



SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 86 Washington : 1939 No. 3064

RESTRICTION OF THE GENUS *GELECHIA* (LEPIDOPTERA: GELECHIIDAE), WITH DESCRIPTIONS OF NEW GENERA

By AUGUST BUSCK

THE GENUS *Gelechia* Hübner,¹ type *G. rhombella* (Schifferrmüller), has become, in the course of years since its erection, a "wastebasket"² for hundreds of heterogeneous species of gelechiids that could not readily be assigned to other genera on wing or palpal characters. The result is an aggregation of more than 400 such species under the generic name *Gelechia*. Quite aside from the inconvenience of such an unwieldy number of species in one genus, it is apparent that this lumping does not represent a natural grouping, but that many of the included species are less related to their associates in the check lists under that genus than they are to the species placed in other genera. *Gnorimoschema* Busck (*Phthorimaea* Meyrick), for example, which has been correctly separated for many years on obvious pterogostic and oral characters, is clearly more closely related to *Gelechia* proper than most of the genera here eliminated from the concept. For this reason it is included in the synoptic tables in this paper, and figures of the genitalia are given for comparison (pl. 58, fig. 2; pl. 65, fig. 36).

Several sound attempts have been made by workers in continental Europe, notably Heinemann,³ to make a more natural classification by the erection of separate genera for species with certain slight modifications of wing structure and palpal characters in common, but the

¹ Verzeichniss bekannter Schmetterlinge, p. 415, 1816.

² As early as 1872 V. T. Chambers commented on "the elastic limits of that accommodating genus *Gelechia*, the microlepidopterists' waste-paper box," Can. Ent., vol. 4, p. 147, 1872.

³ Schmetterlinge Deutschlands und der Schweiz, 1870.

absence of any striking differences in these characters left, nevertheless, a large residue of species, not closely related, in the genus *Gelechia*, which thereby became difficult to define concisely. Spuler⁴ states after his description of the genus: "Die Verschiedenheiten im Bau verlangen eine Aufteilung der Arten in mehrere Genera," and several others have pointed this out. On the other hand, Meyrick⁵ discarded even these attempts and lumped 380 species in *Gelechia*.

Of late, new species have been described as "*Gelechia* species" or "*Gelechia?* sp.,"⁶ and, as many more new species of this group are yet to be described, it is desirable, both for practical and for taxonomic reasons, that the genus, which contains a number of species of economic importance, should be divided into its different natural components.

A study of the genitalia of both sexes reveals characters by which this division can be made, and a more natural arrangement of the numerous species can be effected. A first step toward this was made by Pierce and Metcalfe⁷ for the limited British fauna. These authors reduced the number of British species included by Meyrick in *Gelechia* from 31 to 8. The present paper is a further attempt to divide the genus on genitalic characters, but as it deals mainly with the North American and European species, it is to be expected that additional work along the same lines will be required for the species of other faunas. The resurrection on genitalic characters of nearly all the genera proposed in this group by earlier workers, but which have later been discarded and placed as synonyms in Meyrick's revision of the family, is one gratifying result of this study. Besides these it has been found necessary to define seven new genera.

The generic division on genitalic characters does not contradict the characters of venation and mouth parts; on the contrary, the genitalia serve further to support these characters, but it is realized that some of the wing characters are not so stable in this group as hitherto supposed. For example, the close approximation of veins 3 and 4 in the fore wing of *Gelechia*, as now restricted, culminates in some of the species in the stalking of these veins, and this apparently does not justify generic separation. Overemphasis of this character, which recurs in several other genera, led Walsingham⁸ to assert that in any division of *Gelechia* the genonym must be restricted to the group having veins 3 and 4 of the fore wings stalked, and on that ground he associated the common American *bosquella*

⁴ Die Schmetterlinge Europas, vol. 2, p. 360, 1910.

⁵ Genera insectorum, fasc. 184, pp. 74-84, 1925.

⁶ Keifer, Monthly Bull. California Dept. Agr., vol. 25, p. 240-242, 1936.

⁷ Genitalia of the tineid families of the Lepidoptera of the British Islands, 1935.

⁸ Biologia Centrali-Americana, vol. 4, p. 60, 1911.

Chambers with the genotype of *Gelechia*, the European *rhombella*; *bosquella*, however, differs from *Gelechia* in other venational characters and on the basis of genitalia structures belongs to a quite different group, for which Meyrick has erected the genus *Stegasta*, the type of which is the Indian species *variana* Meyrick. For comparison the striking genitalia of this genus are figured (pl. 63, figs. 26, 27; pl. 70, figs. 60, 61).

The genus *Bryotropha* Heinemann, sunk by Meyrick as a synonym of *Gelechia*, owing to the supposed lack of stable venational characters to differentiate it, although retained by the continental European workers, proves to be very distinctly defined by the genitalia, as already shown by Pierce and Metcalfe⁷, and its validity is further emphasized by the venation and by the single bristle on the basal antennal joint, a character that does not seem to have been recorded before, apparently having been overlooked; it is a remnant of a pecten, which is very significant and unusual in the family Gelechiidae, shared only by very few genera, like *Sitotroga* and *Pectinophora*, from which *Bryotropha* is widely separated on other characters.

In *Aroga*, which was mainly founded on the separation of veins 3 and 4 in the hind wings, it is found that this character varies within closely allied species and even in the sexes of the same species.

Like the generic characters in venation and labial palpi, certain characters of the genitalia are found not to be absolute. Nature does not conform with artificial synoptic tables, and these must be used with discretion and with an intimate knowledge of allied forms as well as of the group under study. Thus the signum of the female bursa is absent in some species that are clearly referable on all other characters to genera where the signum normally is present. This absence in isolated species of a character present in closely related species is as difficult to explain as is the purpose of the character itself, but numerous examples of such absence in widely separated families lead to the opinion that the absence of this character is not necessarily of generic significance and that the exception to the rule does not disprove the rule, as we are able to conceive it. Similarly it is found that characters of the male genitalia, which normally are remarkably constant and dependable in the separation of genera, are found in certain genera to be variable, even within the species. Thus while symmetry and asymmetry of the genitalia are not normally found within the same genus, both occasionally do occur as variations within a single species, as for example in the genus *Chionodes*, which, therefore, must be defined on other more stable genitalic characters.

⁷ Genitalia of the tineid families of the Lepidoptera of the British Islands, 1935.

In spite of these and other variations the genitalia are, as is the venation, remarkably constant and offer excellent characters for generic and specific definition as well as for family grouping. The fact that scarcely any two specimens of our common cosmopolitan clothes moth, *Tineola biselliella* (Hummel), have identical venation does not nullify the value of venation, and this species may actually be identified on its venation alone in spite of the variation. Similarly there is very great variation in the harpes of the gelechiid species *Chionodes dentella* (Busck), but the species may nevertheless be definitely identified by the genitalia alone.

No apology is needed for the use of the characters of the genitalia as major determinating factors in the definition of genera. Their value in the sound classification of Lepidoptera is conceded by all modern workers. The time has passed when the dissection of these parts of the males was deplored and consolation found in the belief that "this new science will not classify the females, so it is a pleasant reflection in these days of equal suffrage to know that the females will still look forward" while "it may be necessary some day to turn our males around in our collections and let them travel backwards."⁹

Too little is known as yet about the early stages of this group to warrant generalizations about the larval and pupal characters, but the few species of which these stages have been properly studied and figured, mainly by Heinrich and Keifer, clearly substantiate further the generic divisions made in this paper. The presence or absence of a cremaster in the pupa and the length of the wing covers and antenna of the pupa, for example, appear from the evidence at hand to be constant within the genus; these characters will presumably prove to be of generic value and verify the divisions made in this paper on adult characters.

The present contribution is based on material in the United States National Museum. The figures were drawn under the author's supervision by Mrs. Mary Foley Benson from slides made by the author. The plates were arranged by Mrs. Eleanor A. Carlin. To both thanks are due for their expert help.

The group of genera here considered have the following external and venational characters in common: Antennae shorter than fore wings; second joint of labial palpus thickened with scales, and with rough and normally furrowed tuft beneath; terminal joint nearly as long as or slightly longer than second. Fore wings elongate, more or less pointed; 12 veins; 7 and 8 stalked, 7 to costa, 6 sometimes out of 7 near base, 3 and 4 approximate, connate or short-stalked, 1b furcate at base, 1c absent. Hind wings nearly as broad as or broader

⁹ A. F. Braun, Ent. News, vol. 32, p. 118, 1921.

than fore wings, trapezoidal; apex pointed or obtuse; termen more or less sinuate; 8 veins; 3 and 4 closely approximate, connate or short-stalked; 5 nearer 4 than 6 at base; 6 and 7 approximate at base or connate, or stalked. Hind tibiae rough haired above.

GENERA DEFINED IN THIS PAPER

1. *Gelechia* Hübner; type, *rhombella* (Schifferrmüller). Synonym, *Oeseis* Chambers; type, *bianulella* (Chambers).
2. *Gnorimoschema* Busck; type, *gallaesolidaginis* (Riley). New synonym, *Phthorimaea* Meyrick; type, *operculella* (Zeller).
3. *Keiferia*, new genus; type, *lycopersicella* (Busck).
4. *Lita* Treitschke; type, *longicornis* (Curtis).
5. *Friseria*, new genus; type, *lindenella* (Busck).
6. *Chionodes* Hübner; type, *lugubrella* (Fabricius).
7. *Filatima*, new genus; type, *serotinella* (Busck).
8. *Bryotropha* Heinemann; type, *terrella* (Schifferrmüller).
9. *Fru menta*, new genus; type, *nundinella* (Zeller).
10. *Aroga* Busck; type, *paraplutella* (Busck).
11. *Pseudochelaria* Dietz; type, *pennsylvanica* Dietz.
12. *Fascista*, new genus; type, *cercerisella* (Chambers).
13. *Epilechia*, new genus; type, *catalinella* (Busck) (*tehuacana* Busck), new synonymy.
14. *Faculta*, new genus; type, *triangulella* (Busck).

OTHER GENERA FIGURED FOR COMPARISON

1. *Nothris* Hübner; type, *verbascella* (Schifferrmüller).
2. *Stegasta* Meyrick; type, *variana* Meyrick.
3. *Evippe* Chambers; type, *prunifoliella* Chambers.
4. *Anacamptis* Curtis; type, *populella* (Clerck).
5. *Recurvaria* Haworth; type, *nanella* (Hübner).
6. *Strobisia* Clemens; type, *iridipennella* Clemens.
7. *Dichomeris* Hübner; type, *ligulella* (Hübner).

SYNOPTIC KEY TO THE GENERA BASED ON MALE GENITALIA

- | | |
|------------------------------------------------------------------------------------------------|----------------------|
| 1. Uncus hood-shaped, with apex sometimes indented or bifid..... | 2 |
| Uncus not hood-shaped..... | 10 |
| 2. Base of gnathos soft, pillowlike, minutely spined, with slight terminal sclerotization..... | 3 |
| Gnathos a strong hook..... | 4 |
| 3. Alimentary canal within tegumen supported by two flattened rods..... | <i>Gelechia</i> |
| Alimentary canal without such support..... | <i>Gnorimoschema</i> |
| 4. Uncus very short, edged with row of strong spines..... | 5 |
| Uncus large..... | 6 |
| 5. Aedeagus straight, with stalk below entrance hole for penis..... | <i>Lita</i> |
| Aedeagus curved, with bulbous base..... | <i>Friseria</i> |
| 6. Aedeagus with long stalk below entrance hole for penis..... | <i>Chionodes</i> |
| Aedeagus without such stalk..... | 7 |
| 7. Aedeagus short, stumpy, with lateral branches or spines..... | 8 |
| Aedeagus long, slender, with bulbous base..... | 9 |

8. Harpes divided.....	Filatima
Harpes not divided.....	Epilechia
9. Hook of gnathos pointed.....	Bryotropha
Hook of gnathos spoon-shaped.....	Frumenta
10. Uncus pointed, smooth.....	11
Uncus blunt, spiny.....	Pseudochelaria
11. Gnathos weak or absent.....	12
Gnathos strongly developed.....	13
12. Harpes ending in sharp spine.....	Aroga
Harpes enlarged at tip.....	Keiferia
13. Harpes divided or furcate at tip.....	Fascista
Harpes simple.....	Faculta

SYNOPTIC KEY TO THE GENERA BASED ON FEMALE GENITALIA

1. Signum double.....	2
Signum single.....	3
2. Signa two strongly dentate plates.....	Lita
Signa two large, flattened, smooth-edged plates.....	Epilechia
3. Signum a single thorn or spine.....	4
Signum not so.....	7
4. Signum strongly dentate.....	Filatima albilorella (Zeller)
Signum not dentate or only slightly so.....	5
5. Signum a sharp-edged, compressed thorn from a flattened base.....	Fascista
Signum not so.....	6
6. Signum long, curved, sharply pointed.....	Keiferia
	Gnorimoschema
Signum straight, obtusely pointed.....	Frumenta
7. Signum an involuted, double-flanged, spiny plate.....	8
Signum not so.....	10
8. Signum large, angular, with minute spines.....	9
Signum small, oval, with dentate edges.....	Chionodes
9. Ostial plate with lateral lobes.....	Gelechia
Ostial plate without lateral lobes.....	Pseudochelaria
10. Upper part of bursa spined.....	11
Bursal wall not spined.....	13
11. Ductus bursae short, straight.....	12
Ductus bursae long, twisted upon itself.....	Friseria
12. Signum with four long arms.....	Faculta
Signum not so.....	Filatima
	except <i>F. albilorella</i> (Zeller)
13. Signum a small rectangular plate with a strong spine at each corner.....	Aroga
Signum a spiny plate with two transverse raised keels.....	Bryotropha

1. Genus GELECHIA Hübner

PLATE 58, FIGURE 1; PLATE 61, FIGURE 19; PLATE 65, FIGURE 34

Gelechia HÜBNER, Verzeichniss bekannter Schmetterlinge, p. 415, 1816. (Genotype, *Tinea rhombella* Schiffermüller.)

Cirrha CHAMBERS, Can. Ent., vol. 4, p. 146, 1892. (Genotype, *Depressaria albisparsella* Chambers.)

Oeseis CHAMBERS, Cincinnati Quart. Journ. Sci., vol. 2, p. 255, 1875. (Genotype, *Oeseis bianulella* Chambers.)

Fore wings with veins 3 and 4 closely approximate, connate or stalked. Hind wings broader than fore wings. Veins 6 and 7 closely approximate or more often stalked.

Male genitalia with uncus reduced as a soft, hoodlike upper edging of tegumen with few short, nearly equidistant spines. Gnathos a soft, minutely spined pillow¹⁰ terminating in a small, weakly chitinized, often 3-forked hook. Socii absent. Alimentary canal supported by two large flattened rods within tegumen. Upper branch of harpe long, often flattened, spindle-shaped, pointed, hairy at tip; lower branch of harpe shorter, often abruptly bent forward on middle. Aedeagus specialized, pointed, scobinate at tip and normally with a short branch. Vinculum strong, with flattened process. Eighth segment developed into a cover for the genitalia; dorsal half largest and with two thin, curved hair tufts from near base.

Female genitalia with short lateral lobes on genital plates; signum quadrangular with the two opposite edges bent upward and inward to form a pocket, normally heavily covered with short spines; rarely signum absent (*rhombella*).

The American *Oeseis bianulella* Chambers was mistakenly made a synonym of the European *sabinella* Zeller by Meyrick and placed in the genus *Nothris*; the two species are congeneric but quite distinct specifically and do not belong to *Nothris* Hübner, which has a different type of genitalia (pl. 63, fig. 25, and pl. 71, fig. 63). Both species fall in *Gelechia* as here defined; if a separation seems necessary, of the species that are here placed in *Gelechia* but which have the brush on the second joint of the labial palpi longer and pointed, approaching that of *Dichomeris*, the generic name *Oeseis* Chambers may be utilized. The character does not appear to be of generic importance in this group, however, because all the intergrades between the evenly short-furrowed brush to the longer brush with uneven length of scales are found in otherwise closely similar species.

¹⁰ Pierce and Metcalfe (*op. cit.*) consider this the anus, but the alimentary canal opens behind it, between it and the uncus, and from comparison with the similar structure in *Gnorimoschema* I believe it to be associated with the gnathos. The assignment of name may be debatable; but whatever the designation, the structure is very striking and an excellent character in the definition of the two genera possessing it.

NORTH AMERICAN SPECIES OF GELECHIA

<i>bianulella</i> (Chambers).	Synonyms:	<i>mandella</i> Busck.
<i>ocellella</i> Chambers,	<i>sabinella</i> Meyrick (nec Zeller).	<i>lynceella</i> Zeller.
<i>anarsiella</i> Chambers.		<i>caudata</i> Clarke.
<i>monella</i> Busck.		<i>trilineella</i> Chambers.
<i>panella</i> Busck.		<i>desiliens</i> Meyrick.
<i>dyariella</i> Busck.		<i>dromicella</i> Busck.
<i>rileyella</i> (Chambers).		<i>obscurousuffusella</i> Chambers. Synonym:
<i>albisparsella</i> (Chambers).	Synonym:	<i>canopulvella</i> Chambers.
<i>platanella</i> (Chambers).		<i>ribesella</i> Chambers.
<i>versutella</i> Zeller.		<i>benitella</i> Barnes and Busck.

EUROPEAN SPECIES OF GELECHIA

<i>rhombella</i> (Schiffermüller).	<i>pinguinella</i> Treitschke.
<i>muscosella</i> Zeller.	<i>scotinella</i> Herrich-Schaeffer.
<i>hippophaela</i> Zeller.	<i>cuneatella</i> Duponchel.
<i>rhombelliformis</i> Staudinger.	<i>obscuripennis</i> Frey.
<i>sororealella</i> Hübner.	<i>sabinella</i> Zeller.
<i>nigra</i> Haworth.	<i>asinella</i> Zeller.

Undoubtedly others belong here, but several intervening species in the European check lists do not belong to *Gelechia* as here restricted.

2. Genus GNORIMOSCHEMA Busck

PLATE 58, FIGURE 2; PLATE 65, FIGURE 36

Gnorimoschema BUSCK, Proc. U. S. Nat. Mus., vol. 23, p. 227, 1900. (Genotype, *Gelechia gallaesolidaginis* Riley.)

Phthorimaea MEYRICK, Ent. Mon. Mag., vol. 38, p. 103, 1902. (Genotype, *Gelechia operculella* Zeller.)

Third joint of labial palpus more or less thickened with scales normally protruding beyond the apex. Fore wings with veins 2, 3, 4, 5, and 6 nearly equidistant. Hind wings with veins 6 and 7 parallel or nearly so; veins 3 and 4 connate or stalked; 5 approximate to 4.

Male genitalia with uncus short, hood-shaped, often bluntly pointed; gnathos with large, soft, pillowlike, spiny base terminating in slightly curved, tongue-shaped, sclerotized hook, sometimes 3-forked. Upper arms of harpes long, slender, normally bent forward; lower branches of harpes shorter, hairy at tip. Aedeagus nearly straight, somewhat enlarged at base, with entrance hole for penis lateral. Vinculum strong, with broad, flattened, anterior process. Eighth segment large, dorsal half largest and normally with two thin hair tufts from near base.

Female genitalia with upper part of ductus more or less sclerotized; posterior apophyses stout, pointed, fused with a strongly sclerotized, large genital plate; bursa large, oblong; signum a single, curved, sharply pointed, sometimes slightly dentate thorn with bulbous base extending outside the wall of bursa.

AMERICAN SPECIES OF GNORIMOSCHEMA

- gallaesolidaginis* (Riley).
gallaesteriella (Kellicott). Synonyms: *caesiella* (Brodie), *gallaediplopappi* (Fyles).
salinaris Busck.
subterranea Busck.
charcoti (Meyrick).
gibsoniella Busck.
septentrionella (Fyles).
alaricella Busck.
semirosea Meyrick.
busckiella Kearfott.
eucausta Meyrick.
laguna Busck.
lipatiella Busck.
plaesiosema (Turner), described from Australia. New synonyms; *melanoplintha* (Meyrick), described from New Zealand; *tuberosella* Busck, described from Peru.
consueta Braun.
tetradymiella Busck.
miscitella Clarke.
chenopodiella Busck.
polemoniella (Braun).
arenopsis (Meyrick). Synonym: *artimisiella* Kearfott.
erigeronella Braun.
batanella Busck.
ochroschista (Meyrick).
chiquitella Busck.
sacculicola (Braun).
macromaculata Braun.
lavernella (Chambers). Synonym: *phylsalivorella* (Chambers).
henshawiiella Busck. Synonym: *ochreostrigella* (Chambers).
potentella Keifer.
grisella (Chambers). Synonym: *discomaculella* (Chambers).
operculella (Zeller). Synonyms: *solanella* (Boisduval), *tabacella* (Ragonot).
minor Busck.
- gudmannella* (Walsingham).
brackenridgiella Busck. Synonym: *detersella* (Clemens).
scutellariaeella (Chambers).
ambrosiaeella (Chambers).
pallidochrella (Chambers).
versicolorella (Chambers).
albimarginella (Chambers).
serratipalpella (Chambers).
contraria Braun.
lutescella Clarke.
banksiella Busck.
washingtoniella Busck.
triocellella (Chambers).
albangulata Braun.
octomaculella (Chambers).
semicyclionella Busck.
florella Busck.
vastifica Braun.
baccharisella Busck.
coquilletella Busck.
ericameriae Keifer.
dudiella Busck.
saphirinella (Chambers).
splendoriferella Busck.
princeps Busck.
radiatella Busck.
striatella (Murtfeldt).
sporomochla Meyrick.
compsomorpha Meyrick.
milleriella (Chambers).
emancipata (Meyrick). Synonym: *marmorella* (Chambers).
inexpertella (Meyrick). Synonym: *simpliciella* (Chambers).
terracottella Busck.
faustella Busck.
collinusella (Chambers).
atriplex Busck.
petrella Busck.
neopetrella Keifer.
lectulifera Meyrick.
fercularia Meyrick.

3. KEIFERIA, new genus

PLATE 58, FIGURE 3; PLATE 61, FIGURE 18; PLATE 65, FIGURE 35

Closely allied to *Gnorimoschema* and with the same palpal and wing characters but differing strikingly in the form of the uncus.

Labial palpus with brush on second joint slightly furrowed, terminal joint slightly thickened with scales, which protrude beyond the tip.

Fore wings with 12 veins, veins 2 to 6 nearly equidistant. Hind wings with 8 veins, 3 and 4 connate or short-stalked, 5 approximate to 4; 6 and 7 nearly parallel.

Male genitalia with upper branch of harpe slender, broadened at tip, often furcate at tip; lower branch or harpe short; uncus a large hook, pointed; gnathos weak or undeveloped; vinculum broad and long; aedeagus slender, curved, with bulbous base and hooked apex. Female genitalia with upper part of ductus bursae sclerotized; bursa large, oblong, with a single strong, sometimes slightly dentate, thorn-like, strongly curved signum, the base of which extends outside the bursa wall.

Named in honor of H. H. Keifer, assistant entomologist of the California Department of Agriculture, who has done much careful biological work with this group of economically important species.

Genotype, *Gnorimoschema lycopersicella* Busck.¹¹

NORTH AMERICAN SPECIES OF KEIFERIA

lycopersicella (Busck).

glochinella (Zeller). Synonyms: *solaniella* (Chambers), *cinerella* (Murtfeldt), *inconspicuella* (Murtfeldt).

elmorei (Keifer).

altisolani (Keifer).

All these names are transferred from *Gnorimoschema*.

4. Genus LITA Treitschke

PLATE 58, FIGURE 5; PLATE 65, FIGURES 37-39

Lita TREITSCHKE, Die Schmetterlinge Europas, vol. 9, p. 76, 1833. (Genotype, *Lita zebrella* Treitschke, synonym of *Anacamptis longicornis* Curtis.)

Labial palpus with second joint very long, slender; brush short and hardly furrowed; terminal joint long, slender, acute.

Fore wing with vein 2 distant from 3. Hind wing with veins 6 and 7 separate at base, nearly parallel; veins 3 and 4 approximate, connate or stalked.

Male genitalia with uncus very short, broad, edged with strong, flattened spines; gnathos a strong curved hook; upper branch of harpe long, curved, club-shaped; lower branch shorter, serrated on edge; aedeagus straight, with stalk below entrance hole for penis; eighth segment moderate.

Female genitalia with signa two strong dentate plates.

¹¹ Proc. Hawaiian Ent. Soc., vol. 7, p. 171, 1928.

Two of the described American species of the genus, *Lita puertella* (Busck) and *Lita invariabilis* (Kearfott), have a peculiar, sharply toothed, strongly sclerotized process on the front of the head, protruding beyond the scales (pl. 65, figs. 38, 39), undoubtedly corresponding to a similar prominence on the pupa, which assists the latter in cutting its way out through a tough surface, such as the stalk of a dry desert plant. It is a specific character only, the other species of the genus having normal flat or evenly rounded faces.

AMERICAN SPECIES OF LITA

<i>longicornis</i> (Curtis). Synonyms: <i>alter-</i>	<i>diversella</i> (Busck).
<i>natella</i> (Kearfott), <i>alpicola</i> (Frey),	<i>rectistrigella</i> (Busck).
<i>petulans</i> Braun.	<i>texanella</i> (Chambers). Synonym:
<i>barnesiella</i> (Busck).	<i>chambersella</i> (Dyar).
<i>variabilis</i> (Busck).	<i>prorepta</i> (Meyrick). Synonym: <i>ful-</i>
<i>invariabilis</i> (Kearfott).	<i>menella</i> (Busck), preoccupied.
<i>puertella</i> (Busck).	

The names listed above have been cataloged under *Gelechia* in North American literature.

EUROPEAN SPECIES OF LITA

<i>longicornis</i> (Curtis).	[Probably others.]
<i>solutella</i> (Zeller).	

5. FRISERIA, new genus

PLATE 58, FIGURE 4; PLATE 67, FIGURE 46

Labial palpus with brush on second joint small; terminal joint longer than second, smooth, pointed.

Fore wings with veins 3, 4, and 5 equidistant; veins 2 and 6 farther separated. Hind wings as broad as fore wings; veins 3 and 4 closely approximate but separate; 6 and 7 connate.

Male genitalia with uncus very short, hood-shaped, edged with stiff spines; gnathos a strong slender hook; harpes divided into three arms; vinculum broad; aedeagus slender, curved, with large bulbous base.

Female genitalia with long ductus bursae, closely spiraled upon itself; signum a large rectangular plate with two sinuate arms, or with spines in the four corners.

Genotype, *Gelechia lindenella* Busck.¹²

AMERICAN SPECIES OF FRISERIA

<i>lindenella</i> (Busck).	<i>cockerelli</i> (Busck).
<i>malindella</i> (Busck).	<i>fuscotaeniella</i> (Chambers).
<i>repentina</i> (Walsingham).	<i>sarcochlora</i> (Meyrick).

All these species were described in the genus *Gelechia*.

¹² Proc. U. S. Nat. Mus., vol. 25, p. 876, 1908.

6. Genus *CHIONODES* Hübner

PLATE 59, FIGURES 6-9; PLATE 66, FIGURES 40-43

Chionodes HÜBNER, Verzeichniss bekannter Schmetterlinge, p. 420, 1816. (Genotype, *Chionodes luctificella* Hübner, synonym of *Tinea lugubrella* Fabricius.)

Second joint of labial palpus with slightly furrowed brush beneath; terminal joint smooth, pointed.

Fore wings with veins 2 to 6 equidistant. Hind wings with veins 3 and 4 connate or short-stalked; 6 and 7 closely approximate, connate or stalked.

Male genitalia with uncus large, hood-shaped, sometimes divided at apex; gnathos a strong curved hook; harpes very variable, even within the species, and often asymmetrical, upper arm normally long, slender, somewhat enlarged and commonly bifurcate at tip, but sometimes, within the same species, reduced, asymmetrical, with the right harpe much shorter than the left, and sometimes (the genotype) rudimentary; lower arms short, stumpy, spiny at apices; aedeagus elongate, with long slender stalk below entrance hole for penis, apex with strongly modified lateral projections. Eighth segment developed into large enveloping upper and lower sheaths.

Female genitalia with upper part of walls of ductus granulated, bursa large, with upper part of wall spined; signum oval, dentate with stronger teeth along its edges.

In spite of the diversity of forms and the individual variations in the genitalia, they conform to a general, easily perceived pattern, and the genus, as restricted, constitutes a natural group, which should not be further subdivided.

AMERICAN SPECIES OF *CHIONODES*

- | | |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>lugubrella</i> (Fabricius). Synonym: <i>luctificella</i> Hübner. | <i>aristella</i> (Busck). |
| <i>viduella</i> (Fabricius). Synonym: <i>labradoriella</i> (Clemens). | <i>abdominella</i> (Busck). |
| <i>continuella</i> (Zeller). Synonyms: <i>trimaculella</i> (Packard), <i>albomaculella</i> (Chambers). | <i>sistrella</i> (Busck). |
| <i>periculella</i> (Busck). | <i>dentella</i> (Busck). |
| <i>maculimarginella</i> (Chambers). | <i>xanthophilella</i> (Barnes and Busck). |
| <i>seculaella</i> (Clarke). | <i>pinguicula</i> (Meyrick). |
| <i>arenella</i> (Forbes). | <i>retiniella</i> (Barnes and Busck). New synonym: <i>langei</i> (Keifer). |
| <i>nigrimaculella</i> (Busck). | <i>luteogeminata</i> (Clarke). |
| <i>coticola</i> (Busck). New synonym: <i>notochlora</i> (Meyrick). | <i>mediofuscella</i> (Clemens). Synonyms: <i>vagella</i> (Walker), <i>liturosella</i> (Zeller), <i>rhedaria</i> (Meyrick), <i>fusc ochrella</i> (Chambers). |
| <i>chloroschema</i> (Meyrick). | <i>acrina</i> (Keifer). |
| <i>fructuaria</i> (Braun). | <i>trophella</i> (Busck). |
| <i>figurella</i> (Busck). | <i>abella</i> (Busck). |
| <i>fondella</i> (Busck). | <i>kincaidella</i> (Busck). |
| <i>pseudofondella</i> (Busck). | <i>fluvialella</i> (Busck). |
| | <i>psiloptera</i> (Barnes and Busck). |

<i>ceanothiella</i> (Busck). New synonym:	<i>negundella</i> (Heinrich).
<i>marinensis</i> (Keifer).	<i>dammersi</i> (Keifer).
<i>nanodella</i> (Busck).	<i>helicostieta</i> (Meyrick).
<i>trachycosma</i> (Meyrick).	<i>paralogella</i> (Busck).
<i>lophosella</i> (Busck). Synonym: <i>lophella</i>	<i>thoracealbella</i> (Chambers).
(Meyrick).	<i>caryaevorella</i> (Packard).
<i>ochreostrigella</i> (Chambers).	<i>metallica</i> (Braun).
<i>notandella</i> (Busck).	<i>argentipunctella</i> (Ely).
<i>bicostomaculella</i> (Chambers). Syno-	<i>discoocellella</i> (Chambers). Synonym:
nyms: <i>gibbosella</i> (Chambers), <i>querci-</i>	<i>violaceofusca</i> (Zeller).
<i>foliella</i> (Chambers).	<i>hibiscella</i> (Busck).
<i>vernella</i> (Murtfeldt).	<i>trichostola</i> (Meyrick).
<i>braunella</i> (Keifer). Synonym: <i>arborei</i>	<i>vanduzeei</i> (Keifer).
(Keifer).	<i>chrysopyla</i> (Keifer).
<i>occidentella</i> (Chambers).	<i>leucocephala</i> (Walsingham), St. Croix,
<i>terminimaculella</i> (Kearfott).	West Indies.

All above names have been cataloged in American literature under *Gelechia*.

7. FILATIMA, new genus

PLATE 60, FIGURES 11–13; PLATE 66, FIGURE 44; PLATE 67, FIGURES 47, 48

Labial palpus with well-developed, dense, furrowed brush on second joint; terminal joint slender, pointed, nearly or fully as long as second.

Fore wings with veins 3, 4, and 5 somewhat approximate, veins 2 and 6 farther separated. Hind wings with 3 and 4 connate, 6 and 7 approximate; in the males with more or less elaborate sex scaling on the underside ("curtain-fringed").

Male genitalia with uncus moderate, hood-shaped. Gnathos a rather short, robust, blunt hook, often sawtoothed on inner edge; harpe with upper and lower branches solidly united at bases, upper branch long, slender, lower branch shorter, robust, pointed, often sawtoothed and porrect. Vinculum large, rounded. Aedeagus short, robust, with sharp lateral projections; upper and lower parts of eighth segment large, rounded, enveloping the genitalia.

Female genitalia with ductus bursae very short and wide, inner wall covered with short spines, bursa double, with signum in the larger half consisting of two strong dentate thorns from a common base (in *F. albilorella* Zeller only one such thorn); signum sometimes absent.

Genotype, *Gelechia serotinella* Busck.¹³

AMERICAN SPECIES OF FILATIMA

<i>serotinella</i> (Busck).	<i>amorphacella</i> (Chambers).
<i>pseudoacaciella</i> (Chambers). Synonym:	<i>ornatifimbriella</i> (Clemens). Synonym:
<i>caecella</i> (Zeller).	<i>unctulella</i> (Zeller).
<i>persicaecella</i> (Murtfeldt). Synonym:	<i>abradescens</i> (Braun).
<i>confusella</i> (Chambers).	<i>abactella</i> (Clarke).

¹³ Proc. U. S. Nat. Mus., vol. 25, p. 882, 1903.

<i>monopa</i> (Meyrick).	<i>albimorella</i> (Zeller). Synonym: <i>trifasciella</i> (Chambers).
<i>auleae</i> (Clarke).	<i>fulginea</i> (Meyrick).
<i>pravinominella</i> (Chambers). Synonym: <i>quadrimaculella</i> (Chambers).	<i>bimaculella</i> (Chambers). Synonyms: <i>sylvaecolella</i> (Chambers), <i>ternariella</i> (Zeller).
<i>normifera</i> (Meyrick).	<i>arizonella</i> (Busck).
<i>xanthuris</i> (Meyrick).	<i>clarkella</i> Busck, new name for <i>albifemorella</i> (Clarke) preoccupied by <i>G. albifemorella</i> Hoffman.
<i>lepidotae</i> (Clarke).	<i>biforella</i> (Busck).
<i>demissae</i> (Keifer).	<i>gilvomiculella</i> (Clemens). Synonym: <i>biminimaculella</i> (Chambers).
<i>saliciphaga</i> (Keifer).	<i>minimaculella</i> (Chambers).
<i>monotaeniella</i> (Bottimer).	<i>pullifimbriella</i> (Clemens).
<i>striatella</i> (Busck).	<i>obscurioocellella</i> (Chambers).
<i>ochreosuffusella</i> (Chambers). Synonym: <i>depressostrigella</i> (Chambers).	<i>depuratella</i> (Busck).
<i>rivulata</i> (Meyrick).	<i>promonitrix</i> (Meyrick).
<i>isocrossa</i> (Meyrick).	<i>hemicrossa</i> (Meyrick).
<i>gomphopis</i> (Meyrick).	<i>catacrossa</i> (Meyrick).
<i>inquilinella</i> (Busck).	
<i>bigella</i> (Busck). New synonym: <i>spilossella</i> (Barnes and Busck).	
<i>neotrophella</i> (Heinrich).	
<i>natalis</i> (Heinrich).	

All the above species are transferred to this genus from *Gelechia*.

8. Genus BRYOTROPHA Heinemann

PLATE 60, FIGURE 10; PLATE 67, FIGURE 45

Bryotropa HEINEMANN, Schmetterlinge Deutschlands und der Schweiz, vol. 2, p. 233, 1870. (Genotype, *Tinea terrella* Schifferrmüller.)

Basal joint of antenna with a single bristle (remnant of pecten). Labial palpus with well-developed, furrowed brush on under side of second joint; terminal joint as long as or longer than second, smooth, acutely pointed.

Fore wing with veins 2 to 6 nearly equidistant, subparallel; 7 and 8 stalked. Hind wing with apex produced; veins 6 and 7 stalked; veins 3 and 4 connate or short-stalked.

Male genitalia with uncus large, hood-shaped; socii small but distinctly developed, with a few long bristles; gnathos very large, bulbous, terminating in a strong curved hook. Posterior branches of the harpes small with spiny apices; anterior branches larger, spiny, sometimes with a short branch from near base. Aedeagus long, slender, curved, with bulbous base and apex soft, whiplike. Vinculum well developed, with pointed tip.

Female genitalia with ductus bursae of medium length, straight; bursa oval, without spines; signum, in the typical species, two parallel, transverse, heavy ridges connected by and surrounded with scobinations; in some European species a rectangular plate with spines in the corners, approaching the signum in *Aroga*; for the latter group

of species Pierce and Metcalfe¹⁴ suggest that a new genus is required, but the transition from the typical form of signum with the two transverse ridges and surrounding scobinate plate, which by themselves form a rectangle, seems natural, and I include all these species (genus 20 of Pierce and Metcalfe) in *Bryotropa*.

AMERICAN SPECIES OF *BRYOTROPHA*

branella (Busck).

clandestina (Meyrick).

inaequalis (Busck). New synonyms:
inaequalis (Walsingham), *anisectis*
(Meyrick).

The above names are new transfers from *Gelechia*.

EUROPEAN SPECIES OF *BRYOTROPHA*

affinis (Douglas).

terrella (Schiffermüller).

desertella (Douglas).

decrepidella (Herrich-Schaeffer).
[And others.]

9. *FRUMENTA*, new genus

PLATE 60, FIGURE 14; PLATE 68, FIGURE 49

Second joint of labial palpus with well developed, slightly furrowed brush on under side; terminal joint shorter than second, thickened with scales in front, apex acute.

Fore wing with vein 2 well before angle of cell; 3, 4, and 5 equidistant at base, nearly parallel from end of cell; vein 6 approximate to stalk of 7 and 8. Hind wing broader than fore wing, termen but slightly sinuate, apex not produced; veins 3 and 4 short-stalked, vein 5 cubital, but distant from and nearly parallel to 4; 6 and 7 separate.

Male genitalia with large hood-shaped uncus; gnathos a large flattened, spoon-shaped hook; harpes simple, robust, with rounded apex bent downward. Vinculum large with two short, stout, hairy processes posteriorly¹⁵ and with a long slender process anteriorly. Aedeagus slender, nearly straight, with bulbous base.

Female genitalia with ductus bursae moderately long, narrow, slightly twisted; bursa long elliptical; signum a single, straight, robust spine with blunt apex.

In the character of the palpi, scaling, and aedeagus this genus is similar to *Gnorimoschema* and is probably correlated with or derived from it.

Genotype, *Gelechia nundinella* Zeller.¹⁶ This is the only species at present included.

¹⁴ Genitalia of the tineid families of Lepidoptera of the British Islands, 1935.

¹⁵ This part of the genitalia, including the bases of the harpes, is strongly sclerotized and fused, and it is debatable whether the two short posterior processes actually belong to the vinculum or should be considered the lower branches of the harpes; but comparison with other forms in which both branches of the harpes are clearly developed, and in which similar processes are found on the vinculum at the same time, indicates that the present conception is correct.

¹⁶ Verh. zool-bot. Ges. Wien, vol. 23, p. 256, 1873.

10. Genus AROGA Busck

PLATE 61, FIGURES 15-17; PLATE 68, FIGURES 50-52

Aroga BUSCK, Proc. U. S. Nat. Mus., vol. 47, p. 13, 1914. (Genotype, *Gelechia paraplutella* Busck.)

Second joint of labial palpus with slightly furrowed brush on under side; terminal joint slender, acute, nearly as long as second.

Fore wing with veins 2, 3, 4, and 5 nearly equidistant. Hind wing with veins 3 and 4 closely approximate or connate, 6 and 7 separate, 5 cubital.

Male genitalia with uncus a long, slightly bent, pointed hook; gnathos absent; harpe single, long, slender, ending in a sharp point; vinculum with two large, broad, hairy posterior processes.¹⁷ Aedeagus straight or nearly so, with base not bulbous, entrance hole for penis at the base, not lateral. Ventral sclerites of eighth abdominal segment large, elaborately developed with lateral branches, discernible without dissection on the dry pinned specimen.

Female genitalia with signum a nearly square plate with strong, pointed, sometimes serrate spines from the four corners.

The genus was erected in an attempt to clarify *Gelechia* of authors on venational characters, stress being laid on the separate veins 3 and 4 in the genotype; this character, however, is found to be not dependable, even within the species, but the genitalia prove the genus to be valid, embracing a natural group of species with very striking genital characters in common.

AMERICAN SPECIES OF AROGA

<i>paraplutella</i> (Busck).	<i>morenella</i> (Busck).
<i>paulella</i> (Busck).	<i>coloradensis</i> (Busck).
<i>leucaniella</i> (Busck).	<i>alleriella</i> (Busck).
<i>acharnaea</i> (Meyrick).	<i>rigidae</i> (Clarke).
<i>chlorocrana</i> (Meyrick).	<i>eriogonella</i> (Clarke).
<i>hipposaris</i> (Meyrick).	<i>eldorado</i> (Keifer).
<i>aristella</i> (Busck).	<i>monumentella</i> (Chambers).
<i>unifasciella</i> (Busck).	<i>trialbamaculella</i> (Chambers). Synonym: <i>epigaeella</i> (Chambers).
<i>camptogramma</i> (Meyrick).	

EUROPEAN SPECIES OF AROGA

velocella (Duponchel). | [Probably others.]

All the above names with the exception of *paraplutella* (Busck) are new transfers from *Gelechia*.

¹⁷ These processes could be regarded as the lower branches of the harpes, but from comparison with similar structures in other genera I consider them a part of the vinculum. Compare with footnote under *Frumenta* (p. 577).

11. Genus PSEUDOCHELARIA Dietz

PLATE 62, FIGURES 22, 23; PLATE 69, FIGURE 55

Pseudochelaria DIETZ, Ent. News, vol. 11, p. 352, 1900. (Genotype, *Pseudochelaria pennsylvanica* Dietz.)

Second joint of labial palpus with even, furrowed brush beneath; terminal joint shorter than second, with apex acute.

Fore wing with veins 3, 4, and 5 nearly equidistant at base, 3 from before the end of the cell, 2 more distant, 6 approximate to 7. Hind wing with veins 3 and 4 connate, 5 cubital, 6 and 7 separate but approximate at base.

Male genitalia with uncus elongate, enlarged at apex, which is 3- or 2-pronged by the presence of short, stout spines. Gnathos large, hook-shaped, also sometimes shortly 3-pronged at tip. Tegumen with large lateral projections. Upper branches of the harpes long, slender, enlarged and flattened on outer half; lower branches of the harpes very small or rudimentary. Vinculum small, with a very long, slender, posterior process. Aedeagus straight or curved, with the entrance opening at base, not lateral.

Female genitalia with rather short, slightly twisted ductus; signum an involuted, spiny, nearly quadrangular plate very similar to those found in the genus *Gelechia*; plate of ostium simple, without lateral lobes.

The genus has never been described in print except by those characters that can be deduced from Dietz's specific description, which did not include the venation. In determining the genotype for Dietz, Lord Walsingham gave him the generic name of the unpublished manuscript; by using it and describing the genotype and one other species Dietz inadvertently became the author of the genus and his definite designation of the genotype as *pennsylvanica* must stand. Bainbrigge-Fletcher¹⁸ erroneously quotes *walsinghami* Dietz as genotype.

Pseudochelaria comprises a small natural group of moths, recognizable on habitus alone. The genus has not been discovered outside of North America.

AMERICAN SPECIES OF PSEUDOCHELARIA

walsinghami Dietz.

pennsylvanica Dietz.

scabrella (Busck).

arbutina (Keifer).

manzanitae (Keifer).

The last three of the above species are here transferred to *Pseudochelaria* from *Gelechia*.

¹⁸ List of genera and names used for Microlepidoptera, Mem. Dept. Agr. India, vol. 11, p. 189, 1929.

12. FASCISTA, new genus

PLATE 62, FIGURE 24; PLATE 69, FIGURE 56

Second joint of labial palpus thickened, with an even, slightly furrowed brush on the under side; terminal joint nearly as long as second, slender, acute.

Fore wing with veins 2, 3, and 4 nearly equidistant at base, from before the end of the cell; 5 from end of cell; 6 approximate to stalk of 7 and 8. Hind wing with veins 3 and 4 closely approximate or sometimes connate; 5 cubital, near 4 at base, 6 and 7 closely approximate or connate.

Male genitalia with uncus a long, slightly curved hook with sharp-pointed tip; gnathos elaborately developed, with a large process anteriorly and with a hinged, large, curved, sharp-pointed hook nearly reaching the tip of uncus; harpe long, stout, divided or bilobed at outer fourth into a broad, flattened part and a strong, curved hook; vinculum short and broad, sharply cut off anteriorly and with two hairy processes posteriorly; a small spool-shaped plate, hinged to the vinculum between these two processes, must be considered an anellus, a structure normally absent in the family; aedeagus stout, cylindrical, slightly serrate near apex, entrance hole for penis lateral, near base.

Female genitalia with ductus slightly enlarged and sclerotized just above ductus seminalis, bursa ample, with a single, strong, compressed, sharp signum from a quadrangular base.

The curiously developed gnathos has its counterpart in the even more elaborate gnathos of the genus *Evippe* Chambers (pl. 63, fig. 28), which is probably a derivative of or correlated with *Fascista*.

Genotype, *Gelechia cercerisella* Chambers.¹⁹

AMERICAN SPECIES OF FASCISTA

<i>cercerisella</i> (Chambers).	Synonyms:	<i>quinella</i> (Zeller).	
<i>olympiadella</i> (Zeller),	<i>cercerella</i>		<i>albipectus</i> (Walsingham).
(Meyrick).			

The above names are transferred from *Gelechia*.

13. EPILECHIA, new genus

PLATE 62, FIGURE 21; PLATE 69, FIGURE 54

Second joint of labial palpus long and slender, only slightly thickened by a short, furrowed brush on under side; terminal joint as long as second, smooth, acutely pointed.

Fore wings with veins 2, 3, 4, and 5 nearly equidistant; 2 and 3 from before the end of the cell; 6 closer to stalk of 7 and 8 than to 5.

¹⁹ Can. Ent., vol. 4, p. 108, 1872.

Hind wings broader than the fore wings, with veins 3 and 4 connate, 5 cubital, 6 and 7 approximate at base, diverging outwardly; termen but very slightly sinuated below apex.

Male genitalia with a very large hood-shaped uncus and a very large hook-shaped gnathos; harpe simple, flattened, oval, with a single strong spine on the middle of sacculus; aedeagus short, stumpy, with an incision a little below the blunt apex, entrance hole for penis at base, not lateral.

Female genitalia with ductus short; bursa very large; signa two large, curved plates covered with short spines.

The genus, to which at present only one species can be referred, is correlated with and close to *Pectinophora* Busck and feeds like this in the fruit of malvaceous plants, *Hibiscus*. It possesses no antennal pecten.

Genotype, *Gelechia catalinella* Busck.²⁰

AMERICAN SPECIES OF EPILECHIA

catalinella (Busck). New synonym: *tehuacana* (Busck).

14. FACULTA, new genus

PLATE 62, FIGURE 20; PLATE 69, FIGURE 53

Second joint of palpus with well-developed, rough, furrowed brush on under side, larger at base than at tip; terminal joint nearly as long as second, smooth, acutely pointed.

Fore wing with vein 2 well before end of cell; veins 3, 4, and 5 equidistant, approximately from end of cell; 6 nearer stalk of 7 and 8. Hind wing with veins 3 and 4 connate, 5 cubital, 6 and 7 separate, nearly parallel.

Male genitalia with uncus a short pointed hook; gnathos flattened, tonguelike, pointed; harpe simple, short, pointed, bent forward; vinculum large, with very large posterior process rounded at tip; aedeagus short, cylindrical, with long, branched, leaflike process at apex; entrance hole for penis at base, slightly lateral.

Female genitalia with short and wide, sclerotized ductus; bursa very large, irregular in outline, upper part armored with numerous long spines close together forming an irregular circle, a single shorter and stouter spine lying separate from the rest; signum large, with four long, curved arms, the two longer cylindrical and pointed, the two shorter flattened and obtuse, from a small base, extending outside the wall of the bursa.

Genotype, *Gelechia triangulella* Busck,²¹ the only North American species at present known to belong here.

²⁰ Journ. New York Ent. Soc., vol. 15, p. 136, 1907.

²¹ Proc. Ent. Soc. Washington, vol. 8, p. 91, 1906.

SPECIES TREATED IN THIS PAPER, WITH THEIR GENERIC ASSIGNMENTS

- abactella* (Clarke), *Filatima*.
abdominella (Busck), *Chionodes*.
abella (Busck), *Chionodes*.
abradescens (Braun), *Filatima*.
acharnaea (Meyrick), *Aroga*.
acrina (Keifer), *Chionodes*.
affinis (Douglas), *Bryotropha*.
alaricella Busck, *Gnorimoschema*.
albangulata Braun, *Gnorimoschema*.
albifemorella (Clarke) (preoccupied), *Filatima*. Synonym of *clarkella* Busck, new name.
albilorella (Zeller), *Filatima*. Synonym: *trifasciella* (Chambers).
albmargineella (Chambers), *Gnorimoschema*.
albipectus (Walsingham), *Fascista*.
albisparsella (Chambers), *Gelechia*. Synonym: *platanella* (Chambers).
albmaculella (Chambers), *Chionodes*. Synonym of *continuella* (Zeller).
alleriella Busck, *Aroga*.
alpicola (Frey), *Lita*. Synonym of *longicornis* (Curtis).
alternatella (Kearfott), *Lita*. Synonym of *longicornis* (Curtis).
altisolani (Keifer), *Keiferia*.
ambrosiaeella (Chambers), *Gnorimoschema*.
amorphaeella (Chambers), *Filatima*.
anarsiella Chambers, *Gelechia*.
anisectis (Meyrick), *Bryotropha*. Synonym of *inaequalis* (Busck).
arborei (Keifer), *Chionodes*. Synonym of *braunella* (Keifer).
arbutina (Keifer), *Pseudochelaria*.
arenella (Forbes), *Chionodes*.
argentipunctella (Ely), *Chionodes*.
aristella (Busck), *Aroga*.
arizonella (Busck), *Filatima*.
asinella Zeller, *Gelechia*.
atriplex Busck, *Gnorimoschema*.
auleae Clarke, *Filatima*.
artimisiella Kearfott (preoccupied), *Gnorimoschema*. Synonym of *axenopsis* (Meyrick).
axenopsis (Meyrick), *Gnorimoschema*. Synonym: *artimisiella* Kearfott (preoccupied).
baccharisella Busck, *Gnorimoschema*.
banksiella Busck, *Gnorimoschema*.
barnesiella (Busck), *Lita*.
batanella (Busck), *Gnorimoschema*.
beneficentella (Murtfeldt), *Fruentia*. Synonym of *nundinella* (Zeller).
benitella Barnes and Busck, *Gelechia*.
bianulella (Chambers), *Gelechia*. Synonyms: *ocellella* (Chambers), *sabinella* Meyrick (nec Zeller).
bicostomaculella (Chambers), *Chionodes*. Synonyms: *gibbosella* (Chambers), *quercifoliella* (Chambers).
biforella (Busck), *Filatima*.
bigella (Busck), *Filatima*. New synonym: *spilosella* (Barnes and Busck).
bimaculella (Chambers), *Filatima*. Synonyms: *sylvaecolella* (Chambers), *ternariella* (Zeller).

- biminimaculella* (Chambers), *Filatima*. Synonym of *gilvomaculella* (Chambers).
brackenridgiella Busck, *Gnorimoschema*. Synonym: *detersella* (Clemens).
branella (Busck), *Bryotropha*.
braunella (Keifer), *Chionodes*. Synonym: *arborei* (Keifer).
busckiella Kearfott, *Gnorimoschema*.
caecella (Zeller), *Filatima*. Synonym of *pseudoacaciella* (Chambers).
caesiella (Brodie), *Gnorimoschema*. Synonym of *gallaeasteriella* (Kellicott).
camptogramma (Meyrick), *Aroga*.
canopulvella Chambers, *Gelechia*. Synonym of *obscurosuffusella* Chambers.
caryaevorella (Packard), *Chionodes*.
catacrossa (Meyrick), *Filatima*.
catalinella (Busck), *Epilechia*. New synonym: *tehuacana* (Busck).
caudata Clarke, *Gelechia*.
ceanothiella (Busck), *Chionodes*. New synonym: *marinensis* (Keifer).
cercerella (Meyrick), *Fascista*. Synonym of *cercerisella* (Chambers).
cercerisella (Chambers), *Fascista*. Synonyms: *olympiadella* (Zeller), *cercerella* (Meyrick).
chambersella (Dyar), *Lita*. Synonym of *texanella* (Chambers).
charcoti (Meyrick), *Gnorimoschema*.
chenopodiella Busck, *Gnorimoschema*.
chiquitella Busck, *Gnorimoschema*.
chlorocrana (Meyrick), *Aroga*.
chloroschema (Meyrick), *Chionodes*.
chrysopyla (Keifer), *Chionodes*.
cinerella (Murtfeldt), *Gnorimoschema*. Synonym of *glochinelia* (Zeller).
clandestina (Meyrick), *Bryotropha*.
clarkella Busck, *Filatima*. New name for *albifemorella* (Clarke) (preoccupied).
cockerelli (Busck), *Friseria*.
collinusella (Chambers), *Gnorimoschema*.
coloradensis (Busck), *Aroga*.
compsomorpha Meyrick, *Gnorimoschema*.
confusella (Chambers) (preoccupied), *Filatima*. Synonym of *persicaeella* (Murtfeldt).
consueta Braun, *Gnorimoschema*.
continuella (Zeller), *Chionodes*. Synonyms: *trimaculella* (Packard), *albomaculella* (Chambers).
contraria Braun, *Gnorimoschema*.
coquilletella Busck, *Gnorimoschema*.
coticola (Busck), *Chionodes*. New synonym: *notochlora* (Meyrick).
cuneatella Duponchel, *Gelechia*.
dammersi (Keifer), *Chionodes*.
decrepidella (Herrich-Schaeffer), *Bryotropha*.
demissae (Keifer), *Filatima*.
dentella (Busck), *Chionodes*.
depressostrigella (Chambers), *Filatima*. Synonym of *ochreosuffusella* (Chambers).
depuratella (Busck), *Filatima*.
desertella (Douglas), *Bryotropha*.
desiliens Meyrick, *Gelechia*.
detersella (Clemens), *Gnorimoschema*. Synonym of *brackenridgiella* Busck.
discomaculella (Chambers), *Gnorimoschema*.
discoocellella (Chambers), *Chionodes*. Synonym: *violaceofusca* (Zeller).
distinctella (Zeller), *Chionodes*.
diversella (Busck), *Lita*.

- dromicella* Busck, *Gelechia*.
dudiella Busck, *Gnorimoschema*.
dyariella Busck, *Gelechia*.
eldorado (Keifer), *Aroga*.
elmoresi (Keifer), *Keiferia*.
emancipata (Meyrick), *Gnorimoschema*. Synonym: *marmorella* (Chambers).
epigaeella (Chambers), *Aroga*. Synonym of *trialbamaculella* (Chambers).
ericameriae Keifer, *Gnorimoschema*.
erigeronella Braun, *Gnorimoschema*.
eriogonella (Clarke), *Aroga*.
eucausta Meyrick, *Gnorimoschema*.
faustella Busck, *Gnorimoschema*.
fercularia Meyrick, *Gnorimoschema*.
figurella (Busck), *Chionodes*.
florella Busck, *Gnorimoschema*.
fluvialella (Busck), *Chionodes*.
fondella (Busck), *Chionodes*.
fructuaria (Braun), *Chionodes*.
fulginea (Meyrick), *Filatima*.
fulmenella (Busck), *Lita*. Synonym of *prorepta* (Meyrick).
fuscoochrella (Chambers), *Chionodes*. Synonym of *mediofuscella* (Clemens).
fuscotaeniella (Chambers), *Friseria*.
gallaeasteriella (Kellicott), *Gnorimoschema*. Synonyms: *caesiella* (Brodie),
gallaediplopappi (Fyles).
gallaediplopappi (Fyles), *Gnorimoschema*. Synonym of *gallaeasteriella* (Kellicott).
gallaesolidaginis (Riley), *Gnorimoschema*.
gibbosella (Chambers), *Chionodes*. Synonym of *bicostomaculella* (Chambers).
gibsoniella Busck, *Gnorimoschema*.
gilvomaculella (Clemens), *Filatima*. Synonym: *biminimaculella* (Chambers).
glochinella (Zeller), *Keiferia*. Synonyms: *solaniella* (Chambers), *cinerella* (Murtfeldt), *inconspicue* (Murtfeldt).
gomphopsis (Meyrick), *Filatima*.
grisella (Chambers), *Gnorimoschema*. Synonym *discomaculella* (Chambers).
gudmannella (Walsingham), *Gnorimoschema*.
helicosticta (Meyrick), *Chionodes*.
hemicrossa (Meyrick), *Filatima*.
henshawella Busck, *Gnorimoschema*. Synonym: *ochreostrigella* (Chambers).
hibiscella (Busck), *Chionodes*.
hippophaella Zeller, *Gelechia*.
hipposaris (Meyrick), *Aroga*.
inaequalis (Busck), *Bryotropha*. Synonyms, *inaequalis* (Walsingham), *antiseptis* (Meyrick).
inconspicue (Murtfeldt), *Gnorimoschema*. Synonym of *glochinella* (Zeller).
inexpert (Meyrick), *Gnorimoschema*.
inquilinella (Busck), *Filatima*.
invariabilis (Kearfott), *Lita*.
isocrossa (Meyrick), *Filatima*.
kincaidella (Busck), *Chionodes*.
labradoriella (Clemens), *Chionodes*. Synonym of *viduella* (Fabricius).
laguna Busck, *Gnorimoschema*.
langei (Keifer), *Chionodes*. New synonym of *retiniella* (Barnes and Busck).
lavernella (Chambers), *Gnorimoschema*. Synonym: *physalivorella* (Chambers).
lectulifera Meyrick, *Gnorimoschema*.

- lepidotae* (Clarke), *Filatima*.
leucaniella (Busck), *Aroga*.
leucocephala (Walsingham), *Chionodes*.
lindenella (Busck), *Friseria*.
lipatiella Busck, *Gnorimoschema*.
liturosella (Zeller), *Chionodes*. Synonym of *mediofuscella* (Clemens).
longicornis (Curtis), *Lita*. Synonyms: *alternatella* (Kearfott), *alpicola* (Frey),
petulans (Braun).
lophella (Meyrick), *Chionodes*. Synonym of *lophosella* (Busck).
lophosella (Busck), *Chionodes*. Synonym: *lophella* (Meyrick).
luctificella Hübner, *Chionodes*. Synonym of *lugubrella* (Fabricius).
lugubrella (Fabricius), *Chionodes*. Synonym: *luctificella* Hübner.
luteogeminata (Clarke), *Chionodes*.
lutescella Clarke, *Gnorimoschema*.
lycopersicella (Busck), *Keiferia*.
lynceella Zeller, *Gelechia*.
macromaculata Braun, *Gnorimoschema*.
maculimarginella (Chambers), *Chionodes*.
malindaella (Busck), *Friseria*.
mandella Busck, *Gelechia*.
manzanitae (Keifer), *Pseudochelaria*.
marinensis (Keifer), *Chionodes*. New synonym of *ceanothiella* Busck.
marmorella (Chambers), *Gnorimoschema*.
mediofuscella (Clemens), *Chionodes*. Synonyms: *vagella* (Walker), *liturosella*
(Zeller), *rhedaria* (Meyrick), *fuscoochrella* (Chambers).
melanoplintha (Meyrick), *Gnorimoschema*. New synonym of *plaesiosema*
(Turner).
metallica (Braun), *Chionodes*.
milleriella (Chambers), *Gnorimoschema*.
minimaculella (Chambers), *Filatima*.
minor (Busck), *Gnorimoschema*.
miscitatella Clarke, *Gnorimoschema*.
monella Busck, *Gelechia*.
monopa (Meyrick), *Filatima*.
monotaeniella (Bottimer), *Filatima*.
monumentella (Chambers), *Aroga*.
morenella (Busck), *Aroga*.
muscosella Zeller, *Gelechia*.
nanodella (Busck), *Chionodes*.
natalis (Heinrich), *Filatima*.
negundella (Heinrich), *Chionodes*.
neopetrella Keifer, *Gnorimoschema*.
neotrophella (Heinrich), *Filatima*.
nigra Haworth, *Gelechia*.
nigrimaculella (Busck), *Chionodes*.
normifera (Meyrick), *Filatima*.
notandella (Busck), *Chionodes*.
notochlora (Meyrick), *Chionodes*. New synonym of *coticola* (Busck).
nundinella (Zeller), *Frumenta*. Synonym: *beneficentella* (Murtfeldt).
obscuripennis Frey, *Gelechia*.
obsкуроocellella (Chambers), *Filatima*.
obsucrosuffusella Chambers, *Gelechia*. Synonym: *canopulvella* Chambers.
occidentella (Chambers), *Chionodes*.
ocellella Chambers, *Gelechia*. Synonym of *bianulella* (Chambers).

- ochreostrigella* (Chambers), *Chionodes*.
ochreostrigella (Chambers), *Gnorimoschema*. Synonym of *henshawiella* Busck.
ochreosuffusella (Chambers), *Filatima*. Synonym: *depressostrigella* (Chambers).
ochroschista (Meyrick), *Gnorimoschema*.
octomaculella (Chambers), *Gnorimoschema*.
olympiadella (Zeller), *Fascista*. Synonym of *cercerisella* (Chambers).
operculella (Zeller), *Gnorimoschema*. Synonyms: *solanella* (Boisduval), *tabcacella* (Ragonot).
ornatifimbriella (Clemens), *Filatima*. Synonym: *unctulella* (Zeller).
pallidochrella (Chambers), *Gnorimoschema*.
panella Busck, *Gelechia*.
paralogella (Busck), *Chionodes*.
paraplutella (Busck), *Aroga*.
paulella (Busck), *Aroga*.
pennsylvanica Dietz, *Pseudochelaria*.
periculella (Busck), *Chionodes*.
persicaeella (Murtfeldt), *Filatima*. Synonym: *confusella* (Chambers).
petrella Busck, *Gnorimoschema*.
petulans (Braun), *Lita*. Synonym of *longicornis* (Curtis).
physalivorella (Chambers), *Gnorimoschema*. Synonym of *lavernella* (Chambers).
pinguicula (Meyrick), *Chionodes*.
pinguinella Treitschke, *Gelechia*.
plaesiosema (Turner), *Gnorimoschema*. New synonyms: *melanoplintha* (Meyrick), *tuberosella* Busck.
platanella (Chambers), *Gelechia*. Synonym of *albisparsella* (Chambers).
polemoniella (Braun), *Gnorimoschema*.
potentella Keifer, *Gnorimoschema*.
pravinominella (Chambers), *Filatima*. Synonym: *quadrimaculella* (Chambers).
princeps Busck, *Gnorimoschema*.
promonitrix (Meyrick), *Filatima*.
prorepta (Meyrick), *Lita*. Synonym: *fulmenella* (Busck).
pseudoacaciella (Chambers), *Filatima*. Synonym: *caecella* (Zeller).
pseudofondella (Busck), *Chionodes*.
psiloptera (Barnes and Busck), *Chionodes*.
puertella (Busck), *Lita*.
pullifimbriella (Clemens), *Filatima*.
quadrimaculella (Chambers), *Filatima*. Synonym of *pravinominella* (Chambers).
quercifoliella (Chambers), *Chionodes*. Synonym of *bicostomaculella* (Chambers).
quinella (Zeller), *Fascista*.
radiatella Busck, *Gnorimoschema*.
rectistrigella (Busck), *Lita*.
repentina (Walsingham), *Friseria*.
retiniella (Barnes and Busck), *Chionodes*. New synonym: *langei* (Keifer).
rhedaria (Meyrick), *Chionodes*. Synonym of *mediofuscella* (Clemens).
rhombella (Schiffermüller), *Gelechia*.
rhombelliformis Staudinger, *Gelechia*.
ribesella Chambers, *Gelechia*.
rigidae (Clarke), *Aroga*.
rileyella (Chambers), *Gelechia*.

- rivulata* (Meyrick), *Filatima*.
sabinella Zeller, *Gelechia*.
sabinella (Meyrick) (nec Zeller), *Gelechia*. Synonym of *bianulella* Chambers.
sacculicola (Braun), *Gnorimoschema*.
saliciphaga (Keifer), *Filatima*.
salinaris Busck, *Gnorimoschema*.
saphirinella (Chambers), *Gnorimoschema*.
sarcochlora (Meyrick), *Friseria*.
scabrella (Busck), *Pseudochelaria*.
scotinella Herrich-Schaeffer, *Gelechia*.
scutellariaeella (Chambers), *Gnorimoschema*.
seculaella (Clarke), *Chionodes*.
semicyctionella Busck, *Gnorimoschema*.
semirosea Meyrick, *Gnorimoschema*.
septentrionella (Fyles), *Gnorimoschema*.
serotinella (Busck), *Filatima*.
serratipalpella (Chambers), *Gnorimoschema*.
simpliciella (Chambers), *Gnorimoschema*.
sistrella (Busck), *Chionodes*.
solanella (Boisduval), *Gnorimoschema*. Synonym of *operculella* (Chambers).
solaniella (Chambers), *Gnorimoschema*.
solutella (Zeller), *Lita*.
sororealella Hübner, *Gelechia*.
spilosella (Barnes & Busck), *Filatima*. New synonym of *bigella* (Busck).
splendoriferella Busck, *Gnorimoschema*.
sporomochla Meyrick, *Gnorimoschema*.
striatella (Busck), *Filatima*.
striatella (Murtfeldt), *Gnorimoschema*.
subterranea Busck, *Gnorimoschema*.
sylvaecolella (Chamber), *Filatima*. Synonym of *bimaculella* (Chambers).
tabacella (Ragenot), *Gnorimoschema*. Synonym of *operculella* (Zeller).
tehuacana (Busck), *Epilechia*. New synonym of *catalinella* (Busck).
terminimaculella (Kearfott), *Chionodes*.
ternariella (Zeller), *Filatima*. Synonym of *bimaculella* (Chambers).
terracottella Busck, *Gnorimoschema*.
terrella (Schiffermüller), *Bryotropha*.
tetradymiella Busck, *Gnorimoschema*.
texanella (Chambers), *Lita*. Synonym: *chambersella* (Dyar).
thoracealbella (Chambers), *Chionodes*.
trachycosma (Meyrick), *Chionodes*.
trialbamaculella (Chambers), *Aroga*. Synonym: *epigaeella* (Chambers).
triangulella (Busck), *Faculta*.
trichostola (Meyrick), *Chionodes*.
trifasciella (Chambers), *Filatima*. Synonym of *albilorella* (Zeller).
trilineella Chambers, *Gelechia*.
trimaculella (Packard), *Chionodes*. Synonym of *continuella* (Zeller).
triocellella (Chambers), *Gnorimoschema*.
trophella (Busck), *Chionodes*.
tuberosella Busck, *Gnorimoschema*. New synonym of *plaesiosema* (Turner).
unctulella (Zeller), *Filatima*. Synonym of *ornatifimbriella* (Clemens).
unifasciella (Busck), *Aroga*.
vagella (Walker), *Chionodes*. Synonym of *mediofuscella* (Clemens).
vanduzeei (Keifer), *Chionodes*.

- variabilis* (Busck), *Lita*.
variana Meyrick, *Stegasta*.
vastifica Braun, *Gnorimoschema*.
velocella (Duponchel), *Aroga*.
vernella (Murtfeldt), *Chionodes*.
versicolorella (Chambers), *Gnorimoschema*.
versutella Zeller, *Gelechia*.
viduella (Fabricius), *Chionodes*. Synonym: *labradoriella* (Clemens).
violaceofusca (Zeller), *Chionodes*. Synonym of *discoocellella* (Chambers).
walsinghami Dietz, *Pseudochelaria*.
washingtoniella Busck, *Gnorimoschema*.
xanthophilella (Barnes and Busck), *Chionodes*.
xanthuris (Meyrick), *Filatima*.

UNRECOGNIZED SPECIES

The following species are unknown to me except from the descriptions, which are not sufficient to place them properly. The species in this list described by Meyrick and Braun will eventually be placed by examination of the types; but the fact that these species remain unrecognized except by the author is a good example of the impropriety of keeping types in private collections, where they can be examined only by other workers at the pleasure and convenience of the author. When anyone adds to the nomenclature by describing new species he imposes upon the rest of the workers of the world the obligation to deal with these new names. The types, therefore, become a public concern and should be placed in an institution where any qualified worker can examine them.

Chambers' species, of which the types are lost and the short descriptions of which are quite insufficient for certain recognition, must eventually be arbitrarily fixed by selecting species from the type locality that do not disagree with Chambers' description and attaching Chambers' names to them. This much-needed work is outside the scope of this paper. In the meantime all these species must be retained in *Gelechia*, where they were described, although most of them probably belong in other genera.

- | | |
|---------------------------------------------------|---------------------------------------------------|
| <i>agriodes</i> Meyrick. Utah. | <i>maculatusella</i> Chambers. California. |
| <i>asbolodes</i> Meyrick. Texas. | <i>mimella</i> Clemens. Pennsylvania. |
| <i>attritella</i> Walker. Oregon. | <i>nigrobarbata</i> Braun. Canada. |
| <i>badiomaculella</i> Chambers. Kentucky. | <i>obscuraella</i> Chambers. Kentucky. |
| <i>bispiculata</i> Meyrick. Arizona, Texas. | <i>obscurusella</i> Chambers. Synonym: |
| <i>bistrigella</i> Chambers. Canada. | <i>fuscopulvella</i> Chambers. Kentucky. |
| <i>brumella</i> Clemens. Labrador. | <i>occlusa</i> Braun. Canada. |
| <i>capiteochrella</i> Chambers. Texas. | <i>ocherfuscella</i> Chambers. Synonym: |
| <i>clistrodoma</i> Meyrick. Arizona. | <i>ochreofuscella</i> Meyrick. California. |
| <i>collinear</i> Meyrick. Texas. | <i>packardella</i> Chambers. Colorado. |
| <i>conspersa</i> Braun. Montana. | <i>pallidegrisseella</i> Chambers. Texas. |
| <i>decemmaculella</i> Chambers. Colorado. | <i>palpialbella</i> Chambers. Kentucky. |
| <i>discostrigella</i> Chambers. California. | <i>parvipulvella</i> Chambers. Texas. |
| <i>elaboratella</i> Braun. California. | <i>permacta</i> Braun. Canada. |
| <i>epigypsa</i> Meyrick. Texas. | <i>prognosticata</i> Braun. Utah. |
| <i>flavicorporella</i> Walsingham. Massachusetts. | <i>pullusella</i> Chambers. Synonyms: <i>pul-</i> |
| <i>frugalis</i> Braun. Utah. | <i>lella</i> Meyrick, <i>minimella</i> Chambers. |
| <i>fuscolutella</i> Chambers. Kentucky. | Texas. |
| <i>fuscomaculella</i> Chambers. Kentucky. | <i>speculifera</i> Meyrick. Arkansas. |
| <i>glycyrhizaeella</i> Chambers. Colorado. | <i>thoraceochrella</i> Chambers. Kentucky. |
| <i>griseochrella</i> Chambers. California. | <i>thoracestrigella</i> Chambers. California. |
| <i>halycop</i> Meyrick. Texas. | <i>unistrigella</i> Chambers. Kentucky. |
| <i>intermedia</i> Braun. California. | <i>wacoella</i> Chambers. Texas. |
| | <i>xyloglypta</i> Meyrick. California. |

EXPLANATION OF PLATES

PLATE 58

- 1-1b. *Gelechia bianulella* (Chambers): 1, Male genitalia, aedeagus removed; 1a, aedeagus; 1b, eighth abdominal segment. Genotype of *Oeseis*.
 2-2b. *Gnorimoschema gallaesolidaginis* (Riley): 2, Male genitalia, aedeagus removed; 2a, aedeagus; 2b, eighth abdominal segment. Genotype.
 3-3b. *Keiferia altisolani* (Keifer): 3, Male genitalia, aedeagus removed; 3a, aedeagus; 3b, eighth abdominal segment.
 4-4b. *Friseria lindenella* (Busck): Male genitalia, aedeagus removed; 4a, aedeagus; 4b, eighth abdominal segment. Genotype.
 5-5b. *Lita longicornis* (Curtis): 5, Male genitalia, aedeagus removed; 5a, aedeagus; 5b, eighth abdominal segment. Genotype.

PLATE 59

- 6-6b. *Chionodes lugubrella* (Fabricius): 6, Male genitalia; 6a, aedeagus; 6b, eighth abdominal segment. Genotype.
 7-7c. *Chionodes fondella* (Busck): 7, Male genitalia, aedeagus removed; 7a, aedeagus; 7b, eighth abdominal segment; 7c, uncus, ventral view.
 8-8d. *Chionodes trichostola* (Meyrick): 8, Male genitalia, aedeagus removed; 8a, aedeagus; 8b, eighth abdominal segment; 8c, 8d, variations of tips of harpes.
 9-9a. *Chionodes mediofuscella* (Clemens): 9, Male genitalia; 9a, eighth abdominal segment.

PLATE 60

10. *Bryotropha terrella* (Schifferrmüller): 10, Male genitalia. Genotype.
 11-11b. *Filatima ornatifimbriella* (Chambers): 11, Male genitalia, aedeagus removed; 11a, aedeagus; 11b, eighth abdominal segment.
 12-12b. *Filatima serotinella* (Busck): 12, Male genitalia, aedeagus removed; 12a, aedeagus; 12b, eighth abdominal segment. Genotype.
 13-13b. *Filatima albilorella* (Zeller): 13, Male genitalia, aedeagus removed; 13a, aedeagus; 13b, eighth abdominal segment.
 14-14b. *Fruementa nundinella* (Zeller): 14, Male genitalia, aedeagus removed; 14a, aedeagus; 14b, eighth abdominal segment. Genotype.

PLATE 61

- 15-15b. *Aroga paulella* (Busck): 15, Male genitalia; 15a, dorsal view of eighth abdominal segment; 15b, lateral view of eighth abdominal segment.
 16-16b. *Aroga paraplutella* Busck: 16, Male genitalia, aedeagus removed; 16a, aedeagus; 16b, dorsal view of eighth abdominal segment. Genotype.
 17-17b. *Aroga alleriella* Busck: 17, Male genitalia, aedeagus removed; 17a, aedeagus; 17b, eighth abdominal segment.
 18. *Keiferia altisolani* (Keifer): Wing venation.
 19. *Gelechia rhombella* (Schifferrmüller): Wing venation.

PLATE 62

- 20-20b. *Faculta triangulella* (Busck): 20, Male genitalia, aedeagus removed; 20a, aedeagus; 20b, eighth abdominal segment. Genotype.
- 21-21a. *Epilechia catalinella* (Busck): 21, Male genitalia, aedeagus removed; 21a, aedeagus. Genotype.
- 22-22b. *Pseudochelaria walsinghami* Dietz: 22, Male genitalia, aedeagus removed; 22a, aedeagus; 22b, eighth abdominal segment.
23. *Pseudochelaria pennsylvanica* Dietz: Male genitalia. Genotype.
- 24-24b. *Fascista cercerisella* (Chambers): 24, Male genitalia, aedeagus removed; 24a, aedeagus; 24b, eighth abdominal segment. Genotype.

PLATE 63

- 25-28. *Nothris verbascella* Hübner: 25, Male genitalia, aedeagus removed; 25a, aedeagus. Genotype.
- 26-26b. *Stegasta variana* Meyrick: 26, Male genitalia, aedeagus removed; 26a, aedeagus; 26b, eighth abdominal segment. Genotype.
- 27-27b. *Stegasta bosquella* (Chambers): 27, Male genitalia, aedeagus removed; 27a, aedeagus; 27b, eighth abdominal segment.
- 28-28b. *Evippe prunifoliella* Chambers: 28, Male genitalia, aedeagus removed; 28a, aedeagus; 28b, eighth abdominal segment. Genotype.
- 29-29a. *Anacampsis populella* (Clerck): 29, Male genitalia, aedeagus removed; 29a, aedeagus. Genotype.

PLATE 64

- 30-30b. *Recurvaria nanella* (Hübner): 30, Male genitalia, aedeagus removed; 30a, aedeagus; 30b eighth abdominal segment. Genotype.
31. *Strobisia iridipennella* Clemens: Male genitalia, ventral view, aedeagus removed. Genotype.
- 32-32a. *Strobisia iridipennella* Clemens: 32, Male genitalia, lateral view, aedeagus removed; 32a, aedeagus. Genotype.
- 33-33a. *Dichomeris ligulella* Hübner: 33, Male genitalia, aedeagus removed; 33a, aedeagus. Genotype.

PLATE 65

34. *Gelechia bianulella* (Chambers): Female genitalia. Genotype of *Oesels*.
35. *Keiferia altisolani* (Keifer): Female genitalia.
36. *Gnorimoschema gallaesolidaginis* (Riley): Female genitalia. Genotype.
37. *Lita longicornis* (Curtis): Female genitalia. Genotype.
38. *Lita puertella* (Busck): Profile of head, denuded. Female.
39. *Lita invariabilis* (Kearfott): Profile of head, denuded. Female.

PLATE 66

40. *Chionodes lugubrella* (Fabricius): Female genitalia. Genotype.
41. *Chionodes fondella* (Busck): Female genitalia.
42. *Chionodes trichostola* (Meyrick): Female genitalia.
43. *Chionodes mediofuscella* (Clemens): Female genitalia.
44. *Filatima ornatifimbriella* (Chambers): Female genitalia.

PLATE 67

- 45. *Bryotropa terrella* (Schifferrmüller) : Female genitalia. Genotype.
- 46. *Friseria lindenella* (Busck) : Female genitalia. Genotype.
- 47. *Filatima serotinella* (Busck) : Female genitalia. Genotype.
- 48. *Filatima albilorella* (Zeller) : Female genitalia.

PLATE 68

- 49. *Frumenta nundinella* (Zeller). Female genitalia. Genotype.
- 50. *Aroga paulella* (Busck) : Female genitalia.
- 51. *Aroga alleriella* (Busck) : Female genitalia.
- 52. *Aroga paraplutella* (Busck) : Female genitalia. Genotype.

PLATE 69

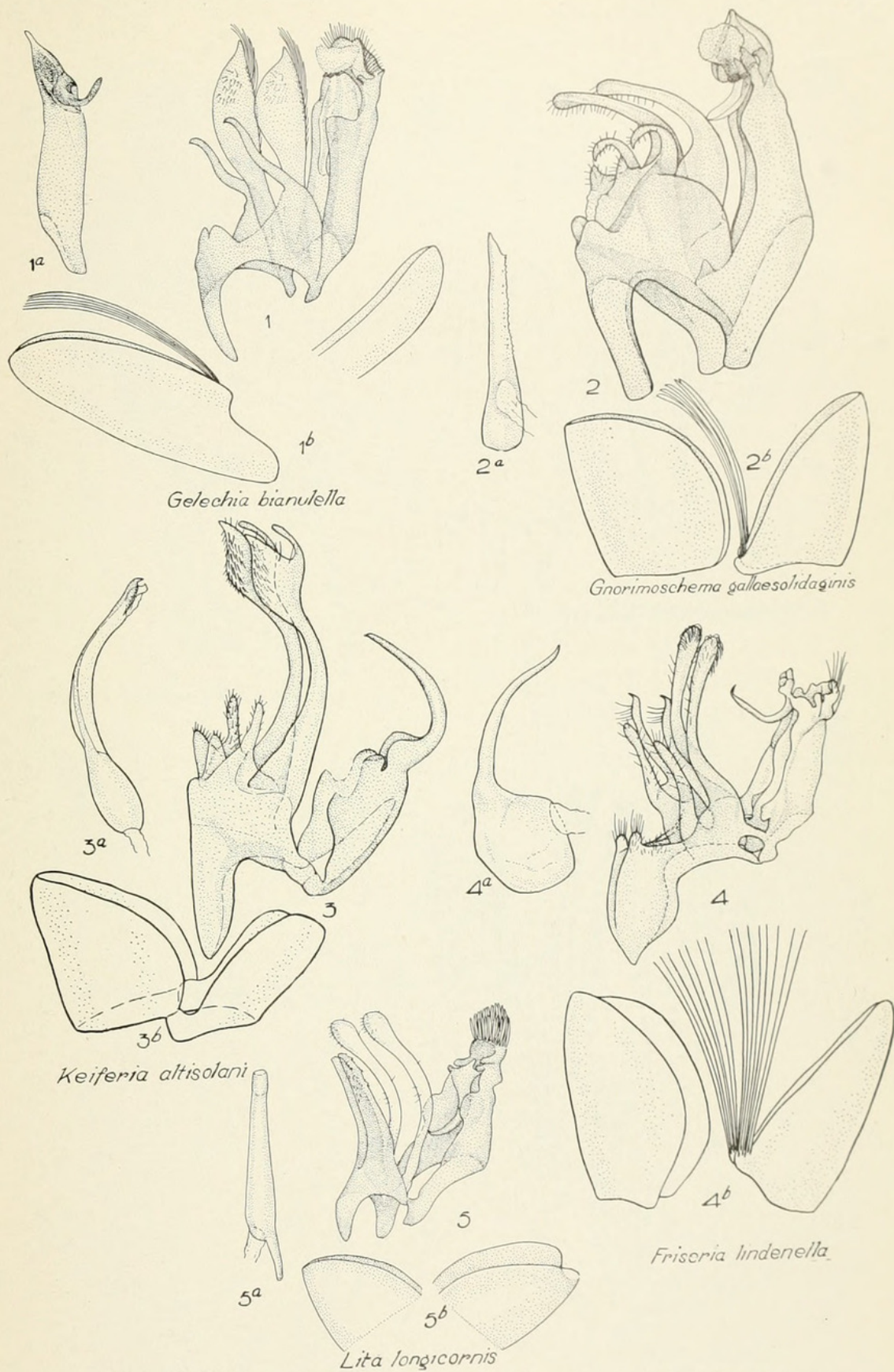
- 53. *Faculta triangulella* (Busck) : Female genitalia. Genotype.
- 54. *Epilechia catalinella* (Busck) : Female genitalia. Genotype.
- 55. *Pseudochelaria walsinghami* Dietz : Female genitalia.
- 56-56a. *Fascista cercerisella* (Chambers) : 56, Female genitalia ; 56a, signum. Genotype.

PLATE 70

- 57. *Evippe prunifoliella* Chambers : Female genitalia. Genotype.
- 58. *Recurvaria nanella* (Hübner) : Female genitalia. Genotype.
- 59. *Strobisia iridipennella* Clemens : Female genitalia. Genotype.
- 60. *Stegasta bosquella* (Chambers) : Female genitalia.
- 61. *Stegasta variana* Meyrick : Female genitalia. Genotype.

PLATE 71

- 62. *Dichomeris ligulella* Hübner : Female genitalia. Genotype.
- 63. *Nothris verbascella* (Hübner) : Female genitalia. Genotype.
- 64. *Anacampsis populella* (Clerck) : Female genitalia. Genotype.



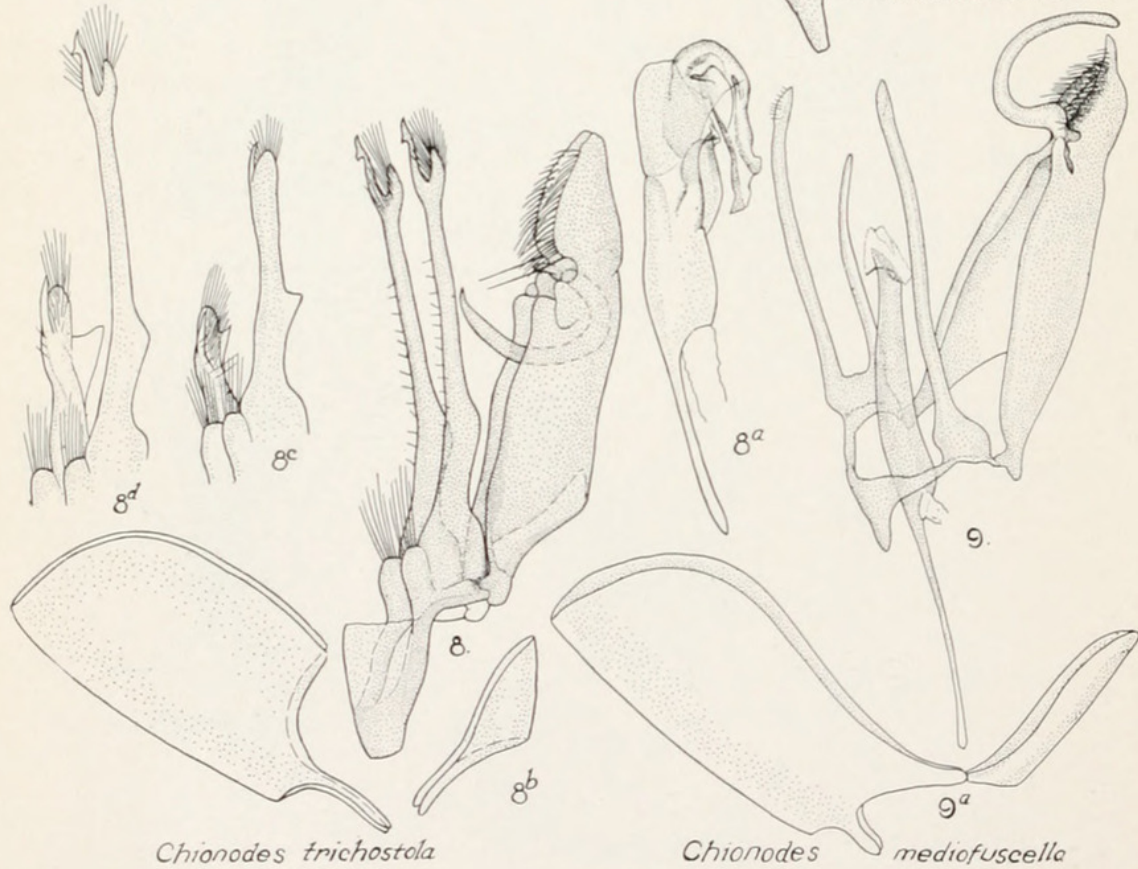
MALE GENITALIA OF GELECHIA, GNORIMOSCHEMA, KEIFERIA, FRISERIA,
AND LITA.

FOR EXPLANATION OF PLATE SEE PAGE 591.



Chionodes lugubrella

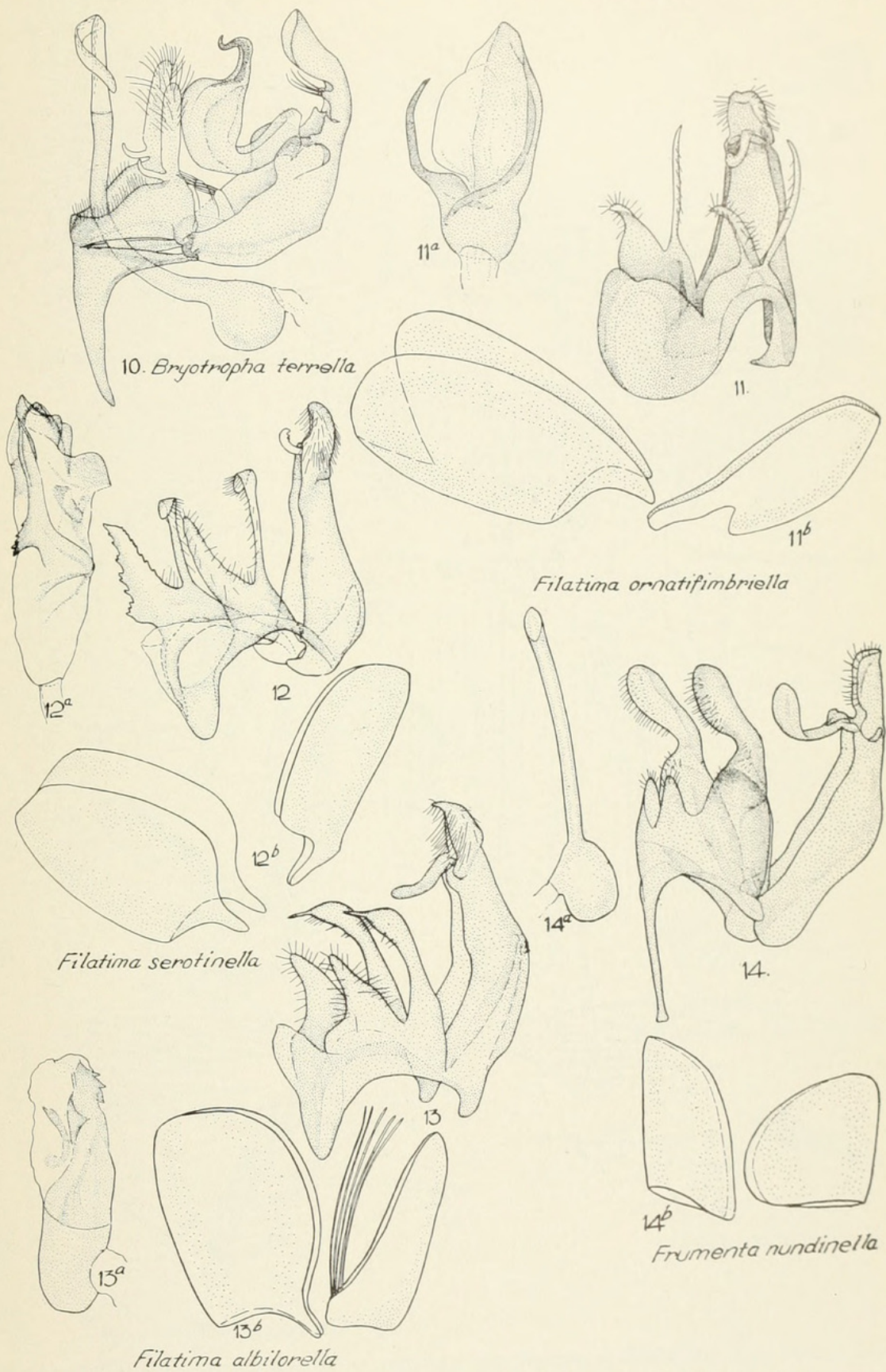
Chionodes pondella



Chionodes trichostola

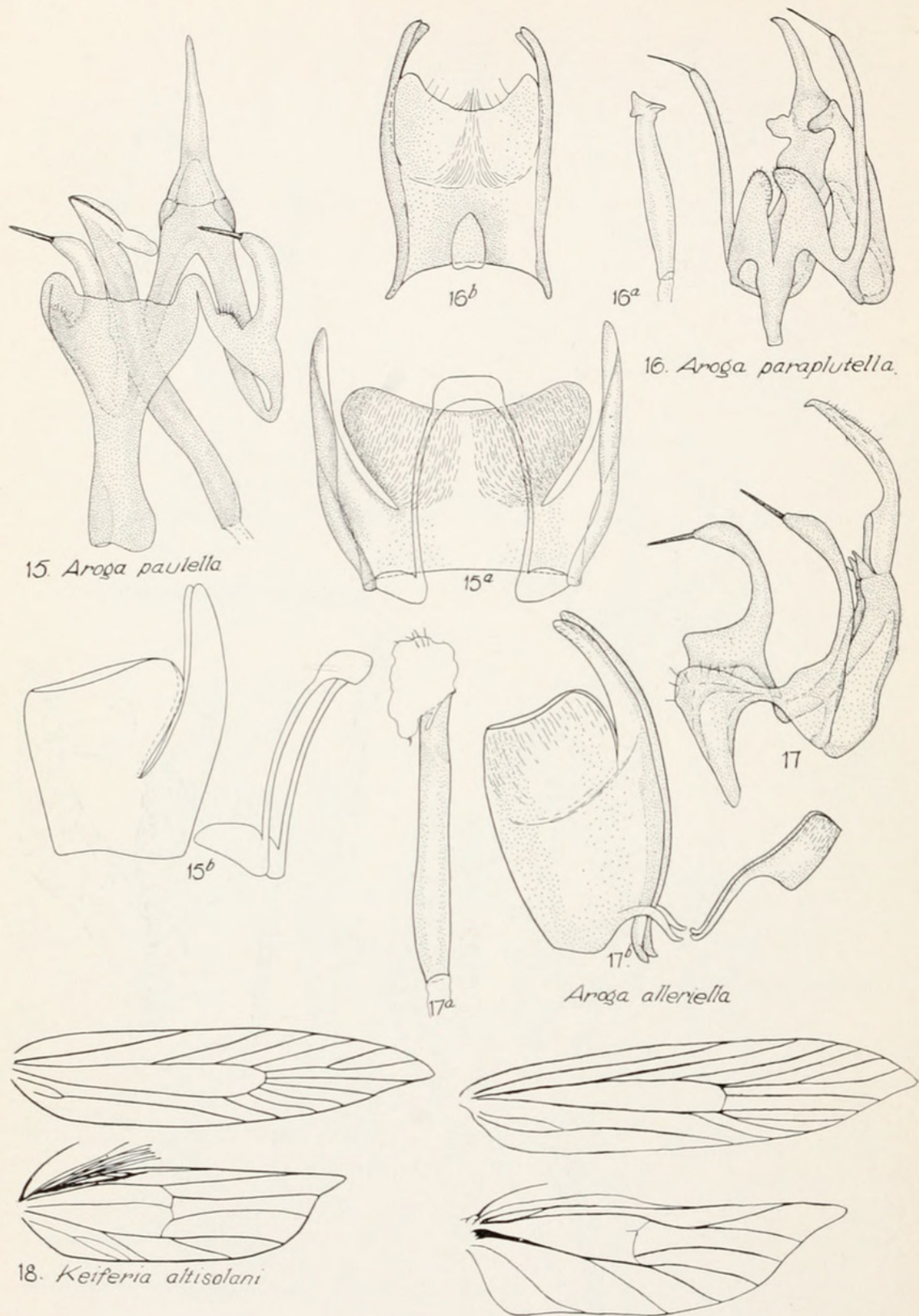
Chionodes mediofuscella

MALE GENITALIA OF CHIONODES.
FOR EXPLANATION OF PLATE SEE PAGE 591.



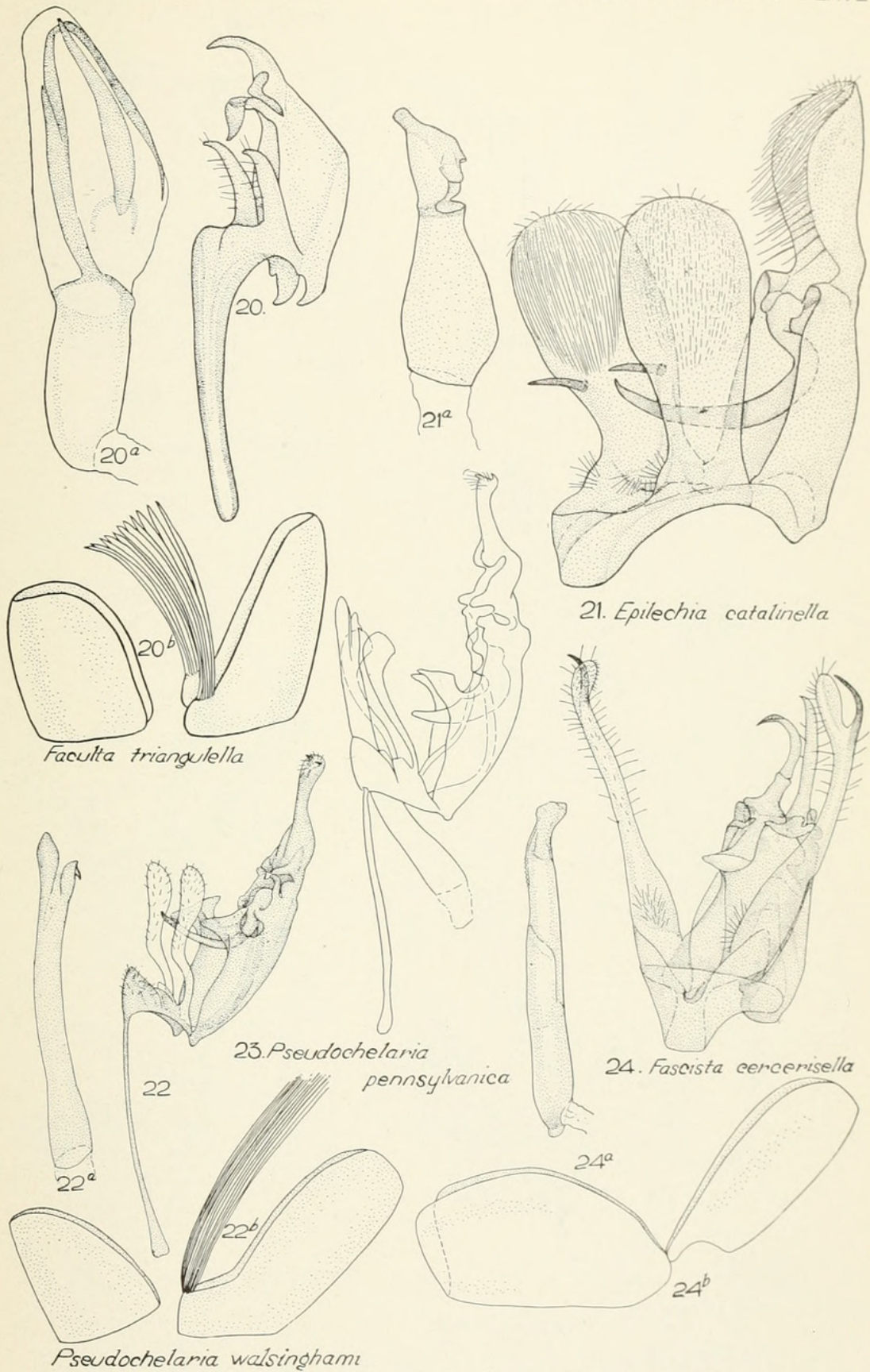
MALE GENITALIA OF BRYOTROPHA, FILATIMA, AND FRUMENTA.

FOR EXPLANATION OF PLATE SEE PAGE 591.



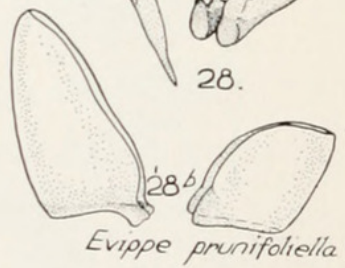
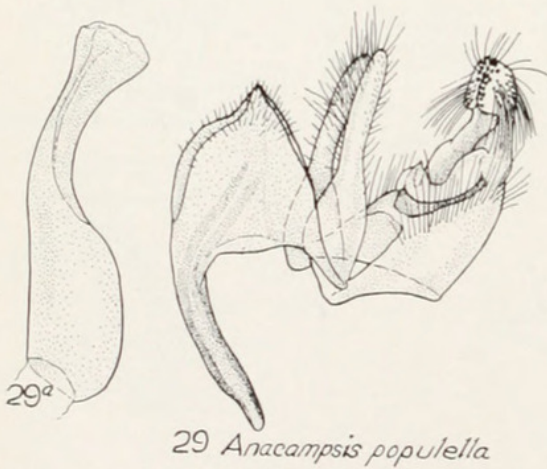
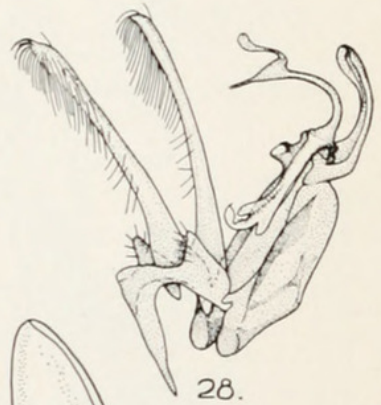
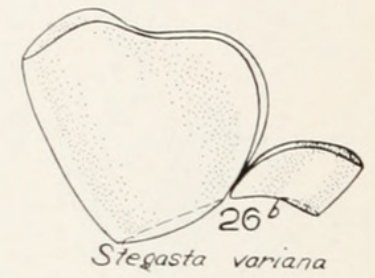
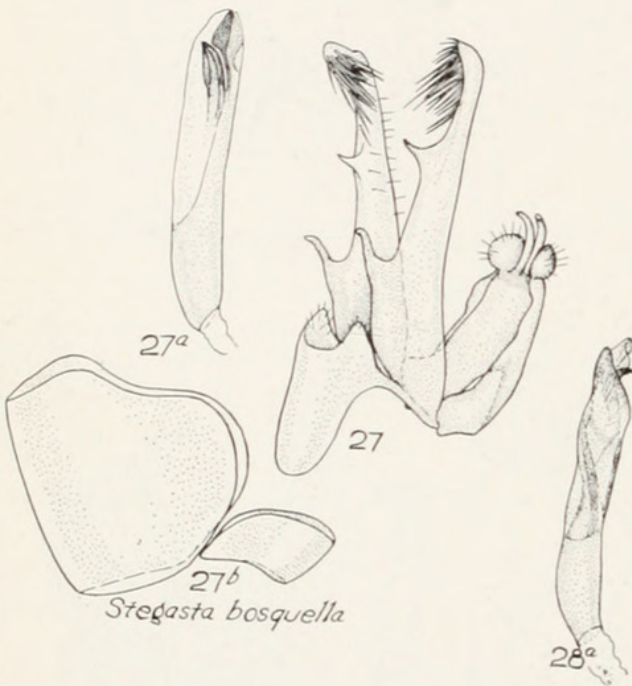
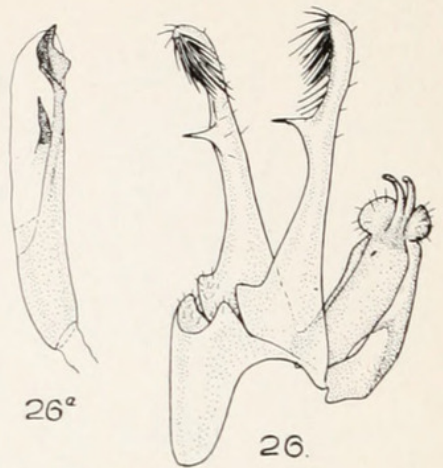
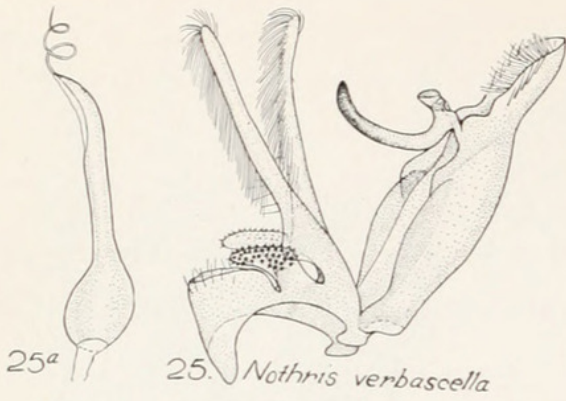
MALE GENITALIA OF AROGA AND WING VENATION OF KEIFERIA AND GELECHIA.

FOR EXPLANATION OF PLATE SEE PAGE 591.

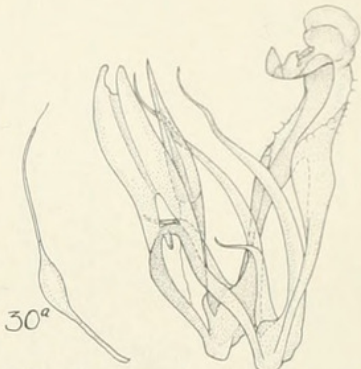
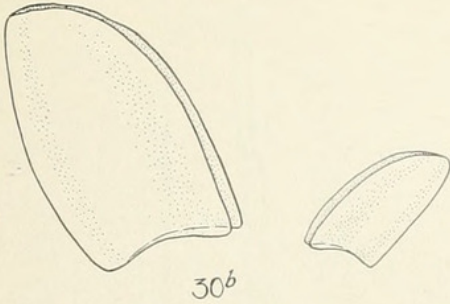


MALE GENITALIA OF FACULTA, EPILECHIA, PSEUDOCHELARIA, AND FASCISTA.

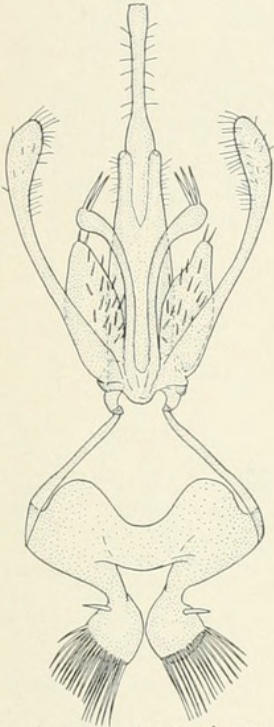
FOR EXPLANATION OF PLATE SEE PAGE 592.



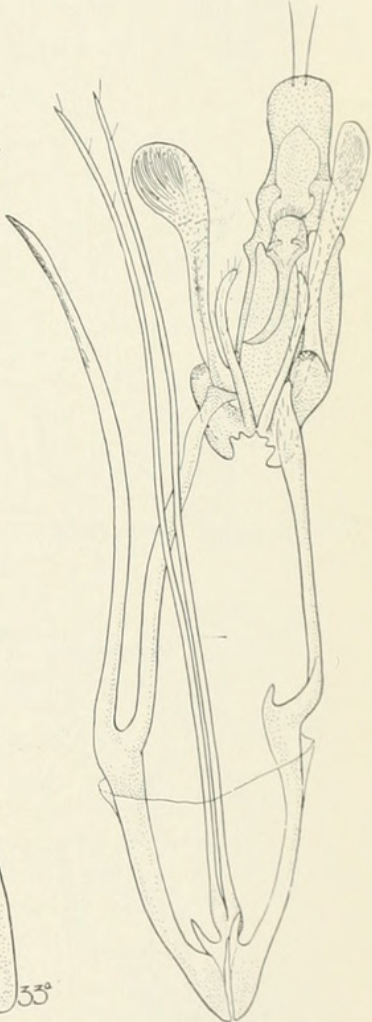
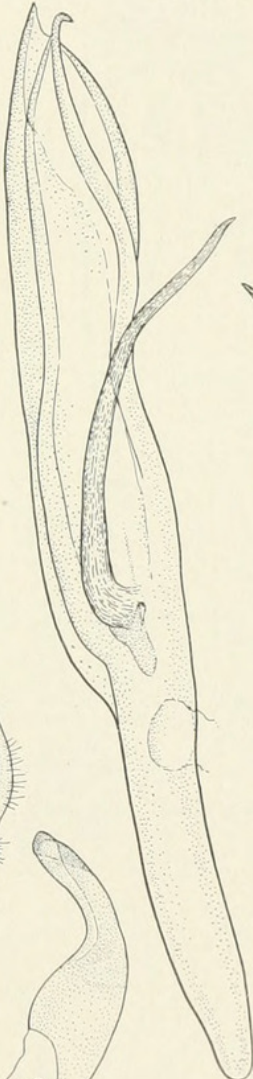
MALE GENITALIA OF NOTHRIS, STEGASTA, EVIPPE, AND ANACAMPTIS.
FOR EXPLANATION OF PLATE SEE PAGE 592.



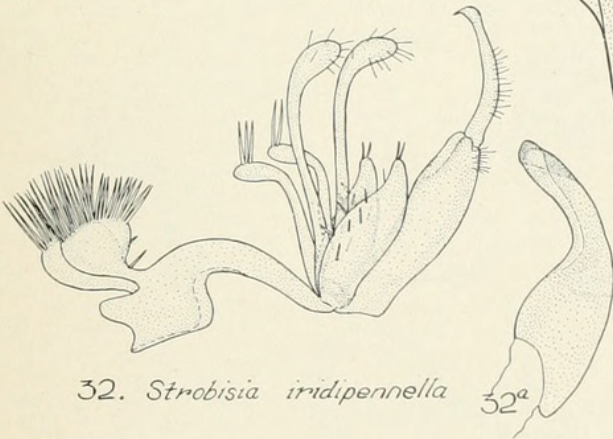
30. *Recurvaria nanella*



31. *Strobisia iridipennella*



33. *Dichomeris ligulella*

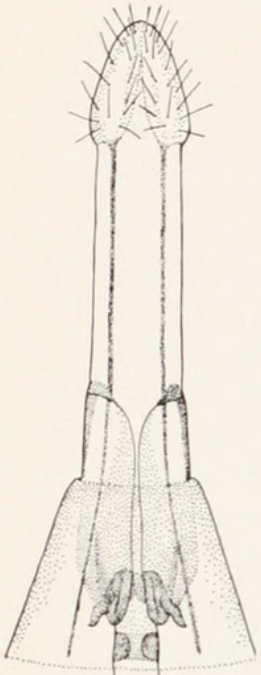


32. *Strobisia iridipennella*

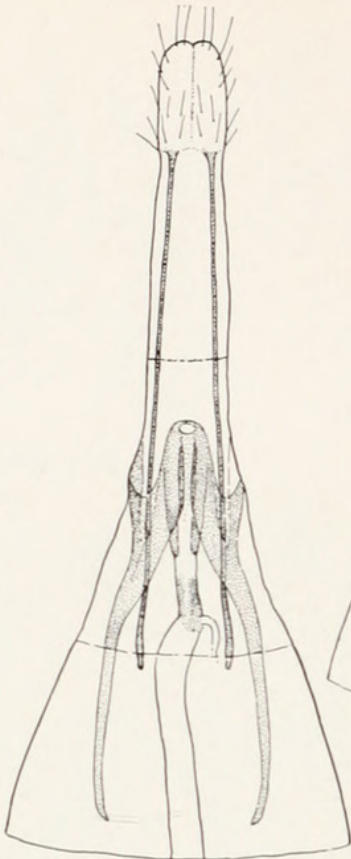
32^a

MALE GENITALIA OF RECURVARIA, STROBISIA, AND DICHOMERIS.

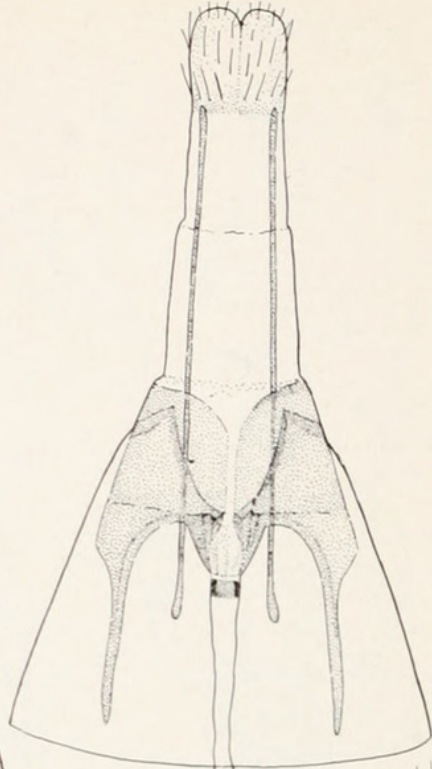
FOR EXPLANATION OF PLATE SEE PAGE 592.



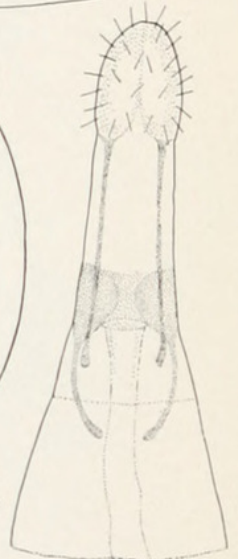
34. *Gelechia bianulella*



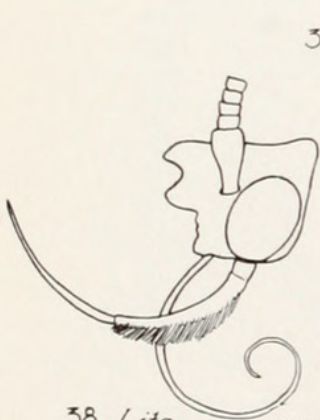
35. *Keiferia altisolarii*



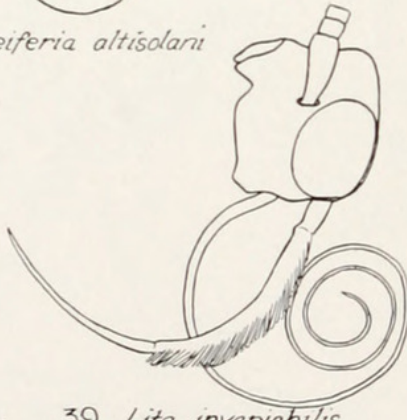
36. *Gnorimoschema gallaesolidaginis*



37. *Lita longicornis*



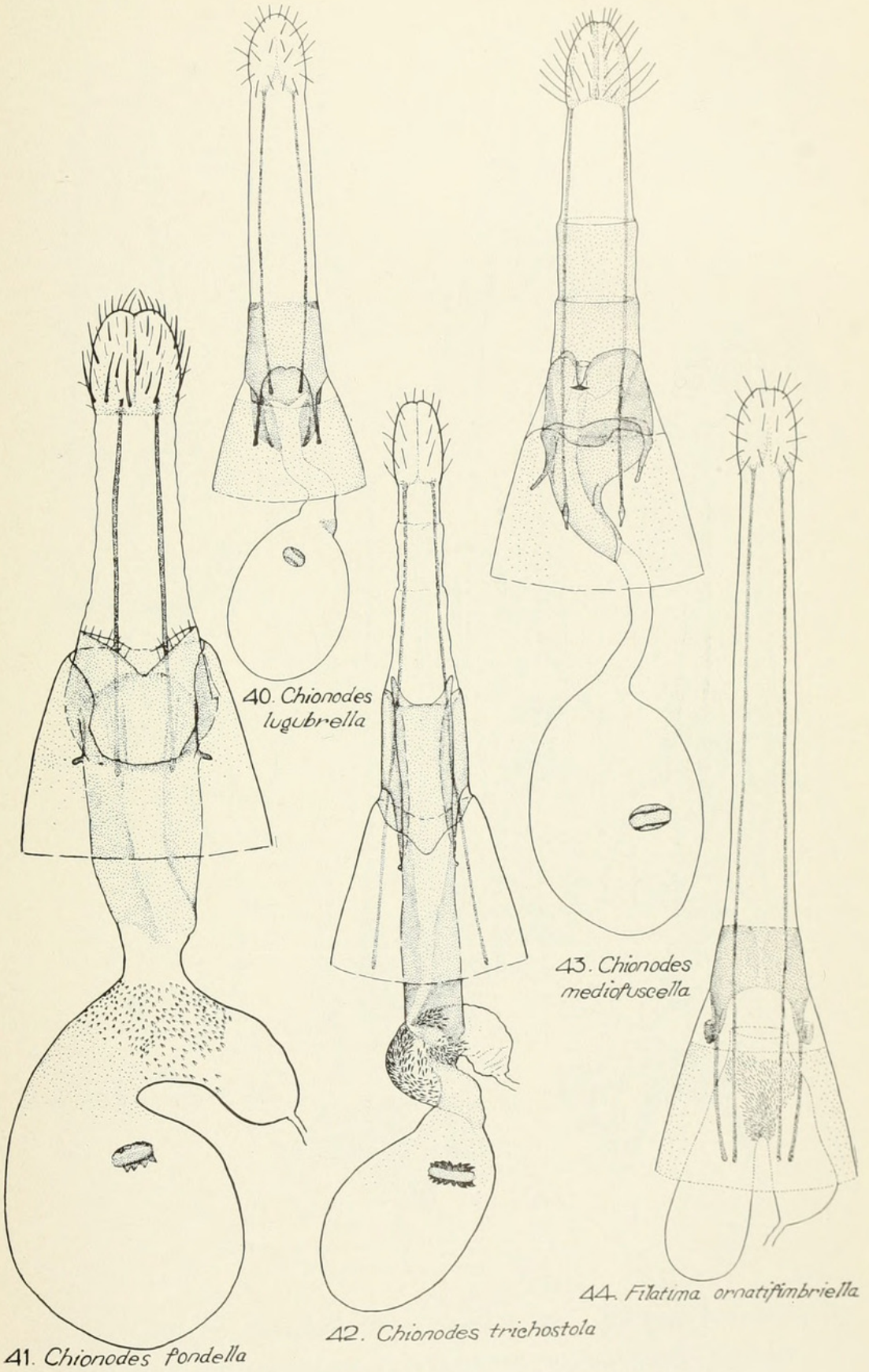
38. *Lita puertella*



39. *Lita invariabilis*

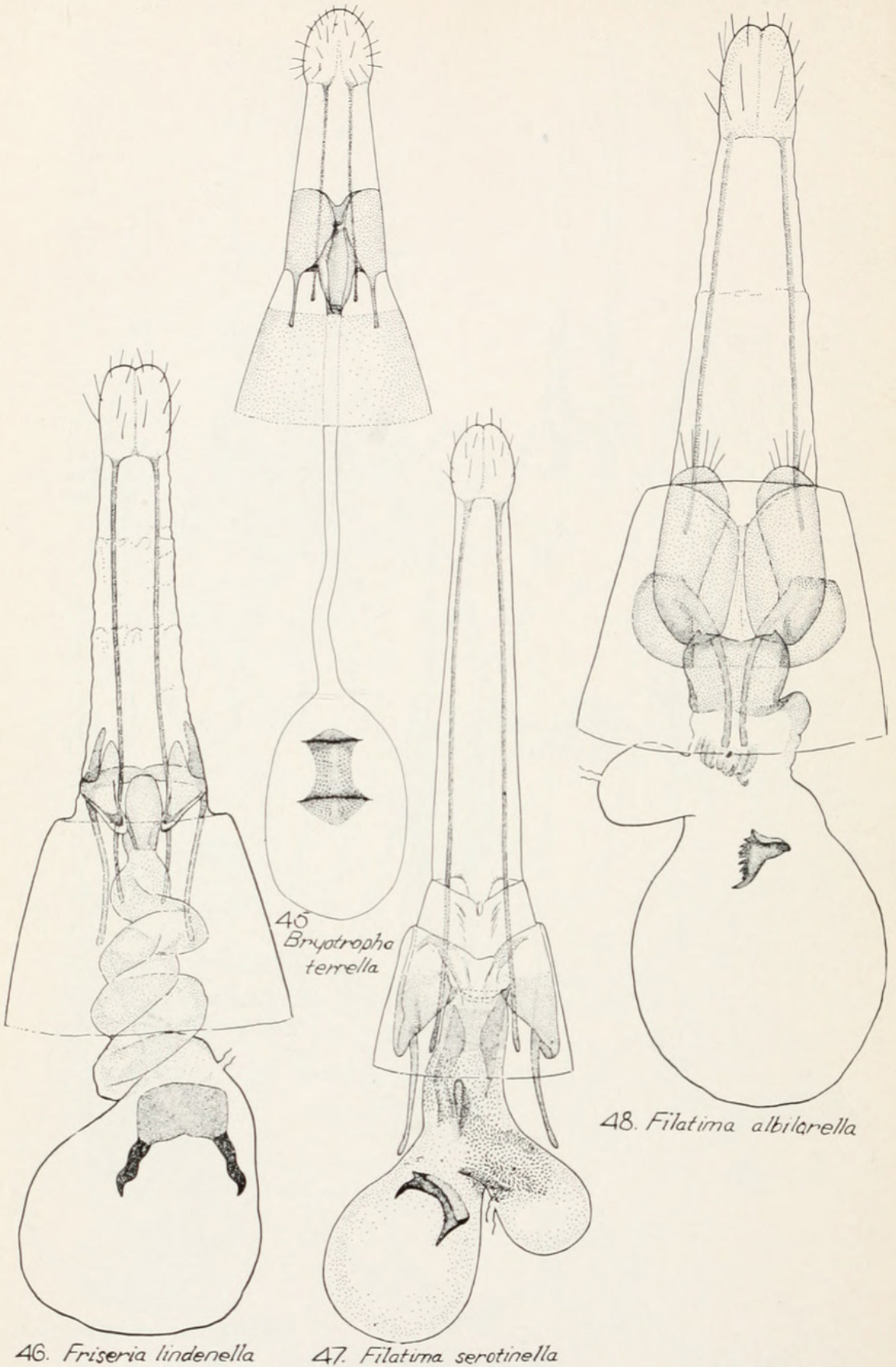
FEMALE GENITALIA OF GELECHIA, KEIFERIA, GNORIMOSCHEMA, AND LITA AND HEAD PROFILES OF LITA.

FOR EXPLANATION OF PLATE SEE PAGE 592.



FEMALE GENITALIA OF CHIONODES AND FILATIMA.

FOR EXPLANATION OF PLATE SEE PAGE 592.



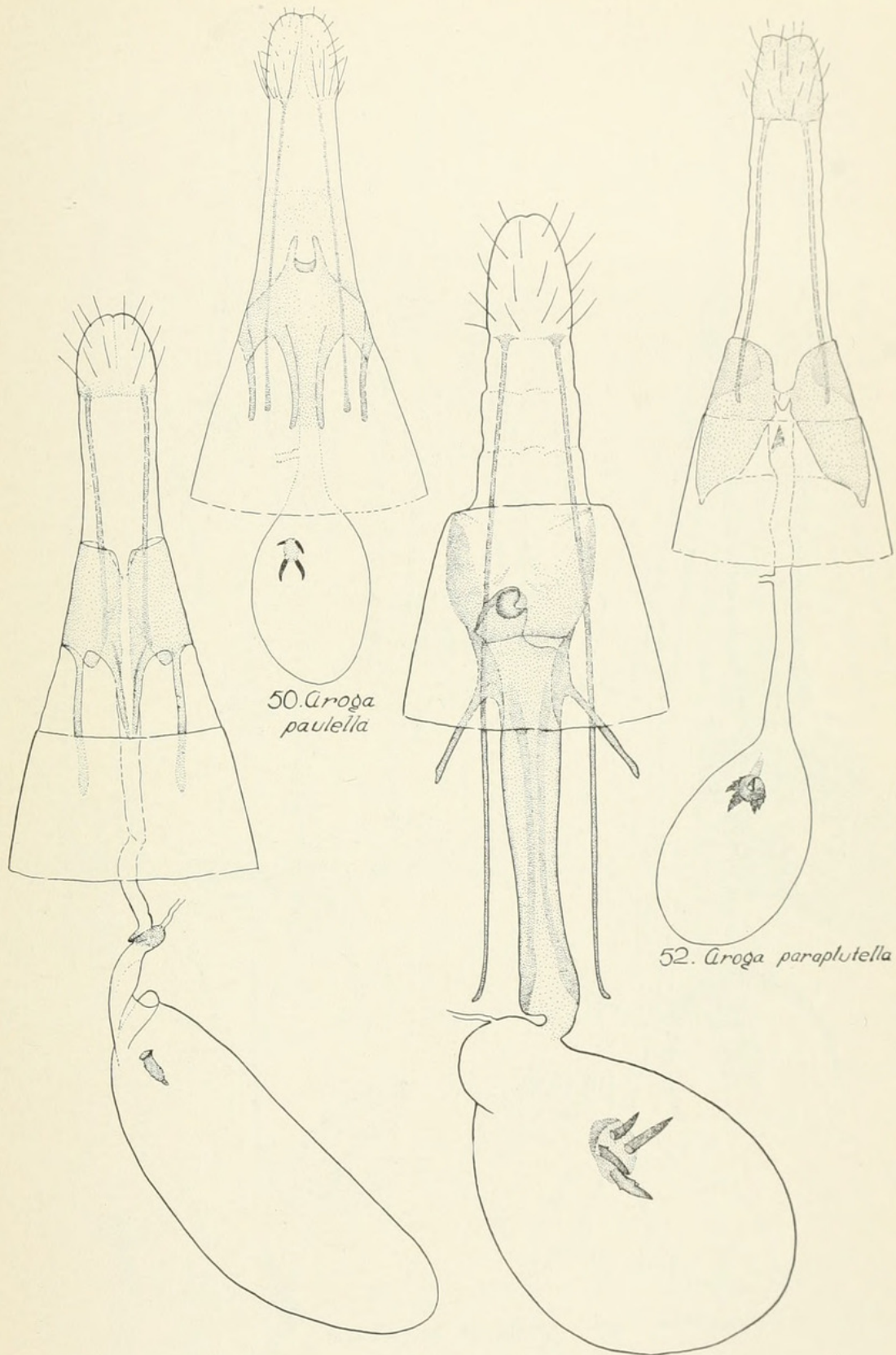
46. *Friseria lindenella*

47. *Filatima serotinella*

48. *Filatima albilarella*

FEMALE GENITALIA OF BRYOTROPHA, FRISERIA, AND FILATIMA.

FOR EXPLANATION OF PLATE SEE PAGE 593.



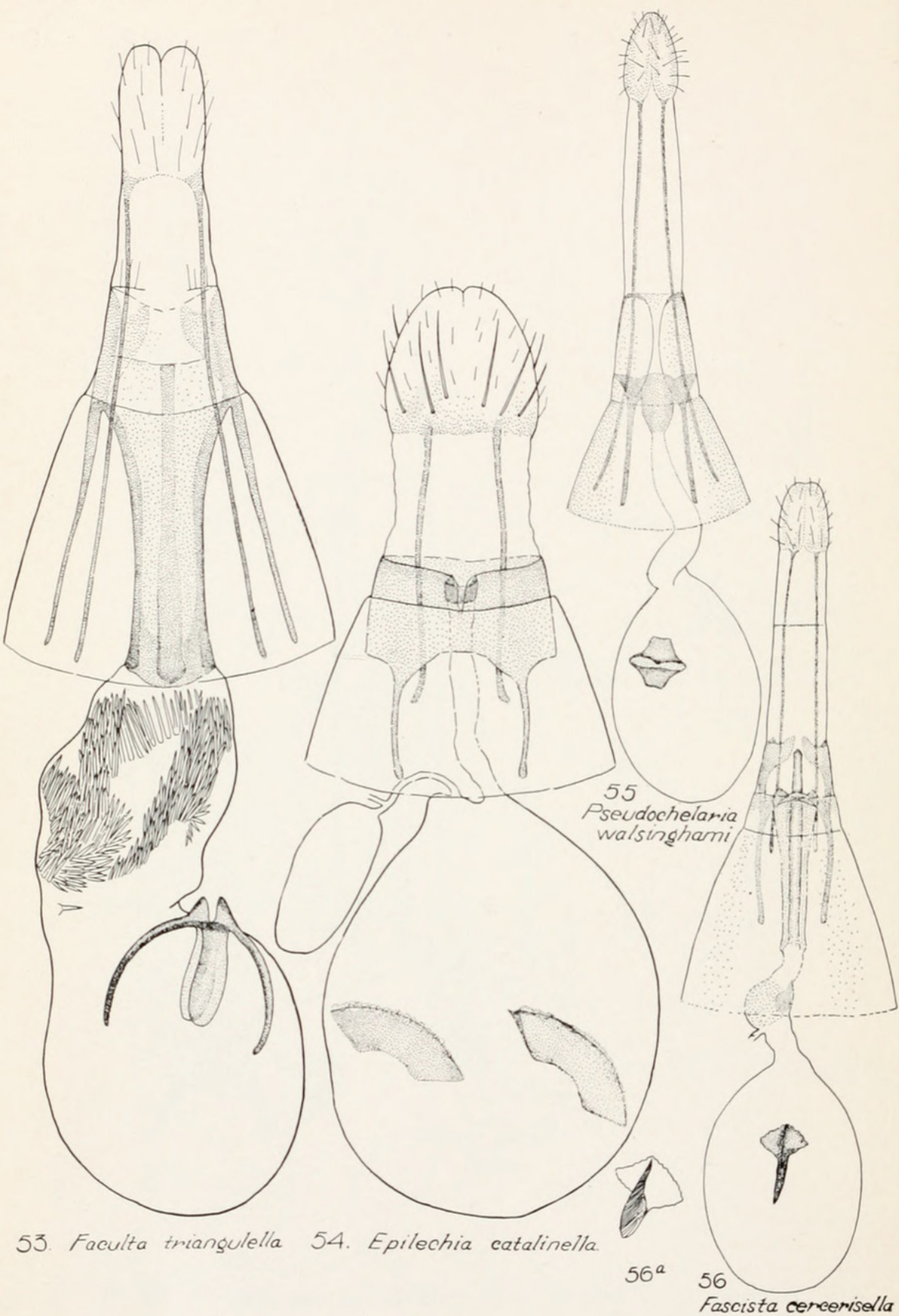
50. *Aroga paulletta*

52. *Aroga paraplutella*

49. *Frumenta nundinella*

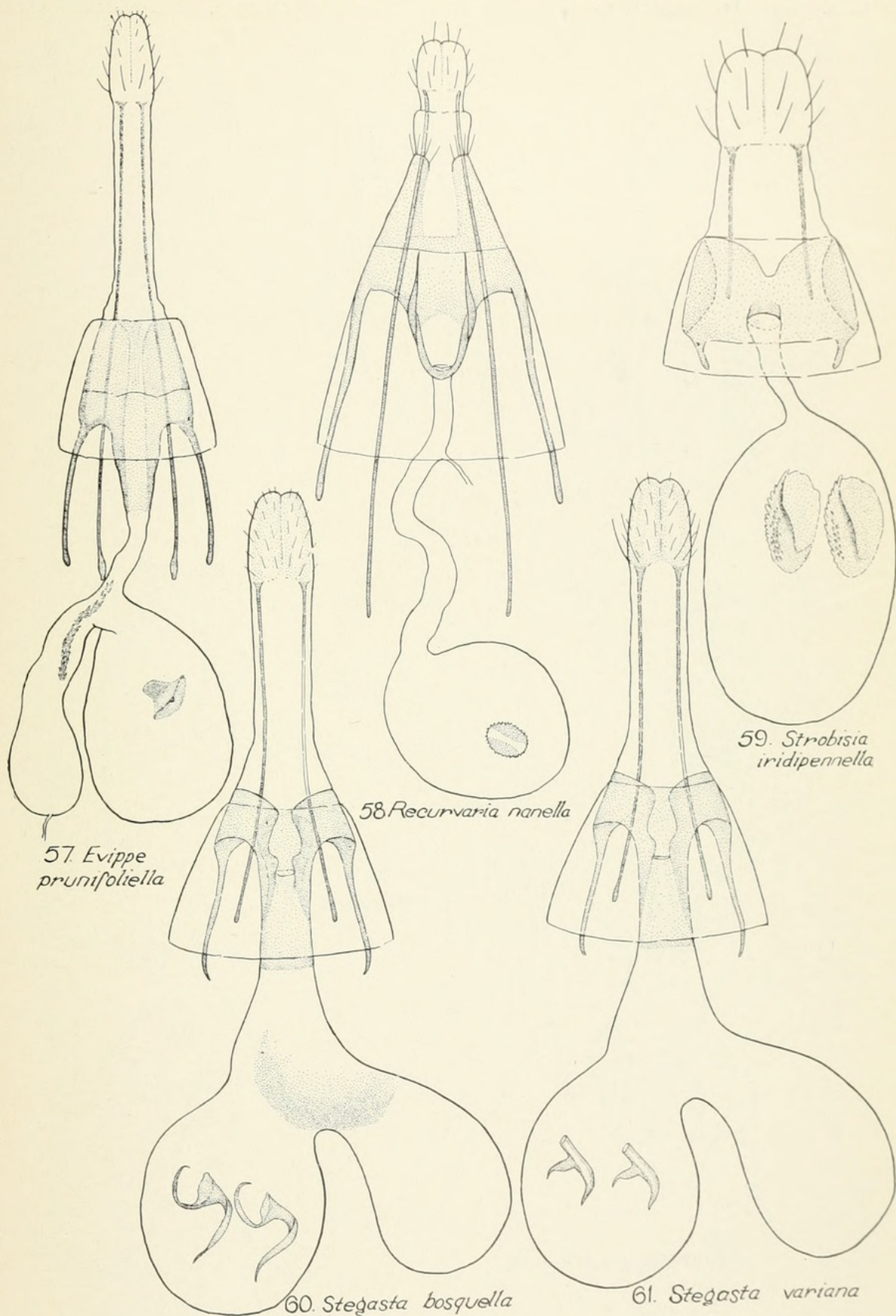
51. *Aroga alleriella*

FEMALE GENITALIA OF FRUMENTA AND AROGA.
FOR EXPLANATION OF PLATE SEE PAGE 593.



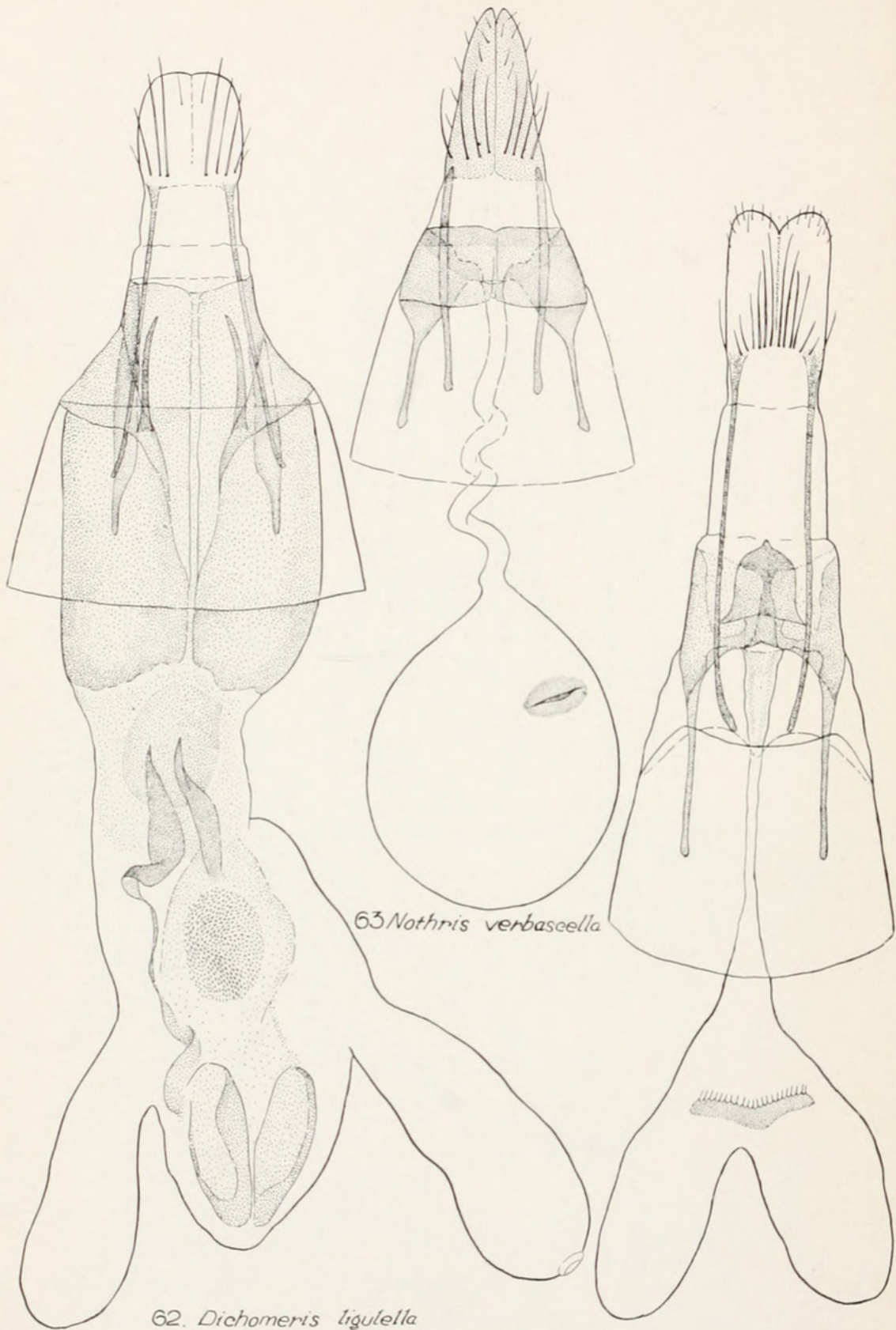
FEMALE GENITALIA OF FACULTA, EPILECHIA, PSEUDOCHELARIA, AND FASCISTA.

FOR EXPLANATION OF PLATE SEE PAGE 593.



FEMALE GENITALIA OF EVIPPE, RECURVARIA, STROBISIA, AND STEGASTA.

FOR EXPLANATION OF PLATE SEE PAGE 593.



62. *Dichomeris ligulella*

63 *Nothris verbasceella*

64. *Anacamptis populella*

FEMALE GENITALIA OF DICHOMERIS, NOTHRIS, AND ANACAMPTIS.

FOR EXPLANATION OF PLATE SEE PAGE 593.



Busck, August. 1939. "Restriction of the genus *Gelechia* (Lepidoptera: Gelechiidae), with description of new genera." *Proceedings of the United States National Museum* 86, 563–593.

<https://doi.org/10.5479/si.00963801.86-3064.563>.

View This Item Online: <https://www.biodiversitylibrary.org/item/32496>

DOI: <https://doi.org/10.5479/si.00963801.86-3064.563>

Permalink: <https://www.biodiversitylibrary.org/partpdf/10660>

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Smithsonian

Copyright & Reuse

Copyright Status: NOT_IN_COPYRIGHT

Rights: <https://www.biodiversitylibrary.org/permissions/>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.