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Gnorimoschemini of southern South America VI: identification keys, checklist of Neotropical taxa and general considerations (Insecta, Lepidoptera, Gelechiidae)

DALIBOR POVOLNÝ

Distribution and evolution of the tribe Gnorimoschemini Povolný, 1964, with special regard to the Neotropical fauna, are discussed, based on the series of previous papers devoted to the taxonomy of Gnorimoschemini from southern South America, Peru and Bolivia. Identification keys to genera and species are presented, as well as a tentative checklist of Neotropical Gnorimoschemini with notes on their taxonomy and nomenclature resulting from recent studies. The identification keys are accompanied by 158 schematic sketches and by 16 full colour illustrations of especially striking or important species.

Key words: Lepidoptera, Gelechiidae, Gnorimoschemini, Neotropical, Argentina, Chile, Peru, Bolivia.

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Contents

INTRODUCTION

As a corollary of the series of papers published in Steenstrupia (Povolný 1985, 1986, 1987, 1989a, 1989b, 1990) on Gnorimoschemini from southern South America, Peru and Bolivia, the presentation of keys for identification, a tentative checklist, notes on the nomenclature and synonymy, as well as some general considerations on distribution and evolution of this tribe seems appropriate. This is particulary so because the mass of material collected by the Danish Scientific Expedition to Patagonia (1978-79) and the Danish Entomological Expedition to Argentina and Chile (1981-1982) and the Zoological Museum, University of Copenhagen Expedition to the High Andes of Peru and Bolivia (1987) (Nielsen 1980; Fjeldså 1987) included many new genera and species. Furthermore, the extensive taxonomic research that was necessary in the process of initial identification including the scanning of available literature, particularly in cases where type material was inaccessible for examination, and the classification of undescribed taxa virtually required a review of the whole tribe. A checklist is thus a logical outcome of this work and should facilitate future studies on the Neotropical Gnorimoschemini.

The taxonomic study of the Neotropical gnorimoschemines is complicated by the fact that the few authors who have dealt with gelechiid taxa from this region failed to recognize the higher hierarchy of the gnorimoschemines. As a result some taxa have stood wrongly assigned generically within the Gelechiidae and sometimes incorrectly assigned in other gelechioid families, e. g. Oecophoridae, Blastobasidae etc. The possibility therefore exists that misplaced gnorimoschime taxa remain to be detected.

A summary of our present knowledge of the relationship and evolutionary traits of the Neotropical gnorimoschemines in general may be regarded as a useful corollary to the checklist. Although the present state of our knowledge of this tribe is limited in many respects, it is nevertheless sufficient to allow an insight into the remarkable species diversity and inherited habitat adaption of the tribe throughout its worldwide distribution.

ESSAY ON THE EVOLUTION OF GNORIMOSCHEMINI, WITH SPECIAL REGARD TO THE NEOTROPICAL FAUNA

The tribe Gnorimoschemini has a worldwide distribution and although it contains a number of economically important species, chiefly pests of solanaceous crops, the description and delimitation of the distributional ranges of its taxa have been attempted to a very limited degree only (Povolný 1967, 1991). Generally Gnorimoschemini are confined to two of the three macrobiomes (biochores) of the terrestrial ecosystem: the Eremial and the Oreal (as a part of Oreotundral), whereas their presence in the Arboreal is restricted to forestless, partly azonal or extrazonal formations. The greatest number of species appears to be concentrated in the Palaearctic Steppe Corridor (Bourlière 1964), which comprises the Afroeremic, Syroeremic, Iranoeremic, Turanoeremic, Sindhoeremic, Tibetoeremic, Mongoloeremic and Sinoeremic centres, and in the corresponding Nearctic biomes of Sonora and Sinaloa, which comprise the Texoeremic, Kansoeremic, Gilaeremic, Mohavoeremic and Californoeremic centres (Lattin 1967).

The occurrence of Gnorimoschemini in most of the tropical–austral regions of the World, apart from the Neotropis, has been little explored. The tribe seems to be absent from Madagascar although it is present in southern Africa.

The Neotropical Gnorimoschemini are clearly concentrated in the eremic subbiomes of Chaco and Pampas characterized by Madsen et al. (1980). These comprise the Argentinian Provinces of Neuquen, Rio Negro and Chubut, comparable with the so-called Pampa and Monte Centres postulated by Müller (1973, 1980). It seems that the southwestern Patagonian occurrence of the Gnorimo-

schemini corresponds to the Monte-Centre, a term used by both Müller (1973) and Madsen et al. (1980). The southwestern Patagonian cold steppes are the southernmost outposts of the tribe, the species richness decreasing in the direction towards the south. Hypsometrically the greatest species diversity appears to be in the Patagonian grassland (steppe) habitats at elevations between 500-1000 m above sea level. Some euryoecious taxa penetrate, however, into the high mountain zones (subalpine and alpine) of the Andes, e. g., *Scrobipalpopsis praeses* up to 3900 m, *Eurysacca chili* above 3000 m. Even such species as *Scrobipalpula patagonica,* widely distributed in lowland grassy habitats of Argentina, ascend to elevations of 1500 m or more.

The secondmost important Neotropical subbiome in terms of gnorimoschemine evolution appears to be the Andipacific Centre, plus part of the Maranon Centre (Müller 1972, 1973). These centres comprise the high mountain steppes and semideserts of the Chilean and Peruvian Andes, including the famous Altiplano, and corresponds to the formations 'Halvørken og ørken' (= semidesert and desert) of Madsen at al. (1980). These habitats clearly show the so-called 'xeromontane' character which Varga (1975) briefly described as xeric and partly extrazonal habitats in mountain regions. The occurrence of little specialized forms of the tribe in the xeromontane habitats (perhaps best shown by some symmetrischemoids) suggests that this may be the ancestral habitat where speciation of the group first took place and from where descendant taxa moved into other regions of the World, favouring eremic habitats, and developing secondary centres of speciation.

The dominant gnorimoschemines of xeromontane habitats (1900 m – 4350 m above sea level) are species of *Symmetrischema, Scrobipalpula, Eurysacca* and *Keiferia.* The hypsometrically extreme habitats (e. g. Rio Punapampa, Cerro Cahuish, Millo Valley, between 4000 m and 4350 m) are frequented by such actively flying, comparatively stout moths as *Symmetrischema symmetricum,* several species of *Symmetrischema,* subgenus *Primischema*, and a number of *Scrobipalpula* species. Another group of species occurring above 3900 m comprises rather diminutive taxa with a tendency to brachyptery and dark (blackish) coloration. Amongst these are *Symmetrischema inkorum, S. alternatum, S. anthracinum, S. anthracoides, S. funebrale* and *S. alticolum.* This tendency to reduced flying capability culminates in the only known case of brachyptery in Neotropical Gnorimoschemini, viz., in the females of *Paraschema detectendum,* an isolated symmetrischemoid species found at elevations above 3500 m, and having a subterranean larva feeding in the tubers of *Solanum* species. At elevations below 3900 m additional species of *Scrobipalpula* and other scrobipalpuloid species occur together with big forms of strongly endemic *Eurysacca,* followed by high montane species of *Keiferia.* The comparatively simple genitalic structures and the big size of these moths (e.g., *Keiferia propria, Eurysacca vera, Scrobipalpula flava*) indicate a probably basic position within the individual genera.

In the Palaearctic region, similarly ancestral species, e.g. *Scobipalpopsis* spp., occur in alpine or boreal habitats, supporting the theory that such or similar habitats are ancestral for the tribe.

A perspective of the distribution the Neotropical Gnorimoschemini can be gained by reviewing some of the generic representatives of the tribe in other zoogeograpical regions, especially the Palaeactic and Nearctic ones. The Palaearctic, Holarctic and Nearctic genera are shown in Table 1.

Palaearctic endemism

It is characteristic of the endemic or near-endemic Palaearctic genera of the tribe that they are little differentiated from related genera which occur in other regions and with which they could easily be lumped. This is true of three supposedly monophyletic groups, viz., 1) the scrobipalpoid group (*Ilseopsis* [incl. subgenus *Euscrobipalpa*], *Ergasiola, Turco-*

Table 1. Palaearctic, Holarctic and Nearctic genera of Gnorimoschemini

I. Palaearctic genera and subgenera
The Palaearctic region has the greatest number of described taxa including the genera listed below (the approximate number of species is given in parentheses):

Ergasiola (1)
Ilseopsis (subgenus *Euscrobipalpa*) (200)
Caryocolum (90)
Opacopsis (25)
Vladimirea (15)
Hedma (7)
Agonochaetia (5)
Lutilabria (3)
Turcopalpa (2)
Tila (2)
Gobipalpa (1)
Ilseopsis (s. str.) (1)
Pogochaetia (1)
Ochrodia (1)
Sattleria (1)
Cosmardia (1)
Ephysteris (1)
Phloeocecis (1)

The restriction of these groups to the Palaearctis is not entirely complete, as three genera are poorly represented in the Nearctic Region: One species of *Ilseopsis (Euscrobipalpa)* is Californian (three additional species in the USA are introductions), some three species of *Caryocolum* and one species of *Agonochaetia* are known from the USA.

II. Holarctic genera

Gnorimoschema (about 50-60 Nearctic, 1 Holarctic and about 15 Palaearctic species)
Scrobipalpopsis (4 Nearctic, 1 Holarctic and 1 Neotropical species)
Klimeschiopsis (1 Palaearctic, 1 Holarctic (?) species)

III. Nearctic genera

Exceptia (1-2 species)
Neoschema (1 species)

palpa, Gobipalpa), 2) the caryocoloid genera (*Caryocolum, Agonochaetia, Pogochaetia, Tila, Klimeschiopsis, Sattleria, Lutilabria*), and, 3) the group of related genera *Opacopsis, Ephysteris, Vladimirea,* and *Phloeocecis.*

Even the genus *Hedma* which, unlike the genera mentioned above, is morphologically distinct, and which is distributed in the semi-desert and desert areas of the Palaearctis, radiates into the Afrotropical region and is thus no strict Palaearctic endemism.

Neartic endemism

Of the only two strictly Nearctic genera, *Exceptia* is clearly a derivative of the essentially Palaearctic scrobipalpoid group mentioned above, and *Neoschema* is clearly a derivative of the essential Nearctic *Gnorimoschema.* Regardless of some 100 Nearctic species of Gnorimoschemini only two genera are, thus, strictly Nearctic. The Nearctic Gnorimoschemini show an essential phylogenetical and distributional dependence on immigration from the Neotropis.

The Neotropical Gnorimoschemini

Compared to some 12 thousand specimens from the Palaearctic region, only several hundreds were available for the study of the Neotropical Gnorimoschemini. Nevertheless, their conspicuous supraspecific differentiation stands in deep contrast to that of the Palaearctic genera, and their relationships are not clear in all instances. Table 2 lists endemic and predominantly Neotropical genera, as well as a few other genera with characteristic distribution patterns.

The dominance of Neotropical species in

Table 2. Neotropical genera, and genera with other, characteristic distribution patterns.

IV. Endemic Neotropical genera and subgenera

Scrobipalpomima (about 20)
Eurysacca (about 20)
Symmetrischema (Primischema) (about 10)
Symmetrischema (Symmetrischemulum) (about 10)
Tecia (5)
Magnifacia (5)
Phthorimaea (2)
Scrobitasta (1)
Scrobipalpoides (1)
Schmidtnielsenia (1)
Other endemic supraspecific taxa (probably 1-2)

V. Genera of assumed Neotropical origin and secondarily radiating into the Nearctic region

Symmetrischema s. str. (at least 40-50 Neotropical and about 15-20 Nearctic species in Sonora and Sinaloa)
Scrobipalpula (at least 30-35 Neotropical and 2-3 Neartic species concentrated in arid and semiarid habitats, and one species radiating up into the Holarctic region)
Keiferia (at least 15-20 Neotropical and about 5 Nearctic, mostly xerothermophilic species)
Scrobipalpulopsis (possibly 10 Neotropical species, 1 Nearctic xerothermophilic species)
Tuta (about 5 species, some 1 or 2 reaching the Nearctic subtropical sandy and saline habitats)

VI. Other distributional patterns

Kiwaia (4 Palaearctic and about 15 New Zealand region species)
Scrobipalpa s. str. (2 endemic Notogaean species)
Australiopalpa (2 endemic Notogaean species)
Genus ? (1 endemic Notogaean species showing relationship to the Palaearctic *Gobipalpa)*

group V (Table 2) indicates that these genera, like those in group IV, are of Neotropical origin.

The mutual relationship between these essentially Neotropical genera are less clear than within the Palaearctic groups. *Scrobipalpomima, Scrobitasta* and *Tecia* show possible synapomorphies (form of uncus, gnathos and paired processes). These three genera show a genital morphotype similar to that found in the most speciesrich (essentially Palaearctic) subgenus *Ilseopsis* (*Euscrobipalpa*) and its close relatives (*Ilseopsis* s.s., *Ergasiola, Turcopalpa* and *Gobipalpa*). All these Neotropical and Palaearctic genera represent a morphologically well defined branch of the tribe, the so-called scrobipalpoids. This relationship is also corroborated by the Neotropical–Holarctic distribution of the scrobipalpoid genus *Scrobipalpopsis* (1 Neotropical, 4 Nearctic, 1 Holarctic species).

The genera *Scrobipalpula, Scrobipalpulopsis* and *Keiferia* form another phylogenetically discrete group which is almost purely Neotropical. *Scrobipalpula* and *Scrobipalpulopsis* have a possible synapomorphy in the shape of gnathos. As a further synapomorphy, the form of signum indicates that *Keiferia* (with its unique autapomorphy - the striking spine of the uncus) also belongs with these (scrobipalpuloid) genera. A certain similarity of signa of the female subgenital plates associates the genera *Phthorimaea* (with its autapomorphic membraneous cushion of gnathos) and *Magnifacia* (with clear autapomorphies of uncus, gnathos etc.) with this scrobipalpuloid Neotropical branch, being probably its independently specialized colateral (sister) groups (see also Povolný & Šustek, 1988).

Also *Tuta,* which is at present a heterogenous, probably not monophyletic genus, shows possible scrobipalpuloid relations. This is indicated both in form of the partly membraneous trough-formed (groove-shaped) gnathos which occurs also in some isolated and specialised *Scrobipalpula* (e. g. *S. flava, S.*

omicron, S. rosariensis), and in the form of the conical parabasal processes. Contrary to *Scrobipalpula*, which are usually miners of Asteraceae, many species of *Tuta* are known to be miners of (halophilous) Chenopodiaceae.

With 70 or more species the genus *Symmetrischema* is possibly the most sucessful primarily Neotropical group of the tribe. *Symmetrischema* s. str. shows two clear autapomorphies, viz. the unpaired digitate process arising from the sacculus wall, and bifurcation of the aedeagus. Such a bifurcation occurs occasionally also in *Scrobipalpomima* etc. and thus seems to be an evolutionary trend confined to Neotropical taxa of Gnorimoschemini. The lateral spine on the aedeagus in Palaearctic *Tila,* with its spatulate flat valva dilatation (and its uniordinate bristles) reminiscent of *Symmetrischema,* causes interpretation difficulties, but homoiology of these characters cannot be excluded (cf. the occurence of similar forewing pattern elements of numerous, obviously not closely related Gnorimoschemini).

The next apomorphy of *Symmetrischema* s. str. is its oligophagous frame with some high specialized Neotropical Solanaceae, including endemic shrubs and trees of the genus *Cestrum* (see Povolný, 1990b).

There is no difficulty in relating the subgenera *Primischema* and *Symmetrischemulum* to *Symmetrischema* s. str., although in both the unpaired digitate process is missing. *Primischema* shares with *Symmetrischema* s. str. the form of uncus and gnathos and the aedeagus bifurcation. The paired processes of the sacculus fold are poorly developed and membraneous, this state possibly representing the ancestral situation together with the trend to incomplete separation and differentiation of the paired parabasal process. The only known female of *Primischema* (*P. primigenium*) shows also a rather simple (and possibly primitive) form of the gnorimoschemine female genitalia - with its sculptureless paired periostial membrane and the absence of the signum. The subgenus *Symmetrischemulum* with its specialized subgenital plate and with the probable autapomorphy of paired processes in the male genitalia might well represent a subordinate offshoot from *Symmetrischema* s. lat. Its symmetrischemoid relationship is reflected also in the shape and form of the valva (with its characteristic terminal dilatation, sensorial bristles and hairs), aedeagus and signum bursae.

The aedeagus bifurcation and its specialized form (spiny knob), form of valva and gnathos in several species of *Scrobipalpomima* (and in some scrobipalpuloid species) indicate that these and similar 'symmetrischemoid' tendencies are common to several endemic Neotropical Gnorimoschemini.

Another probable offshoot from *Symmetrischema* and/or from symmetrischemoid Gnorimoschemini generally is the essentially Neartic genus *Gnorimoschema* with greatest species concentration in eremic habitats (Müller 1973), and radiating into the Palaearctic region with a clear preference for xeromontane habitats.

The other endemic Neotropical genera, especially *Eurysacca* and the deeply isolated monobasic genera *Scrobipalpoides* and *Schmidtnielsenia*, show such a high degree of specialization that it is virtually impossible to relate them to particular genera or genus-groups of the tribe. It seems that at least *Scrobipalpoides* with its curious asymmetries of male and female genitalia structures might be distantly related with the symmetrischemoid branch (form of uncus and gnathos). The isolated position of these genera contrasts with the prevailing situation of endemic genera in other regions. For instance, the Notogaean endemics *Australiopalpa, Scrobipalpa* (from Australia) and *Kiwaia* (from New Zealand) show clear relations to northern-hemisphere generic groups: *Scrobipalpa* and *Australiopalpa* to scrobipalpoid, *Kiwaia* to hedmoid Gnorimoschemini. In the Palaearctic region only *Hedma* (with some 7 species) shows an isolated position similar to that of numerous genera of the Neotropical region.

It follows from the above discussion that the degree of endemism of the Neartic Gnorimoschemini is quite low. The largest genus, *Gnorimoschema*, is probably derived

from *Symmetrischema* combined with a change of food plants (symmetrischemoid taxa are mostly miners of Solanaceae, whereas *Gnorimoschema* mines Asteraceae), and is secondarily Holarctic.

The most archetypic group of the tribe is the purely Neotropical *Tecia* (the species of which form galls on Asteraceae). This genus shows clear morphological similarities (in male genitalia, forewing pattern) with the essentially Nearctic *Scrobipalpopsis* (four Nearctic, one Holarctic and one Neotropical species) but also shows relationships with ancient species of *Scrobipalpomima.*

The purely Nearctic endemisms - *Exceptia* and *Neoschema* - are clearly confined to scrobipalpoid and gnorimoschemoid taxa representing their extremely specialized derivatives. The true affinity of the Neotropical *Exceptia hospita* Povolný, 1989 remains to be assessed.

It follows from the discussion above that the Neotropical Gnorimoschemini show the highest degree of evolutionary differentiation when compared to the representatives of the tribe in other regions. We know (Varga 1975, Müller 1973) that xeric and especially xeromontane habitats generally and those of the Neotropical region specially belonged to the most important climax formations surviving for very long geological periods regardless of their (periodical) spatial changes (especially during the late Pliocene and Pleistocene). It seems therefore that the morphological specialization resulting in the profound isolation of the Neotropical generic endemisms and the obvious archetypic character in some of them indicate that especially the primitive symmetrischemoid taxa might well represent the most basal extant gnorimoschemine gelechiid moths, still differentiating in their original environment - the xeric and xeromontane habitats of the Neotropical region.

ADDITIONAL NOTES TO NOMENCLATURE AND SYNONYMY OF NEOTROPICAL GNORIMOSCHEMINI

Genus *Tecia* Strand, 1910

Tecia Strand, 1910: (in Kieffer & Jörgensen), Zentralbl. Bakt. Parasitenkde. 27: 375; type-species: *Tecia mendozella* Strand, 1910, ibid.

Fapua Strand, 1910: ibid. 27: 378; type-species: *Fapua albinervella* Strand, 1910: ibid.

Lata Strand, 1910: ibid. 27: 398; type-species: *Tecia (Lata) kiefferi* Strand, 1910: ibid.; synonymized by Hodges & Becker, 1990, Proc. Entomol. Soc. Wash. 92: 84.

Orsotricha Meyrick, 1914: Exot. Microl. 1: 269; type-species: *Topeutis venosa* Butler, 1883, Trans. Ent. Soc. London 1883: 77; synonymized by Hodges & Becker, 1990, Proc. Entomol. Soc. Wash. 92: 84.

Brachypsaltis Meyrick, 1931: Exot. Microl. 4: 58; type-species: *Brachypsaltis subalbata* Meyrick, 1931, ibid.; synonymized by Hodges & Becker, 1990, Proc. Entomol. Soc. Wash. 92: 84.

Scrobischema Povolný, 1980: Acta Ent. Bohemoslov. 77: 55; type-species: *Scrobipalpopsis (Scrobischema) vergarai* Povolný, 1980, ibid. 77: 57; Povolný, Steenstrupia 16: 178 (raised to genus); synonymized by Hodges & Becker, 1990, Proc. Entomol. Soc. Wash. 92: 84.

For details see Hodges & Becker (1990) and Povolný (1993). The species of *Tecia* produce hyperplastic deformations and galls on species of the genus *Baccharis* (e. g. *B. macrantha* HBK., *B. serrulata* Pers.).

Genus Tuta Strand, 1910

Tuta Strand, 1910: (in Kieffer & Jörgensen), Zentralbl. Bakt. Parasitenkde. 27: 362; type-species: *Gnorimoschema atriplicella* Strand, 1910 ibid.

Scrobipalpuloides Povolný, 1987: Steenstrupia 13: 59; type-species: *Scrobipalpuloides inapparens* Povolný, 1987 ibid., 13: 60; synonymized by Povolný, 1993, Reichenbachia 30: 85-98.

For details see Povolný (1993). Many species of *Tuta,* viz. *atriplicella* Str., *gregalis* Meyr., *inapparens* Pov., *parachiquitella* Pov. and (Nearctic) *chiquitella* Busck are thoroughly miners of (halophilous) Chenopodiaceae.

Note: It is difficult to attribute the female genitalia to the male counterparts in some species of *Tuta.* This is because two morphotypes of female genitalia apparently occur. There is no doubt concerning *T. absoluta* and *T. gregalis.* The problems arise with *T. congruens*, in which the female genitalia show some similari-

ty to *Keiferia*, and in particular with *T. inapparens* and *T. habitans*, in which the female genitalia approach those of certain *Scrobipalpomima* species in structure. In such cases only tentative taxonomic solutions can be proposed until additional material becomes available.

Genus *Phthorimaea* Meyrick, 1902

Perhaps this genus includes only two distinct species, viz. *P. robusta* (a medium-sized, comparatively broad-winged species with shorter and stouter genitalia), and *P. operculella* (a polytypic species involving a complex of random described, probably synonymous forms). The complicated taxonomic situation seems to have two main reasons.

First, the originally indigenous Neotropical *P. operculella* has been introduced as a breeding species into North America, Europe, Africa, Australia, and elsewhere as a pest on potato (and occasionally tomato). This wide secondary distribution is reflected in considerable variation of both size, habitus and genitalia, and also in bionomic manifestations (voltinisms etc.).

Second, the autochthonous Neotropical populations were probably rather broadly distributed both horizontally and hypsometrically (possibly from sea level up to near 4000 a.s.l.). *P. argentinae*, a widespread nominate form of the lower Argentinian elevations, represents the habitually biggest and rather striking moths, whereas the nominate form *P. euchthonia*, restricted to high elevations in the (Peruvian) Andes, seems to represent the opposite end of the variation scale. *P. robusta* seems to be restricted to Patagonia, occurring sympatrically with (both synanthropic and autochthonous) populations of the *P. operculella-argentinae* complex.

***Symmetrischema tangolias* (Gyen, 1913)**

Trichotaphe tangolias Gyen, 1913, Bol. Mus. Nac. (Chile) 5: 338

Phthorimaea aquilina Meyrick, 1917: Trans. Ent. Soc. London 1917: 44; synonymized by Hodges & Becker, 1990, Proc. Entomol. Soc. Wash. 92: 84.

Phthorimarea plaesiosema Turner, 1919: Proc. Roy. Soc. Qld. 31: 126; synonymized by Povolný, 1977, Acta Ent. Mus. Natn. Pragae 39: 433.

Phthorimaea melanoplintha Meyrick, 1926: Exot. Microl. 3: 279; synonymized by Povolný, 1967, Acta Ent. Mus. Natn. Pragae 37: 55.

Gnorimoschema tuberosella Busck, 1931: Proc. Ent. Soc. Wash. 33: 59; synonymized by Povolný, 1967, Acta Ent. Mus. Natn. Pragae 37: 55.

For details see Hodges & Becker (1990) and Povolný (1993).

***Scrobipalpula gregariella* (Zeller, 1877)**

Lita gregariella Zeller, 1877, Horae Soc. Ent. Ross. 13: 339

The type specimens are preserved in the Zeller collection (Natural History Museum, London). The species is the member of *Scrobipalpula* s. str. with distant relations to the *S. psilella* (Herrich-Schäffer, 1855)-complex, especially the male genitalia being strictly congeneric. The species comes from Colombia (Bogotá). For details see Povolný (1964: 339, T. 7, figs. 42, 44.)

***Scrobipalpula daturae* (Zeller, 1877)**

? Doryphora daturae Zeller, 1877, Horae Soc. Ent. Ross. 13: 359.

The type specimens are preserved in the Zeller collection (Natural History Museum, London). The species belongs to *Scrobipalpula* s. str. and its female genitalia show certain relation to *S. tenera* Povolný, 1987, but the male genitalia are different. The species comes from Colombia. For details see Povolný (1964: 339, T. 7, figs. 43, 45.)

***Scrobipalpula melanolepis* (Clarke, 1965)**

Gnorimoschema melanolepis Clarke, 1965, Proc. U. S. Nat. Mus. 117: 83.

This species belongs to the *Scrobipalpula patagonica* Povolný, 1977-complex as is seen both from the illustrations of (especially female) genitalia and from the conspicuous male sex (androconial) scaling of hindwing. It differs from *S. patagonica* by shorter aedeagus and mainly by the absence of the short subterminal spine. It comes from Juan Fernandez Island (Chile). The species was transferred to *Scrobipalpula* by Povolný (1967a).

***Scrobipalpulopsis hemilitha* (Clarke, 1965) comb. n.**

Gnorimoschema hemilitha Clarke, 1965, Proc. U. S. Nat. Mus. 117: 81.

Scrobipalpula hemilitha: Povolný 1967: Acta Ent. Mus. Natn. Pragae. 37: 126.

The species has a subgenital plate practically identical with that of *Scrobipalpulopsis stirodes* (Meyrick, 1931) and also the figured male genitalia are rather similar. Their lateroventral situation makes any definite conclusion difficult, although the synonymy of *S. hemilitha* with *S. stirodes* is rather probable. The species comes from Juan Fernandez Island (Chile).

***Opacopsis trinota* (Clarke, 1965) comb. n.**

Echinoglossa trinota Clarke, 1965, Proc. U. S. Nat. Mus. 117: 85.

Ephysteria trinota: Povolný 1967: Acta Ent. Mus. Natn. Pragae 37: 126.

The species has been described from Juan Fernandez Island (Chile), but no type specimens have been designated contrary to all other new species described in the same paper. *Opacopsis* is essentially a Palaearctic genus with few taxa expanding to India, Australia and Oceania. The provenance of the material appears to be doubtful as is also reflected in the absence of the type designation. For details see Povolný (1967a: 126).

Further new cobinations

The analyse of the genitalia characters during the preparation of the identification keys resulted in the following new combinations:

Scrobipalpulopsis dispar (Povolný, 1990) comb. n. (from *Scrobipalpuloides*)

Tuta absoluta (Meyrick, 1917) comb. n. (from *Scrobipalpuloides*)

Tuta ascendens (Povolný, 1990) comb. n. (from *Scrobipalpuloides*)

Tuta congruens (Povolný, 1990) comb. n. (from *Scrobipalpuloides*)

Tuta gregalis (Meyrick, 1917) comb. n. (from *Scrobipalpuloides*)

Tuta habitans (Povolný, 1987) comb. n. (from *Scrobipalpuloides*)

Tuta inapparens (Povolný, 1987) comb. n. (from *Scrobipalpuloides*)

Tuta parachiquitella (Povolný, 1968) comb. n. (from *Scrobipalpula*)

Symmetrischema (Primischema) inkorum Povolný, 1990 comb. n. (from *Symmetrischema* s. str.)

Symmetrischema (Symmetrischemulum) altisona (Meyrick, 1917) comb. n. (from *Symmetrischema* s. str.)

Symmetrischema (Symmetrischemulum) krabbei (Povolný, 1990) comb. n. (from *Symmetrischema* s. str.)

Symmetrischema (?) indifferens (Povolný, 1985) comb. n. (from *Scrobipalpomima*)

Symmetrischema (?) patagoniae (Povolný, 1985) comb. n. (from *Scrobipalpomima*)

Symmetrischema symmetrischemoides (Povolný, 1989) comb. n. (from *Scrobipalpomima*)

Symmetrischema (?) triangulignathos (Povolný, 1985) comb. n. (from *Scrobipalpomima*)

Keiferia gudmanella (Walsingham, 1897) comb. n. (from *Tildenia*)

Keiferia keiferioides (Povolný, 1987) comb. n. (from *Scrobipalpula*).

A TENTATIVE CHECKLIST OF NEOTROPICAL GNORIMOSCHEMINI

Genus *Scrobipalpomima* Povolný, 1985

anonyma Povolný, 1985. ARGENTINA
concurrens Povolný, 1989. ARGENTINA
excellens Povolný, 1985. ARGENTINA
fugitiva Povolný, 1989. ARGENTINA
illustris Povolný, 1989. ARGENTINA
improbabilis Povolný, 1989. ARGENTINA
karsholti Povolný, 1985. ARGENTINA
neuquenensis Povolný, 1985. ARGENTINA
obscuroides Povolný, 1989. ARGENTINA
obsoleta Povolný, 1985. ARGENTINA
obtusa Povolný, 1989. ARGENTINA
patens Povolný, 1985. ARGENTINA
pseudogrisescens Povolný, 1989. ARGENTINA
questionaria Povolný, 1985. ARGENTINA
relicta Povolný, 1985. ARGENTINA
schematica Povolný, 1985. ARGENTINA
septemtrionalis Povolný, 1990. ARGENTINA
serena Povolný, 1989. ARGENTINA

Genus *Scrobitasta* Povolný, 1985

varians Povolný, 1985. ARGENTINA

Genus *Scrobipalpoides* Povolný, 1985

obscurus Povolný, 1985. ARGENTINA

Genus *Scrobipalpopsis* Povolný, 1967

solanivora Povolný, 1973. COSTA RICA, PANAMA, GUATEMALA, HONDURAS, NICARAGUA, COLOMBIA, VENEZUELA.

Genus *Tecia* Strand, 1910

Fapua Strand, 1910
Lata Strand, 1910
Orsotricha Meyrick, 1914
Brachypsaltis Meyrick, 1931
Scrobischema Povolný, 1980
albinervella Strand, 1910. ARGENTINA
confirmans (Povolný, 1990). BOLIVIA
kiefferi Strand, 1910. ARGENTINA
subalbata (Meyrick, 1931). ARGENTINA
venosa (Butler, 1883). ARGENTINA, COLOMBIA
mendozella Strand, 1910.
baccharisella (Brethes, 1917) (*Holcocera*)
vergarai (Povolný, 1980) (*Scrobischema*)

Genus *Exceptia* Povolný, 1967

(?) *hospita* Povolný, 1989. ARGENTINA

Genus *Scrobipalpula* Povolný, 1964

acuta Povolný, 1990. PERU
albolineata Povolný, 1987. ARGENTINA
daturae (Zeller, 1877). COLOMBIA
densata (Meyrick, 1917). PERU
ephoria (Meyrick, 1917). PERU
falcata Povolný, 1987. ARGENTINA
fjeldsai Povolný, 1990. PERU
flava Povolný, 1987. ARGENTINA
gregariella (Zeller, 1877). COLOMBIA
hastata Povolný, 1987. ARGENTINA
incerta Povolný, 1989. ARGENTINA
isochlora (Meyrick, 1931). BRASIL, COLOMBIA
latisaccula Povolný, 1987. ARGENTINA
latiuncula Povolný, 1987. ARGENTINA
megaloander Povolný, 1987. ARGENTINA
melanolepis (Clarke, 1965). CHILE (Juan Fernandez Island)
motasi Povolný, 1976. COLOMBIA
omicron Povolný, 1987. ARGENTINA
pallens Povolný, 1987. ARGENTINA
patagonica Povolný, 1977. ARGENTINA, CHILE
psilella (Herrich-Schaffer, 1955)-complex. ARGENTINA, PERU, BOLIVIA
radiata Povolný, 1987. ARGENTINA
rosariensis Povolný, 1987. ARGENTINA
subtenera Povolný, 1987. ARGENTINA
tenera Povolný, 1987. ARGENTINA
transiens Povolný, 1987. CHILE

Genus *Scrobipalpulopsis* Povolný, 1987

dispar Povolný, 1990. PERU
fallacoides Povolný, 1987. ARGENTINA
hemilitha (Clarke, 1965). CHILE (Juan Fernandez Island)
fallax Povolný, 1987. PERU, ARGENTINA
praeses Povolný, 1987. PERU, ARGENTINA
simulatrix Povolný, 1987. ARGENTINA
stirodes (Meyrick, 1931). ARGENTINA

Genus Tuta Strand, 1910

Scrobipalpuloides Povolný, 1987
absoluta (Meyrick, 1917). BOLIVIA, PERU, CHILE, ECUADOR, VENEZUELA, ARGENTINA
atriplicella Strand, 1910. ARGENTINA
ascendens (Povolný, 1990). PERU
congruens (Povolný, 1987). ARGENTINA
gregalis (Meyrick, 1917). PERU
habitans (Povolný, 1987). ARGENTINA
inapparens (Povolný, 1987). ARGENTINA
parachiquitella (Povolný, 1968). CUBA

Genus *Magnifacia* Povolný, 1967

aulorrhoa (Meyrick, 1935). ARGENTINA
crustaria (Meyrick, 1917). PERU
ignorans Povolný, 1987. ARGENTINA
trifida Povolný, 1987. ARGENTINA
uncispina Povolný, 1987. ARGENTINA

Genus *Phthorimaea* Meyrick, 1902

argentinae Povolný, 1989. ARGENTINA, CHILE
euchthonia (Meyrick, 1939). ARGENTINA, VENEZUELA
operculella (Zeller, 1873). PANSUBTROPICAL-TROPICAL (originally NEOTROPICAL)
robusta Povolný, 1989. ARGENTINA

Genus *Keiferia* Busck, 1939

Tildenia Povolný, 1967
brunnea Povolný, 1973. WEST INDIES
colombiana Povolný, 1975. COLOMBIA, ECUADOR
chloroneura (Meyrick, 1923). BRAZIL
gudmanella (Walsingham, 1897). WEST INDIES
funebrella Povolný, 1984. VENEZUELA
griseofusca Povolný, 1984. VENEZUELA
keiferioides (Povolný, 1987). ARGENTINA
lobata Povolný, 1990. BOLIVIA
lycopersicella (Walsingham, 1897). WEST INDIES, ISTHMUS OF PANAMA, VENEZUELA, COLOMBIA, BRAZIL, MEXICO, southern and central U.S.A. (partly in cultures of tomato), HAWAII (introduced)
lycopersicella Busck, 1928. (*Phthorimaea*)
lenta Meyrick, 1917 (*Gnorimoschema*)
elmorei Keifer, 1936 (*Gnorimoschema*)
propria Povolný, 1990. PERU
rusposoria Povolný, 1970. GRENADA (West Indies)
subtilis Povolný, 1984. VENEZUELA
vitalis Povolný, 1990. PERU

Genus *Schmidtnielsenia* Povolný, 1987

nielseni Povolný, 1987. ARGENTINA

Genus *Eurysacca* Povolný, 1967

acutivalva Povolný, 1986. ARGENTINA
albonigra Povolný, 1986. ARGENTINA

annulata Povolný, 1986. ARGENTINA
atrata Povolný, 1986. ARGENTINA
boertmanni Povolný, 1990. PERU
chili (Povolný, 1967). PERU, CHILE, ARGENTINA
danorum Povolný, 1986. ARGENTINA
eurysaccomima Povolný, 1987. ARGENTINA
excisa Povolný, 1986. ARGENTINA
gnorimina Povolný, 1986. ARGENTINA
media Povolný, 1986. CHILE
melanocampta (Meyrick, 1917). PERU, COLOMBIA
melanopicta Povolný, 1986. ARGENTINA
minima Povolný, 1986. PERU, ARGENTINA
novalis Povolný, 1989. ARGENTINA
paleana Povolný, 1986. ARGENTINA
parvula Povolný, 1986. PERU, ARGENTINA
splendida Povolný, 1986. ARGENTINA
subatrata Povolný, 1986. ARGENTINA
subsplendida Povolný, 1986. ARGENTINA
tenebrosa Povolný, 1986. ARGENTINA
urosema (Meyrick, 1917). PERU
vera Povolný, 1990. PERU

Genus *Symmetrischema* Povolný, 1967

Subgenus *Primischema* Povolný, 1989

andinum Povolný, 1990. PERU
assimile Povolný, 1990. PERU
elementare Povolný, 1989. ARGENTINA
inkorum Povolný, 1990. PERU
primigenium Povolný, 1989. ARGENTINA
peruanum Povolný, 1990. PERU
pulchrum Povolný, 1989. ARGENTINA

Subgenus *Symmetrischemulum* Povolný, 1989

altisona (Meyrick, 1917). PERU
anthracinum (Povolný, 1990). PERU
disciferum Povolný, 1989. ARGENTINA
draculinum Povolný, 1989. ARGENTINA
krabbei (Povolný, 1990). PERU
laciniosum (Meyrick, 1931). ARGENTINA, PERU
nummulatum Povolný, 1989. ARGENTINA

Subgenus *Symmetrischema* Povolný, 1967 (s. str.)

alternatum Povolný, 1990. PERU
alticolum Povolný, 1990. PERU
anthracoides Povolný, 1990. PERU
arctanderi Povolný, 1990. PERU
atrifascis (Meyrick, 1917). PERU
capsicivorum Povolný, 1973. PERU
capsicum (Bradley & Povolný, 1965). WEST INDIES
cestrivorum (Clarke, 1950). ARGENTINA
costaricanum Povolný, 1990. COSTA RICA
dulce Povolný, 1984. VENEZUELA
elongatum (Povolný, 1989). ARGENTINA
femininum Povolný, 1989. ARGENTINA
funebrale Povolný, 1990. PERU
grandispinum Povolný, 1990. PERU
grisescens (Povolný, 1985). BOLIVIA, ARGENTINA
(?) *indifferens* (Povolný, 1985). ARGENTINA
insertum Povolný, 1988. COLOMBIA
loquax (Meyrick, 1917). PERU
major Povolný, 1990. PERU
nanum Povolný, 1989. ARGENTINA, CHILE
oblitum Povolný, 1989. ARGENTINA
(?) *patagoniae* (Povolný, 1985). ARGENTINA
piperinum Povolný, 1989. ARGENTINA
senex Povolný, 1990. PERU
purum Povolný, 1990. PERU
respectabile Povolný, 1989. ARGENTINA
symmetrischemoides (Povolný, 1989). ARGENTINA
solitare Povolný, 1989. ARGENTINA
symmetricum Povolný, 1990. PERU
solum Povolný, 1989. ARGENTINA
striatellum (Murtfeldt, 1900). VENEZUELA, CHILE, ARGENTINA, PANAMA, MEXICO, HAWAII, U.S.A. (partly introduced)
tangolias (Gyen, 1913). PERU, ARGENTINA, CHILE, COLOMBIA (introduced to Australia and U.S.A.)
aquilina (Meyrick, 1917) (*Phthorimaea*)
plaesiosema (Turner, 1919) (*Phthorimaea*)
melanoplintha (Meyrick, 1926) (*Phthorimaea*)
tuberosella (Busck, 1931) (*Gnorimoschema*)
(?)*triangulignathos* (Povolný, 1985). ARGENTINA

Genus *Paraschema* Povolný, 1990

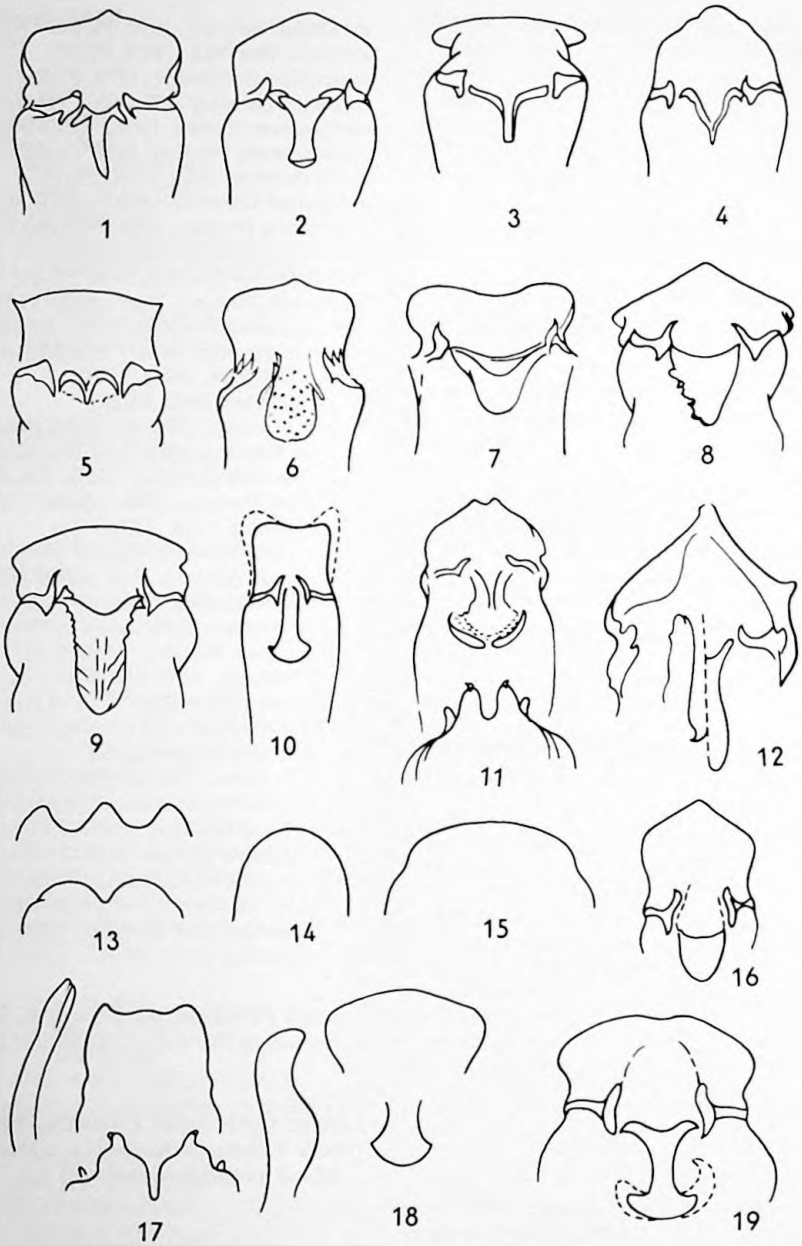
detectendum Povolný, 1990. BOLIVIA

Genus *Opacopsis* Povolný, 1964

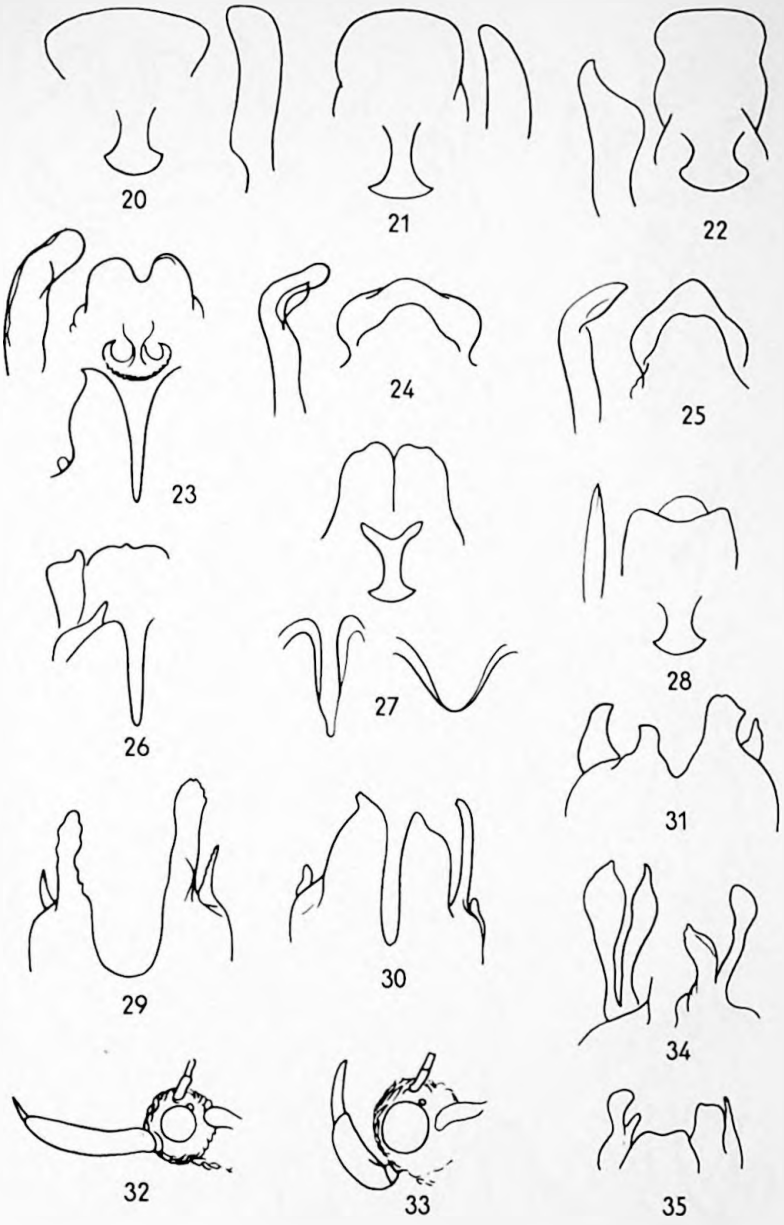
trinota (Clarke, 1965). comb. n. CHILE (Juan Fernandez Island, probably introduced)

Species incertae sedis

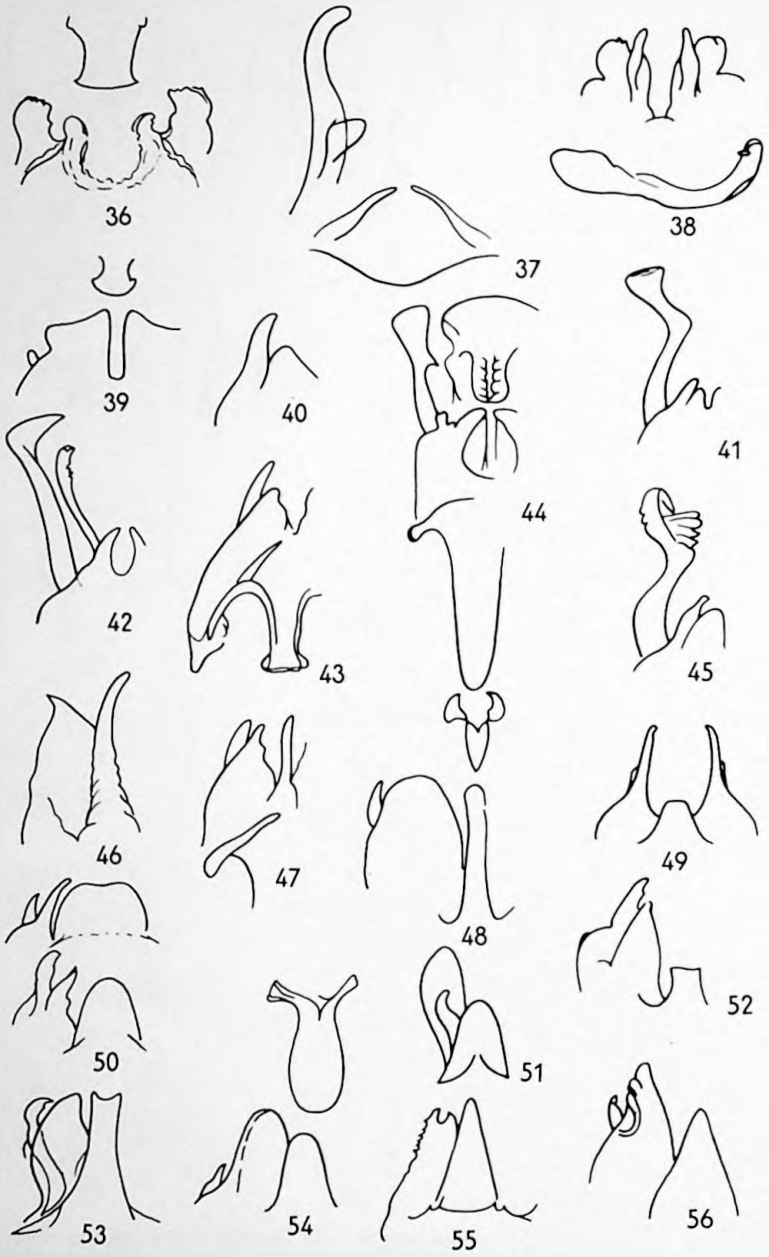
'Scrobipalpula' agnathos Povolný, 1987. ARGENTINA
'Gnorimoschema' motasi Povolný, 1976. COLOMBIA



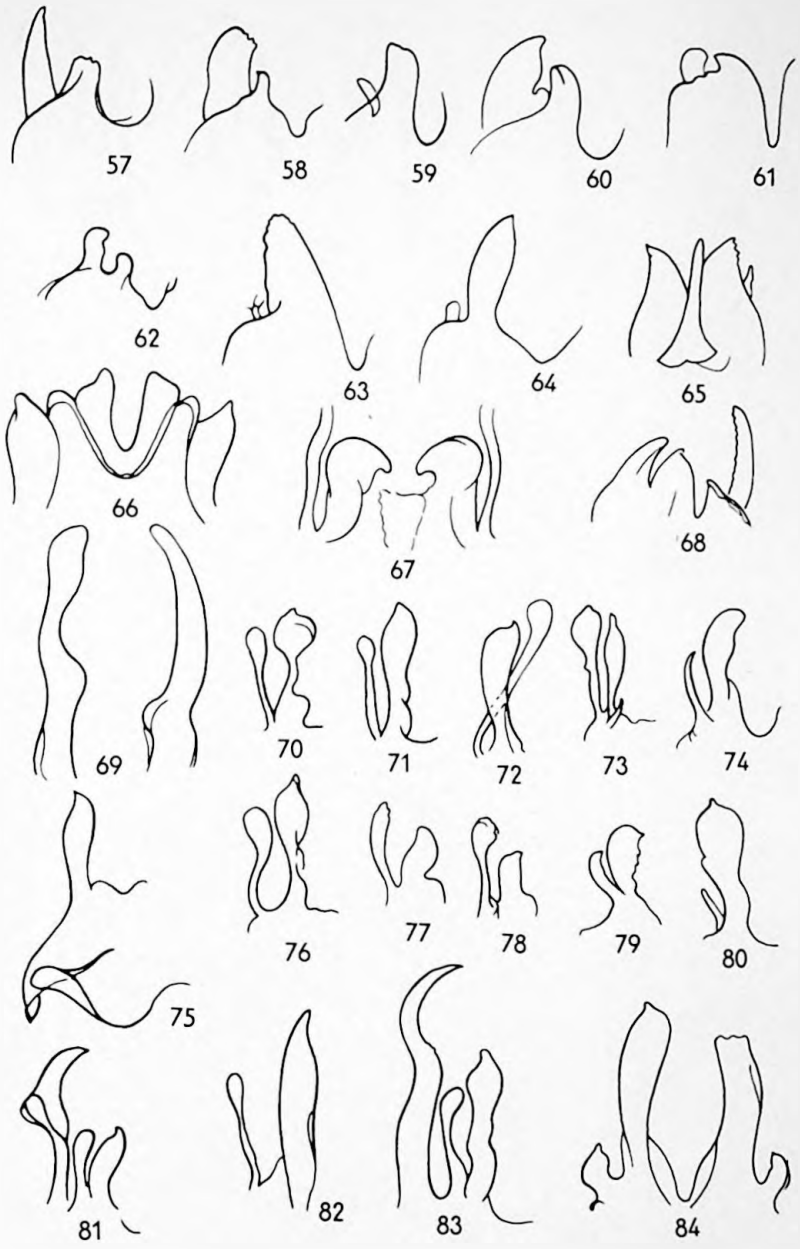
Figs 1-19. Details of male genitalia. - 1-3: Various forms of gnathos (and uncus) in (scrobipalpoid) Gnorimoschemini (*Scrobipalpomima*). - 4, 5: Various forms of gnathos (and uncus) in *Eurysacca*; occasionally similar structures are found in *Symmetrischema*. - 6: Uncus and gnathos in *Phthorimaea* (a membranous fold between sclerotized lateral arms). - 7, 8: Various forms of gnathos (and uncus) in *Symmetrischema*; 8 shows armoured (serrate) gnathos ledge. - 9: Broadly ligulate gnathos and broadly convex uncus in *Symmetrischema alternatum*. - 10: Slender spatulate gnathos in scrobipalpuloid genera (especially *Scrobipalpulopsis*). - 11: Gnathos and paired processes in *Magnifacia* (*crustaria*). - 12: Uncus (and gnathos) in *Magnifacia* (two different forms left and right). - 13: Tripartite and incised (bottom) dorsal ledge of uncus. - 14: Uncus narrow, rounded. - 15: Uncus broad, rounded. - 16: Gnathos non-spatulate (and uncus moderately tipped) in some scrobipalpuloid Gnorimoschemini. - 17: Uncus, gnathos and paired processes in *Scrobipalpula falcata*. - 18: Valva curved with obtuse tip, uncus broadly convex (*Scrobipalpula psilella*). - 19: Spatulate, broad gnathos and broad uncus in scrobipalpuloid Gnorimoschemini (*Scrobipalpula*).



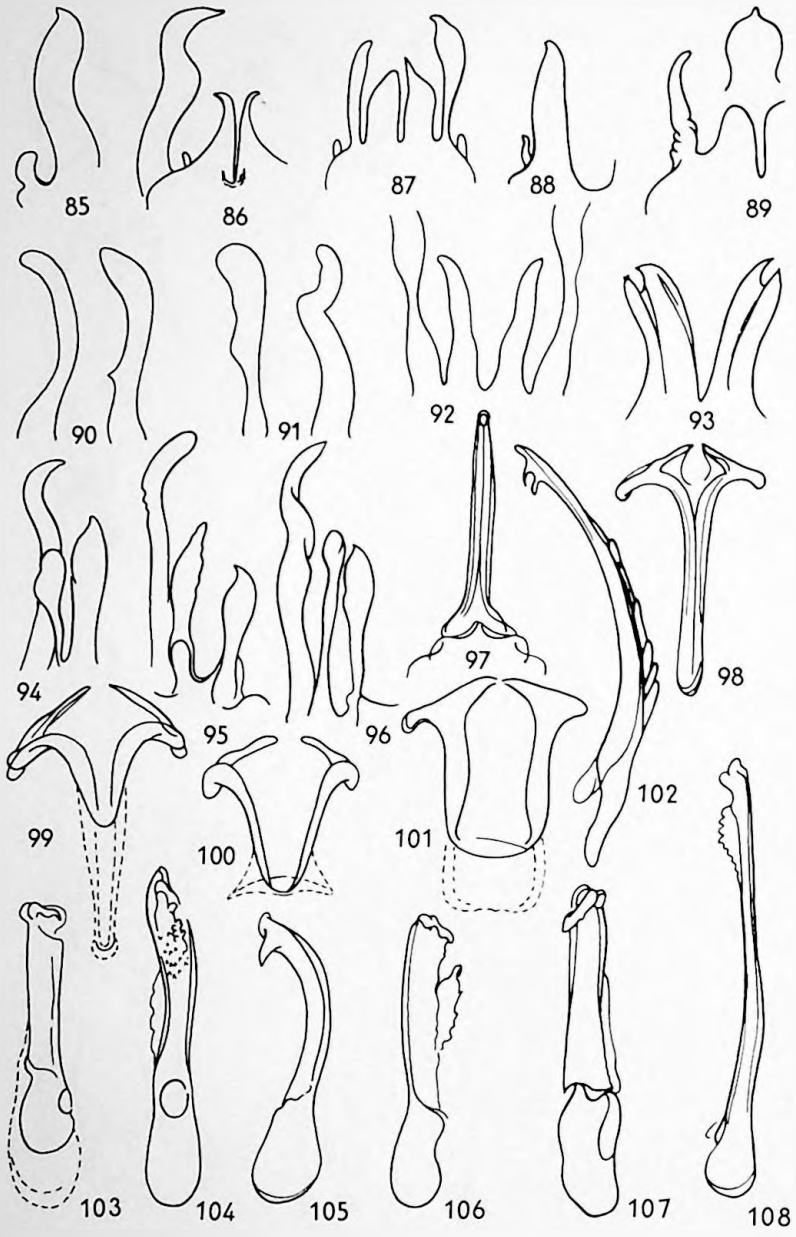
Figs 20-35. Details of male genitalia, and (32-33) labial palpus. – 20: Spatulate valva reaching over tip of uncus (*Scrobipalpula albolineata*). - 21: Relation between uncus, valva and gnathos in *Scrobipalpula radiata*. - 22: Curved valva with narrow tip shorter than uncus (*Scrobipalpula latiuncula*). - 23: Uncus, gnathos and paired processes in *Scrobipalpula megaloander*. - 24: Uncus broadly convex, curved tip of valva with subterminal ledge (*Scrobipalpula pallens*). - 25: Uncus narrowly convex, tip without ledge (*Scrobipalpula atra*). - 26: Relation between paired processes and valva in *Symmetrischema* (*Primischema*) *anthracinum*. - 27: Bilobate uncus and slender spatulate gnathos in *Scrobipalpula ephoria* (saccus left) and *S. densata* (saccus right). - 28: Trifid uncus and straight slender valva (*Scrobipalpula transiens*). - 29: Asymmetry of paired processes in *Scrobipalpoides* (*obscurus*). - 30: Paired processes in scrobipalpuloid Gnorimoschemini (left *Scrobipalpula* with two, right *Scrobipalpulopsis* with three paired processes). - 31: Paired processes in scrobipalpoid genera (*Scrobischema*). - 32: Labial palpus straight. - 33: Labial palpus curved. - 34: Different length relations in paired processes of *Eurysacca*; possible asymmetries in the two pairs may occur. - 35: Unpaired, truncate sacculus process and different forms of paired processes in *Symmetrischema* s.str.



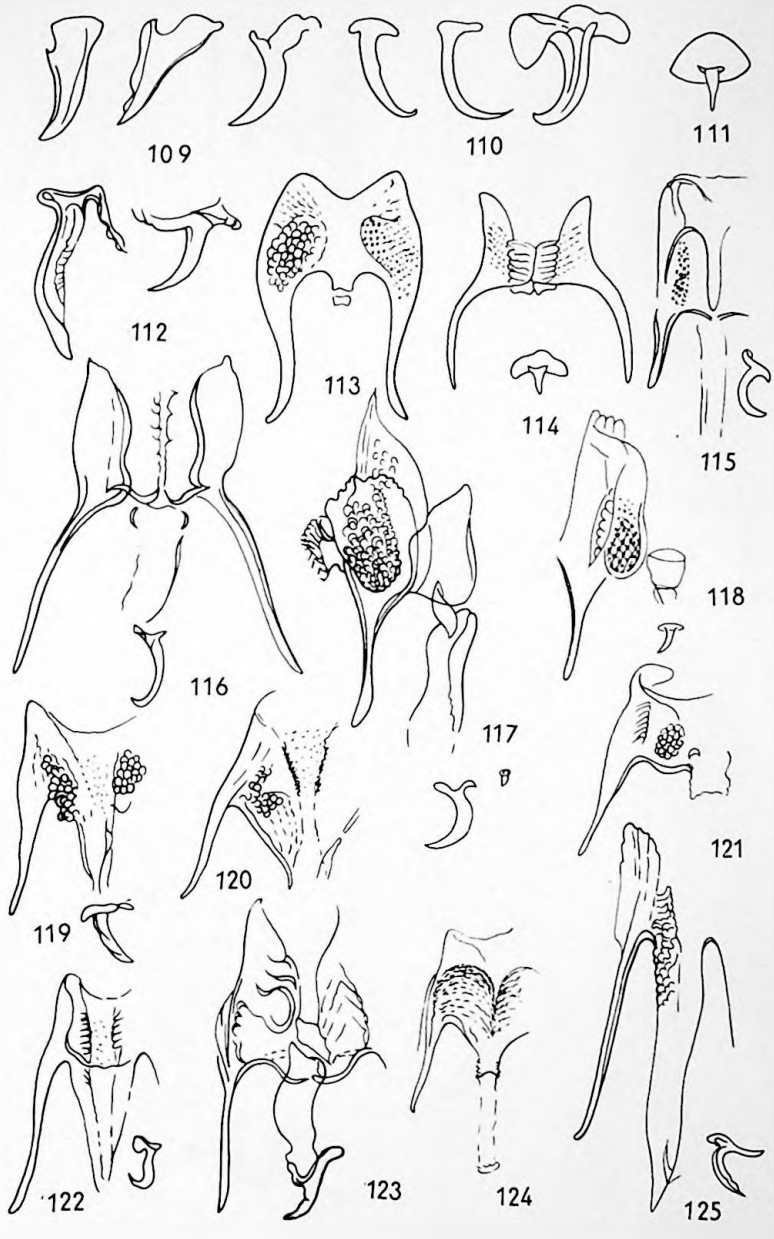
Figs 36-56. Details of male genitalia. - 36: Paired processes and gnathos in *Scrobipalpula ilyella*. - 37: Valva with flat lobate sclerite in *Scrobipalpula tenera*. - 38: Paired processes and aedeagus in *Scrobipalpula omicron*. - 39: Paired sacculus process broader than long, truncated (*Scrobipalpula latisaccula*). - 40: *Symmetrischema* (*Primischema*) *primigenium*, paired processes. - 41: *Symmetrischema* (*Primischema*) *assimile*, paired processes and valva. - 42: *Symmetrischema* (*Symmetrischemulum*) *draculinum*, relation between paired processes and valva. - 43: *Symmetrischema* (*Symmetrischemulum*) *laciniosa*, relation between paired processes and saccus. - 44: *Symmetrischema* (*Primischema*) *alternatum*, male genitalia. - 45: *Symmetrischema* (*Primischema*) *andinum*, bilobate valva and paired processes. - 46: *Symmetrischema* (s.str.) *tangolias*, unpaired process and paired sacculus process. - 47: *Symmetrischema* (s.str.) *symmetricum*, unpaired and paired processes. - 48: *Symmetrischema* (s.str.) *elongatum*, unpaired and paired processes. - 49: *Symmetrischema striatellum*, unpaired and paired processes. - 50: Two different forms of unpaired lobate process (*Symmetrischema* s.str.). - 51: *Symmetrischema* (s.str.) *loquax*, relation between unpaired and paired processes. - 52: *Symmetrischema* (s.str.) *alticolum*, short truncate unpaired process and paired processes. - 53: *Symmetrischema* (s.str.) *piperinum*, relation between unpaired and paired processes. - 54: *Symmetrischema* (s.str.) *funebrale*, deeply pendulous gnathos, unpaired and paired processes. - 55: *Symmetrischema* (s.str.) *oblitum*, relation between unpaired and paired processes. - 56: *Symmetrischema* (s.str.) *nanum*, relation between paired and unpaired processes.



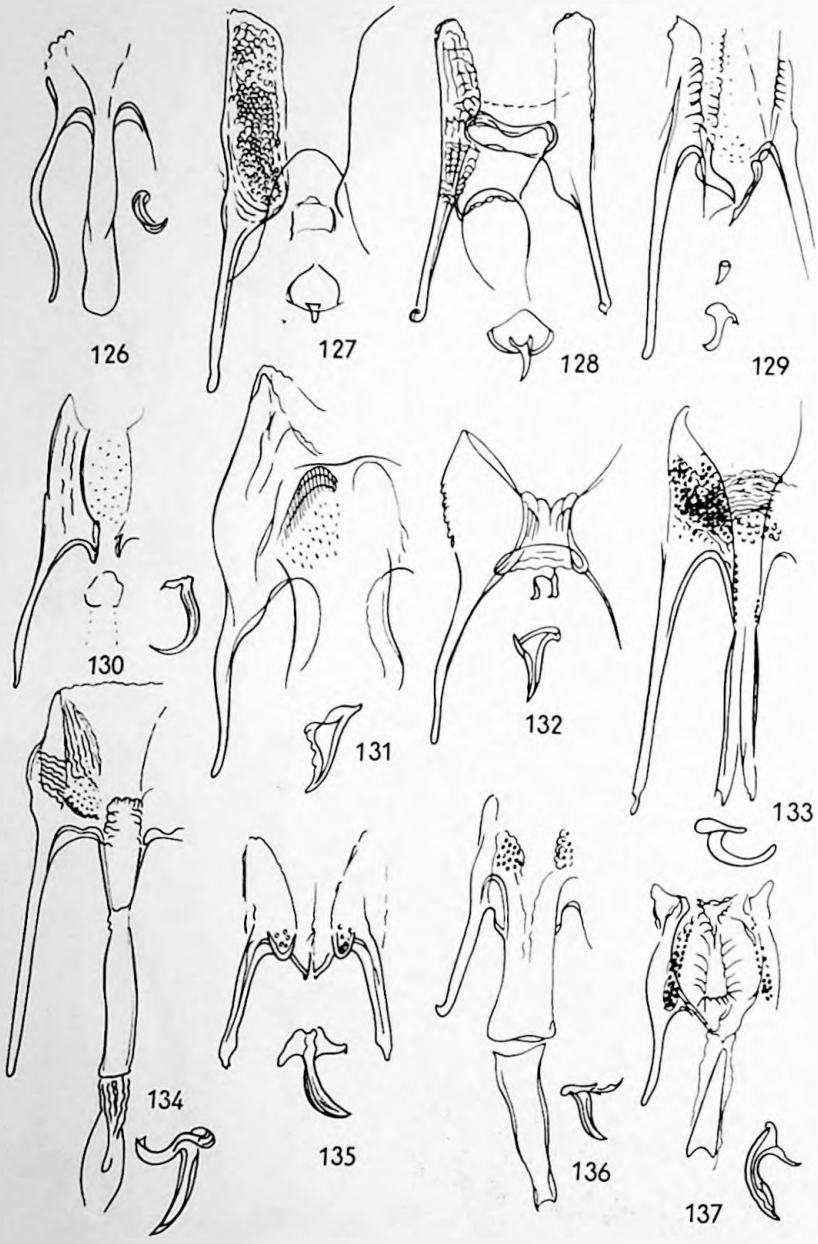
Figs 57-84. Details of male genitalia. - 57: Paired processes in *Scrobipalpomima schematica*. - 58: Paired processes in *Scrobipalpomima obsoleta*. - 59: Paired processes in *Scrobipalpomima obscuroides*. - 60: Paired processes in *Scrobipalpomima patens*. - 61: Paired processes in *Scrobipalpomima excellens*. - 62: Paired processes in *Scrobipalpomima karsholti*. - 63: Paired sacculus process (conspicuously flap-formed etc.) in *Symmetrischema indifferens*. - 64: Paired processes in *Symmetrischema triangulignathos*. - 65: Unpaired process of sacculus wall in symmetrischemoid taxa with one (left) or two (right) paired processes. - 66: Paired processes in *Keiferia propria*. - 67: Paired processes in *Keiferia lobata*. - 68: Paired processes in symmetrischemoid species with two similar (left) and disproportionate (right) paired processes. - 69: Two forms of valva dilatation in *Scrobipalpulopsis* (left *S. praeses*, right *S. fallacoides*). - 70: Paired processes in *Eurysacca atrata*. - 71: Paired processes in *Eurysacca subatrata*. - 72: Paired processes in *Eurysacca annulata*. - 73: Paired processes in *Eurysacca melanocampta*. - 74: Paired processes in *Eurysacca danorum*. - 75: Paired processes and saccus in *Eurysacca subsplendida*. - 76: Paired processes in *Eurysacca media*. - 77: Paired processes in *Eurysacca albonigra*. - 78: Paired processes in *Eurysacca gnorimina*. - 79: Paired processes in *Eurysacca minima*. - 80: Paired processes in *Eurysacca tenebrosa*. - 81: Paired processes in *Eurysacca parvula*. - 82: Paired processes in *Eurysacca paleana*. - 83: Paired processes in *Eurysacca acutivalva* (including valva). - 84: Paired processes in *Eurysacca excisa*.



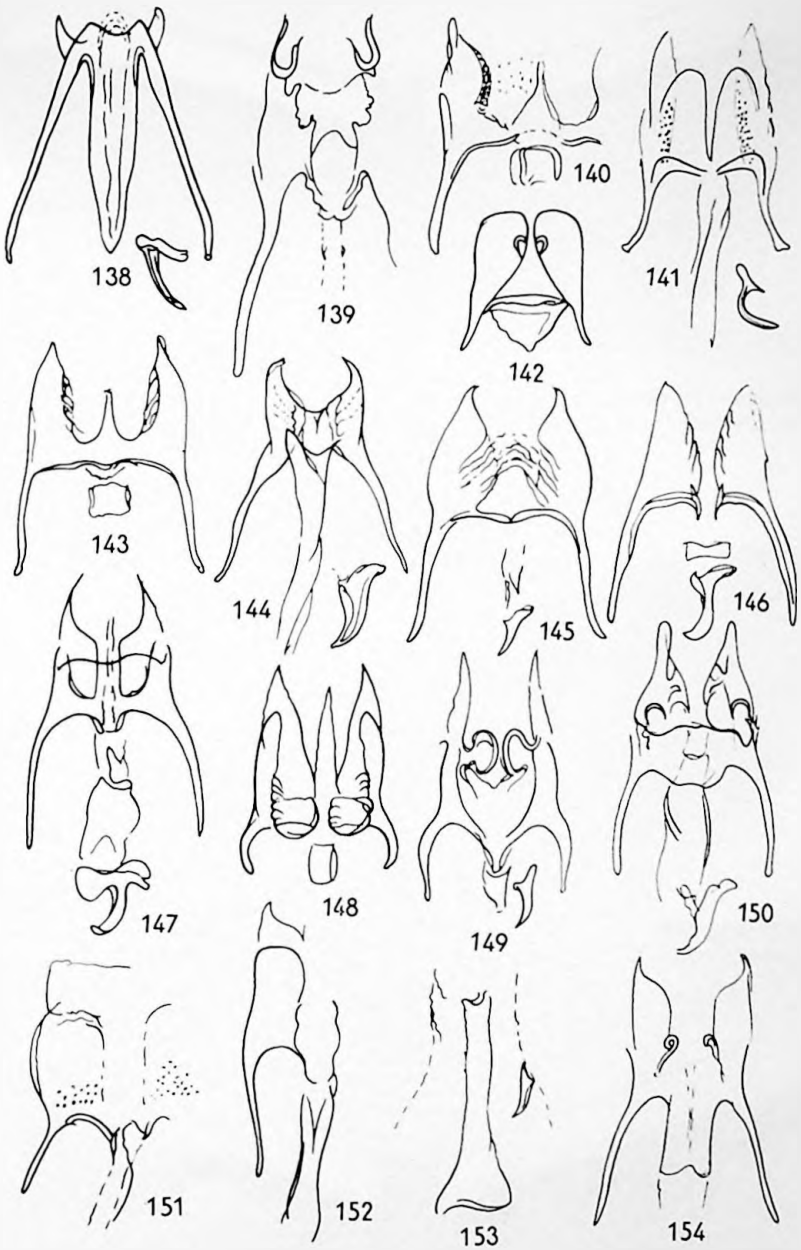
Figs 85-108. Details of male genitalia. - 85: Paired processes in *Eurysacca* generally (key character 'relation between paired processes different'). - 86: Curved pointed tip of valva and paired sacculus process in *Scrobipalpula hastata*. - 87: Three paired processes (two modifications) in scrobipalpuloid Gnorimoschemini (*Scrobipalpulopsis stirodes* right, *S. praeses* left). - 88: Paired processes in *Eurysacca novalis*. - 89: Paired processes and uncus in *Scrobipalpula agnathos*. - 90: 'Valva rather slender, more or less curved, with or without indentation' (e.g. *Tuta*). - 91: Valva spatulate, dilated or curved apically (right). - 92: Parabasal process V-shaped, parabasal process absent. - 93: Paired processes fused, bipartite (*Scrobitasta varians*). - 94: Paired processes in *Eurysacca vera*. - 95: Paired processes in *Eurysacca chili*. - 96: Paired processes in *Eurysacca melanopicta*. - 97: Uncus with spine (*Keiferia*). - 98: Saccus long and slender (e.g., *Keiferia, Schmidtnielsenia*). - 99: Saccus short or elongate. - 100: Saccus medium-length, subtriangulate (tip possibly truncate). - 101: Saccus parallel-sided with rounded (nail-shaped, ungulate) tip (e.g., *Eurysacca*). - 102: Aedeagus long and slender with membranous dorsal ledge (e.g., *Tuta inapparens*). - 103: Aedeagus of 'usual' form, medium length, or prolonged. - 104: Uncus elongate, armoured with thorns, with dorsal membranous ledge and ventral spine-formed bifurcation. - 105: Aedeagus simple, rounded or curved. - 106: Aedeagus with bifurcation in form of flat ventral sclerite (e.g., *Scrobipalpomima anonyma* or *S. septemtrionalis*). - 107: Aedeagus long, parallel-sided (e.g., *Eurysacca*). - 108: Aedeagus long, filiform (e.g., *Keiferia, Schmidtnielsenia* etc.).



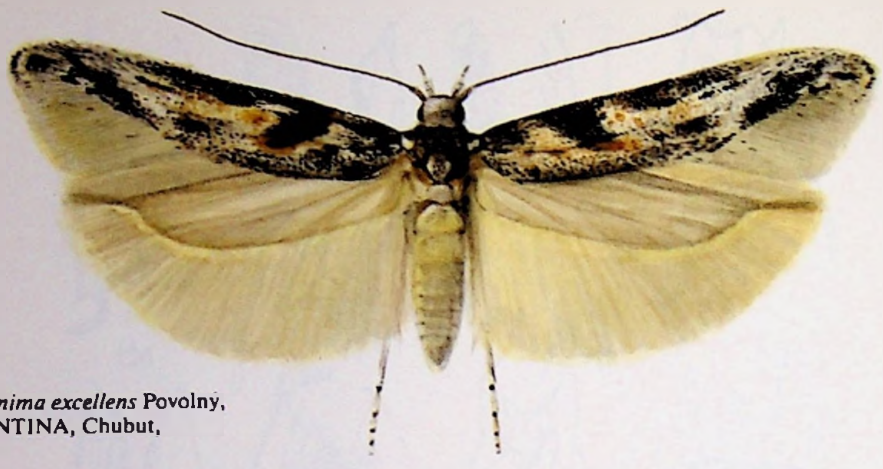
Figs 109-125. Details of female genitalia. - 109: Various forms of signum in *Symmetrischema*. - 110: Various forms of sigma(in *Scrobipalpomima, Tuta* etc.). - 111: Signum short spine-shaped arising from rounded subtriangulate plate. - 112: Signum in scrobipalpuloid Gnorimoschemini. - 113: Subgenital plate with rich sculpture. - 114: Subgenital plate with poor sculpture (e.g., *Scrobipalpomima*). - 115: Subgenital plate in *Scrobipalpulopsis*. - 116: Subgenital plate without sculpture (*Scrobipalpomima*). - 117: Subgenital plate with rich sculpture (*Eurysacca* - with signum spine well developed or at least indicated). - 118: Subgenital plate of *Scrobitasta varians*. - 119: Subgenital plate in *Scrobipalpula*. - 120: Subgenital plate of *Scrobipalpula megaloander*. - 121: Subgenital plate of *Scrobipalpula falcata*. - 122: Subgenital plate and signum of *Scrobipalpomima fugitiva*. - 123: Subgenital plate and signum of *Symmetrischema*, subgenus *Symmetrischemulum*. - 124: Subgenital plate of *Schmidtnielsenia nielseni*. - 125: Subgenital plate and signum in *Keiferia (vitalis)*.



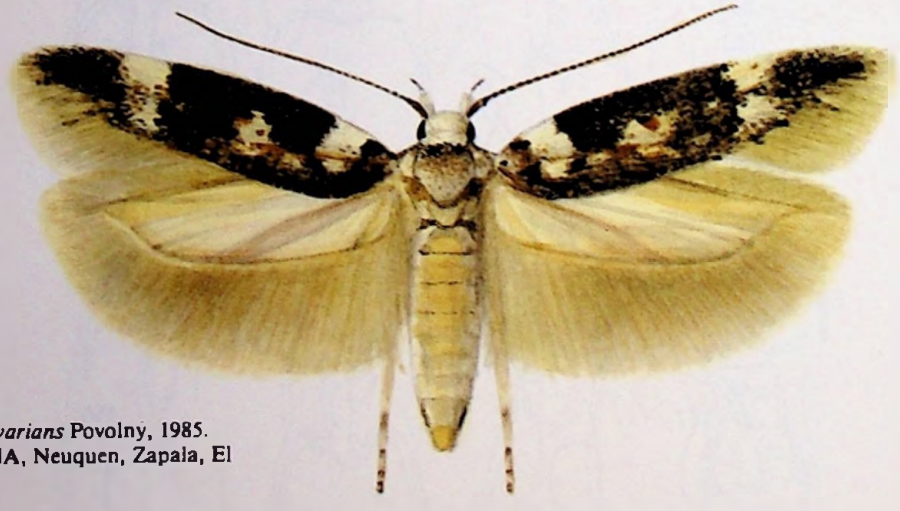
Figs 126-137. Details of female genitalia. - 126: Subgenital plate with signum of *Scrobipalpomima (illustris)*. - 127: Su genital plate with signum of *Scrobipalpomima questionaria* (plate elongate with sculpture, colliculum symmetrical, s num short spine-shaped on subtriangulate sclerite). - 128: Subgenital plate with signum of *Scrobipalpoides (obscuri* - 129: Subgenital plate with signum of *Tuta inapparens*. - 130: Subgenital plate without sculpture with central zone me braneous (e.g., *Scrobipalpomima obtusa, S. pseudogrisescens*). - 131: Subgenital plate with signum in *Symmetrische (tangolias)*. 132: Subgenital plate with signum in *Symmetrischema (grisescens*). - 133: Subgenital plate with signum *Phthorimaea*. - 134: Subgenital plate with signum of *Magnifacia (aulorrhoa)*. - 135: Subgenital plate with signum *Scrobipalpula acuta*. - 136: Subgenital plate with bipartite ductus bursae and signum of *Tuta congruens*. - 137: Subgen plate of *Scrobipalpulopsis (fallax)*.



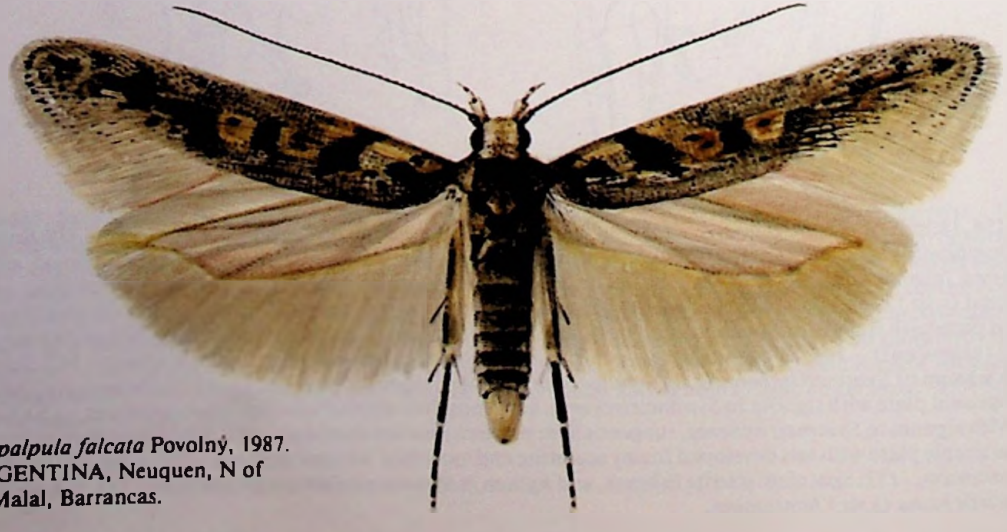
Figs 138-154. Details of female genitalia. - 138: Subgenital plate with signum of *Keiferia lycopersicella*. - 139: Subgenital plate in *Scrobipalpula* (e.g., *fjeldsai, ilyella*), a generalized form. - 140: Subgenital plate in *Symmetrischema*, subgenus *Primischema (elementare)*. - 141: Subgenital plate in *Scrobipalpulopsis (stirodes)*. - 142: Subgenital plate of *Symmetrischema* (s.str.) *striatella*. - 143: Subgenital plate in *Symmetrischema*, subgenus *Primischema (elementare)*. - 144: Subgenital plate with signum of *Symmetrischema* (s.str.) *arctanderi*. - 145: Subgenital plate with signum of *Symmetrischema* (s.str.) (*grisescens*). - 146: Subgenital plate with signum of *Symmetrischema* (s.str.) *grandispinum*. - 147: Subgenital plate with signum of *Symmetrischema* (s.str.) *symmetricum*. - 148: Subgenital plate of *Symmetrischema* (s.str.) (*oblitum*). - 149: Subgenital plate with signum in *Symmetrischema*, subgenus *Symmetrischemulum (nummulatum)*. - 150: Subgenital plate with signum in *Symmetrischema*, subgenus *Symmetrischemulum (krabbei)*. - 151: Subgenital plate of *Eurysacca* (small and simple plate with less developed foamy sculpture and/possibly/ without signum). - 152: Subgenital plate of *Eurysacca danorum*. - 153: Spatulate sclerite in bursa, and signum in *Symmetrischema* (s.str.) *solitare*. - 154: Subgenital plate in *Symmetrischema* (s.str.) *femininum*.



Scrobipalpomima excellens Povolný, 1985. ARGENTINA, Chubut, Esquel.



Scrobitasia varians Povolný, 1985. ARGENTINA, Neuquen, Zapala, El Marucho.

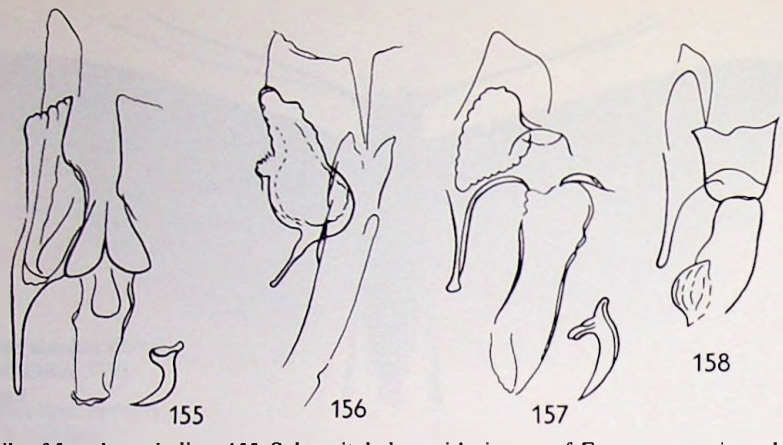


Scrobipalpula falcata Povolný, 1987. ♂ ARGENTINA, Neuquen, N of Chos Malal, Barrancas.

Scrobipalpula patagonica Povolný, 1977. ARGENTINA, Neuquen, Lago Lacan, Pucasé.

Tuta inapparens (Povolný, 1987). ARGENTINA, Neuquen, San Martin de los Andes.

Magnifacia uncispina Povolný, 1987. ARGENTINA, Salta, Rosario de la Frontera, Los Banos.



Figs 155-158. Details of female genitalia. - 155: Subgenital plate with signum of *Eurysacca excisa*. - 156: Subgenital plate of *Eurysacca media*. - 157: Subgenital plate with signum of *Eurysacca tenebrosa*. – 158: Subgenital plate with striking antrum of *Eurysacca atrata*.

KEYS FOR IDENTIFICATION OF NEOTROPICAL GNORIMOSCHEMINI

Genera and subgenera (males)

1. Labial palpus with second segment straight (Fig. 32), scales appressed ventrally 2
- Labial palpus recurved or uprounded (Fig. 33), scales furrowed ventrally 3

2. Labial palpus extremely long, with erect scales dorsally on straight second segment; unpaired medial sacculus process absent, paired processes approximately as in Fig. 31, uncus scrobipalpoid, gnathos as in Fig. 1; moth comparatively stout or big, forewing 9-11 mm, pattern more or less radiate without distinct stigmata ..... *Tecia*
- Labial palpus long and straight, second segment with a tuft of scales furrowed ventrally; prominent unpaired process arising from sacculus long and slender, with moderate terminal bifurcation; uncus very low (short) and broad, rounded; paired sacculus process broadly foliate contrasting with extremely delicate, cone-shaped, concealed parabasal process; saccus long and slender; aedeagus long and slender with ventral bifurcation (Fig. 104); moth comparatively slender-winged and big, forewing about 9 mm, pale brownish, an indication of two elongate dark stigmata ..... *Paraschema*

3. Uncus low (short) with well developed and prominent dorsal spine (Fig. 97), aedeagus usually long and slender, partly filiform (Fig. 108), saccus usually elongate (Fig. 98), rarely short triangulate (Figs 99-100), paired processes of sacculus complex, sometimes with additional paired structures partly associated with aedeagus ..... *Keiferia*
- Uncus more or less rounded without dorsal spine 4

4. Paired processes prominent, lanceolate (saccular) and/or clavate (parabasal) in various combinations (Figs 34, 85), sometimes asymmetrical; gnathos short, spine-like (Fig. 4) or reduced (Fig. 5) ..... *Eurysacca*
- Paired processes of another form 5

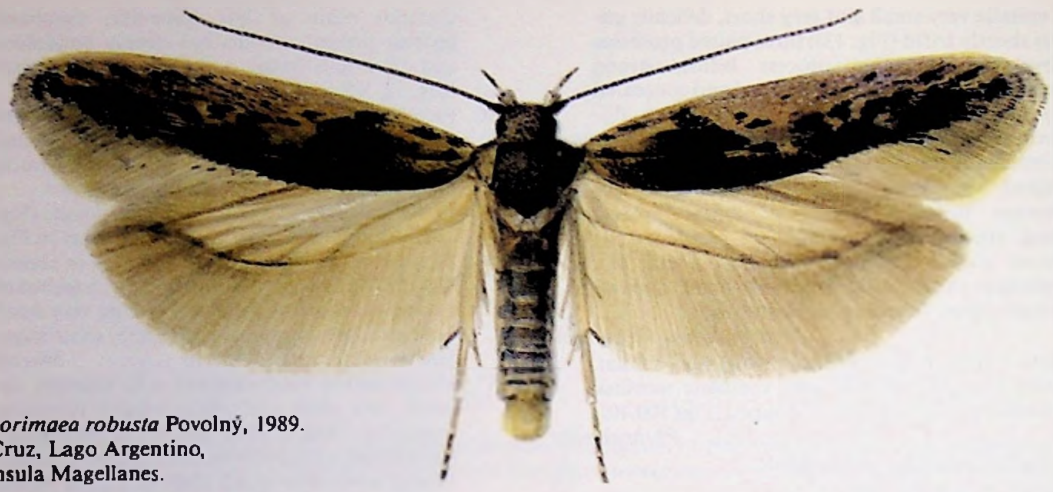
5. Paired processes distinctly asymmetrical (Fig. 29); sacculus process clavate, parabasal process small and delicate; uncus broad (Fig. 15); aedeagus simple, big, with a distinct group of short spines ..... *Scrobipalpoides*
- Paired processes symmetrical 6

6. Gnathos with lateral branches sclerotized, otherwise reduced, forming a membraneous subovate or ovate pad, minutely setose (Fig. 6) 7
- Gnathos of other form 9

7. Genitalia very small and very short, delicate; uncus shortly trifid (Fig. 13); three paired processes developed (sacculus process bifid), strong parabasal process crescent-shaped and concealed by sacculus wall; saccus and aedeagus long, filiform (Figs 98, 108, p. 24) ..... *Schmidtnielsenia*
- Genitalia medium-sized, or elongate 8
8. Paired processes disproportionate, saccus process broadly foliate, parabasal process long, slender rod-like (Fig. 89); valva narrow; uncus rounded with a striking medial tip; aedeagus short and stout; moth small, narrow-winged, grey, forewing blackish spotted ..... *'Scrobipalpula' agnathos*
- Both paired processes short (low) and similar, valva long and slender with spatulate terminal dilatation; saccus broad, U-shaped (Figs 100-101) ..... *Phthorimaea*
9. Gnathos spatulate or rounded 10
- Gnathos of other form 12
10. Gnathos simply rounded with obtuse tip, valva slender, more or less curved, with or without indentation (Fig.90); saccus elongate, rounded (Figs 99, 100); moth habitually not striking, principially cinereous or grey, forewing with non-descript spotting (p. 21) ..... *Tuta*
- Gnathos spatulate 11
11. Gnathos elongate spatulate (Fig. 10); three (paired) processes (Fig. 30); aedeagus long and slender (Fig.102 or similar) ..... *Scrobipalpulopsis*
- Gnathos shortly spatulate (Figs 18, 19). Valva broad or at least dilated apically (Fig. 18, 91); paired sacculus process foliate, longer than short or long conical parabasal process (Fig. 30, left); moth small to medium-sized, colouration dark or pale grey to cinereous, labial palpus normal, or moth big, straw yellowish, labial palpus with very long and tufted second and extremely short third segment ..... *Scrobipalpula*
12. Sacculus wall with unpaired medial process of various length and form (slender or broad, short or long, triangulate or digitate - (e.g. Figs 35, 65) ..... *Symmetrischema* s.str.
- Sacculus wall without unpaired medial process .. 13
13. Gnathos pendulous (Figs 1-3) or hooklet-shaped (Fig. 1) 14
- Gnathos usually short or long subtriangulate, exceptionally parallel-sided, broadly ligulate (Figs 7, 8) 18
14. Moth deep blackish, forewing white spotted (p. 22); uncus comparatively narrow (Fig. 14); paired prominent process fusing basally to form a bidentate structure (Fig. 93); aedeagus slender and moderately sigmoid ..... *Scrobitasta*
- Moth grey or cinereous, with or without pattern, never blackish with white spotting 15
15. Gnathos pendulous, slender spine-shaped with obtuse tip; parabasal process absent; paired sacculus process elongate, V-shaped and ligulate (Fig. 92); genitalia long, with long, slender saccus and aedeagus ..... (?)*Exceptia hospita*
- Gnathos more or less spine-like, parabasal process present, or gnathos deeply pendulous and of various forms, and uncus visibly arched (Fig. 12, left and right) 16
16. Paired processes (parabasal and saccular) present and showing various forms (e.g. Fig. 31, left and right); gnathos rather slender or only moderately inflated (Figs 1-3), unpaired process absent 17
- Paired processes markedly disproportionate (Fig. 30, left), but even more contrasting or as in Fig. 11, gnathos deeply pendulous, slender or clavate (Fig. 12),or fan-shaped (Fig. 11); uncus arched or distinctly tripartite, parabasal process very small or absent, sacculus process distinctly subtriangulate or foliate with raised tip ..... *Magnifacia*
17. Uncus narrow subtriangutale with tapering tip, moth very stout and broad-winged (forewing length 7.2-7.8 mm), chocolate brown with radiate pattern and a triad of blackish stigmata centrally (uncus even more acute than in Fig. 4, paired processes as in Fig. 62, but prominent, aedeagus slender, parallel-sided) ..... *Scrobipalpopsis* (*solanivora*)
- Uncus broad (never narrow or subtriangulate), although sometimes with a central tip or convexity; noth small to medium-sized, forewing not exceeding 7 mm, forewing pattern either spotted or nondescript, rarely with indistinct radiate pattern, but never chocolate brown .*Scrobipalpomima*
18. Saccus shortly triangulate with obtuse tip (Fig. 100), hardly exceeding corners of tegumen; parabasal process slender bar-like and exceeding distinctly tip of short sacculus process (Fig. 68, right); gnathos subtriangulate with rounded tip (Fig. 7) or with lateral edges armoured (with irregular indenation (Fig. 8) ..... *Symmetrischema (Symmetrischemulum)*
- Saccus unguiculate or prolongate, distinctly exceeding lower corners of tegumen; parabasal process never bar-like, with tip convergent towards sacculus process (Fig. 68, left) and fusing basally; gnathos usually subtriangulate or rounded (Fig. 7), rarely prolongate(Fig. 9), never armoured or serrate *Symmetrischema (Primischema)*

Genera and subgenera (females)

1. Labial palpus straight (Fig. 32) 2
- Labial palpus recurved and uprounded (Fig. 33) . 3
2. Labial palpus with erect scales on extremely long second segment, moth stout with radiate pattern; subgenital plate subquadrate without distinctive sculpture; signum spine-like ..... *Tecia (confirmans)*
- Labial palpus without erect scales on second segment but with a tuft of scales furrowed ventrally; moth with forewing brownish mixed with some blackish scales, brachypterous, especially hindwing extremely reduced, forewing length about 6 mm ..... *Paraschema*
3. Signum rather delicate and thin (Figs 110, 114, 116, 122, 126) 4

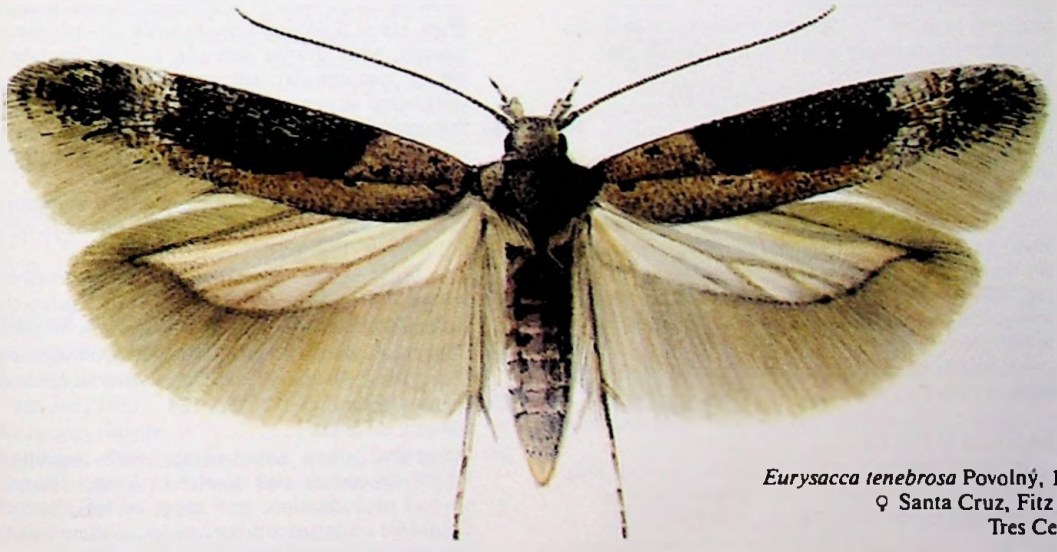


Phthorimaea robusta Povolný, 1989.
Sta Cruz, Lago Argentino,
Peninsula Magellanes.

Schmidtnielsenia nielseni Povolný, 1987.
♂ ARGENTINA, Neuquen,
Piedra del Aguila.

Eurysacca annulata Povolný, 1986.
ARGENTINA, Neuquen,
San Martin de los Andes.

Eurysacca splendida Povolný, 1986.
ARGENTINA Neuquen,
Rio Limay, Arroyito.



Eurysacca tenebrosa Povolný, 1986.
♀ Santa Cruz, Fitz Roy,
Tres Cerros.

Symmetrischema
(Symmetrischemulum) disciferum
Povolný, 1989.
ARGENTINA, Neuquen,
San Martin de los Andes.

- Signum of other form or absent 17
4. Subgenital plate with distinct network of foam-like sculpture (Figs 113, 114, 118, 121) 5
- Subgenital plate without distinct network or sculpture (Figs 116, 122, 126) 7
5. Moth blackish, forewing white spotted (p. 22); subgenital plate with rich sculpture, signum spine-like (Fig. 118) ..... *Scrobitasta*
- Moth cinereous or greyish, not black and without white spotting 6
6. Subgenital plate with ostium and especially colliculum elongate and asymmetrical, sclerites with very fine sculpture; signum a short spine arising from subtriangulate sclerite (Fig. 128) ..... *Scrobipalpoides (obscurus)*
- Subgenital plate with ostium bursae and colliculum asymmetrical, short and annulate; signum short, spinelike, arising from subtriangulate rounded plate (Fig. 127) ..... *Scrobipalpomima (questionaria)*
7. Subgenital plate as in Fig. 132, signum spine slender and distinctly curved as in Fig. 110, but short; moth medium-sized, forewing about 7 mm, grey spotted ... *Scrobipalpomima (karsholti)*
- Subgenital plate more or less as in Figs 114, 116, 122, 126, 130 8
8. Subgenital plate more or less like Fig. 116 9
- Subgenital plate different 10
9. Moth cinereous, forewing distinctly spotted, spots indicating two or three transverse bands; signum very delicate (like in Fig. 110) ..... *Scrobipalpomima (neuquenensis)*
- Moth darker and with less apparent pattern (p. 20), signum rather robust (somewhat resembling Fig. 109) ..... *Scrobipalpomima (excellens)*
10. Subgenital plate as in Fig. 114 or 126, signum as in Fig. 110 11
- Subgenital plate og signum different 12
11. Signum as in Fig. 110 ..... *Scrobipalpomima (obscuroides)*
- Signum as in Fig. 111 ..... *Scrobipalpomima (concurrens)* (see also Fig. 114)
12. Subgenital plate entirely membraneous, with curved apophyses and very long antrum (Fig. 126) ..... *Scrobipalpomima (illustris)*
- Subgenital plate without sculpture, with membraneous central zone as in Figs 116, 122, 129, 130 13
13. Subgenital plate with broad funnel-shaped prolongation of proximal margin (Fig. 122) ..... *Scrobipalpomima (fugitiva)*
- Subgenital plate with antrum only moderately protruding 14
14. Subgenital plate formed as in Fig. 130, but very long and slender with distinct colliculum ..... *Scrobipalpomima (obtusa)*
- Subgenital plate as in Figs 114 or 130 15
15. Subgenital plate as in Fig. 130 ..... *Scrobipalpomima (pseudogrisescens)*
- Subgenital plate as in Fig. 114 16
16. Signum as in Fig. 110 ..... *Scrobipalpomima (obscuroides)*
- Signum as in Figs 111, 127, 128 ..... *Scrobipalpomima (concurrens)*
17. Signum absent 18
- Signum present 23
18. Subgenital plate very delicate, comparatively short, with very fine sculpture, membraneous ductus bursae very long and with a flat sclerite distally (Fig. 124); moth subtle, forewing greyish, paler on dorsal margin (p. 24) ... *Schmidtnielsenia*
- Subgenital plate robust, without long membraneous ductus bursae 19
19. Subgenital plate with distinct network of foam-like sculpture (Figs 117, 151), signum as in Fig. 117 20
- Subgenital plate lacking distinct network of foam-like sculpture 21
20. Subgenital plate with elongate (Fig. 117) or transverse (Fig. 151) fields of foam-like sculpture, antrum or proximal part of ductus bursae more or less asymmetrically sclerotized (Figs 117, 151, 155-158), or asymmetrical membraneous . *Eurysacca*
- Subgenital plate with foam-like sculpture, but showing more or less developed funnel-shaped (Figs 119, 121,131) prolongation of its proximal margin, with shorter (broader) or longer (slenderer) symmetrical antrum or ductus bursae sclerotized or unsclerotized ..... *Scrobipalpula*
21. Subgenital plate with funnel-shaped prolongation (e.g. Fig. 122) or parallel-sided prolongation (Fig. 137) 22
- Subgenital plate without prolongation, sculpture poor, not foam-like but forming a bipartite central sclerite (Fig. 140) ..... *Symmetrischema (Primischema)*
22. Subgenital prolongation short but distinctly funnel-shaped (Figs 119, 121) ..... *Scrobipalpula*
- Subgenital plate with parallel-sided prolongation (Figs 131, 154) ..... *Symmetrischema* s. str.
23. Signum as in Figs 112, 125, 134 24
- Signum different 27
24. Subgenital plate subquadrate with medium-length apophyses and shorter or longer funnel-shaped prolongation, and more or less distinct foam-like sculpture on both sides of membraneous central zone of plate (Figs 119, 120) ..... *Scrobipalpula*
- Subgenital plate rather short with long, thin apophyses and with long, sclerotized funnel-shaped prolongation (Figs 125, 134) 25
25. Subgenital plate rather short or very short, so that genitalia consist mainly of extremely long and slender apophyses, with longitudinal folds and without foamlike sculpture; or length of sclerotized ductus exceeds distinctly length of apophyses and subgenital plate shows some foam-like sculpture ..... *Keiferia*
- Relation between subgenital plate and ductus bursae different 26
26. Subgenital plate with rich foamy sculpture; sclerotized, partly curved ductus bursae exceeds essentially length of short apophyses (Fig. 137) ..... *Scrobipalpulopsis*

- Apophyses long, subgenital plate nearly as long as broad, with foamy sculpture; sclerotized funnel-formed prolongation as in Figs 133 or 134, or shorter (Fig. 124), sclerotized part of ductus bursae unipartite (as in Fig. 133) or bipartite (as in Fig. 134) or entirely membraneous .... *Magnifacia*

27. Anterior apophyses basally inflated forming a flat sclerite, moth extremely stout and broad-winged (forewing length 10.5-10.7 mm), pale brown with bright radiate pattern and a triad of blackish stigmate centrally ..... *Scrobipalpopsis (solanivora)*
- Anterior apophyses without flat basal inflation, forewing pattern never radiate in combination with triad of stigmata centrlly 28

28. Signum as in Figs 109, 123, 131 29
- Signum different 30

29. Subgenital plate strongly sclerotized, its general form approximately as in Fig. 123, sculpture in form of elongate folds, snares or loops; signum as in Figs 123, 131 ..... *Symmetrischema (Symmetrischemulum)*
- Subgenital plate of various size but essentially as in Figs 131 or 132, without sculpture or with feeble sculpture, but also with long and symmetrical sclerotization of (long) funnel-shaped proximal part of ductus bursae, rarely with distinctive spines on anal papillae ..... *Symmetrischema* s str.

30. Signum and subgenital plate as in Fig. 133 ..... *Phthorimaea*
- Signum as in Fig. 110, subgenital plate as in Figs 129, 136 or (approximately) 122 but without signum ..... *Tuta*

Species of *Scrobipalpomima* (males)

1. Aedeagus without bifurcation 2
- Aedeagus with spinelike or lobate bifurcation (Figs 104, 106) 11

2. Aedeagus simple 3
- Aedeagus elongate, armoured, with dorsal membraneous ledge, without bifurcation (Fig. 104, but without spine(s)) 8

3. A small well marked moth, forewing 5 - 5.5 mm, with whitish cinereous head and thorax, forewing cinereous with three brownish transverse bands or dilated spots; uncus trifid (Fig. 13, above); aedeagus simple (Fig.103) ..... *neuquenensis*
- Moth more or less nondescript, forewing with irregular or mottled pattern, about medium-sized . 4

4. Aedeagus with a long or short but distinct group of small agglomerated spines (thorns) (Fig. 104, without lateral spine) 5
- Aedeagus without group of agglomerated spines 10

5. Aedeagus rather slender with moderately inflated caecum and nearly as long as robust genitalia; saccus acute subtriangulate (Fig. 100); parabasal process slender, longer than broad; sacculus process truncate (Fig. 57); moth medium sized, forewing about 6 mm, cinereous, dark spotted . ..... *schematica*
- Aedeagus stout and distinctly shorter than genitalia 6

6. Moth whitish with indistinct stigmata and strong silvery hue; uncus shortly subtriangulate (as in Fig. 2), valva broadly spatulate, parabasal process distinctly larger than short sacculus process (Fig. 58), aedeagus with distinct subterminal field of little thorns ..... *obsoleta*
- Forewing cinereous or grey, with blackish groups or spots of scales 7

7. Aedeagus group of agglomerated thorns very distinctive; uncus broadly truncate; paired sacculus process obliquely truncated, stronger than slender parabasal process; moth small, forewing deep grey, blackish spotted ..... *obtusa*
- Group of agglomerated thorns (little spines) less striking; uncus broad with distinct medial tip; parabasal process big, foliate, with rounded tip (Fig. 59); saccus with broadly truncate tip; moth small but rather broad-winged, greyish, forewing with irregular blackish spots ..... *obscuroides*

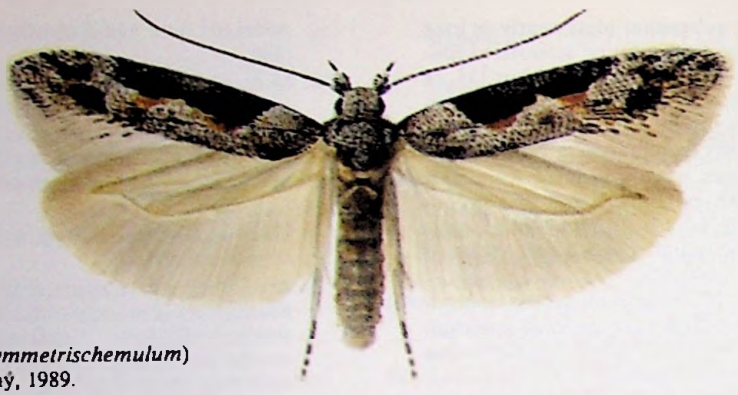
8. Moth stout with distinctive radiate forewing pattern comprising whitish and grey veins; aedeagus long and stout, with short dorsal crescent-shaped serrate sclerite; uncus broadly rounded (Fig. 3); parabasal process very broad, lobate and much stouter than slender truncate saccular process (Fig. 60); saccus elongate-subtriangulate, with obtuse tip ..... *patens*
- Moth without striking radiate forewing pattern .. 9

9. Genitalia with long, slender saccus (Fig. 98 (99)); gnathos short, parallel-sided, with obtuse tip (Fig. 2); sacculus wall very broad and long, valva short, spatulate; aedeagus long and parallel-sided with moderately inflated subovate caecum and with thorns (little spines) spread over its trunk, moderately curved; moth small, nondescript ... . *relicta*
- Genitalia with shortly tipped saccus, gnathos an obtuse pendulous spine 10

10. Tip of valve distinctly spatulate, aedeagus about ½ genitalia length, paired processes as in Fig. 62; saccus shortly tipped; moth with distinct forewing pattern similar to *neuquenensis* but less distinct ..... *karsholti*
- Tip of valve curved and rounded, not spatulate; aedeagus exceeding ½ genitalia length, with globate caecum; moth broad-winged, cinereous, forewing distinctly blackish mottled .... *improbabilis*

11. Aedeagus trunk with pronounced ventral dilatation, with or without (striking) spine (thorn) agglomeration 12
- Aedeagus trunk without pronounced ventral dilatation, with more or less distinct spine 13

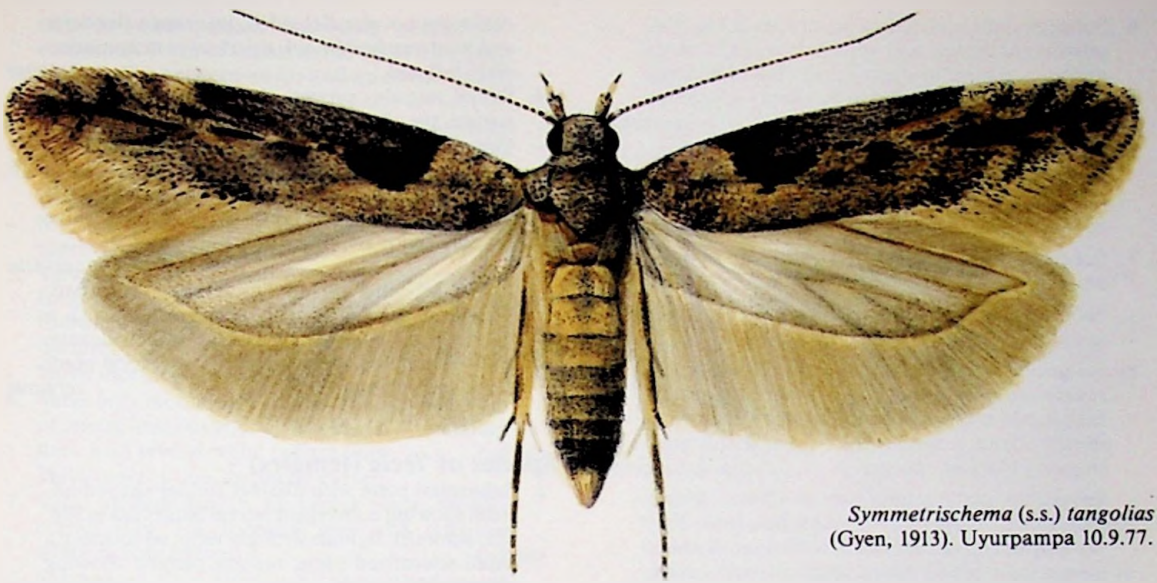
12. Ventral dilatation of aedeagus with serrate margin (Fig. 106); paired processes slender, saccus stout with truncate tip; valva straight, not dilated, tip obtuse; moth small, forewing less than 5 mm, pattern nondescript ..... *anonyma*



Symmetrischema (*Symmetrischemulum*) *nummulatum* Povolný, 1989.
ARGENTINA, Rio Negro,
S.C. de Bariloche, Nirihuau.

Symmetrischema (s.s.) *striatellum* (Murtfeldt, 1900).
CHILE, Aconcagua,
Los Andes Curimon.

Symmetrischema (s.s.) *symmetricum* Povolný, 1990.
PERU, Dept. Lima,
45 km NE Chosica, Millo Valley,
Quabrada Yanac.



Symmetrischema (s.s.) *tangolias* (Gyen, 1913). Uyurpampa 10.9.77.

- Ventral dilatation of aedeagus armoured with two striking spine groups, lateral group reminescent of bifurcation; saccular process broad and pointed; saccus elongate, narrow, with slender tip; moth medium-sized, forewing exceeding 7 mm, pattern nondescript ..... *septemtrionalis*

13. Aedeagus distinctly longer than genitalia, very thin, with distinct subterminal spine; saccus somewhat longer than genitalia, very thin; sacculus very high (broad) with striking, broadly lobate paired process; parabasal process shortly truncate (Fig. 61); forewing whitish overlaid with blackish scales, and with elongate suffusion of blackish scales along costal and dorsal wing margins (p. 20) ..... *excellens*
- Aedeagus as long as genitalia or shorter, stout .. 14

14. Aedeagus almost as long as genitalia, with distinct subterminal spine; saccus long and stout; parabasal process spine-like, much smaller than foliate sacculus process, with distinct lateral spine under rounded tip (more pronounced than in Fig. 61); uncus comparatively narrow, convexly rounded; moth medium-sized but delicate, forewing griseous, with poorly developed pattern .. .. *pseudogrisescens*
- Aedeagus distinctly shorter than genitalia 15

15. Bifurcation of aedeagus distinct, lateral spine long, saccus broad, parallel-sided with tip truncate, paired sacculus process nearly equal in size; moth very small, subtle, forewing cinereous, mottled with black ..... *addenda*
- Aedeagus bifurcation minor, spine poorly differentiated and shorter; saccus elongate but with obtuse tip; paired sacculus process much broader than parabasal process; moth small, nondescript ..... *serena*

Species of *Scrobipalpomima* (females)

1. Subgenital plate with long funnel-shaped antrum (Figs 122, 126) 2
- Subgenital plate different 3

2. Antrum funnel subtriangulate, apophyses long and only moderately curved (Fig. 122); moth medium-sized, broad-winged, forewing bicolourous, grey with blackish shade on dorsal margin ..... *fugitiva*
- Antrum funnel parallel-sided, apophyses sigmoid (Fig. 126); moth medium-sized, forewing uniformly greyish ..... *illustris*

3. Subgenital plate distinctly longer than broad, very rich in very fine foam-like sculpture (Fig. 127); moth stout and broad-winged, forewing greyish, nondescript ..... *questionaria*
- Subgenital plate not distinctly longer than broad, seldom with rich foam-like sculpture 4

4. Subgenital plate and signum as in Figs 114, 116 .. 5
- Subgenital plate as in Fig. 132; signum as in Fig. 110. Subgenital plate not sculptured but with indication of sclerotized 'folds' on apophyses base; moth with a well marked forewing pattern, mottled, cinereous whitish with groups of blackish and brownish scales ..... *karsholti*

5. Subgenital plate similar to Fig. 114 including signum, or signum as in Fig. 110 6
- Subgenital plate different 7

6. Subgenital plate including signum as in Fig. 114, possibly narrower, and with indication of short antrum; moth medium-sized, broad-winged, rather nondescript, forewing deeply cinereous with blackish stigmata ..... *concurrens*
- Subgenital plate as in Fig. 114, but without indication of antrum; signum as in Fig. 110; moth small but stout, forewing greyish, blackish dusted and/or spotted ..... *obscuroides*
7. Subgenital plate as in Fig. 130, central zone membraneous 8
- Subgenital plate as in Fig. 116, weakly sculptured; apophyses slender, with curved base 9
8. Subgenital plate generally similar to Fig. 130, well sclerotized with distinctly protruding, short funnel-shaped antrum, colliculum poorly indicated, membraneous; moth medium-sized, deeply grey, forewing blackish spotted ..... *pseudogrisescens*
- Subgenital plate rather membraneous, longer than broad, apophyses long and thin, short funnel-shaped antrum indicated, colliculum distinct, longer than broad; moth medium-sized, stout, forewing blackish mottled ..... *obtusa*
9. Subgenital plate longer than broad, delicate, without distinctly sclerotized colliculum, apophyses base distinctly curved; moth medium-sized, nondescript ..... *anonyma*
- Subgenital plate with asymmetrically sclerotized proximal part of ductus bursae (Fig. 116) and with distinct colliculum 10
10. Subgenital plate as in Fig. 116; moth small to medium-sized, well marked, forewing cinereous with three more or less distinct brownish transverse fasciae (bands) ..... *neuquenensis*
- Subgenital plate with a striking unpaired protecting sclerite and with a loop-like sclerite periostially; signum similar to Fig. 110 (right); colliculum and especially proximal part of ductus bursae asymmetrically sclerotized; moth stouter than *S. neuquenensis*, pattern less distinct and darker, but somewhat similar (p. 20) ..... *excellens*

Species of *Tecia* (males)

1. Paired sacculus process short hooklet-shaped and curved towards tip of parabasal process 2
- Paired sacculus process with rounded or obtuse tip and not distinctly curved towards tip of parabasal process (as in Fig. 62) 4
2. Forewing ground colouration dark grey, stigmata obscure or absent, tip of valva broadly spatulate (food plant *Baccharis serrulata* Pers.) .. *venosa*
- Forewing ground colouration pale cinereous to whitish, stigmata usually at least indicated 3
3. Aedeagus rather parallel-sided, corpus aedeagi only moderately slenderer than caecum, tip of valva distinctly spatulate ..... *confirmans*
- Aedeagus not parallel-sided, its corpus slenderer and moderately sigmoid, tip of valva only moderately inflated ..... *subalbata*
4. Paired sacculus process short cone-shaped, not curved, tip of valva broadly spatulate ..... *kiefferi*
- Paired sacculus process short obtuse, moderately curved 5
5. Paired sacculus process shorter than (short) rounded parabasal process (Figs 36, 62), valva broadly spatulate, tip of gnathos rounded ..... *albinervella*
- Paired sacculus process same long as broad, parabasal process shortly truncate and with a short tip on interior edge, valva rather clavate, gnathos pointed,short spine-shaped (food plant *Baccharis macrantha* HBK.) ..... *vergarai*

Species of *Tecia* (females)

1. Subgenital plate with distinct funnel-shaped antrum showing convergent lateral ledges (as in Fig. 121, smooth), signum strongly reduced forming a small sclerotized plate, radiate pattern showing bright whitish veins ..... *albinervella*
- Subgenital plate with antrum only moderately protruding and showing parallel lateral edges, signuma short obtuse spine 2
2. Prolongation of parallel-sided antrum distinctive, subgenital plate rather broad and short, forewing colouration dark grey (food plant *Baccharis serrulata* Pers.) ..... *venosa*
- Prolongation of antrum short, subgenital plate moderately longer than broad, forewing ground colouration cinereous (food plant *Baccharis macrantha* HBK.) ..... *vergarai*

Species of *Scrobipalpula* (males)

1. Moth large, nearly uniformly straw yellow, labial palpus with extremely short third segment; genitalia robust, gnathos broadly spatulate (Fig. 16); aedeagus straight, long and thin (as in Fig. 102, thicker) ..... *flava*
- Moth not uniformly yellow, etc. 2
2. Moth medium-sized to small, hindwing with anthracite black groups of scales near base and along costal margin (p. 21); tip of valva moderately curved and rounded; aedeagus slender, with short straight spine ..... *patagonica*
- Moth without anthracite black groups of scales on hindwing 3
3. Moth small or medium-sized, forewing pattern consisting either of more or less longitudinal or radiate veins (with or without poorly indicated dark stigmata), or bicolourous, showing a broad or slender blackish or dark brownish longitudinal shade on pale background; parabasal process short, cone-shaped, sacculus process more or less broadly foliate (Fig. 30, left) 4
- Moth small to large, forewing without radiate pattern, either monotonous with indistinct pattern or with pattern but never strictly bi-

tern or with pattern but never strictly bicolourous. Form of saccus as in Figs 99-101, form and relation between uncus and tip of valva as in Figs 24, 25 8

4. Moth usually medium-sized, forewing essentially pale cinereous or whitish with more or less distinct elongate blackish suffusion extending from base to tornus ..... *psilella* (bicolourous form)
- Moth medium-sized to large with more or less greyish radiate pattern 5

5. Valva reaching over tip of uncus, relation and form of uncus, gnathos and valva as in Fig. 20; forewing pattern radiate with rich, distinct whitish lines ..... *albolineata*
- Valva shorter than tip of uncus 6

6. Valva only moderately curved, relation and form of uncus, gnathos and valva as in Fig. 21; forewing dark with several white radiate lines ..... *radiata*
- Valva more or less distinctly curved 7

7. Valva medium-length, tip broad; uncus broadly convex (Fig. 18); forewing grey with extensive white radiate pattern ..... *psilella*
- Valva short, tip narrow, uncus narrow and convex (Fig. 22); radiate forewing pattern indistinct, with dark stigmata ..... *latiuncula*

8. Uncus broadly arched (convex), valva tip slender, curved, rounded, with sclerotized subterminal ledge (Fig. 24); saccus rather short and rounded; moth usually cinereous, pattern variable ... *pallens*
- Uncus and tip of valva of other form and mutual relation 9

9. Uncus narrow arched (convex), tip of valva curved but less rounded (Fig. 25), saccus prolongate (Fig. 101); forewing uniformly deep grey to blackish, pattern obscure ..... *atra*
- Form and relation of uncus and tip of valva different 10

10. Paired sacculus process slender, acutely curved, tip of valva excised (Fig. 86); moth big, forewing cinereous whitish, with diffuse dark spots . *hastata*
- Paired sacculus process and tip of valva different 11

11. Gnathos essentially spatulate (Figs 20, 22, 28) .. 12
- Gnathos of other form (e.g. as in Fig. 16) 16

12. Gnathos broadly spatulate (Figs 18, 22) 13
- Gnathos spatulate, but otherwise modified (Fig. 19) 14

13. Paired process of sacculus very broad and truncate (Fig. 39), valva distinctly shorter than tip of uncus and curved (Fig. 91, right), moth nondescript ..... *latisaccula*
- Paired sacculus process longer than broad; uncus trifid, valva slender, straight and moderately pointed (Fig. 28); moth rather stout, forewing pale cinereous, without distinct pattern .. *transiens*

14. Gnathos broadly spatulate with serrate margin and with curved corners (Fig. 19, 23); uncus with bilobate(Fig. 23) or truncate (Fig. 17) margin... 15
- Gnathos narrowly spatulate and delicate (Fig. 27) 21

15. Uncus distinctly bilobate with narrow medial excision; paired sacculus process robust and lobate (Fig. 23); saccus broad, parallel-sided, with rounded tip, aedeagus slender; moth stout but comparatively slender-winged,forewing with some dark spots, costa paler ..... *megaloander*
- Uncus truncate to moderately concave, with two pointed tips on each side; paired sacculus process narrow (Fig. 17); aedeagus robust, distinctly sigmoid; moth narrow-winged, forewing grey to cinereous, darkly spotted (p. 20) ..... *falcata*

16. Gnathos broadly rounded, tip sometimes membraneous 17
- Gnathos more or less trough-shaped (Figs 16, 36) with rounded sclerotized apical edge 19

17. Gnathos broadly rounded with moderately bilobate edge; uncus bilobate (Fig. 13) paired parabasal process long cone-shaped; saccus slender prolongate; aedeagus long and slender (Figs 102, 108); moth small, forewing with some black spots, otherwise nondescript..... *rosariensis*
- Gnathos rounded without bilobate tip; uncus rather convexly rounded, not bilobate 18

18. Valva with conspicuous, flat lobate interior sclerite medially (Fig. 37), uncus broadly concave; valva slender, moderately curved, tip rounded; saccus short, nail-like (Fig. 37); aedeagus shortly curved (Fig. 105 but shorter); moth delicate, forewing blackish ..... *tenera*
- Valva without striking lobate interior sclerite; paired sacculus process broadly foliate and disproportionate compared with small cone-shaped parabasal process (Fig. 30, left). Paired sacculus process and paired parabasal process as in Fig. 38; uncus as in Figs 24, 25; valva with spatulate rounded tip; aedeagus slender, strongly curved (Fig. 38); moth very small, delicate, forewing unicolourous ..... *omicron*

19. Apical ledge of gnathos broadly rounded (as in Fig. 16 or similar) 20
- Apical ledge of gnathos moderately rounded (chisel-shaped as in Fig. 36) 21

20. Paired process slender triangulate; uncus as in Fig. 25; aedeagus slender and straight, ¾ of genitalia length; moth stout, forewing brown, blackish mottled ..... *acuta*
- Paired process long foliate, slenderer than in Fig. 30, left, not triangulate, aedeagus stout, about ⅔ of genitalia length, moderately curved; forewing blackish or grey with white traces ..... *subtenera*

21. Gnathos broadly trough-shaped; paired processes short, equally proportionate (Fig. 36); uncus flat, bifid, aedeagus long and slender, moth stout, forewing brownish ..... *ilyella*
- Gnathos slender spatulate (as in Fig. 27) 22

22. Valva just moderately dilated; saccus ligulate, prolongate (Fig. 27, left), aedeagus extremely delicate ..... *ephoria*
- Valva spatulate dilated, saccus short subtriangulate with rounded tip (Fig. 27, right); aedeagus long and slender, ¾ length of genitalia.... *densata*

Species of *Scrobipalpula* (females)

1. Signum absent 2
- Signum present (form as in Figs 112, 119) 5
2. Subgenital plate as in Figs 120, 121 3
- Subgenital plate different 4
3. Subgenital plate as in Fig. 121, without funnel-shaped prolongation; forewing cinereous grey with darker stigmata (p. 20) ..... *falcata*
- Subgenital plate as in Fig. 120, with distinct funnel-shaped prolongation; forewing deep brown, (outer) margin usually brighter, several stigmata axially ..... *megaloander*
4. Subgenital plate with prolongate antrum (as in Fig.122, but distinctly shorter), apophyses long curved, central part of subgenital plate rather membraneous (cf. Fig. 139), nearly without sculpture; moth delicate, forewing 4 - 4.5 mm long, grey with fugitive blackish pattern ... *fjeldsai*
- Subgenital plate without prolongate antrum, similar to Fig. 121, very fine and small but with distinct parallel-sided sclerotization of proximal section of ductus bursae; moth small, forewing about 4 mm long, chocolate brown, mottled blackish ..... *incerta*
5. Subgenital plate lacking funnel-shaped prolongation,with paired convex sclerite rich in foam-like sculpture (as in Fig. 120, but without funnel), colliculum present; signum as in Fig. 112 (right); moth subtle,forewing about 4 mm long, blackish, mottled whitish ..... *tenera*
- Funnel-shaped prolongation short or long, usually more or less distinct 6
6. Apophyses very short, distinctly shorter than subgcnital plate, funnel-like prolongation short and broad, not bilobate laterally; paired sclerite with foam-like sculpture situated distally; colliculum longer than broad; signum rather big; moth delicate, forewing about 4 mm long, dark and nondescript ..... *omicron*
- Apophyses about as long as subgenital plate or longer 7
7. Moth rather big, broad-winged, forewing length more than 8 mm, straw yellowish, labial palpus with third segment extremely short; subgenital plate big, with feeble foamy sculpture, with funnel-formed antrum; signum comparatively small ..... *flava*
- Moth not uniformly straw yellow, labial palpus without striking short third segment 8
8. Funnel-shaped prolongation (antrum) short or long but with bilobate sclerite basally (Fig. 119) .. 9
- Funnel-shaped prolongation (antrum) short or long, without bilobate sclerite basally (Fig. 120) . 12
9. Funnel-shaped prolongation very long 10
- Funnel-shaped prolongation short 14
10. Funnel-shaped prolongation (antrum) with lobulate basal sclerite and with rich, foamy sculpture, shorter or as long as apophyses (Fig. 119); moth variable in size (forewing length 4 - 6 mm) and forewing pattern, but ground colouration essentially cinereous with various hues ..... *pallens*
- Funnel-shaped prolongation (antrum) extending beyond tips of apophyses, moth deep grey to blackish, forewing dark stigmata poorly defined 11
11. Entire subgenital plate with rich foam-like sculpture, mostly developed on paired lobate sclerites on both sides of funnel base, signum slender; moth deep grey, rather patternless ..... *patagonica*
- Subgenital plate very similar, but comparatively slender and subtle, foamy sculpture finer and concentrated mainly on lobate paired sclerite; antrum funnel rather parallel-sided, signum distinctly more robust; moth deep grey, patternless ..... *atra*
12. Sclerotization of proximal ductus bursae section long and distinct, instead of foam-like sculpture a paired lobulate sclerite at distal margin of subgenital plate (cf. Fig. 139); signum tending towards reduction; moth stout (forewing about 7 mm), rather uniformly brownish,with trace of light subapical transverse band ..... *ilyella*
- Sclerotization of ductus bursae absent, ductus membraneous, colliculum weakly developed 13
13. Moth very stout, forewing 6.7 - 7.7 mm, dark brownish with obsolete pattern; subgenital plate as in Fig. 120; signum stout (Fig. 112, right) .... *latiuncula*
- Moth variable in size, colour and pattern, usually medium-sized, forewing about 5 mm; subgenital plate comparatively delicate, antrum narrow (as in Fig. 120, but without paired lobe); signum delicate ..... *psilella*-complex
14. Prolongation of funnel (antrum) broad and short; colliculum longer than broad; ductus bursae membraneous; paired lobate sclerite moderately exceeding proximal margin of subgenital plate in its paired concave excision, distinctly differentiated from subgenital plate; signum arising from bifid plate (Fig. 135); moth brown, mottled blackish ..... *acuta*
- Prolongation of funnel (antrum) also broad and short, colliculum shorter than broad, symmetrical, base of funnel inflated laterally; paired lobate sclerite not differentiated from subgenital plate proper and its base showing very conspicuous and rich foam-like sculpture; moth deep brown, forewing with pale radiate pattern ..... *radiata*

Species of *Scrobipalpulopsis* (males)

Greyish moths, forewing rather uniformly cinereous with brownish hue, dorsal margin generally lighter, (triad of) dark stigmata at least indicated.

1. Genitalia with a striking ligulate medial unpaired process arising from sacculus and distinctly exceeding slender stamen-like sacculus process, parabasal process much shorter, aedeagus long and slender; moth small, forewing greyish, dull mottled blackish ..... *dispar*
- Genitalia lacking unpaired process on sacculus wall between paired process 2
2. Saccus elongate (Fig. 100, but long), valva slender and moderately curved (Fig. 69) ..... *fallacoides*

- Saccus of other form 3
3. Valva not dilated, uncus slender and rounded ..... *fallax*
- Valva with dilatation (Fig. 69) 4
4. Dilatation of valva abrupt (Fig. 138, left), forming prominent knob on inner side; saccus very broad,parallel-sided with rounded tip; paired processes as in Fig. 87, left ..... *praeses*
- Dilatation of valva essentially basal (Fig. 138, right) with gradual transition to central and (slenderer) apical part 5
5. Second pair of sacculus processes foliate with petiolate base and distinctly longer than first pair (Fig. 87, right) ..... *stirodes*
- Second pair of sacculus processes distinctly shorter than first pair, rather rod-like, slight tendency to asymmetry; moth delicate, head and thorax white, forewing with light/pale dorsal margin ..... *simulatrix*

Species of *Scrobipalpulopsis* (females)

1. Subgenital plate and signum as in Fig. 137 .. *fallax*
- Subgenital plate not quite as in Fig. 137 2
2. Central membraneous part of subgenital plate less subovate than in *fallax*, and sclerotized part of ductus bursae distinctly longer ..... *praeses*
- Subgenital plate distinctly longer than broad with comparatively short apophyses etc. cf. Fig. 141 ..... *stirodes*

Species of *Tuta* (males)

1. Genitalia slender and elongate; paired saccular process broadly lobate, partly membraneous; aedeagus very slender, longer than genitalia, evenly curved, with obtusely serrate, slender ledge dorsally (Fig. 102) moth big and stout, habitually nondescript (p. 21) ..... *inapparens*
- Genitalia elongate; paired sacculus process not broadly lobate, but long and short, slender, moth small, possibly delicate 2
2. Aedeagus thick and straight (Fig. 103), valva with a distinct spine-like process on inner side (Fig. 90, right), paired sacculus process short and slender, moderately curved and pointed, parabasal process extremely small; moth greyish, forewing with or without indication of central triad of dark stigmata, inconspicuous ..... *absoluta*
- Aedeagus very slender and curved, as long as genitalia or longer 3
3. Aedeagus distinctly shorter than genitalia and moderately curved; paired sacculus process distinct, moderately curved, with obtuse tip; valva slender end subterminally curved; moth small, rather broad-winged, forewing cinereous, irrorate with blackish ..... *ascendens*
- Aedeagus as long as or longer than genitalia, distinctly curved; paired sacculus process slender, elongate and moderately curved subterminally into a more or less distinct tip 4
4. Saccus broadly ovate with rounded tip, medium-length; valva subterminally curved and moderately pointed; paired sacculus process slender with distinct tip; aedeagus almost as long as genitalia; moth delicate, forewing deeply grey, pattern nondescript ..... *gregalis*
- Saccus rather prolongate, equal to half entire genitalia length, subovate with obtuse tip; paired sacculus process slenderly ligulate and long, with obtuse, moderately curved tip; aedeagus very long and thin, distinctly longer than genitalia; moth medium-sized, forewing uniformly grey or greyish mottled ..... *congruens*

Species of *Tuta* (females)

1. Subgenital plate with a distinct, symmetrical and long funnel-shaped antrum 2
- Subgenital plate without distinct funnel-shaped antrum 4
2. Funneled prolongation bipartite and very wide (Fig. 136), much longer than subgenital plate including apophyses; subgenital plate with distinctive foam-sculptured paired sclerite periostially; moth medium-sized, forewing uniformly grey or greyish mottled ..... *congruens*
- Funneled prolongation of subgenital plate unipartite 3
3. Subgenital plate distinctly longer than broad, with striking foam-sculptured sclerite; funneled prolongation heavily sclerotized, apophyses with tips curving outwards, shorter than subgenital plate; colliculum distinct; signum a short spine (Fig. 112, left); moth delicate, forewing deep grey, pattern rather nondescript ..... *gregalis*
- Subgenital plate distinctly shorter than broad, with long apophyses and with indefinite sculpture on both sides of ostium bursae, prolongation of ductus moderately sclerotized and rather broad, signum characteristically scrobipalpuloid (Fig. 112); moth greyish, with or without indication of a triad of darker stigmata centrally, inconspicuous ..... *absoluta*
4. Subgenital plate membraneous centrally, with folded lateral sclerites and with strongly developed cylinder-like periostial sclerites forming a tube, apophyses slender, longer than subgenital plate (Fig. 129, p. 21) ..... *inapparens*
- Subgenital plate not as in Fig. 129, but comparatively slender and with longer and delicate apophyses, nearly sculptureless, membraneous central part narrow; signum a simple hooklet (as in Fig. 129); moth delicate, forewing well marked, cinereous with distinctive deep dark grey to blackish spotted pattern ..... *habitans*

Species of *Magnifacia* (males)

1. Uncus trifid, protruding medial process with obtuse or acute tip; gnathos deeply pendulous or obtusely rounded (Fig. 12) 3
- Uncus distinct, convexly arched; gnathos either slender (Fig. 12) or broadly, inverse fan-shaped (Fig. 11) including paired processes 2

2. Gnathos broadly inversely fan-shaped (Fig. 11), paired processes as in Fig. 11; aedeagus straight ..... *crustaria*
- Gnathos long and slender, pendulous with paired spiny tip, uncus conspicuously arched (helmet-shaped), aedeagus slender, shallowly curved, caecum inflated ..... *aulorrhoa*
3. Uncus distinctly trifid, longer medial tip spine-like, gnathos deeply pendulous and broadly clavate (Fig. 12, right), paired sacculus process subtriangulate; parabasal process absent; aedeagus gently curved (p. 21) ..... *uncispina*
- Uncus less distinctly trifid, medial tip triangulate, spine-like, slightly curved, aedeagus straight, long and slender (Fig. 108) ..... *trifida*

Species of *Magnifacia* (females)

1. Ductus bursae membraneous, without short or long sclerotization 2
- Ductus bursae with short or long (Fig. 134) sclerotization 3
2. Funneled prolongation of subgenital plate short; foamy network concentrated in paired sclerotized sclerite praeostially; bursa very long, ellipsoid, signum short, delicate, weakly sclerotized *crustaria*
- Funneled prolongation of subgenital plate long and slender, foam-like network disseminated; signum slender (Fig. 112, right, but somewhat slenderer) ..... *ignorans*
3. Subgenital plate, ductus bursae and signum as in Fig. 134 ..... *aulorrhoa*
- Subgenital plate weakly foam-sculptured, sclerotization of ductus bursae not exceeding tips of apophyses (p. 21) ..... *uncispina*

Species of *Keiferia* (males)

1. Moth very big and distinctive (forewing about 8 mm), brownish ferrugineous, hindwing blackish; paired processes rather complex and partly (first pair) broadly foliate (Fig. 66), saccus very short and subtriangulate ..... *propria*
- Moth less striking or nondescript, forewing less than 6 mm 2
2. Paired sacculus process broadly lobate (Fig. 67), valva with prominent spine arising from rounded clavate tip; saccus moderately elongate; moth narrow-winged, forewing with a dark band ..... *lobata*
- Paired sacculus process narrowly ligulate; valva with a short, curved subterminal spine; saccus long and ligulate (Fig. 98) ..... *lycopersicella*

Species of *Keiferia* (females)

1. Subgenital plate and long funneled prolongation without foam-like sculpture, with indication of longitudinal sclerotized 'folds' (Fig. 138); moth delicate, forewing pale or deeply grey with poor pattern ..... *lycopersicella*
- Subgenital plate with more or less distinct network of foam-like sculpture 2
2. Moth pale cinereous and blackish mottled; sclerotized prolongation of subgenital plate exceeding apophyses tips by about ⅓ of its length, very fine sculpture concentrated on proximal part of funnel (Fig. 125, but with ductus prolongation longer), signum delicate ..... *vitalis*
- Moth pale grey, forewing pattern indicating longitudinal veins; sclerotized prolongation of subgenital plate extending well beyond apophyses; conspicuous concentrated foam-like sculpture laterally on paired lobated sclerite praeostially (Fig. 125); signum large ..... *keiferioides*

Species of *Phthorimaea* males)

1. Moth medium-sized, forewing length up to 6 mm 2
- Moth big, forewing over 7 mm 3
2. Moth rather broad-winged, forewing cinereous, stigmata sometimes indicated; distance between tip of sacculus and tip of sacculus process about ½ genitalia length; uncus rather truncate .. *robusta*
- Forewing with distinct triad of blackish stigmata, tornus blackish; valva with rounded tip *euchthonia*
3. Forewing rather slender, deep brownish, dorsal margin darker, with small blackish stigmata indicated centrally; distance between tip of saccus and paired sacculus process less than half genitalia length ..... *argentinae*
- Moth resembling *argentinae* but smaller and forewing cinereous, with pattern less distinct and less brownish ..... *operculella*

Species of *Phthorimaea* (females)

1. Moth medium-sized, forewing length under 6 mm 2
- Moth big, forewing 6-8 mm 3
2. Moth rather broad-winged, forewing cinereous, obscure stigmata sometimes indicated, pattern indistinct (p. 24), subgenital plate substantial *robusta*
- Moth broad-winged, forewing pattern distinct, ground colouration with brownish hue; subgenital plate with foamy sculpture concentrated in paired sclerite situated praeostially; signum reduced ..... *euchthonia*
3. Forewing deep brownish, with dorsal margin darkened, blackish stigmata present or at least indicated ..... *argentinae*
- Moth resembling *argentinae* but more subtle; forewing pattern less distinct ..... *operculella*

Species of *Eurysacca* (males)

1. Moth medium-sized, forewing about 6 mm, blackish, white spotted (as *Scrobitasta varians*, p. 22), paired processes as in Fig. 77 ..... *albonigra*
- Moth of various size (big, medium-sized or small), forewing more or less dark, deep greyish or whitish and bright, but never black with white spots 2
2. Moth cinereous whitish or pale grey, forewing with a distinct blackish longitudinal stripe or at least with scattered and dense or thin groups of darker scales but without distinct pattern 3

- Moth not cinereous whitish or pale grey 7

3. Moth small, forewing about 6 mm; saccus in elongate genitalia very short and broadly rounded; parabasal process of valva absent (Fig. 75) ..... *subsplendida*

- Moth stout, forewing 6-8 mm 4

4. Moth cream-coloured with slight brownish tinge, forewing without pattern, but with scattered groups of darker scales in central and apical area (p. 25); paired sacculus process very short, parabasal process short, subtriangulate, bare; valva slender, curved apically ..... *splendida*

- Moth not cream-coloured, but rather cinereous whitish or grey and either with a distinct blackish axial stripe or at least with scattered or disseminated groups of darker scales over wing surface .. 5

5. Moth cinereous and with a conspicuous blackish axial stripe, saccus strong ungulate, parallel-sided with broadly rounded tip (as in Fig. 101), paired processes and valva Fig. 83 ..... *acutivalva*

- Moth cinereous or greyish but without conspicuous blackish axial stripe. Groups of darker or blackish scales, thin or thick are disseminated over forewing without distinct pattern; paired processes different 6

6. Paired parabasal process very delicate with tip clavate, rounded and not exceeding tips of very distinct lanceolate paired sacculus process (Fig. 82); moth stout, forewing exceeding 6 mm, creamy and patternless ..... *paleana*

- Paired parabasal process petiolate with clavate rounded tip, but stout and exceeding length of paired parabasal process (Fig. 96); moth stout, forewing cinereous white mottled with irregular groups of blackish scales ..... *melanopicta*

7. Moth stout, deeply brownish to blackish, with lustrous plumbeous tinge, forewing with blackish broad suffusion centrally and paler scales in basal and apical areas (p. 25); parabasal process very thin rod-like concealed by broad, foliate sacculus process (Fig. 80) ..... *tenebrosa*

- Moth small or big, without plumbic lustre and showing less deeply brownish or blackish 8

8. Moth stout and rather broad-winged, forewing exceeding 7-8 mm 9

- Moth medium-sized or small, forewing under 7 mm 10

9. Moth pale cinereous with brownish hue, forewing with traces of minor blackish spots; both paired processes conspicuous: parabasal process clavate with rounded tip; valva with acute tip and with inner margin excised (Fig.94) ..... *vera*

- Moth deep grey with brownish tinge, forewing with blackish pattern including central triad of blackish stigmata; paired parabasal process longer than sacculus process and pointed (Fig. 95); valva with tip obtuse and rounded ..... *chili*

10. Moth small, forewing 4-5 mm 11

- Moth medium-sized to big, forewing exceeding 5 mm 13

11. Forewing distinctly bicolourous, dorsal margin creamy white, costal margin white spotted; head and thorax white; paired processes (Fig. 88) *novalis*

- Forewing not strictly bicolourous, with darker scales more or less admixed 12

12. Valva with prolongate acute tip and subterminally armoured by distinct group of spine-like hairs (Fig. 81); paired process long; moth usually creamcoloured, with brownish tinge, forewing pattern not very distinct ..... *parvula*

- Valva with rounded tip, not armoured, paired process short, parabasal process much thinner and shorter (Fig. 79); moth usually cinereous, forewing with distinct pattern ..... *minima*

13. Sacculus processes big, parallel-sided and distinctly asymmetrical, parabasal process small (Fig. 84); moth stout, deeply brownish ..... *excisa*

- Paired process symmetrical 14

14. Forewing with more or less distinct blackish axial stripe extending from near base to apex, sometimes with additional spots, chiefly on costa, paired processes (Fig. 73); moth stout, forewing length 7.5-8 mm ..... *melanocampta*

- Forewing without (indication of) blackish stripe. 15

15. Moth grey, forewing mottled with blackish groups of scales and with indication of central triad of dark stigmata, stout, forewing 6.5-7 mm; valva slender, tip curved and obtuse, aedeagus very stout, paired sacculus process acute and distinctly longer than clavate parabasal process (Fig. 76) ..... *media*

- Moth cinereous grey to blackish, partly with brownish tinge or hue, forewing spotted but without distinct pattern; small to medium-sized, forewing 5-6.2 mm 16

16. Parabasal process of valva rod-like and very slender (Fig. 74), contrasting with large rounded sacculus process, valva very slender, distinctly exceeding tip of rounded uncus; aedeagus rather thin; moth varying from pale cinereous to grey, with brownish tinge, forewing with more or less distinct stigmata ..... *danorum*

- Parabasal process of valva more or less petiolate, with rounded or elongate clavate tip 17

17. Parabasal process of valva well developed but distinctly shorter than sacculus process, gnathos spine-like 18

- Parabasal process of valva different 19

18. Sacculus process petiolate with broadly foliate ends showing a short acute tip, parabasal process clavate (Fig. 70); aedeagus very stout, with dilated, strong apical membrane; forewing dark grey to blackish, with poorly visible dark stigmata ..... *atrata*

- Parabasal process of valva not petiolate, rather parallel-sided, moderately widening apically, with short acute tip (Fig. 71); valva compared with *atrata* not distinctly curved subapically and with more obtuse tip; aedeagus rather parallel-sided without differentiated tip; moth habitually similar to *atrata*, but forewing usually with somewhat brownish tinge ..... *subatrata*

19. Parabasal process distinctly longer than sacculus process; gnathos spine distinct. Both paired processes well developed, sacculus process rather long, parabasal process reaching tip of gnathos (Fig. 72); valva with tip subterminally excised and acute; aedeagus nearly same length as genitalia; moth medium-sized, forewing brownish, with dark spots partly annular and usually situated in wing axis (p. 24) ..... *annulata*

- Parabasal process nearly same length as sacculus process, both processes rather short; gnathos spine very short. Both paired processes short (much shorter than in *atrata, subatrata* and *annulata,* genitalia close to those of *albonigra* (Fig. 78); moth cinereous grey, forewing with irregular blackish spotting, subterminal transverse band weakly developed ..... *gnorimina*

Species of *Eurysacca* (females)

1. Signum absent (Fig. 151) 2

- Signum present or indicated by spine (Fig. 117) .. 7

2. Subgenital plate rather small and feeble, subquadrate, with short apophyses, distinct foam-like sculpture restricted to paired or elongate sclerite periostially; moth delicate 3

- Subgenital plate medium-sized to big, apophyses medium-length, foam-like sculpture either disseminated over plate, or covering considerable parts of ventral sclerite; moth stout 4

3. Moth with bicolourous forewing pattern, especially dorsal part, creamy white, contrasting with nearly blackish ground colouration, costa whitish spotted; subgenital plate with paired, striking elongate foam-netted sclerite extending from apophyses base ..... *novalis*

- Moth cream-coloured, with brownish tinge, pattern never bicolourous; subgenital plate subquadrate with moderately protruding antrum and with paired rounded sclerite showing foam-like sculpture (Fig. 151) ..... *parvula*

4. Antrum moderately protruding, not distinctly funnel-shaped, sclerotization of ductus bursae weak; moth broad-winged, forewing cinereous whitish with numerous blackish stigmata ..... *eurysaccomima*

- Antrum well developed forming a more or less distinct funnel leading into comparatively well sclerotized section of ductus bursae 5

5. Moth more or less grey with brownish tinge, forewing with darker stigmata disseminated over forewing; subgenital plate with fine foam-like sculpture (Fig. 152); sclerotized section of ductus bursae exceeding distinctly tips of apophyses ..... *danorum*

- Moth not (uniformly) grey, either uniformly cream-coloured or grey, with blackish scale groups 6

6. Moth big, broad-winged and distinctly cream-coloured, slightly tinged with brownish (p. 25). Subgenital plate with medium-length apophyses shows strong parallel-sided funnel (antrum), and a conspicuous paired sclerite with well defined crisp foam-like sculpture covering adjacent parts of antrum base ..... *splendida*

- Moth grey coloured, forewing with blackish groups of scales, indication of triad of blackish stigmata; subgenital plate with very short apophyses and very broad sclerotized section of ductus bursae, subgenital plate rounded and covered entirely with a fine network of foam-like sculpture (Fig. 156) ..... *media*

7. Signum poorly developed, a weak spine or small sclerite 8

- Signum a distinct spine 10

8. Moth very delicate and small, forewing 3-4 mm, cinereous whitish with rich groups of darker scales; subgenital plate without distinct antrum, with very rich and fine foamy sculpture, signum represented by weakly sclerotized plate with indication of a spine ..... *minima*

- Moth stout, forewing over 5 mm, greyish with or without blackish pattern 9

9. Moth cinereous grey, forewing with (two) extended blackish scale groups centrally, subgenital plate extremely short, curved apophyses, its sclerite above apophyses convexely rounded; antrum fusing with narrow sclerotized section of ductus bursae exceeding tips of apophyses; signum poorly indicated ..... *urosema*

- Moth deep grey with distinct brownish admixture, forewing with indistinct pattern of dark stigmata, rather broad-winged; subgenital plate subquadrate with apophyses medium-length; antrum separated from broadly sclerotized section of ductus bursae; signum a tiny rounded sclerite with indication of a short obtuse spine ..... *chili*

10. Moth stout and broad-winged, dark brownish to blackish with indication of submarginal band, head and thorax lustrous plumbic, hindwing bright lustrous (p. 25); subgenital plate with rich foam-like sculpture, apophyses comparatively short and curved, sclerotized section of ductus bursae very broad, signum a heavy, big spine (Fig. 157) ..... *tenebrosa*

- Moth never blackish and never plumbic lustrous 11

11. Moth stout, forewing 6 mm or more, grey or (deep) brown with more or less striking blackish longitudinal, partly axial stripes 12

- Moth not particularly big and mainly without longitudinal (radiate) pattern 13

12. Moth grey, forewing with distinct broad blackish suffusion extending axially from near base to apex, additional dark stigmata on costa; subgenital plate leading into an asymmetrical, broad antrum and with striking asymmetrical sclerotization of ductus bursae (Fig. 117); signum a stout spine, subgenital plate with a dense network of foam-like sculpture ..... *melanocampta*

- Moth deep brownish, forewing with blackish, partly radiating stripes and with stigmata; subgenital plate without asymmetrical antrum, instead a naked paired rounded sclerite periostially, sclerotization of ductus bursae less striking than in *melanocampta;* caudal margin of subgenital plate distinctly and slightly asymmetrical excised; signum distinct, spine-like but not as striking as in *melanocampta* (Fig. 155) ..... *excisa*

13. Signum spine arising from basal plate (Fig. 111); subgenital plate with very fine, more or less dotted sculpture; moth small, forewing 5-5.5 mm, cinereous grey, nondescript ..... *gnorimina*
- Signum a stout or delicate spine without basal plate 14

14. Moth cinereous, intermixed with blackish scales; subgenital plate with strong network of foam-like sculpture concentrated mainly proximally on both sides of ostium bursae; signum a short but distinct curved spine ..... *boertmanni*
- Moth deep grey with more or less brownish or blackish admixture or hue, forewing with indistinct pattern; subgenital plate with strong extensive network of foam-like sculpture over entire plate; signum well developed with short spine or a poorly developed delicate spine (Fig. 117) .. 15

15. Distinctive network of foam-like sculpture concentrated in rounded sclerites, distinctly exceeding proximal margin of subgenital plate . *subatrata*
- Conspicuous network of foam-like sculpture concentrated in paired subovate sclerite proximal margin of which does not exceed margin of subgenital plate (Fig. 117) 16

16. Antrum with excised proximal edge and nearly as long as broad, not funnel-shaped, network of fine foam-like sculpture rather dense, its individual 'bubbles' sharp and comparatively small; signum very delicate (Fig. 158); moth rather narrow-winged, cinereous with brownish tinge, forewing distinctly spotted ..... *atrata*
- Antrum asymmetrically funnel-shaped, longer than broad, sculpture of subgenital plate a coarse network; signum a short but strong and curved spine; moth brownish, forewing with alternating blackish and brownish spots situated axially (p. 24) ..... *annulata*

Species of *Symmetrischema* (s.lat.) (males)

1. Genitalia with more or less distinct (broad and short, triangulate, petiolate, etc.) unpaired medial process arising from sacculus wall between sacculus paired processes (Figs 47, 48, 65) (subgenus *Symmetrischema* s.str.) 16
- Genitalia without unpaired medial process 2

2. Paired sacculus process distinctly flap-like and contrasting with small or minute (cone-shaped) parabasal process (Figs 63, 64); gnathos short and broad, membraneous (as in Fig. 7, but shorter), aedeagus simple and straight (Fig. 103), rather robust 30
- Paired sacculus process not broadly flap-like; aedeagus tending to develop a bifurcation or at least a distinct subterminal spine, or long and slender, or slender and curved 3

3. Gnathos armoured (with serrate edges); uncus convex with short medial tip (Fig. 8) (subgenus *Symmetrischemulum)* 4
- Gnathos ligulate (as in Figs 1-5, or their combinations), very short or elongate, but little sclerotized (mostly as in Figs 2, 7-9 or their combinations) .. 6

4. Parabasal process striking, extremely long and slender, rodlike, serrate subterminally; valva narrow with curved tip; aedeagus slender with moderately inflated caecum; moth small, hindwing with distinctive patch of anthracite black scales basally (p. 25) ..... *disciferum*
- Parabasal process not extremely long and slender, but longer than paired sacculus process 5

5. Parabasal process slender rod-like and moderately curved, extending over tips of sacculus processes; aedeagus bifurcate with a distinct spine; uncus tipped; moth medium-sized, forewing cinereous with a dark to blackish double crescent-formed costal spot (p. 28) ..... *nummulatum*
- Parabasal process distinctly longer than paired sacculus process, elongate rod-like (Fig. 42), nearly straight; valva very slender, with tip abruptly strongly dilated; aedeagus slender, a short subterminal spine, not bifurcate, with strongly inflated ovate base; moth delicate, forewing cinereous, distinctly blackish mottled, traces of ferrugineous stigmata ..... *draculinum*

6. Gnathos ligulate, uncus broad, with medial concavity (Fig. 7); valva with slightly dilated, broadly rounded tip; sacculus short, slender with moderately dilated tip, hardly exceeding lateral corners of vinculum (Fig. 43); moth small, forewing greyish, blackish spotted forewing ..... *laciniosa*
- Gnathos short or long ligulate (Figs 8, 9); uncus broad, of various forms (Figs 1-3, 8, 9), terminal dilatation of valva truncate, spatulate but not rounded; saccus distinctly exceeding vinculum corners 7

7. Gnathos broadly ligulate, elongate or membraneous (Fig. 9), or distinctly sclerotized (as in Fig. 2) but with tip truncate, valva with a striking medial or subterminal prominence or spine on inner side 8
- Gnathos different 9

8. Gnathos broadly ligulate with rounded tip and rather membraneous; uncus broad and convex (Fig. 9); saccus very long and parallel-sided with obtuse tip, aedeagus very slender, as long as genitalia, split subterminally (indicating a short bifurcation), valva with a conspicuous spine on inner side subterminally (Fig. 90, right, see also Fig. 44); moth small showing tendency to forewing brachyptery, forewing either obscure and patternless or distinctly spotted ..... *alternatum*

- Gnathos not as broad as in Fig. 9, but narrower, not membraneous but sclerotized with tip truncate; saccus not very long and not exceeding distinctly vinculum corners (as in Fig. 43); aedeagus stout, medium-sized, shorter than genitalia, with a distinct obtuse prominence on inside medially; forewing grey with blackish apical shade, an indication of blackish spots centrally ..... *altisona*

9. Gnathos as in Fig. 3, shortly truncate; valva with terminal indentation, parabasal process short, spine-like and contrasting with broadly lobulate paired sacculus process divided by a deep narrow excision (Fig. 26); saccus long and broad with rounded tip; aedeagus slender and moderately curved with slightly inflated caecum, subterminal spine indicating indistinct bifurcation; moth small, broad-winged, showing tendency to brachyptery, forewing unicolourous blackish ..... *anthracinum*
- Gnathos different (subgenus *Primischema*) 10

10. Gnathos elongate, subtriangulate, membraneous (form intermediate between Figs 7 and 9) 11
- Gnathos near Fig. 7, shorter or longer, triangulate or crescent-shaped, and distinctly sclerotized 12

11. Valva with distinct spine on inner side subterminally (Fig. 44); uncus very broad (Fig. 9); saccus elongate with tip truncate; paired process small, medial sacculus excision rounded; aedeagus simple, medium-sized; moth small, forewing unicolourous dark grey to blackish ..... *inkorum*
- Valva without distinct spine, short parallel-sided, moderately dilated terminally, with tip truncate; uncus as in Fig. 8, aedeagus slender, distinctly shorter than genitalia; parabasal process spine-like, somewhat longer than broad (Fig. 40); sacculus process broad, membraneous; moth medium-sized, forewing cinereous whitish, patternless ..... *primigenium*

12. Saccus broad and short, with truncate tip, gnathos crescent-shaped; valva terminally with broad excision and bilobate (Fig. 45); moth medium-sized, greyish, nondescript ..... *andinum*
- Saccus rather elongate, with rounded tip, valva not bilobate terminally 13

13. Tip of slender, elongate saccus flat, dilated and truncated; aedeagus slender, nearly as long as genitalia, with distinct subterminal spine indicating bifurcation, paired processes small, valva distinctly curved, moderately sigmoid; uncus as in Fig. 8, gnathos moderately elongate, membranous, subtriangulate; moth small but stout, forewing blackish with white spotting ..... *pulchrum*
- Tip of saccus obtusely rounded, not dilated, not truncate 14

14. Gnathos very short, membranous, somewhat rounded, valva distinctly curved, terminal dilatation truncate, center moderately humped (Fig. 41); uncus broadly rounded (Fig. 9); parabasal process slender and moderately exceeding (membranous) sacculus process; aedeagus slender with inflated ovate base; moth stout, forewing monotonous bronze-blackish, without pattern ..... *assimile*
- Gnathos distinct (as in Fig. 7, but shorter) and broadly rounded 15

15. Saccus long with slender rounded tip; aedeagus slender with distinct subterminal spine indicating bifurcation; uncus with moderate medial tip (as in Fig. 1); gnathos very short and broad (crescent-shaped); valva slender and spatulate-dilated; moth stout, forewing monotonous graphite grey to blackish, without pattern ..... *peruanum*
- Saccus moderately elongate; aedeagus simple, without subterminal spine; gnathos very short, tip rounded; uncus broadly convex, with indication of obtuse tip; valva short, sigmoid, its tip moderately dilated and truncate, moth small to medium-sized, forewing cinereous, blackish stigmata obsolescent ..... *elementare*

16. Unpaired process slender, petiolate (Fig. 46, 47, 65), smooth or with short spines. Moth impressive, broad-winged and big, forewing 8-10 mm, cinereous with various hues, one or two blackish central stigmata of various size and sometimes fusing to form a broad, blackish suffusion (p. 29); genitalia with striking lobate or broadly foliate paired sacculus process with short exterior tip; valva with broadly spatulate tip; aedeagus long and slender, distinctly bifurcate subterminally ..... *tangolias*
- Unpaired process not petiolate, rather subtriangulate with tip obtuse or truncate (as in Figs 50, 51, 53-55) 17

17. Moth small, forewing more or less grey or brownish, wings comparatively narrow, with a tendency to develop longitudinal (partly axial) or radiate pattern 18
- Moth medium-sized, forewing brownish, blackish or spotted, without tendency to develop longitudinal radiate pattern 19

18. Moth moderately narrow-winged, forewing with distinctly brownish hue, with striking radiate pattern (p. 28); paired sacculus process truncate, medial sacculus excision broad and deep (Fig. 49) ..... *striatellum*
- Moth rather narrow-winged, habitually variable, forewing usually grey or grey with brownish hue, often developing a narrow or broader, partly conspicuous axial streak extending from wing base to apex (p. 28); uncus with obtuse tip (as in Fig. 8); gnathos a deeply pendulous, slender spine with obtuse tip; valva with spatulate terminal dilatation; unpaired process petiolate and same length as delicate paired processes(Fig. 47); aedeagus medium-sized, with a short but distinct subterminal spine indicating bifurcation, and serrate ..... *symmetricum*

19. Unpaired process petiolate (Figs 48, 65) 20
- Unpaired process not petiolate 22

20. Hindwing base with blackish tuft of hairs (cilia) ventrally; aedeagus somewhat longer than genitalia, deeply bifurcate subterminally forming a digitate subterminal ledge; unpaired sacculus process distinctly spinolate ..... *atrifascis*
- Hindwing base without blackish tuft of hairs ... 21
21. Aedeagus very long and slender, corpus aedeagi rather parallel-sided; paired sacculus process extremely broad, foliate and contrasting with unpaired petiolate process (Fig. 48); saccus very long and slender; gnathos a heavy spine; valva moderately inflated, short; moth medium-sized, forewing chocolate ferrugineous, shaded darker on dorsal margin ..... *elongatum*
- Aedeagus medium-length and with a conspicuous flat lateral ledge (as in Fig. 106); gnathos petiolate; valva with short, rounded subterminal dilatation; moth subtle, forewing irregularly blackish spotted ..... *symmetrischemoides*
22. Unpaired medial process short, usually shorter than paired processes, broadly subtriangulate, with tip rounded or truncate 23
- Unpaired medial process distinctly (slender) triangulate, (level with or possibly exceeding tips of paired processes) 27
23. Unpaired medial process only indicated or membranous, very short and truncate (Fig. 52), saccus prolongate, uncus as in Fig. 2, but flatter, gnathos as in Fig. 2, but more elongate and subtriangulate; aedeagus long and slender, subterminal bifurcation indicated; parabasal process short, slender and pointed, moderately longer than broader sacculus process (Fig. 52); moth small, forewing broad and somewhat abbreviated, blackish ..... *alticolum*
- Unpaired sacculus process different 24
24. Unpaired sacculus process short and broad with obtuse tip (Fig. 50, above) 25
- Unpaired medial process shortly ligulate with rounded tip (Fig. 50, bottom) 26
25. Unpaired process very broad; paired sacculus process slender digitate, tipped and somewhat longer than paired parabasal process, but both processes short; gnathos long, subtriangulate, obtuse; uncus broad with distinct medial tip; aedeagus as long as genitalia, subterminal bifurcation indicated by delicate obtuse spine; moth small, forewing lustrous deep grey, patternless ..... *anthracoides*
- Unpaired process medium-length with tip rounded 27
26. Paired processes slender, parabasal process distinctly longer than sacculus process, hooklet-like (as in Figs 35, 50, bottom), gnathos shortly rounded (as in Fig. 7); aedeagus very slender, with short globate caecum; moth small, forewing blackish, with weak stigmata ..... *senex*
- Paired sacculus process broadly ovate and contrasting with very short cone-like parabasal process; gnathos conspicuous: deeply pendulate and lobate, uncus very broad and rounded, unpaired sacculus process shorter than paired medial process (Fig. 54), saccus prolongate, tip rounded, aedeagus slender, with a distinct obtuse subterminal spine; moth medium-sized, broad-winged, monotonous grey, forewing with triad of blackish stigmata ..... *funebrale*
27. Unpaired process rounded, shorter than rounded foliate paired sacculus process, parabasal process shorter, hooklet-shaped, concealed by sacculus process (Fig. 51); uncus broad, gnathos a short, moderately pointed spine; aedeagus simple; moth small, forewing greyish with blackish scales in apical area ..... *loquax*
- Unpaired medial process distinctly triangulate, tip either obtuse or truncate 28
28. Unpaired process distinctly exceeding tips of paired sacculus process 29
- Unpaired sacculus process distinctly triangulate, shorter than broad; pointed paired sacculus process also triangulate (Fig. 56); saccus short, broadly ungulate; uncus shortly convexely rounded; gnathos short lanceolate (as in Fig. 5), valva with tip dilated; aedeagus simple, moderately curved ..... *nanum*
29. Unpaired sacculus process with tip obtuse; paired sacculus process with distinct terminal indentation (Fig. 55); aedeagus long and slender, distinctly longer than genitalia, with serrate subterminal spine; uncus broad, with obtuse tip, partly concealed by scaphium; moth medium-sized with extended blackish spots, and admixture of ferrugineous scales, paler subterminal transverse band indicated on costal margin ..... *oblitum*
- Unpaired process with a striking obtuse, moderately incised tip (Fig. 53), paired medial process lobate, parabasal process slender, sigmoid and sickle-shaped (Fig. 53); saccus broadly subtriangulate, aedeagus slender, as long as genitalia or moderately shorter with distinct subapical spine dorsally, a spinolate field in subterminal membrane ventrally; forewing colouration a mixture of grey, blackish and brown scales, irregularly spotted with black ..... *piperinum*
30. Paired sacculus process foliate with rounded tip (Fig. 63) 31
- Paired sacculus process elongate, flap-like, with obtuse tip; parabasal process extremely small, cone-shaped (Fig. 64); uncus broadly truncate; moth medium-sized, forewing rather unicolourous ..... *triangulignathos*
31. Parabasal process extremely small (reduced), poorly visible (Fig. 63); uncus broadly convex and arched; moth medium-sized, nondescript ..... *indifferens*
- Parabasal process well developed, shorter than lobate saccular process and obtusely truncate, sacculus tip distinctly dilated; moth medium-sized, nondescript ..... *patagoniae*

Species of *Symmetrischema* (s. lat.) (females)

1. Anal papillae serrate, subgenital plate very short (narrow); signum hooklet distinct but delicate; moth small, forewing uniformly blackish .. *purum*

- Anal papillae without serration 2
2. Moth very big, stout and broad-winged, forewing reaching 10 mm, cinereous with various hues, with one or two distinctive blackish costal stigmata of various size, sometimes coalescing and forming a blackish suffusion (p. 29); subgenital plate big and rather flat, with distinct parallel-sided antrum and comparatively short apophyses; signum short spine-like (Fig. 131) ..... *tangolias*
- Moth small or medium-sized, forewing reaching 8 mm, pattern more or less obscure, if distinct, then usually spotted or consisting of radiate veins, without extended blackish stigmata 3
3. Signum absent 4
- Signum present 7
4. Subgenital plate without antrum, but with a distinct, broad colliculum and with paired periostial sclerite (similar to Fig. 140); moth delicate, forewing cinereous with obsolescent blackish stigmata ..... *elementare*
- Subgenital plate with distinct funnel-shaped antrum (Figs 149, 154) 5
5. Antrum short, funnel-shaped with convergent sides (as in Fig. 142), subgenital plate subquadrate, with very short apophyses and a snare-like ledge caudally; moth medium-sized, forewing brownish, with striking radiate pattern (striae) (p. 28) ..... *striatellum*
- Antrum rather prolongate and parallel-sided or nearly parallel-sided (Fig. 154), forewing without radiate pattern 6
6. Subgenital plate longer than broad, antrum reaching about half length of apophyses, parallel-sided (Fig.154); moth big and stout, forewing about 8 mm, brownish ferrugineous to blackish . *femininum*
- Subgenital plate short and broad, antrum broad, and reaching beyond apophyses, colliculum distinct with sharp lateral edges; moth medium-sized and stout, forewing cinereous with distinct blackish spotting ..... *respectabile*
7. Subgenital plate without obvious sculpture and comparatively simple and smooth, or showing only indication sclerotized 'folds' (Figs 132, 145, 146), antrum weak, very short 8
- Subgenital plate with more or less distinct sculpture formed by sclerotized ledges or loops (Figs 149, 150), and antrum distinct 12
8. Lateral sclerites at sides of membranous central part of subgenital plate smooth, central membranous part broadening caudally, apophyses very long and slender, colliculum very distinct indicating a short funnel; signum a strong spine (Fig. 109, center); moth small, mottled ..... *major*
- Lateral sclerites at sides of membranous central part with sclerotized folds sometimes weak 9
9. Folds comparatively dense and expanding into membranous central part of subgenital plate, external edge of subgenital plate excised before base of (moderately curved) apophyses, sclerotization of colliculum asymmetrical (Fig. 145), moth monotonous greyish, forewing with obscure stigmata ..... *grisescens*
- Folds not expanding into central (membranous) part of subgenital plate 10
10. Ventral part of subgenital plate broadly membranous 14
- Ventral part of subgenital plate narrowly membranous 11
11. Central part of subgenital plate narrow membranous (Fig. 146), lateral sclerites with folds reaching onto inner side (edge), otherwise smooth, apophyses convexly curved; signum spine very long and slender; moth deep grey, forewing with obsolete blackish spotting *grandispinum*
- Membraneous part narrow, proximal margin of subgenital plate protruding into a short, parallel-sided funnel; signum very stout; moth small, forewing blackish with stigmata poorly indicated ..... *senex*
12. Subgenital plate short, with very long apophyses anda very long, distinctive antrum (Fig. 144) ... 13
- Subgenital plate elongate with (very) short and often curved apophyses. Apophyses straight; corpus bursae with signum minor and with a unique, long spatulate sclerite (Fig. 153); subgenital plate with foam-like sculpture and with semicircular paired ledge; moth small, broadwinged, forewing brownish with metallic lustre ..... *solitare*
13. Elongate funnel (antrum) asymmetrical; signum large,spinelike (Fig. 144); moth uniformly grey, forewing with obsolescent, blackish pattern ..... *arctanderii*
- Elongate funnel of antrum asymmetrical; signum medium-sized; moth blackish, forewing white-spotted ..... *solum*
14. Well defined, distinctive, paired disciform sclerite, exceeding proximal margin of subgenital plate, apophyses extremely short, less than ⅓ length of subgenital plate length (Fig. 148); moth stout, rather broad-winged, forewing with large spots of thick blackish scales, pale indication of external transverse band ..... *oblitum*
- Subgenital plate without paired disciform sclerite, apophyses not extremely short 15
15. Moth medium-sized to big, habitually variable, wings comparatively slender, forewing usually grey or brownish, often with narrow or broad, incomplete axial streak centrally (p. 28); subgenital plate (Fig. 147) with a paired loop-like sclerite periostially; ductus bursae asymmetrically sclerotized; signum robust, hooklike ..... *symmetricum*
- Moth small or medium-sized, often broad-winged, forewing without longitudinal axial streak 16
16. Proximal margin of subgenital plate with protruding paired or unpaired sclerites and without convergent ledges (Fig. 150). Proximal margin forming a strong arched sclerite strengthening subgenital plate ventrally, proximal part of ductus bursae distinguished by asymmetrical sclerotization; signum a short, stout spine (Fig. 150); moth broad-winged, forewing dominated by blackish costal stigma ..... *krabbei*

- Proximal margin without protruding paired or unpaired sclerite(s) but with convergent proximal margin, funnel-shaped prolongation poorly developed (Fig. 149) 17

17. Subgenital plate with proximal margin protruding into narrow funnel, membranous distal prolongation of plate covered by dense microchaetae, apophyses very short, a paired, broadly loop-like sclerite (Fig. 149) praeostial; moth broad-winged, forewing with double crescent-formed velvety black spots on costa (p. 28) ..... *nummulatum*

- Subgenital plate without protruding proximal margin and with (or without) only moderately protruding, very short funnel (antrum) 18

18. Moth small, rather broad-winged, forewing unicolourous blackish and patternless; subgenital plate moderately longer than broad, apophyses short with convexly curved bases, a paired narrow but distinct loop-like periostial sclerite; signum stout, moderately curved, spinelike ..... *anthracinum*

- Moth small to medium-sized, forewing greyish with irregular pattern of blackish and ferruginous scales and some stigmata 19

19. Subgenital plate without fine sculpture, with a paired, loop-like ledge centrally, proximal margin of plate moderately protruded; signum a short medium-sized thorn; moth medium-sized, forewing cinereous grey with blackish scale groups centrally and costally and with obscure blackish stigmata ..... *laciniosa*

- Subgenital plate with sculpture comprising a paired periostial sclerite with rich folds, paired process with short but distinct obtuse tip; proximal plate margin simple, without antrum, apophyses short and curved, signum delicate; moth medium-sized, forewing with dense groups of blackish scales and with indication of ferruginous stigmata ..... *draculinum*

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