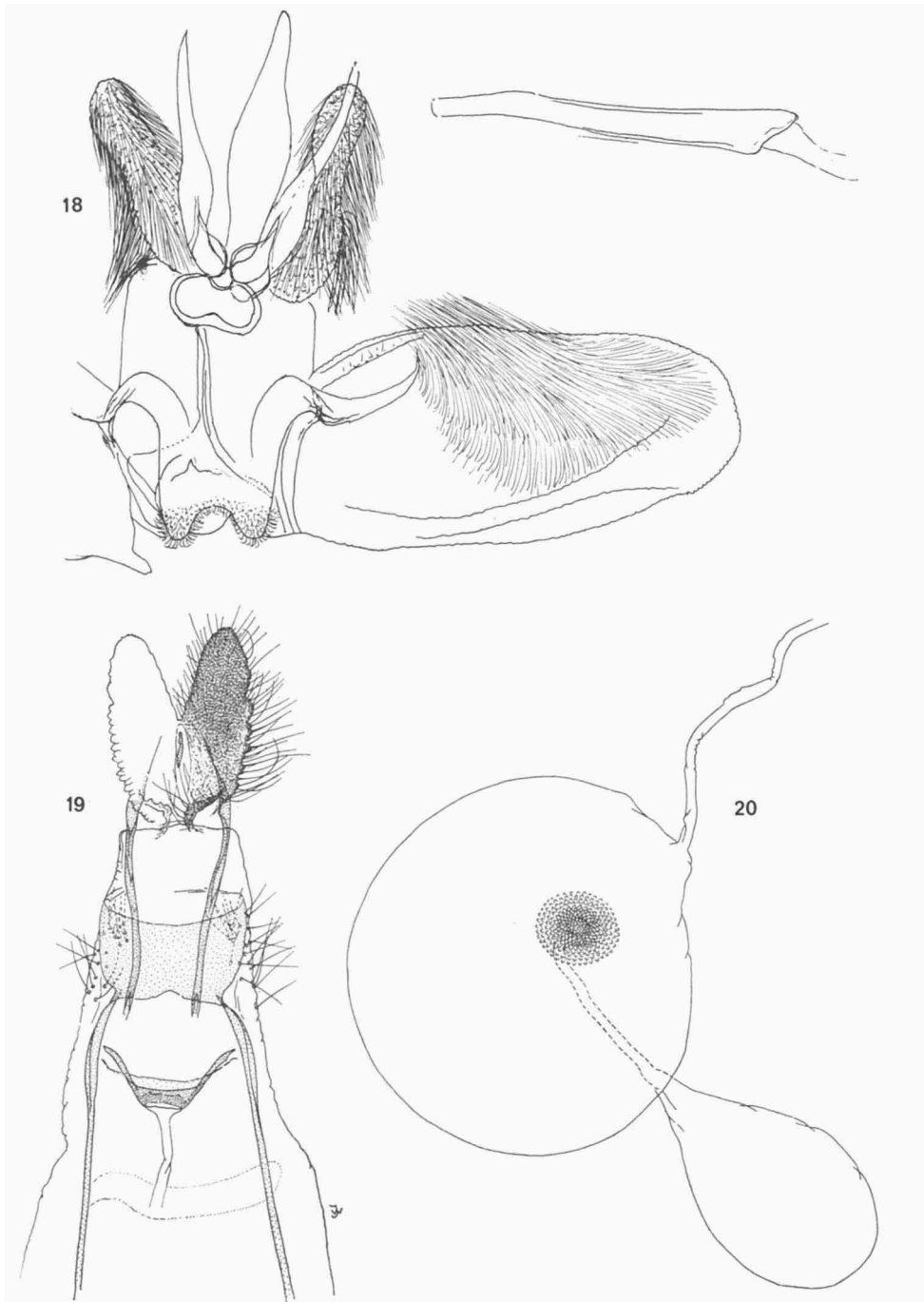
Male genitalia tortricoid, tegumen normal, narrowed above. Uncus hooked, slender. Socii porrected or pending, usually slender. Hami often present, long and slender sclerotic rods. Gnathos usually absent, sometimes present, little sclerotized, pending. Vinculum small, without saccus. Valva oval or semi-truncate, thinly haired, often with a deep split extending over the whole surface of valva and in repose containing the long pencil-like corema of the eight segment, encased in a membranous sheath along its basal part, with tips projecting beyond the ends of valva; sometimes these coremata absent and splits reduced or absent. Aedeagus long and slender, not pistol-shaped, usually narrowed, sometimes with sclerotic wrinkled spherical glans, exceeding diameter of opening of anellus. Anellus moderate.

Female genitalia. Ovipositor more or less rigid, lobi anales elongate vertically, more or less pointed, lower ends narrowed, often curved inward. Apophyses long and slender, mostly specifically distinct. Sterigma little sclerotized, often also little modified. Ostium, a wide shallow cup. Ductus bursae mostly very long and slender, simple, corpus bursae oblong-oval, curving caudad, usually oblong-ovoidal, with a sack-like diverticle upon moderate or long slender stalk, originally from other side of corpus bursae opposite base of ductus bursae; close to the latter, an extremely slender ductus seminalis; sometimes corpus bursae simple; seldom an additional diverticle at the top of ductus bursae, wide, short, with a large additional sack. Signum polyorthine, a fan-like bilobed bunch of dense long spines. Seldom (*mikadonis*) ductus and corpus bursae clothed with asteroid spines.

A large genus with characteristically marked, reddish-orange and crimson coloured species of moderate size, usually easily recognizable.

Larval chaetotaxy is figured (Diakonoff & Arita, in press) of only one species, *T. eremnotorna* Diakonoff & Arita, the larva of which bores in cambium of trunk of *Pinus densiflora*, in Japan (Diakonoff & Arita, 1976: 187). Another species, *T. oenobapta* sp. nov., has been bred from inflorescence of *Ixora* (Rubiaceae) in Java (Meyrick, 1934, under the name of "*Hilarographa calathisca* Meyrick") and a third, *T. leucopyrga* (Meyrick), from Myrsinaceae, also in Java.

At the time of the 1974 revision of the tribe Polyorthini only one genus, *Cnephasitis* Razowski, 1965, was known which did possess split valvae but



Figs. 18-20. Genitalia of *Hilarographa swederiana* (Stoll). 18, male, genit. 357 J. H. B., with above, right, aedeagus; 19, female, genit. 358 J.B.H.; 20, the same, bursa copulatrix.

lacked the coremata, to fit into the splits. Judging from the total complex of features the genus has been included in the tribe nevertheless, in spite of the most characteristic feature being so aberrant. Now *Thaumatographa* appears to possess the same feature: the combination of a split valva with long, fitting coremata, in all stages of development, either complete and characteristic (*T. oenobapta* sp. n.) or, in otherwise closely related species (e.g., *T. opistocapna* sp. n.) entirely absent, i.e., with normal single valvae and without coremata. These remarkably variable structures, therefore, must be apodemic in character, and perhaps of comparatively recent origin.

Key to the treated species of *Thaumatographa* \*)

- 1. Fore wing with transverse streaks gradually continued from costa to dorsum, not forming one or two distinct paler dorsal spots; hind wing seldom pale pinkish, mostly orange or yellow, sometimes with black marginal marks or infuscated margin . . . . . 2
- Fore wing with markings including one or two paler, whitish dorsal spots, each often consisting of three parallel lines . . . . . 10
- 2. Fore wing basal third bright red or orange, with bluish or black streaks 3
- Fore wing basal third purple, with or without yellow or orange streaks 4
- 3. Fore wing basal third bright red, with three longitudinal diverging pale metallic-blue streaks . . . . . *excellens*
- Fore wing basal third bright orange, with three purple-black longitudinal streaks, united in a point posteriorly . . . . . *phlox*
- 4. Fore wing basal third with some three diversely shaped much paler yellow or orange longitudinal streaks . . . . . 5
- Fore wing basal third rather infuscated, without much paler yellow or orange markings . . . . . 8
- 5. Fore wing with three undulate parallel transverse lines, becoming narrower posteriorly; hind wing in ♀ yellow-orange, with a dentate broad suffused submarginal band . . . . . *undosa*
- Fore wing with transverse lines of equal width, or with only one curved band beyond middle; female with hind wing orange with a subterminal blotch of roundish suffused, confluent spots, or hind wing pale yellow or yellow, with a blackish suffused, submarginal or marginal band . . . . . 6
- 6. Fore wing with only one complete transverse yellow line beyond middle, strongly rounded posterad . . . . . *zapyra*
- Fore wing with three transverse lines of equal width . . . . . 7
- 7. Hind wing in female orange, with a subterminal blotch of confluent

\*) *T. tornoxena* sp.n. has a row of black spots in termen and tornus.

- roundish dark grey spots; hind wing in male deep tawny-orange, suffused with purplish . . . . . *opistocapna*
- Hind wing in female pale yellow with a blackish suffused marginal band; hind wing in ♂ tawny, densely infuscated dark grey-fuscous. *ludens*
8. Fore wing costa with four blue metallic, black-edged streaks from costa to dorsum . . . . . *spermatodesma*
- Fore wing costa with five or six white streaks . . . . . 9
9. Fore wing with apical fourth chestnut-brown; costa with five slender separate white streaks . . . . . *ferox*
- Fore wing apex and termen broadly light golden-orange; costa with five robust white streaks, posterior pair in an oval . . . . . *cladara*
10. Fore wing obtusely pointed, dark fuscous with four small horizontal yellow marks . . . . . *macaria*
- Fore wing apex rounded, without such marks . . . . . 11
11. Fore wing with first dorsal spot conspicuous, white or pale yellowish, fasciate, single, rather broad . . . . . *leucopyrga*
- Fore wing with first dorsal spot consisting of three parallel pale lines 12
12. Fore wing first dorsal spot white, contrasting; basal patch with a single yellow longitudinal streak . . . . . *oenobapta*
- Fore wing with dorsal spot not so contrasting, yellowish or pale fuscous; basal patch with two or more longitudinal orange streaks . . . . . 13
13. Fore wing with basal patch with some four irregular orangeish streaks; lines of dorsal spot pale yellow . . . . . *mesostigmatias*
- Fore wing traversed by two orange longitudinal streaks; dorsal spots large, subequal, each formed by three fuscous lines . . . *dolichoschiza*

***Thaumato-grapha zapyra* (Meyrick) comb. nov. (fig. 21)**

*Hilarographa zapyra* Meyrick, 1886, Trans. ent. Soc. London. 1886: 286. — 1913: 24. — 1914: 7. — Walsingham, 1897: 52.

Holotype, ♂ /Holotype (round, red edge)/(reverse:) Type(round, red edge)/ Port Moresby, N. Guinea, Mathew 1236, No. 2209/ Walsingham Collection, 1910-437/ (Durrant's hand) Type ♂/ Holotype ♂, *Hilarographa zapyra* Meyr., J.B.H. '76/ B.M. ♂ Genitalia slide No. 20234/. (Teste A. Diakonoff).

Male genitalia. Tegumen robust. Uncus, a strong porrect hook. Socius broad at base, strongly narrowed, slightly shorter than hamus, this strong, sclerotic, little narrowed, gully-shaped, pointed tip abruptly curved upwards. Gnathos, a slender, large bow. Valva simple, oval, rather thick, base of costa with an oval concavity; weakly short-haired throughout. Juxta large, in-



verted-trapezoidal, upper edge concave. Aedeagus moderate, spindle-shaped, with coecum penis. Cornuti, minute denticulations and a central large spike.

**Thaumato-grapha leucopyrga** (Meyrick) comb. nov. (figs. 24, 30)

*Hilarographa leucopyrga* Meyrick, 1912, Exotic Microlep., 1: 36. — 1913: 24. — 1914: 7. — Inoue, 1954: 48, nr. 228. — Clarke, 1955: 186. (Nec Meyrick, 1936: 616).

Holotype: ♂, Nagasaki, Japan, T. B. F[letcher], 8.4.99 (in Meyrick's hand). In bad condition, with abdomen intact. In the British Museum. (Teste J. F. G. Clarke).

Central Java, Telawa /near Semarang, teak forest/, bred from larva in stem of "lempèni" (*Ardisia* spec., Myrsinaceae), 20-27.xii.1933, 15.i.1934 (L. G. E. Kalshoven), 1 ♀, 3 specimens without abdomens. — Tegal /North coast, low country/, Meyrick's name label "M 153", 1 specimen without abdomen (Lucassen, Snellen Coll.). In Leiden Museum.

Male genitalia. Tegumen strongly concave. Uncus rather long, rigid, gulley-shaped, point slightly narrowed. Socius rigid and slender, top clavate and pointed, with a few bristles. Hamus much longer than socius, broad, sclerotic, with a thickened median ridge, top with two unequal hooks. Aedeagus robust, long, spindle-shaped. Cornuti absent. Anellus indefinite.

Female genitalia. Eighth segment finely aciculate throughout. Lamella



Fig. 21. *Thaumato-grapha zapya* (Meyrick), holotype, ♂, genitalia (Courtesy of the Trustees of the British Museum (Natural History)).

postvaginalis, a subsclerotic inverted-trapezoidal plate. Anapophyses longer than postapophyses. Ostium, a wide shallow cup. Colliculum small, ovoidal, punctate inside. Ductus bursae simple, moderately wide, very long.

A small species, resembling *T. spermatodesma* (Diakonoff), with the typical preterminal row of black dots from apex to tornus, but differing at once by the presence of a conspicuous pale yellowish dorsal transverse mark, reaching above middle of wing, with a dark point on middle of base, top of mark variable, pointed or rather truncate, straight or curving posterad. In spite of these minor differences, no distinct differences of the genitalia could be found between the Japanese and the Javanese material. The former is slightly larger and darker.

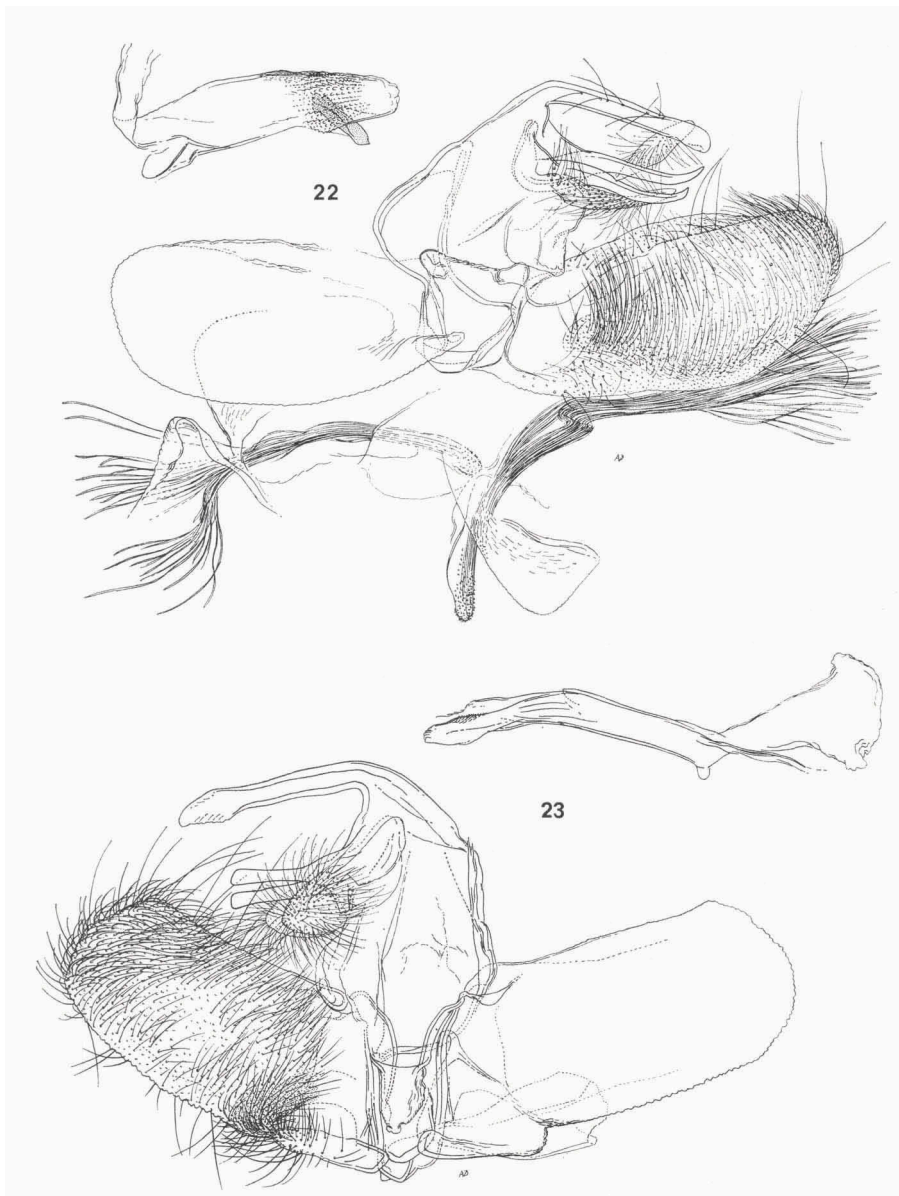
***Thaumato-grapha oenobapta* spec. nov. (figs. 17, 22, 25)**

(οἶνος = wine, βαπτός = dipped)

*Hilarographa calathisca* Meyrick, 1934 (nec 1909), Exot. Microl., 4: 456.

♂♀ 11 mm. Head dark purplish-grey, thinly edged with yellowish, face light yellow, collar edged with yellowish. Palpus rather long, compressed rostro-caudally, gently curved, porrected, glossy white, yellowish at base above, apical segment longer than median, with brilliant bluish or greenish opalescence in certain lights. Haustellum pale yellowish, distinctly short-scaled. Antenna thickened in male, biciliate, ciliations 1. Thorax slightly enlarged, light fuscous with purplish or grey opalescence, with broad lateral yellowish stripes; metanotum light purplish. Abdomen fuscous-grey with a purplish gloss, anal tuft darker purplish-grey, valvae glossy dark grey, venter whitish with short lateral grey bands. Posterior tibia yellow, above and at apex infuscated, first tarsal segment strongly elongate, longer than  $\frac{1}{2}$  tarsus, yellow, with an oblique dark fuscous streak from beyond base above to apex below; remaining segments white, black ringed.

Fore wing oblong-oval, moderately dilated, costa straight, apex broadly rounded, with a minute indication of real apex, very slightly concave below this, termen moderately rounded. Basal third grey-purplish, upper edge very oblique and gently concave, with a slender point above middle of disc to before  $\frac{2}{3}$  of wing; along costa narrowly pale yellow, extreme base with a pale yellow spot, from which a horizontal, slender streak to beyond middle of disc, pale yellow at base, turning gradually deep orange, its tip followed by three larger orange round dots; basal  $\frac{2}{3}$  of this grey part with a conspicuous pale mark, formed of three whitish parallel, curved, and outwards-concave streaks, not reaching horizontal streak, median streak not reaching dorsum; this mark on  $\frac{2}{5}$  of dorsum, followed by a darker grey large patch, with some three subparallel very incomplete series of deep orange dots and



Figs. 22-23. Male genitalia of *Thaumatographa* Walsingham. 22, *T. oenobapta* sp. n., holotype, with coremata and, above, aedeagus; 23, *T. opistocapna* sp. n., holotype, with, above, aedeagus.

strigulae; a suffused narrowed greyish-white streak from costa just before edge of basal grey part of wing; remainder of wing deep crimson, anteriorly turning orangeish, with four more pale, opalescent, greyish, black-edged costal marks, pale yellow on costa; first streak just submedian, subcrescentic, ending in a black dot, second mark short, triangular, third and fourth slender, less oblique, opalescent greyish; black edges of penultimate mark continued across wing, sinuate, more or less diverging, each becoming double, not reaching tornus, on dorsum preceded by a second, less defined, more erect, little curved vertical mark before end of dorsum, yellowish, edged and parted by black lines; an irregular series of submarginal black dots, more or less irregularly elongate and oblique: upper opposite apex, others subfasciate; a black marginal stria around apex and along termen to tornus, gradually dilated downwards. Cilia white along costa before apex, thence with a suffused apical grey-purple band, quickly dilating and occupying entire cilia.

Hind wing reddish-bronze, tornal third greyish-fuscous, cell paler suffused with whitish, costa white. Cilia pale tawny-whitish with a dark grey subbasal band and creamy basal line.

Male genitalia. Tegumen strongly concave, broadly conical. Uncus strong, bent at base, straight and porrect thence, not curved. Hamus sclerotic, exceeding uncus, with dilated and strongly sinuate base, becoming slender and curved posteriorly. Socius porrected, shorter than hamus, pointed and rather narrow. Gnathos submembraneous, large, with broad arms and simple top. Transtilla, a flat sclerite, with subtriangular hollow dilatations at ends. Juxta large, submembraneous. Vinculum small, slender, triangularly dilated at end. Valva weak, oblong-oval, slightly dilated, split throughout. Eighth segment with a large triangular lateral fold and cigar-shaped median sheath on each side, the latter containing a slender and very long corema, basal half retracted in sheath, upper half fitting in split of valva. Aedeagus robust, thick, cylindrical, top formed by a rigid denticulate spherical glans-like cornutus, exceeding opening of anellus (aedeagus cannot be pulled out backwards without destroying anellus).

Female genitalia. Seventh segment enlarged, high, ostium in intersegmental membrane, unmodified, wide. Eighth segment sclerotic. Lobus analis elongate-oval, rather slender. Colliculum large, caliciform, sclerotic. Ductus bursae moderate, simple, very long, with corpus bursae recurved, with a small diverticle on a very narrow duct, opening opposite ductus bursae. Ductus seminalis normal. Signum, an asteroid bunch of long slender spines.

West Java, Buitenzorg [Bogor], 250 m, 8.i.1950 (Liem Swie Liong leg.) 1 ♂, holotype, genit. slide 9866; the same (G. I. Imbert leg.), 1 ♀, allotype, genit. slide 9864. Paratypes, the same locality, 10 and 23.i.1949; 14, 15,

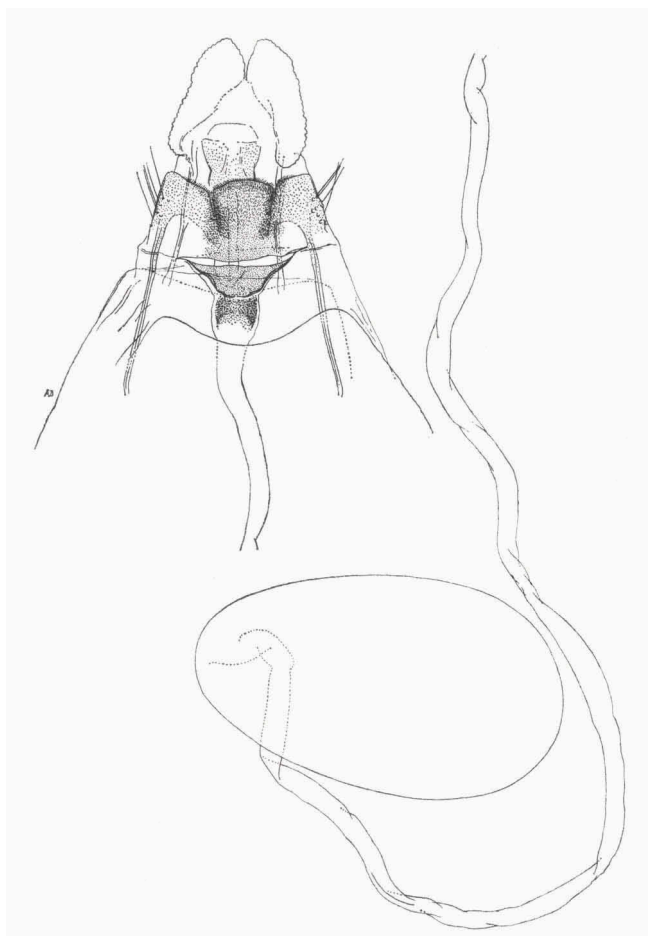


Fig. 24. *Thaumatographa leucopyrga* (Meyrick), genitalia ♀, 9640, with, right, bursa copulatrix.

17.iii.1949; 20.v, 17.vii, 11.viii, 13.ix.1950 (G. I. Imbert, L. S. Liang, A. M. R. Wegner), 16 specimens. In Leiden Museum, in British Museum (Natural History), London, and in National Museum of Natural History, Washington.

West Java, Buitenzorg, bred from larvae on *Ixora* inflorescence (Rubiaceae) (L. G. E. Kalshoven), 9 paratypes, genit. slide 9870 ♂. In Leiden Museum.

An elegant brightly coloured species with strongly dorsoventrally flattened labial palpi, conspicuous white dorsal patch and long coremata with basal parts enclosed in sheaths. The material bred by Dr. Kalshoven has been identified in 1934 by E. Meyrick with *H. calathisca* Meyr. from Ceylon, but

that species does not have a distinct white dorsal patch and has simple ♂ genitalia of a chlidanotine type, with a short uncus.

**Thaumatographa dolichosticha** spec. nov. (figs. 27-29)

(δολιχός = long, στίχος = line)

♀ 12-16 mm. Head fulvous-tawny, with appressed scales, face smoother and paler. Proboscis not perceptible, apparently absent. Ocellus large, posterior. Palpus rather long, very short-scaled, not dilated, slender throughout, straight and porrected, slightly ascending, little flattened dorso-ventrally, tip pointed; pale ochreous, apical segment fuscous-tawny, with a silky gloss, sometimes rather curved and subascending. Thorax fuscous-greyish, with a violet gloss. Abdomen fuscous, venter white.

Fore wing oblong-subtruncate, rather narrow, costa little curved, apex obtuse, termen slightly notched above, rounded below. Basal patch deep purple-fuscous, with two longitudinal orange streaks: upper largest, from a small orange dot on base of costa, along upper  $1/3$  of disc to well before middle, tolerably straight, gently narrowed, tip continued by a row of ill-defined slender orange fragments; second streak almost linear, plical along basal half, thence gently converging with first streak but not reaching it; a whitish-tawny subcrescentic procumbent spot on base of dorsum; costal third rather deep orange, little glossy, with three rather thick white streaks, finely purplish-edged, slightly excurved, becoming less oblique posteriorly, with apical halves gradually becoming orange and together forming a horizontal streak just above  $1/3$  of disc, ending in terminal notch; an oblique-semioval, rather pointed mark just before apex; remainder of wing forming a large oblong-oval purple-fuscous patch along posterior  $3/4$  of dorsum and about lower  $2/3$  of termen; this patch traversed by two dorsal marks, each formed of three not quite regular pale creamy-tawny, oblique and sinuate subparallel lines, first dorsal mark rather more oblique than second, both marks with median parting pale line thicker than two marginal; dark space before between and beyond these marks parted with a similar subparallel, slender line; termen (rubbed) with two or three black dots in a triangle surrounded by orangeish. Cilia fuscous-purple, with a strong violet gloss, pale in tornus.

Hind wing deep fuscous-purple, posterior half with a bronze-coppery gloss, cell pale tawny-yellowish. Cilia yellowish-white, with a rather narrow fuscous-purple-coppery subbasal band.

Female genitalia. Seventh segment enlarged, subconical, eighth segment similar, but smaller, sclerotic, postapophyses long and straight. Anapophyses shorter, also straight, basal  $1/3$  slightly dilated and sclerotic. Ovipositor

conical, pointed, with anal lobe pointed, massive, rounded in circumference. Ostium peculiar, a membraneous broad sausage-like process, rounded at top, lower half (colliculum) gradually narrowed, below becoming sclerotic and aciculate, with a moderate diverticle of bursa on a very short stalk above end of colliculum. Ductus bursae moderate, long, simple. Corpus bursae ovoidal, signum, a concave bunch of dense long spines, close to this an ample additional corpus bursae on a moderate stalk, a thin ductus seminalis close to base of ductus bursae.

East Java, Tengger Range, Nongkodjadjar, Mt. Toenggangan, 1300 m, at light, 12.iii.1940, ♀, holotype, genit. slide 9865; the same locality, 18.x., 6.xi, 28.xi.1940, 3♀, paratypes (leg. A. M. R. Wegner). In Leiden Museum.

All the specimens are not quite fresh, but apparently the species has rather dull colours, with the dorsal marks little contrasting. The not flattened but rather rounded lobi anales are peculiar. The species must be allied to *T. caminodes* (Meyrick) comb. nov., from Ceylon, but not closely, having a similar signum, but differing by markings of the fore wing and the ovipositor (more flat in *caminodes*).

**Thaumatographa cladara** spec. nov. (fig. 32)

(κλαδαρός = fragile)

♀ 10 mm. Head light brown, face pale ochreous. Ocellus enlarged. Palpus moderate, very slender, smooth-scaled, porrected, subobtusate. Thorax glossy light chestnut-brown. Abdomen fuscous with a purplish gloss, venter pale.

Fore wing oblong-truncate, little dilated, moderately broad, costa hardly curved except towards apex, obliquely rounded, slightly prominent on vein 7, termen gently sinuate, little oblique, rather rectangularly rounded below. Pale purplish-fuscous, costal third slightly suffused with orange, becoming brighter golden-orange towards apex, termen broadly orange with a golden gloss; remainder of wing from 1/5 to 4/5 of dorsum and 2/3 of disc strongly and densely marbled and strigulated by slightly suffused pale orange short strigulae and spots, tending to form subparallel inwards-oblique transverse strigulae. Costa from before 1/3 with three about equidistant distinct white streaks and the semioval preapical mark, becoming slightly less oblique posteriorly and narrowly edged with darker fuscous; posterior leg of oval mark broader; costal edge between streaks darkly infuscated; a narrow marginal black line from costa to terminal notch; two black dots close together before middle of termen. Cilia fuscous, around apex with a triangular white basal mark.

Hind wing slightly under 1, bronze-fuscous, little glossy, apical third



Figs. 25-26. Female genitalia of *Thaumatogeta* Walsingham 25, *T. oenobapta* sp. n., allotype, with bursa copulatrix; 26, *T. phlox* sp. n., holotype.



tinged deeper purple, dorsum as far as cell and vein 3 deeper fuscous-bronze. Cilia pale golden-ochreous, with a narrow basal deep fuscous band.

Female genitalia. Seventh segment enlarged, conical. Eighth segment also but less enlarged, moderately sclerotic throughout, anapophyses and postapophyses similar, long and slender, but slightly shorter than postapophyses. Ovipositor broad and conical at base, narrowed and flat towards top, rigid. Ostium behind a very broad, oval lobe higher than broad. Colliculum but little dilated, gently narrowed below, weakly sclerotic. Diverticle of ductus bursae small, oval, stalk very short, above end of colliculum. Ductus bursae moderately broad, simple, long. Corpus bursae ovoidal, additional bursa on a long thin duct opening directly under signum; an extremely thin ductus seminalis, close to end of ductus bursae. Signum, a half-spread fan-like bunch of long spines.

Allied with *H. dolichosticha* spec. nov., but smaller and differing by ovipositor and ostium and also by the markings: the finely fractured and marbled dorsal  $2/3$  of fore wing is very characteristic.

E. Borneo, Balikpapan, Mentavir River, 50 m, x.1950 (A. M. R. Wegner), 1 ♀, holotype, genit. slide 9871. In Leiden Museum.

***Thaumatographa ferox*** (Meyrick) comb. nov. (fig. 15)

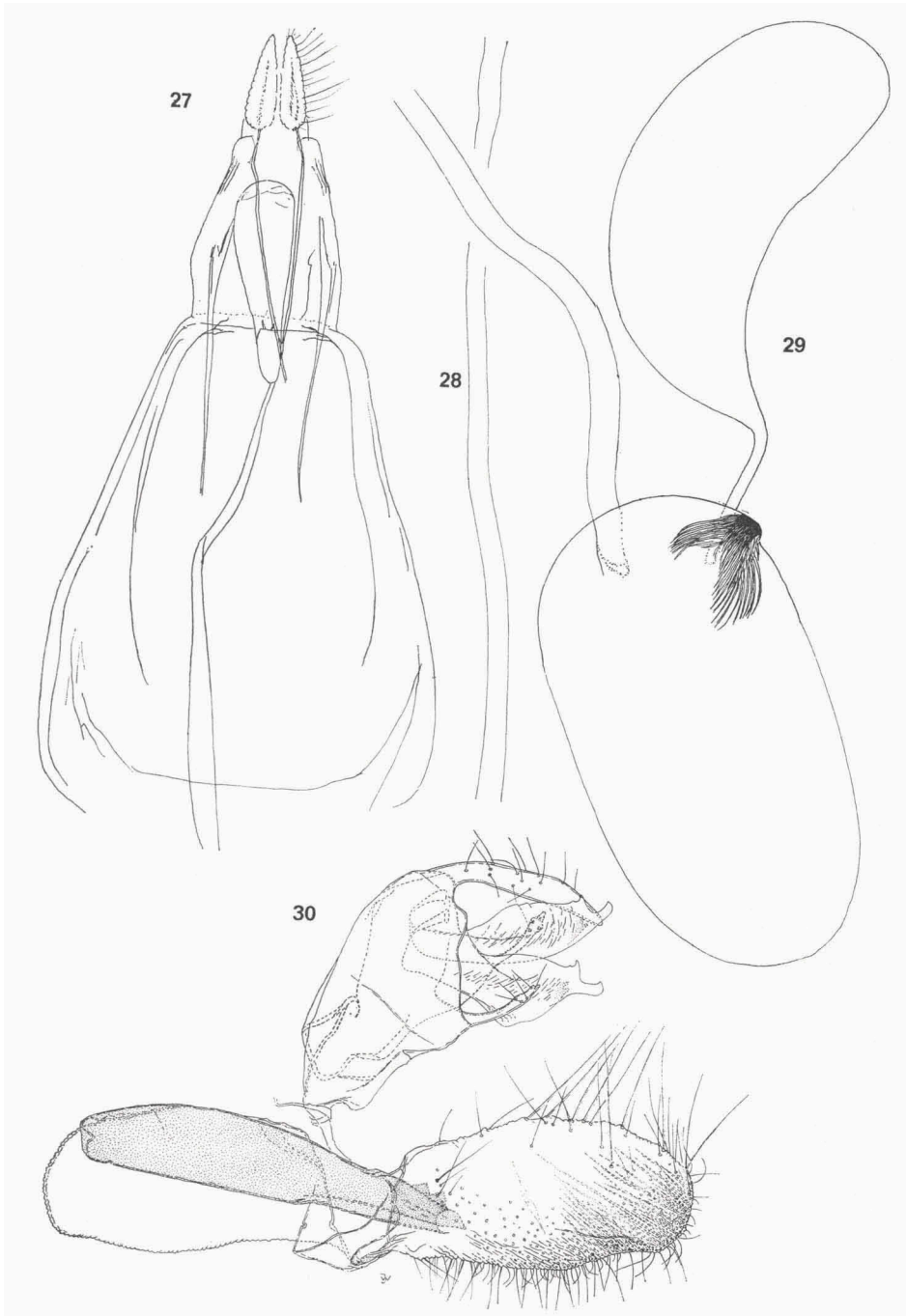
*Hilarographa ferox* Meyrick, 1921, Zool. Med., 6: 179.

Holotype: /M 154 (in Meyrick's hand, black ink) / E. Java, Smeroe, 2000 vt [feet], 1894, ♂ (in Snellen's hand, black ink) / Type (green, cadre) / *Hilarographa ferox* Meyr., A. Diakonoff det./gen. no. 9867, A. Diak./ A slightly worn specimen from P. C. T. Snellen Coll. In Leiden Museum.

West Java, Mt. Gede - Panggerango, Tjisaroea Zuid Estate, 21.v.1920 (Liem Swie Liong), 1 ♂, genit. slide 9869. In Leiden Museum.

The holotype specimen from P. C. T. Snellen Collection in the Leiden Museum, with the dorsal part in both fore wings rather defaced. Characteristic is the deep orange-reddish apical half of wing, with creamy marginal markings: three parallel costal streaks, little oblique and becoming leaden below, the two posterior of them converging below (so forming the costal oval) and a rather large triangular creamy spot on dorsum below apex, extending over cilia. The basal, fuscous, part of fore wing with two whitish costal streaks, before  $1/4$  and before  $1/3$ , respectively, continued across wing by two thin white transverse lines, angulate in middle.

Male genitalia. Tegumen robust, almost spherical. Uncus sclerotic, long, slender in middle, clavate, base dilated. Hamus very long, and slender, exceeding uncus, gently sinuate, top curved upwards. Socius slender, gently narrowed,  $1/2$  hamus. Gnathos weak, a triangular lobe-like process. Transtilla,



Figs. 27-28. Genitalia of *Thaumatogeta* Walsingham. 27, *T. dolichosticha* sp. n. ♀, holotype; 28, the same, part of ductus bursae; 29, the same, bursa copulatrix; 30, *T. leucopyrga* (Meyrick), ♂, genit. 155 Y. A.

a large, subcrescentic rounded-trapezoidal aciculate plate, horizontally covering aedeagus. Valva weak, rather short, edges parallel, cucullus obliquely rounded. Anellus, a sclerotic horizontal sclerite, parallel to transtilla, rounded caudally, triangularly pointed rostrally. Vinculum crescentic. Aedeagus rather long, spindle-shaped, top and end pointed, top serrate below, no coecum penis.

Female genitalia unknown.

A small species, belonging to the *micadonis* group.

**Thaumatographa excellens** Pagenstecher, 1900 (fig. 31)

*Thaumatographa excellens* Pagenstecher, 1900, Zoologica, 29: 230, pl. 1 fig. 3.

*Hilarographa pyranthis* Meyrick, 1907, Proc. Linn. Soc. N.S. Wales, 32: 91, no. 152 (St. Aignan Id.). — 1913: 24. — 1914: 7.

The specimens from Windesi are slightly differing from the original description and may be described thus.

♀ 18 mm. Head glossy pale slaty-grey, collar pale yellowish, vertex mixed with pale yellow scales. Haustellum distinctly scaled. Antenna moderately thickened, light tawny. Palpus curved, ascending, reaching middle of eye; median segment roughish, terminal segment shorter, pointed, flattened dorso-ventrally; pale yellowish, terminal segment with greyish base. Thorax glossy, light slaty-grey, with a faint ochreous tinge, tegula bright orange-crimson, tipped and broadly edged anteriorly with light submetallic greyish-blue. Abdomen orange, posteriorly turning brownish dorsally, with orange bands. Posterior tibia orange, infuscated towards top.

Fore wing broad, triangular, apex rounded, termen strongly rounded above this, emarginate below this, rather prominent in middle, almost straight and oblique below. Bright crimson-orange, with a silky gloss; posterior 2/3 of disc lighter orange, markings black and submetallic pale blue. Basal patch reaching beyond 1/3, with three not dilated submetallic longitudinal streaks: upper with basal half along base of costa, thence gradually and gently curving downward; median streak with basal half just above and parallel to base of fold, thence gently upcurved; third below fold, parallel to dorsum; three shorter submetallic costal transverse marks, on costa narrowly white: at 1/3, outwards-oblique, to upper edge of cell, at 3/5, broader, less oblique; third mark obliquely V-shaped, from 3/4 and before apex, posterior leg dilated, silvery-white, all narrowly edged with black; a pale grey, irregularly double and gently undulate transverse streak from before end of upper basal streak to middle of dorsum, broadly edged with paler orange; posterior 2/3 of disc beyond preceding, to well before termen and below costa slightly paler orange and with a dense black network, emitting two black striae to costal edge,

between costal blue streaks; an oblong black spot just above fold before transverse streak; three black round subterminal spots before lower half of termen, quickly decreasing in size; terminal emargination exaggerated by a white, black-edged notch-like spot, tipped with blue. Cilia black, a white spot opposite subapical notch.

Hind wing bright orange, becoming slightly lighter towards apex, with a silky gloss. A curved submarginal row of five roundish black dots, from before apex to before middle of termen, a smaller black mark just before apex. Cilia blackish-bronze with a black base.

Female genitalia. Ovipositor tortricoidal, elongate and extensile; lobi anales strongly resembling those in certain Schoenotenini: with tops elongate. Eighth segment sclerotic, cylindrical, without bristles. Apophyses elongate. Intersegmental membrane 7-8 strongly elongate, almost as long as segment eight. Ostium at caudal edge of intersegmental membrane, moderate, conical rather vine-glass shaped. Dustus bursae gradually dilating downwards, simple; a very narrow additional tube apparently originating from the upper 1/4 of ductus, ending in corpus bursae beside posterior end of ductus bursae. Corpus bursae oblong-ovoidal, without a signum.

Male genitalia not available.

New Guinea, Windesi-Majori, 3.viii.1936, genit. slide 9808; the same, Windesi, 22.vii.1936 (coll. S. Issiki), 2♀. In National Museum of Natural History, Washington D.C., U.S.A. and in Leiden Museum.

An elegant, conspicuous, bright red-orange species with radiating longitudinal bluish stripes from base.

***Thaumatographa opistocapna* spec. nov. (figs. 23, 33)**

(ὄπισθεν = behind, καπνός = smoke)

♂♀ 11 mm. Head pale ochreous (in holotype, greasy). Antenna 1/2, light ochreous, fasciculate-ciliated in male, ciliations 1. Haustellum finely scaled. Palpus curved and ascending, almost reaching top of eye, upper half flattened dorso-ventrally, median segment thickened with scales, slightly roughish along inner edge, terminal segment pointed, 1/2 median; pale ochreous slightly infuscated laterally along upper edge. Thorax light grey-fuscous with a golden gloss, with a pair of pale opalescent-yellow lateral stripes along anterior third and an incomplete transverse fascia at 2/3. Abdomen pale brassy, gently infuscated posteriorly, edges of valvae blackish, venter creamy with a golden gloss. Posterior tibia pale golden-ochreous.

Fore wing rather broad, triangular, costa gently curved, apex rounded, termen rounded and emarginate above, almost straight and rather oblique below. Rather light violet-purple, except a bright glossy orange terminal

band, extending above over apex and posterior  $1/4$  of costa. Markings light yellow along costal fourth, orange edged with slightly deeper violet-purple elsewhere. Basal patch not defined, with three longitudinal streaks, upper from just below extreme base of costa, to about  $1/3$ , spindle-shaped, gradually narrowed to a long slender point; median streak from base, horizontal, just below basal part of fold, hardly dilated, subclavate, shorter; lower streak from beyond base just above and along dorsum, shorter than median, tip rounded; three slender subparallel transverse streaks, oblique on costa, strongly excurving posterad across upper edge of cell, thence recurving and almost vertical to dorsum; each following streak less oblique above, less excurved above middle; first streak interrupted in top of curve, second obliterate above dorsum, third reduced to some four-five fragments except on costal fourth which is suffused with silvery white; lower  $2/3$  of third streak followed by a sinuate, slightly inwards-oblique transverse spot, formed of four partly interrupted and closely approximated streaks, together representing ocelloid spot; orange posterior band containing a silvery whitish slender fascia forming the oblique subapical loop, finely dark-edged; and two-three suffused purplish spots along lower half of termen; a silvery-whitish wedge-shaped spot opposite terminal emargination, narrowly edged with purplish. Cilia deep purple with white tips.

Hind wing orange, becoming lighter towards base, suffused with ferruginous-tawny below costa and over entire dorsum from below cell and vein 2; a purple marginal streak around apex, five rather faint suffused and more or less confluent, rather large round spots along upper half of termen; often extended basad by purplish suffusion. Cilia yellowish, with a subbasal dark fuscous suffused band, extending over whole breadth of cilia below apex.

Male genitalia. Tegumen voluminous, concave. Uncus robust, bristly above, top moderately pointed. Hamus exceptionally large, longer than uncus, flattened laterally and dilated, top with a narrow, obtuse point and a subapical tooth. Valva oval, long-bristled along costal part. Vinculum simple. Aedeagus thick, straight, longer than valva, gradually narrowed from before middle. Cornuti absent.

Female genitalia (damaged). Ovipositor lobes oblong, distal half thick, with obtuse tip, and proximal half a narrow rather long lobe. Postapophysis long and slender, exceeding ovipositor lobe, moderately sinuate along the proximal half. Anapophysis longer, rather bent in middle, ends far diverging. Ostium indefinite. Corpus bursae oblong-ovoidal, basal part of ductus bursae with a double dilatation.

New Guinea, Wareng, 12.viii.1936, Col. S. Issiki; holotype ♂, genit. slide

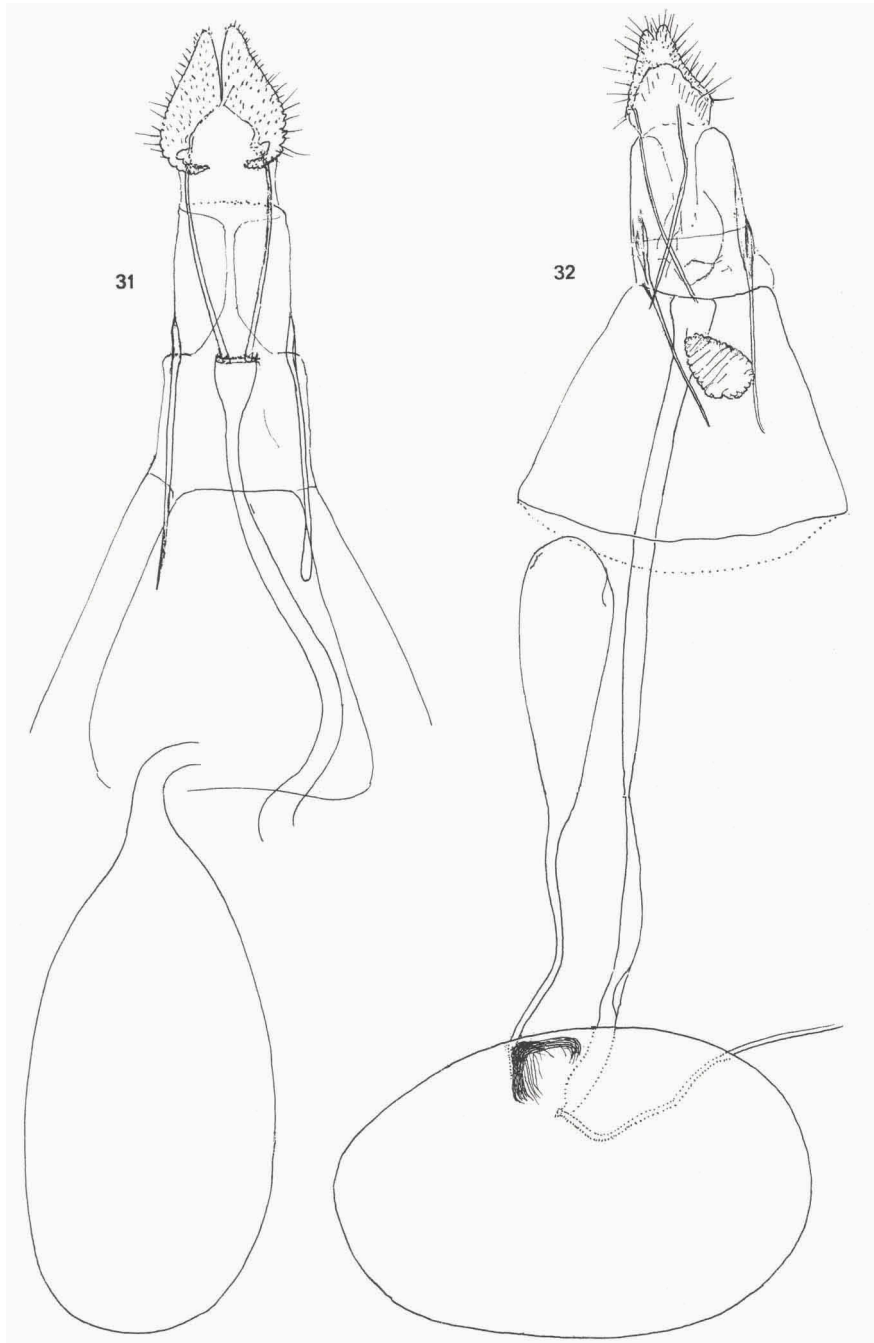
9809 (= USNM no. 24440); the same labels, allotype ♀, genit. slide 9816 (= USNM no. 24434); the same labels, 1♂, 1♀ paratypes. In National Museum of Natural History, Washington D.C., U.S.A. and in Leiden Museum (paratypes ♂♀).

**Thaumatographa phlox** spec. nov. (fig. 26)

(φλ6ξ = flame)

♀ 11.5 mm. Head whitish, face white, tufts on vertex centred with fuscous-purplish suffusion. Antenna dark grey, moderately thickened, short-ciliate. Labial palpus rather long, spindle-shaped, obliquely ascending; white, upper edge of median segment and basal segment entirely, black. Thorax large, rounded, swollen, deep purple, tegula with anterior outer angle light yellow. Abdomen orange-tawny, venter ivory (damaged by Aephaga).

Fore wing oblong-triangular, moderately rounded, costa straight anteriorly, rounded-prominent at 3/4, apex and termen rounded. Deep orange-red, becoming deeper red posteriorly, extreme base and basal 1/5 of costa light yellow. Basal patch not reaching 1/3, edge well-defined, moderate, shaped thus: a blackish-grey streak along base of costa, thence concave above, forming a long, acute point on upper edge of cell, thence outwards-concave, to 1/4 of dorsum, a broad horizontal streak from base to edge just above fold, another halfway fold and dorsum; costal fold between transverse markings of oblique black lines, light yellow, so forming six wedge-shaped, black-edged marks; these marks, except first and last, with lower halves pale pink-opalescent metallic (appearing greyish in certain lights); first and second marks short; following, long, fasciate and slender; interspace between first and second yellow marks forming an angulate transverse band parallel to edge of basal patch, being narrow black edges, filled out on costa with deeper orange, suffused black on angulation; following interspace forming an oblong-lanceolate, black-edged mark, more oblique, longer and with a black point, turning towards termen below apex: an irregularly erected-oval large purple spot on dorsum just beyond middle, including two larger central orange spots, two small ones before anterior edge and one before posterior, its upper edge emitting three purplish sinuate diverging lines, connected with other dark markings; this spot followed on dorsum by an irregularly oval strongly erected and outwards-curved figure of narrow purplish edges, with another vertical line from its top, merging in a quadrate purple spot in tornus; concavity of termen below apex with a small wedge of pale opalescence; two jet-black round dots before lower third of termen separated by a small vertical streak of pale opalescence. Cilia blackish-bronze, with a black



Figs. 31-32. Female genitalia of *Thaumatogeta* Walsingham. 31, *T. excellens* Pagenstecher, genit. 9808; 32, *T. cladara* sp. n., holotype.

dorsal third, a pale yellow notch-like mark opposite subapical terminal concavity.

Hind wing bright rosy-red, with a silky gloss, a pair of black dots before apex and upper part of termen. Cilia golden-orange, basal third around apex and along upper part of termen suffused with black.

Female genitalia (strongly damaged by Adephaga, bursa copulatrix lost). Lobus analis subrigid, upper half elongate, slender, lower half narrow and curved. Postapophysis moderate, rather thick, with truncate end. Anapophysis longer, very thin. Ostium not modified. Ductus bursae, a single, gradually dilated tube.

S.E. Java, Mt. Smeroe, southern slope, 800 m, Ranoe Daroengan, 6-18.vi.-1941 (M. A. Lieftinck), holotype, ♀, genit. slide 9806. In Leiden Museum.

An elegant, bright crimson species with black striae and a deep orange hind wing.

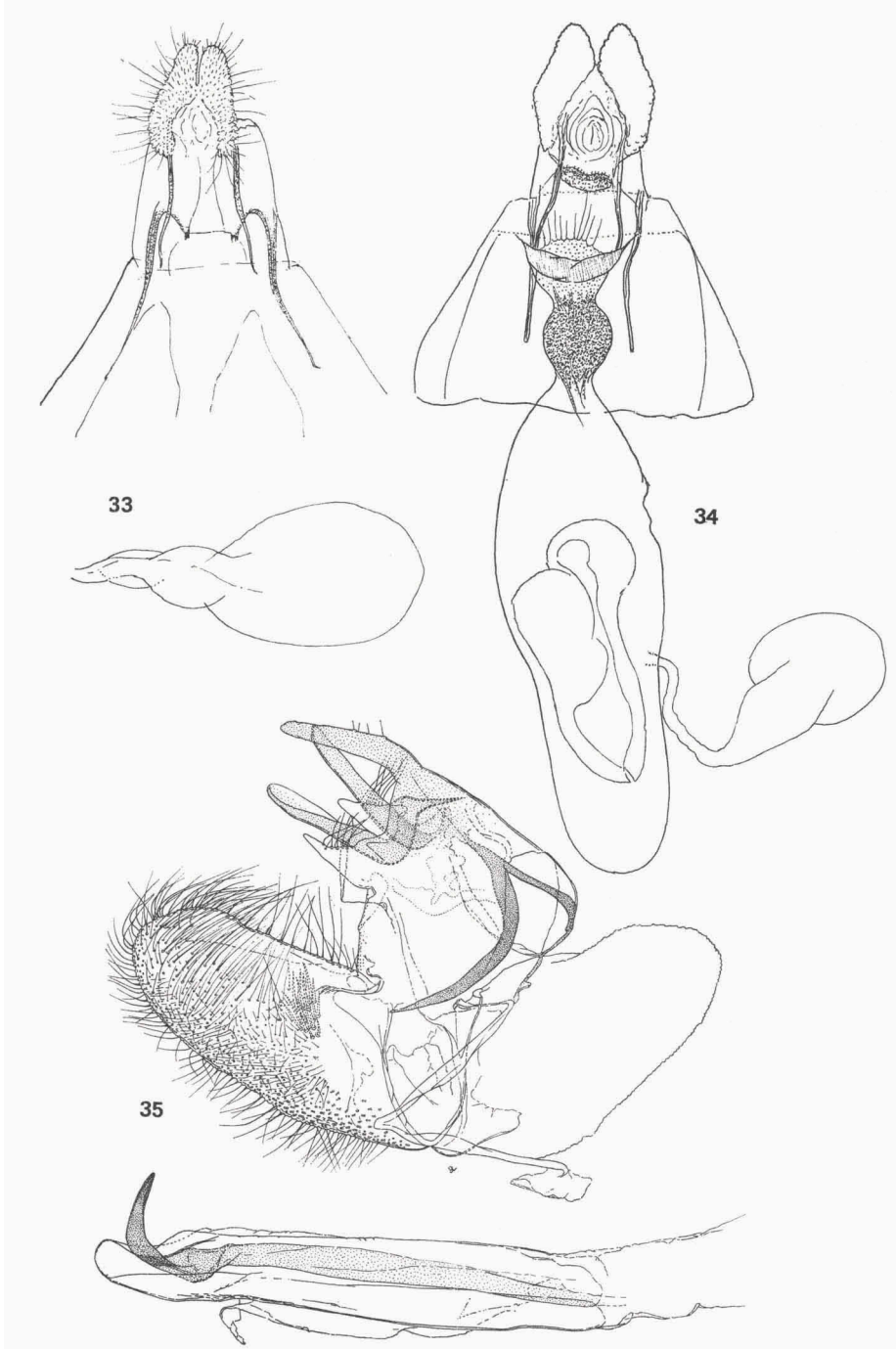
***Thaumatographa mesostigmatias*** spec. nov. (figs. 34-35)

(μέσος = in the middle, στίγματα = spotted)

♂ 13, ♀ 14 mm. Head fuscous with a broad median suffused ochreous creamy streak, collar creamy-ochreous except on vertex. Antenna in male thickened, dark fuscous, sub-serrulate. Haustellum finely short-scaled. Palpus rather long, exceeding eye, curved and ascending, with short scales slightly roughened anteriorly; median segment moderately dilated, terminal segment as long as median, little narrowed, moderately pointed, flattened dorso-ventrally; pale ochreous-creamy, terminal segment glossy silvery, in certain lights iridescent brilliant blue. Thorax light brownish-fuscous with a silky gloss, with a pair of broad suffused ochreous-creamy sublateral streaks, tegula with a tawny-ochreous streak before anterior edge. Abdomen pale tawny with a bright golden gloss. Posterior tibia pale fuscous.

Fore wing oblong, subtruncate, moderately dilated, costa gently curved at extremities, apex rounded, termen hardly sinuate above, slightly rounded below, moderately oblique. Purplish, along costa with light orange transverse streaks becoming deeper orange posterad, alternating with pale bluish metallic streaks which become white on costa. Purplish; a pale yellow spot on extreme base of costa, followed by two more from which originate light orange, slightly spindle-shaped fasciae, first strongly curving down, thence horizontal, second becoming horizontal below costa; beyond this four whitish equidistant costal dots to before middle, giving rise to transverse parallel streaks, becoming less oblique and longer posterad, finely edged with blackish: first and third deep orange, others pale metallic blue, all reaching





Figs. 33-35. Genitalia of *Thaumatogeta* Walsingham. 33, *T. opistocapna* spec. nov., ♀, allotype, with bursa; 34, *T. mesostigmatias* spec. nov., ♀, allotype; 35, the same, ♂, holotype, with aedeagus.

1/3 across wing; posterior third of costa with three more white dots, first of these largest, others more approximated, each with a pale blue metallic streak, first and third parallel, third to concavity of termen, second vertical, all alternating with very faint orange lines, a slender marginal silvery line around apex; dorsal spot from 1/3, rather slender, irregularly excurved, formed of three pale yellow lines, median thickest, its top extended into a light yellow horizontal small blotch; this dorsal spot followed by some five slender pale yellow transverse lines, decreasing in length, to before end of dorsum; more than posterior fifth of wing deep glossy orange, including a pale violet-metallic marginal blotch along lower half of termen, preceded by a vertical series of five elongate blackish horizontal marks, anterior edge of series vertical, posterior convex; a single blackish dot opposite middle of dorsum. Cilia blackish-purple, a whitish dot below apex.

Hind wing under 1, oblong-oval; rather light bronze with a purplish tinge; cell lighter, pale golden-fuscous. Cilia purplish-fuscous.

Male genitalia. Tegumen broad, concave. Gnathos ill-defined, entirely membranous. Uncus robust, rigid, rather short, top subobtuse. Hamus longer, porrect, little curved, flattened laterally, top concave on the inside, rounded. Socius conical, with a thick base, short, pointed, bristled only in middle. Valva broad at base, semioval, hairy. Vinculum, a long triangle (dislocated in mount). Aedeagus long, thick, straight, with a large curved subapical rising hook.

Female genitalia. Lobus analis rather short. Postapophysis slender, longer than lobus analis, proximal end sinuate. Anapophysis similar, slightly longer. Lamella postvaginalis with an oval aciculate sclerite. Ostium huge, lamella antevaginalis with a bristly lobe and a broad outward edge. Colliculum, a large spherical dark dilatation. Corpus bursae oblong-oval, with an additional sack.

Taiwan, Rantaisan, 15.v.1933 m, holotype, ♂, genit. slide 9811. — Kansirei, 25.iii.1935, allotype, ♀, genit. slide 9812. — Raisya, 25.xi.1934, 1♀, paratype. In National Museum of Natural History, Washington D.C., U.S.A. and in Leiden Museum (paratypes ♂, ♀).

***Thaumato-grapha ludens* (Diakonoff) comb. nov. (fig. 39-40)**

*Hilarographa ludens* Diakonoff, 1948a, *Treubia*, 19: 200, fig. 8.

Holotype ♂/ Gen. no. 456/ Buru, 1921, Station 9, 22-v. (Leg. L. J. Toxopeus) (part print, black cadre)/ Holotype ♂, *Hilarographa ludens*, A. Diakonoff, 1946/. In Leiden Museum.

Male genitalia rather sclerotic. Tegumen subspherical. Uncus sclerotic, long and slender, porrected, and slightly sinuate, top strongly compressed

laterally and rounded. Hamus slender, sclerotic, but little bent in middle, base swollen, rather ovoidal, top flattened laterally. Socius large, fleshly and flattened, over  $1/2$  length of hamus, obtuse, ventrally with long recurrent bristles. Gnathos voluminous, pending, sclerotic, subovoidal. Transtilla darkly sclerotic, V-shaped, sides sinuate. Valva oblong-oval, costa with basal half suggesting a split. Vinculum robust, very short. Coremata developed, but free from valvae, in wide sublateral pockets of eighth sternite.

The female allotype, without abdomen, with the same locality label and collecting date. In Leiden Museum.

***Thaumatographa undosa*** spec. nov. (fig. 37-38)

(undusus = wavy)

♀ 1.4 mm. Head pale ochreous, vertex and occiput purple. Antenna purplish-ferruginous, scape pale ochreous, moderately thickened, ciliations under 1. Palpus curved, ascending, flattened dorsoventrally, not quite appressed to face, moderately pointed; pale ochreous, upper side and basal segment suffused with pale purplish. Thorax purplish (? , strongly denuded). Abdomen bright golden-orange, glossy, anal tuft purplish. Posterior tibia orange, top purplish.

Fore wing oblong-triangular, rather rounded, costa gently curved throughout, apex rounded, termen rounded, long, slightly concave below apex. Bright orange, becoming pale yellow towards extreme base and base of costa, markings dark violet-purple. Basal patch to  $2/3$ , its angle strongly rounded-prominent halfway between costa and fold, thence vertical to dorsum; patch with three streaks of ground colour: upper lancet-shaped, horizontal, halfway costa and fold, not reaching edge, second below and parallel to fold, third short, subdorsal, from beyond base; three well-defined, transverse streaks of ground colour, becoming narrower posterad, first encircling basal patch, each following less curved, all three about equidistant on costa, from  $1/5$ ,  $2/5$  and  $3/5$ , respectively, in disc each following becoming more distant, on dorsum equidistant again; space between first and second streak along lower  $2/3$  with a series of three orange spots, that between second and third in middle, with two small spots; less than posterior  $2/5$  of wing yellow-orange, including on costa a large, oblique white semioval loop, on lower  $2/3$ , an outwards-oblique erected-suboval mark formed by narrow double purple line, base on dorsum before tornus, top rounded; veins 2-6 narrowly lined with purple, tornus suffused with purple; edge of wing from end of costa to tornus, narrowly lined with purple, this line also edging triangular notch-like mark below apex; two purple dots before middle of termen. Cilia apparently dark purple (strongly rubbed).

Hind wing deep yellow, becoming tawny-orange towards tornus, end of costa and apex edged with purple, a broad suffused purple band just before termen, from below apex, anteriorly forming long slender teeth on veins. Cilia short, dark purple (rubbed).

Female genitalia. Ovipositor oval and concave, with extended but rounded caudal lobes. Anapophysis moderate, tip pointed, base extended, sinuate and sclerotic. Eighth segment enlarged, subconical. Intersegmental membrane 7-8 extended, ostium small, simple, at caudal edge of membrane. Colliculum short, cylindrical. Ductus bursae long and slender; at its base originates a very thin ductus seminalis, margining in a large vesiculum seminalis. Corpus bursae oblong-oval, without signa.

Northwest New Guinea, Sorong, 24-31.x.1948 (M. A. Lieftinck), 1 ♀, holotype, genit. slide 9807. In Leiden Museum.

A darker purplish-suffused species, with three characteristic curved and undulate transverse streaks.

**Thaumtographa spermatodesma** (Diakonoff) comb. nov. (fig. 36)

*Hilarographa spermatodesma* Diakonoff, 1955, Verh. Kon. Acad. Wet. Amsterdam, (2) 50 (3): 17, fig. 735.

Holotype ♂/Gen. no. 1045/Ned. Ind. — American New Guinea Exped. 1939, Top Camp, 2100 m, 22.i.1939 (L. J. Toxopeus)/Holotype, ♂, *Hilarographa spermatodesma*, A. Diakonoff, 1949 (black cadre)/Type (red label)/. In Leiden Museum.

Male genitalia. Tegumen subspherical. Uncus as long as tegumen, massive, robust, little hooked, top laterally flattened and dilated dorso-ventrally. Hamus strong, sclerotic, little shorter than uncus, with dilated base, straight, top dilated, rounded. Socius less than 1/2 hamus, subrigid, spindle-shaped, sparsely short-haired. Gnathos absent. Transtilla, a moderate band. Valva oval, rather weak. Vinculum small, shallow, with a slender small saccus-like process. Aedeagus (damaged) sclerotic, with an acute top, produced on its dorsal half only. Coremata absent.

A small species with an unusual colouring and pattern of the fore wing; exceptional for the Asiatic species is also the thick, hairy socius, its shape rather approaching that in the *Hilarographa* species from the New World.

**Thaumtographa macaria** spec. nov.

(μακάριος = happy)

♀ 8.5 mm. Head fuscous-purple, face glossy pale yellowish. Ocellus large. Antenna in holotype missing, in ♂ paratype flattened dorso-ventrally, serrulate, rather scaled above; light bronze-purple. Palpus rather long in female,

flattened dorso-ventrally, subporrect, slightly drooping, terminal third curving upwards; in male palpus shorter, more gradually curved and ascending, not appressed to face; pale whitish-ochreous, extreme tip black in certain lights, pointed. Thorax fuscous-purple. Abdomen whitish, venter silvery. Posterior leg pale glossy ochreous-golden, end of tibia and tarsus ringed with brown.

Fore wing oblong-suboval, dilated, costa sinuate: gently concave before middle, rounded posteriorly, apex obtusely pointed, termen long, hardly sinuate, almost straight, oblique. Light purple-fuscous, ground colour strongly limited by markings, especially along costal half. A light yellow transverse band, more than rectangularly bent, upper, almost horizontal part narrower, from costa before base to beyond  $\frac{1}{3}$  of disc, thence three times as broad, gently outcurved above, slightly inwards-oblique, to  $\frac{1}{4}$  of dorsum; costa beyond this band with four large white, purple-edged transverse streaks becoming less oblique posteriorly, first from before  $\frac{1}{3}$  of costa almost to centre of wing, second almost parallel, from middle of costa, angulate in centre of wing, thence to dorsum well before its end; third and fourth white streaks shorter, attenuated, almost converging above middle of wing at  $\frac{4}{5}$ ; four costal streaks each preceded by a bright golden-orange streak; apical fifth of wing deeper purple-fuscous, with two prostrate-V-shaped white marks. One above another, tops outward; lower half of wing purple-fuscous, scattered with several orange round dots, tending to form three parallel inwards-oblique transverse striae, being continuations of white costal streaks; first close beyond the yellow transverse band. Cilia glossy grey-orange, with a fuscous submedian suffused band.

Male paratype with ground colour darker fuscous, costal streaks more distinctly angulate in middle and continued across dorsal half of wing.

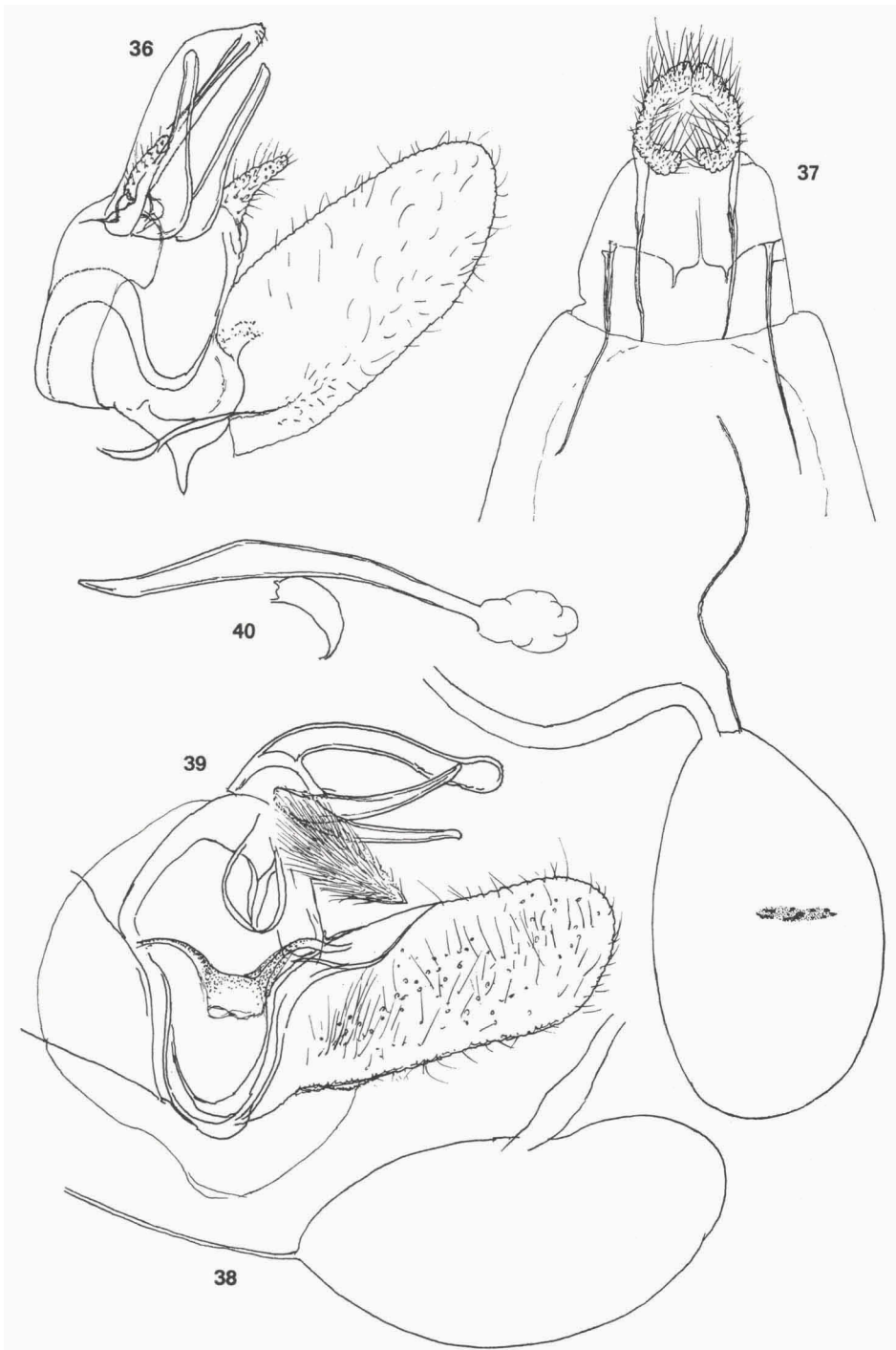
Hind wing light purple-fuscous, semipellucent, with a silvery gloss, costa white. Cilia pale purplish-fuscous with a whitish basal line.

Male genitalia. Unknown, abdomen destroyed by Adepfaga.

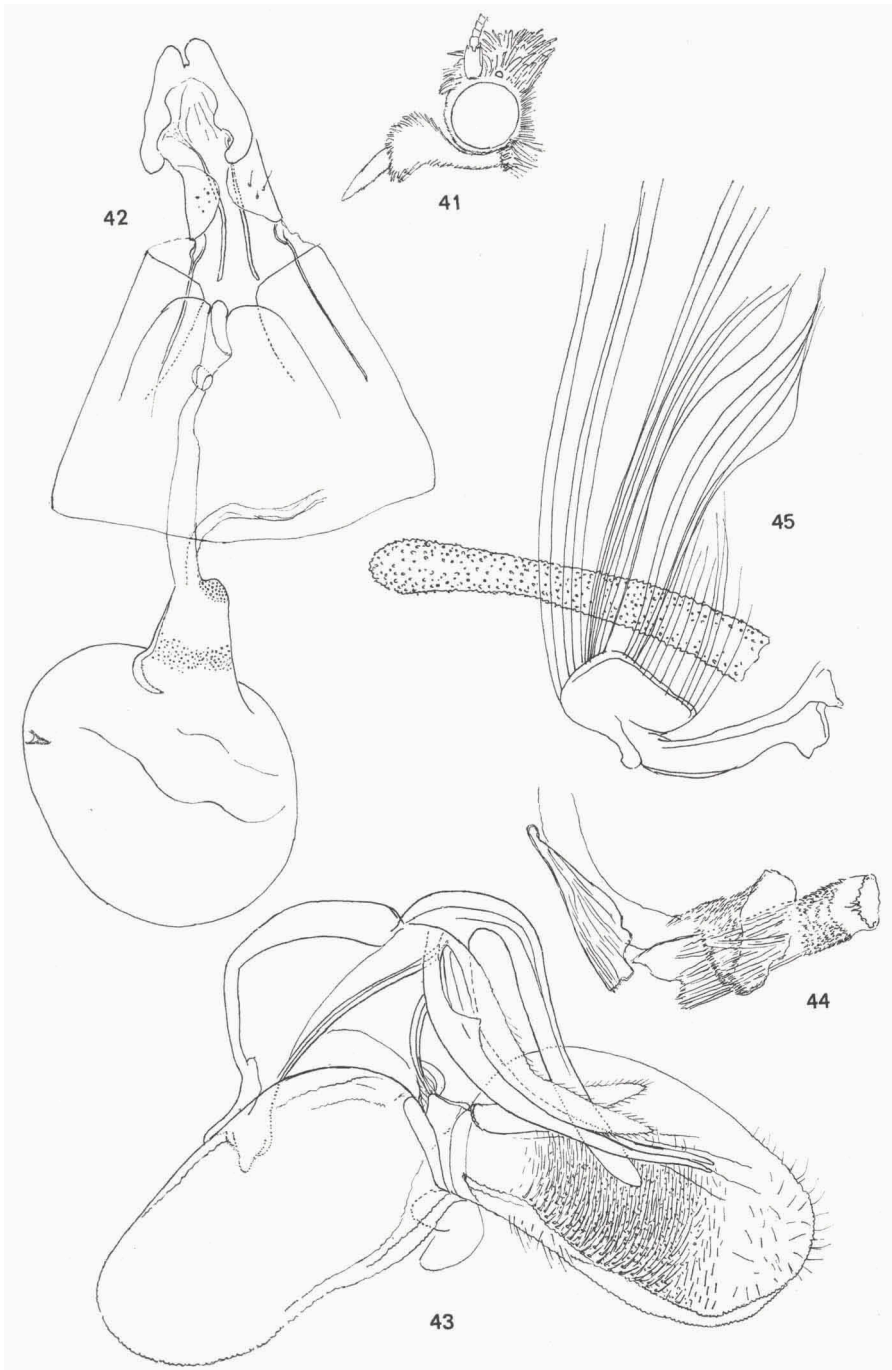
Female genitalia. Abdomen strongly damaged by Adepfaga, disintegrated during maceration, leaving only the corpus bursae: this is ovoidal, without a signum and has the ductus seminalis originating from the corpus bursae immediately beside the end of the ductus bursae, in the usual way in this genus.

West Java, Mts. Gede-Panggrango, Tjibodas, 1400 m, 18.xii.1940 (A. Diakonoff), 1 ♀, holotype, genit. slide 9886; 1 ♂, 1 ♀, paratypes, without abdomens. In Leiden Museum.

Judging from the general facies and the markings of the fore wing, the species may be allied to *T. spermatoesma* (Diakonoff), from New Guinea.



Figs. 36-40. Genitalia of *Thaumato-grapha* Walsingham. 36, *T. spermatodesma* (Diakonoff), ♂, holotype; 37, *T. undosa* sp. n., ♀, holotype, with bursa; 38, the same, secondary sack of bursa; 39, *T. ludens* (Diakonoff), ♂, holotype; 40, the same, aedeagus.



Figs. 41-45. Head and genitalia of Hilarographini. 41, *Embolostoma plutostola* g. & sp. n., head of holotype, ♀; 42, the same, genitalia; 43, *Thaumatogeta tornoxena* sp. n., genitalia of holotype, ♂; 44, the same, aedeagus; 45, the same, lateral aspect of freed left corema, with basal sclerites and sheath.

It is unfortunate that two of the three abdomens have been totally eaten by *Adephaga* — and the third, so strongly damaged. This specimen is being selected holotype, notwithstanding the genitalia mount being quite incomplete. Still, the distinct colouring and markings, supported by the presence of the corpus bursae, allow of an adequate characterisation of the species. The damage has occurred during the unfavorable conditions in the Buitenzorg (Bogor) Museum during the Japanese occupation of Java in the World War II.

***Thaumatographa tornoxena*** spec. nov. (figs. 43-45)

(ξένοσ = strange)

♂ 13 mm. Head and thorax light fuscous-purple, glossy, face yellowish, orbits white. Antenna thickened, pale yellow-golden, ciliations about 3. Palpus rather short and slender, smooth, curved and subascending, whitish, terminal segment infurcated, little compressed dorso-ventrally. Abdomen coppery-purplish, paler at base, becoming darker towards top, venter silvery-white. Legs silvery-white, ringed with fuscous.

For wing broad, triangular, costa gently curved at ends, straight in middle, apex rounded, termen gently sinuate, oblique, long, seemingly notched. Purple-fuscous, towards apex suffused with yellow, towards base, with dove-grey. A bright yellow longitudinal streak to  $1/3$ , along upper third of basal patch; costa with five slender, white streaks, partly reaching upper edge of cell, edged with darker purplish-fuscous suffusion: first from  $1/3$ , strongly oblique, two following becoming less oblique, equidistant, third least oblique, parallel to fifth, fourth parallel to first; fourth and fifth therefore gently converging but separate, their tips connected by fuscous suffused edges only, thus forming an incomplete costal semioval, extreme apex darker purplish-fuscous; dorsum with two oblique erected-subtriangular light patches, each formed of three white lines converging at top; first patch, with broader base, anterior leg double on dorsum, top at  $2/3$  of disc at  $1/3$  wing length; second patch more slender, shorter, top in middle of disc well before termen, anterior leg single; a series of about five conspicuous black ill-separated roundish spots along lower half of termen and in tornus, quickly becoming larger downwards, above just submarginal, below marginal, containing five silvery-white points, before ends of veins; upper point in centre of first black spot, other points along posterior edge, each dividing two black spots, lower point on end of termen; termen reddish-coppery, glossy. Cilia (damaged) purple.

Hind wing light fuscous-bronze, with stronger golden-bronze gloss towards apex, a pale yellow suffused obliquely oval spot in disc beyond middle, 3-4



irregular pale yellow roundish marginal spots around apex along upper part of termen, faintly edged for a part, by dark grey. Cilia (imperfect) pale fuscous, basal third darker fuscous-purplish.

Male genitalia. Tegumen strong, erected-oval and compressed laterally, so through-like. Uncus sclerotic, strongly curved at base and projecting horizontally, top compressed laterally, oblong-lancet shaped. Hami long, slender, sclerotic, gradually narrowed, exceeding uncus, tops slender. Socii weak, narrow, almost ribbon-like, thinly short-haired along edges, shorter than hami. Valva almost a regular oval, broad, base and cucullus slightly flattened, middle of sacculus and middle of disc haired, cucullus thinly haired. Anellus tubular, articulate. Vinculum inverted-trapezoidal, with a slender saccus. Aedeagus cylindrical, rather short, with a slender narrowed base. Cornuti, numerous long parallel rods over  $1/2$  length of aedeagus, in a loose sheaf, and above these a cylindre of recurving small crochets.

West Java, Mt-Gedeh, Tjibodas, 1400 m, 21.i.1953 (A. M. R. Wagner), 1 ♂, holotype, genit. slide 9963. Unique by the terminal black spots.

### **Embolostoma** gen. nov.

(ἐμβολοστόμα = with projecting mouth)

Head with subappressed scales, rather rough. Haustellum short. Ocellus posterior. Antenna simple in female. Maxillary palpus not perceptible. Labial palpus long, twice length of head, porrected, sinuate, median segment strongly dilated on posterior  $2/3$ , brightly coloured, with appressed scales laterally, roughish above and at apex, terminal segment shorter than median, moderate, smooth, pointed.

Fore wing oblong-triangular, dilated, apex obtusely pointed, termen long, oblique, hardly sinuate. Vein 2 from before  $3/5$ , 3 from angle, 7 separate to termen, 11 from beyond middle, chorda and media absent in coll.

Hind wing without a cubital pecten, vein 2 from  $2/3$ , 3 and 4 connate from angle, 5 slightly approximated at base, 6 and 7 separate, gradually rather closely approximated towards base.

Male genitalia unknown. Female genitalia, as described with the type species, below.

Type-species, *Embolostoma plutostola* spec. nov. (Java).

An elegantly marked and coloured species with rather narrow and pointed fore wings for this tribe and with the facies rather intermediate between *Tharmatographa* Walsingham and *Nexosa* gen. nov. Unusual and striking are the long coloured broad palpi, pointed and beak-like, entirely different from the two above genera.

The female possesses two unequal signa, the larger one slender, crescentic or dagger-shaped and a small one, horn-like.

**Embolostoma plutostola** spec. nov. (figs. 41-42)

(πλοῦτος = rich, στολή = dress)

♀ 10 mm. Head glossy light fuscous. Antenna tawny-fuscous. Palpus moderately long, porrect, median segment gently sinuate, abruptly dilated with smooth hair-scales, triangular, terminal segment moderately long, about 1/2 median, smooth, acute; basal segment pale fuscous, median grey at base, becoming whitish, turning bright orange, top purplish-black; terminal segment paler purplish-grey. Thorax black, with posterior 2/3 suffused with purplish-white, tip paler white, tegular with white median line and white edges. Abdomen bright fulvous-coppery, glossy.

Fore wing oblong-triangular, costa almost straight, apex obtusely pointed, termen gently sinuate above, moderately rounded below, moderately oblique. Basal patch to 1/3, edge oblique above, moderately angulate-prominent in middle, almost vertical below; dark purple, densely strewn with whitish small dots, costa with four similar short streaks; first dorsal patch pale slaty-grey, edged and dotted with whitish, rather broad, sinuate parallel to edge of basal patch, apical third much narrower, oblique and straight; second dorsal lighter patch very large, in tornus, subcrescentic, gradually narrowed and curving anterad above, almost to middle of costa; paler slaty-grey, glossy, edged and filled out by some three very irregular light orange lines, slender sinuate anterior line abruptly and deeply angulate posterad at 2/3, thence rounded and joining posterior line below costa; posterior line double along its lower half, below middle emitting a median line, this sinuate opposite to anterior line, to fold, below fold, parallel to that line; costal edge suffused with purple, with a pair of reddish-orange oblique parallel lines at 1/3 to upper-edge of cell; a dilated reddish streak from crescentic patch, below costa sinuate, to termen below apex; another red streak above this divided from it by a silvery sinuate line, and filling out posterior part of costa and apex, except purple margin; on costa this line orange-whitish, followed by three equidistant white costal thick marks, turning silvery below, posterior mark subapical, connected with silvery sinuate line; space between two dorsal patches filled out with brownish-purple with a vertical series of irregular short orange marks; posterior dorsal patch narrowly edged with deep purple and partly edging also median orange line on both sides; brilliant silvery small scales scattered all over; termen reddish. Cilia (damaged) blackish.

Hind wing light golden-bronze, becoming pale grey towards base costa whitish-grey, dorsum pale grey, long-haired (rubbed?).

Female genitalia. Lobi anales small, semi-rigid, tortricoidal. Eighth segment cylindrical, sclerotic, rather long. Apophyses simple and slender, anapophyses longer. Sterigma simple, a trapezoidal part of the seventh sternite, dorsal edge with a median oval notch, being the ostrium. Colliculum very short, as high as broad. Ductus bursae simple, rather wide, not longer than sternite is high.

West Java, Bogor (Buitenzorg), 250 m, 4.ix.1952 (Oko, native collector), 1♀, holotype, genit. slide. Corpus bursae moderate, suboval, gently compressed laterally, one side impressed, forming a shallow groove, top with a large nipple-like extension, obliquely receiving the ductus bursae; wall of corpus bursae reticulate, wall of nipple granulate. Ductus seminalis originates beside the end of ductus bursae. Sigma two, a slender crescent, finely denticulate and with a long basal streak in the nipple wall, and a small horn-like signum, opposite the other, also denticulate.

An unusually marked and coloured small species also quite unusual are long, dilated and pointed, brightly coloured palpi.

ALPHABETICAL INDEX OF GENERA AND SPECIES

(synonyms italicized)

aureola 15	Mictocommosis 8
caminodes 33	Mictopsichia 6
cladara 33	Nexosa 12
Cnephasitis 14	nigromaculata 9
dolichosticha 32	oenobapta 28
Embolostoma 51	opistocapna 38
excellens 37	phlox 40
ferox 35	picturata 16
hexaphala 19	plutostola 52
Hilarographa 19	<i>pyranthis</i> 37
hubneriana 6	spermatodesma 46
Idiothauma 19	stemmatias 12
leucopyrga 27	swederiana 21
ludens 44	Thaumatographa 22
macaria 46	tornoxena 50
marmarastra 14	undosa 45
mesostigmatias 42	zapyra 26

REFERENCES

- ARITA, Y., 1971. The systematic position of *Simaethis nigromaculata* Issiki (Lepidoptera, Glyphipterygidae). — Trans. Shikoku Ent. Soc., 11: 37-38, figs. 1-3.
- CLARKE, J. F. G., 1955. Catalogue of the type specimens of Microlepidoptera in the British Museum (Natural History) described by Edward Meyrick, 1: I-VII, 1-332, f. 1, pls. 1-4.
- , 1963. Idem, 4: 71-80, pls. 33-38.
- , 1969. Idem, 6: 1-216, pls. 1-108.
- COMMON, J. F. B., 1965. A revision of the Australian Tortricini, Schoenotenini and

- Chlidanotini (Lepidoptera: Tortricidae: Tortricinae). — Austral. J. Zool., 13: 613-726, 27 figs., 3 pls.
- DANILEVSKI, A. S., & V. I. KUZNETSOV, 1968. Fauna of the USSR. Lepidoptera, 5 (1) Tortricidae, Laspeyresii: 636 pp., 469 figs. (pp. 33-37). (In Russian).
- DIAKONOFF, A., 1948a. Fauna Buruana. Microlepidoptera II. — Treubia, 19: 197-219, figs. 1-20.
- , 1948b. Records and descriptions of Microlepidoptera (2). — Ibidem: 483-524.
- , 1955. Microlepidoptera of New Guinea. Results of the Third Archbold Expedition (American-Netherlands Indian Expedition 1938-1939). V. — Verhand. Kon. Ned. Ak. Wet., Nat., (2)50(3): 1-210 + 1, figs. 720-861.
- , 1960. Synopsis of the Schoenotenini, with descriptions of new genera and species. — Nova Guinea, 4: 43-81, 50 figs., 1 pl.
- , 1974. The South Asiatic Polyorthini, with notes on species of Polyortha Dognin (Lepidoptera, Tortricidae). — Zool. Verh., 131: 86 pp., 87 figs.
- , 1977. Description of Hilarographini, a new tribus in the Tortricidae (Lepidoptera). — Ent. Berichten Amsterdam, 37: 76-77.
- DIAKONOFF, A., & Y. ARITA, 1976. New and old species of Glyphipterigidae and a new species of Acrolepiidae from Japan and the Far East (Lepidoptera). — Zool. Meded., 50 (12): 179-219, figs. 1-37.
- FLETCHER, T. B., 1929. A list of the generic names used for Microlepidoptera. — Mem. Dept. Agric. India, Ent., 11: I-IX + 1-244 + 2.
- FREY, H., 1856. Die Tineen und Pterophoren der Schweiz, 430 pp.
- KUZNETSOV, V. J., & A. A. STEKOLNIKOV, 1973. Phylogenetic relationships in the family Tortricidae (Lepidoptera) treated on the base of functional apparatus. — Horae Soc. ent. Un. Sov., 56: 18-43, 14 figs. (In Russian).
- LATREILLE, P. A., [1802-1803]. Histoire naturelle générale et particulière des Crustacées et des Insectes; ouvrage faisant suite aux Oeuvres de Leclerc de Buffon, 3: 415.
- HÜBNER, J., [1816-1826]. Verzeichniss bekannter Schmettlinge (sic): 1-431.
- INOUE, H., 1954. Check List of the Lepidoptera of Japan. 1. Micropterygidae-Phalonidae: I-XIII, 1-112.
- ISSIKI, S. T., 1930. New Japanese and Formosan Microlepidoptera. — Ann. Mag. Nat. Hist., (10) 6: 422-431.
- MEYRICK, E., 1886. Descriptions of Lepidoptera from the South Pacific. — Trans. ent. Soc. London, 1886: 189-296.
- , 1905. Descriptions of Indian Microlepidoptera I. — J. Bombay Nat. Hist. Soc. 16: 580-619.
- , 1906. Descriptions of Indian Micro-Lepidoptera II. — J. Bombay nat. hist. Soc., 17: 403-417.
- , 1907. Descriptions of Australian Microlepidoptera. XIX. Plutellidae. — Proc. Linn. Soc. New S. Wales, 32: 47-150.
- , 1909. Descriptions of Indian Microlepidoptera. IX. — J. Bombay Nat. Hist. Soc. 19: 410-437.
- , 1912 (1912-1916). Exotic Microlepidoptera, 1: 1-640.
- , 1913. Lepidopterorum Catalogus, 13: Carposinidae, Heliodinidae, Glyphipterygidae, 52 pp.
- , 1914. Genera Insectorum. Lepidoptera Heterocera. Fam. Glyphipterygidae, 164, 39 pp., 2 pls.
- , 1921. New Micro-Lepidoptera. — Zool. Med., 6: 145-202.
- , 1932 (1930-1936). Exotic Microlepidoptera, 4: 1-642.
- , 1934 (1930-1936). Ibidem: 616.
- OBRAZTSOV, N.S., 1966. Neotropical Microlepidoptera IX. Revision of the genus Pseudatteria (Lepidoptera, Tortricidae). — Proc. U.S. Nat. Mus., no. 3535, 118: 577-622.
- PAGENSTECHE, A., 1900. Die Lepidopterenfauna des Bismarck-Archipels, mit Berücksichtigung der

- sichtigung der thiergeographischen und biologischen Verhältnisse, systematisch dargestellt. II. Theil, die Nachtfalter. — *Zoologica*, 29: 268 pp., 2 pls.
- RAZOWSKI, J., 1965. Kilka uwag o egzotycznych Tortricidae (Lepidoptera) (Some remarks on exotic Tortricidae (Lepidoptera)). — *Polskie Pismo Ent.*, 35: 213-216.
- , 1976. Phylogeny and system of Tortricidae (Lepidoptera). — *Acta zool. cracoviensia*, 21: 73-120, f. 1.
- STANTON, H. T., 1854. *Insecta Britannica. Lepidoptera: Tineidae: VIII + 313 pp., 10 pls.*
- STOLL, C., in P. CRAMER, 1782. *Papillons Exotiques, Suppl.*, 75: I-VIII + 1-184, pls. 1-42.
- WALSINGHAM, Lord, 1897. *Western Equatorial African Micro-Lepidoptera.* — *Trans. ent. Soc. London*, 1897: 33-67, pls. 2-3.
- , 1909-1915. *Lepidoptera Heterocera: Tineina, Pterophorina, Orneodina, Pyralidina, Hepialina.* — *Biol. Centrali-Americana, Zoologia*, 4: I-XII + 1-482, figs. 1-30, pls. 1-10.
- ZELLER, P. C., 1839. *Versuch einer naturgemässen Eintheilung der Schaben.* — *Iris*, Jena: 167-220.
- , 1877. *Exotische Microlepidoptera.* — *Horae Soc. ent. Ross.*, 13: 3-493, pls. 1-4.