CANADA
DEPARTMENT OF MINES
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NATIONAL MUSEUM OF CANADA
W. H. COLLINS, ACTING DIRECTOR

BULLETIN No. 55

BIOLOGICAL SERIES, No. 16

A Generic Revision of North American Agrotid Moths

BY

J. H. McDunnough,
Entomological Branch, Department of Agriculture, Ottawa

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
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INTRODUCTION

For several years the writer has been devoting as much time as he could spare from other duties to a rather intensive study of the species of moths generally known as Agrotids.[1] This has been done with a view to determining whether it was possible to secure some better arrangement and grouping of the numerous North American species than that proposed by Hampson (1903, Cat. Lep. Phal. Brit. Mus., vol. IV) and followed in the Barnes and McDunnough *Check List*, 1917, more or less closely. To most students of this group, it has been evident for some time past that the associations of our North American species as made by Hampson have in many instances been very arbitrary and artificial—species superficially very similar have been widely separated and other species very obviously dissimilar, both in wing-form and maculation (such for instance as *fennica* Tausch. and *oblata* Morr. under *Agrotis*), have been placed close together.

The group under consideration does not comprise Hampson's entire subfamily Agrotinae, but rather merely the *Agrotes* of Smith's revision (1890, Bull. 38, U. S. N. M.), for the writer is not at all sure that the Heliothid-like forms, associated by Hampson with the true Agrotids on account of the spined tibiæ, have any very close relationship; in any case they are sufficiently distinct to fall outside the scope of the present paper, which, roughly speaking, deals with the genera of the 1917 *Check List* from *Porosagrotis* (page 40) to *Protagrotis* (page 48) inclusive.

Following along the lines used in the writer's revision of the Cleorini (1920, Bull. 18, Dept. Agr., Canada) slides have been made of the male genitalia of as many of the species of the group as could be obtained, and the main groupings have been based largely on the similarity or dissimilarity of the structure of these organs. The groups thus formed have been carefully examined, both individually and comparatively, in regard to their further structural characters, especially such ones as have been used by Smith and Hampson for generic separation. The writer found that the genitalia afford an excellent check on the value of these characters, and has, it is believed, definitely proved that certain characters must be discarded or only used with extreme caution when separating genera.

The group has always been a very difficult one to divide satisfactorily and no two revisers have been able to agree as to how it should best be done. Even to the present day in Europe many entomologists place practically all the Palaearctic species (which in many respects are very closely allied to our Nearctic ones) under the one heading *Agrotis*, preferring a single unwieldy genus to a number of smaller ones (such as we use in North America) which do not seem to bring out satisfactorily either the generic or the specific affinities of the species involved. Before proceeding,

[1] It has recently been shown by Barnes and Benjamin (Contributions, V, 55, 1923) that the name Phalaeninae will in all probability replace Agrotinae, but in the present paper, for the sake of convenience, the better known designation has been adhered to.

therefore, to a discussion of the results of the present investigation, a short historical sketch will be necessary in order that readers may better appreciate both the work that has already been accomplished, and the lines along which previous investigators have worked in their attempts to discover good characters for generic separation in so far, at least, as the Palaearctic and Nearctic faunas are concerned.

Leaving out of consideration the works of some of the older authors of the early nineteenth century, such as Hübner, Ochsenheimer, Stephens, etc., who, though they created valid Agrotid genera, had little conception of the actual limitations of this subfamily as recognized today, we find that Guenée in his *Essai pour servir à la Classification des Noctuelides* (1837, Ann. Ent. Soc. Fr. (1), VI, 347) first attempted to separate the group as a tribe under the name "Noctuelidi," even mentioning that it had first been his intention to split off one section of this tribe under the name "Agrotidi." In this work Guenée lays a good deal of stress in his subdivisions on larval characters and those drawn from the adult are very general and of little value from our modern standpoints. The tribe is divided into seven genera, chief of which are *Agrotis, Noctua,* and *Triphaena,* but *Xylophasia* is also included, proof that Guenée had as yet placed no value on the spining of the tibiæ. In his *Index Methodicus* (1841, Ann. Ent. Soc. Fr. (1), X, 239) *Xylophasia* is removed and the number of genera increased to ten, as follows: *Triphaena* Ochs., *Cerigo* Steph., *Segetia* Steph., *Rusina* Steph., *Noctua* L., *Agrotis, Pachetra* Gn., *Heliophobus* Bdv., *Neuria* Gn., and *Charaeas* Steph., most of the species being again included in the three beforementioned genera which contain practically all the Agrotids as we now know them.

In 1840, a year prior to the issuing of Guenée's *Index,* Boisduval published his *Genera et Index Methodicus,* evidently following very closely Guenée's earlier work. He designates his tribe as "Noctuides" and divides it into nine genera: *Segetia, Cerigo, Triphaena, Opigena* Bdv., *Chersotis* Bdv., *Noctua, Spaelotis* Bdv., *Agrotis,* and *Heliophobus,* three of these genera being new.

Duponchel in 1844 in his *Catalogue Méthodique des Lépidoptères d'Europe* uses the tribal name "Noctuelides" and divides it into twelve genera: *Hiria* Dup., *Triphaena, Segetia, Noctua, Opigena, Actebia, Chersotis, Agrotis, Spaelotis, Charaeas, Heliophobus,* and *Rusina,* the first named being a new monotypical genus erected for *linogrisea* Fabr. He follows very closely along the lines laid down by Boisduval and Guenée. With the exception of the last three genera all still belong to the Agrotinae.

In 1848 Rambur, in some useful critical observations on the group (Ann. Ent. Soc. Fr. (2), VI, 65), raises it to family rank under the name "Agrotides" and calls attention to the spined tibiæ as an excellent character. He creates the new genus *Cladocera* (*preocc.*) and is disposed to lump several of Boisduval's genera with *Agrotis.*

In 1852 Guenée (Sp. Gen. des Lepid. V, 253) follows Rambur in giving the group family rank, but uses the term "Noctuidae." He only recognizes five genera: *Rusina, Agrotis, Hiria, Triphaena,* and *Noctua,* but *Agrotis* is subdivided into thirteen and *Noctua* into nine groups; none of these groups is characterized, but in some instances available names are added in a subgeneric sense.

The writer has not had access to Herrich-Schaeffer's *Systematische Bearbeitung der Schmetterlinge von Europa*, but judging by his *Systematisches Verzeichniss der Europaeischen Schmetterlinge*, which appeared in 1854 in the Korrespondenzblatt des zool. miner. Vereins in Regensburg, he made little alteration on Guenée's system, merely substituting the generic term *Graphophora* for *Noctua*.

In 1857 Lederer published his well-known work, *Die Noctuinen Europas;* he discards the usage of any families or subfamilies and includes practically the whole group under the one generic heading "Agrotis," subdividing the species, however, into numerous sections based on the shape of the male claspers (a distinctly new feature), the presence or absence of spines on the fore tibiæ, and the male antennal structure. Until quite recently this system is the one which has been most generally followed by European authorities.

The first real attempt at a classification of our North American species seems to have been made by Grote in 1874 (Bull. Buff. Soc. Nat. Sci. II, 9) who characterizes the genus *Agrotis* as follows: "Eyes naked, without lashes. Thorax without divided dorsal longitudinal or posterior scale tuft; abdomen untufted. Middle and hind tibiæ always, fore tibiæ sometimes, with spines." Under this generic heading he includes all the Agrotids then known with the exception of an odd one or two placed in the genera *Pleonectopoda* Grt., *Adita* Grt., *Eurois* Hbn., and *Ammoconia* Led.

In his 1875 *Check List* he abandons the genera *Ammoconia* and *Pleonectopoda* and sinks *Eurois* as a subgenus of *Agrotis*, using further *Pachnobia* Gn., *Matuta* Grt., and *Anicla* Grt., in a subgeneric sense.

Several papers published by Grote during the next seven or eight years deal with the Agrotids, but offer little of real value as a basis for classification. These are:

On the Genus Agrotis with Additions to the List of North American Noctuidae (1875, Bull. Buff. Soc. Nat. Sci. II, 301);

On the Genus Agrotis (1882, Can. Ent. XV, 51);

Introduction to a Study of the North American Noctuidae (1883, Proc. Am. Phil. Soc., 134).

The 1882 *Check List* in which Grote first uses the family name Noctuidae for the group embodies the results of these papers. Under this family name are included as genera, *Agrotis* (containing the bulk of the species), *Anytus, Ammoconia, Pachnobia, Agrotiphila, Eucoptocnemis,* and *Adita*. The 1883 *Check List* appended to his paper mentioned above is similar, with the addition of *Carneades* Grt. for two species with tuberculate front. In 1890 a *Revised Check List of the North American Noctuidae* was published by the same author, the group in question being designated as Tribe Agrotini of the subfamily Noctuinae. Though the bulk of the species still remain undivided in the genus *Agrotis*, the following generic terms are also employed for limited groups: *Tryphaena* Hbn., *Eurois* Hbn., *Richia* Grt., *Anytus* Grt., *Adita* Grt., *Carneades* Grt., *Copablepharon* Harv., *Ufeus* Grt., *Pteroscia* Morr., and *Eucoptocnemis* Grt. The author states that "the species of *Agrotis* need rearrangement. There should be first grouped together the forms with unarmed fore tibiæ, then the male characteristics drawn from antennæ and genitalia should be used to group the species."

In the same year (1890) J. B. Smith published his *Revision of the Species of the Genus Agrotis* (Bull. 38, U. S. N. M.); the system of classification proposed is vastly superior to any of the previous ones. The species are primarily separated on the armature of the fore tibiæ and further subdivided on characters such as wing-shape, tuberculate front, thoracic and abdominal tufting, male antennæ, shape of palpi, and genital structure of the male. A number of new generic terms are introduced, the author himself stating that he "felt free to propose new names for the groups into which the species have been formed, quite satisfied to have the names relegated into the patient synonymy when the study of generic types proves their identity with others already proposed." Smith's classification was largely followed in Dyar's *List of North American Lepidoptera* (1902, Bull. 52, U. S. N. M.) and also by Grote in his *List of North American Eupterotidae, etc.* (1895, Bremen), who, however, attempted to synonymize a number of Smith's genera with older existing names, notably those of Hübner's *Verzeichniss*, and treated the majority of them in a subgeneric sense only.

A very useful and important contribution to our knowledge of the group was made by P. C. T. Snellen in a paper entitled *Eenige Opmerkingen over de nadere verdeeling van het genus Agrotis*, appearing in the Tijdschrift voor Entomologie, 1896, page 142. The author makes no attempt at generic divisions, but is content to indicate the groupings into which the European Agrotids fall, based on a very careful study of numerous structural details. Putting aside his first subdivision, based on the colour of the hind wings, as rather unscientific, his remaining sections show a very careful attention to the minute differences found in the spining of the fore tibia and its length as compared with the first tarsal joint, the varied vestiture of the thorax and palpi and the shape of the third palpal joint, and in the final instance the nature of the male antennæ. As far as the writer has been able to check the work, Snellen's grouping is the most natural of any proposed up to this time.

Hampson's work (1903), which has already been referred to, is the first that deals with the genera and species of the world and his generic keys are based on a combination of structural characters used by previous workers and numerous other ones employed for the first time. The least satisfactory feature of the work is the arbitrary selection of the genotype as the first species included in the original description and the consequent clashing with the International Code of Zoological Nomenclature. Though it was recognized that a careful generic revision would sooner or later prove a necessity, Hampson's arrangement was more or less closely adhered to in the Barnes and McDunnough *Check List*, 1917. The following generic key has been adapted from Hampson and includes all the genera to which North American species are assigned; it will give a good idea of the structural characters employed by this author in separating genera.

KEY TO NORTH AMERICAN AGROTID GENERA ACCORDING TO HAMPSON

(1)	Fore tibiæ with spines or claws	2
	Fore tibiæ without spines or claws	12
(2)	Frons with prominence	3
	Frons without prominence	5

(3) Frons with truncate conical prominence 4
Frons with vertical ridge ..... *Feltia*
Frons with slightly roughened prominences ..... *Pseudorthosia*

(4) Fore tibiæ with spines at extremity very stout ..... *Porosagrotis*
Fore tibiæ with spines at extremity slender ..... *Euxoa*

(5) Eyes strongly ciliated ..... *Metalepsis*
Eyes not ciliated 6

(6) Head and thorax clothed with hair only and without crests 7
Head and thorax clothed with hair and scales and with more or less developed thoracic crests 8

(7) Fore tibiæ short and broad with long, curved claw on inner side and short claw on outer ..... *Eucoptocnemis*
Fore tibiæ normal, without claws ..... *Epipsilia*

(8) Prothorax with ridge-like crest ..... *Richia*
Prothorax with spreading crest 9

(9) Fore tibia short and broad with 2 claws on inner side and 7 on outer ..... *Onychagrotis*
Fore tibia with long, curved claw on inner side ..... *Adita*
Fore tibiæ spined at sides 10

(10) Abdomen dorsally rather flattened, fore wing broad, triangular ..... *Agrotis*
Abdomen not flattened dorsally 11

(11) Fore tibiæ strongly spined, thorax smoothly scaled ..... *Lycophotia*
Fore tibiæ slightly spined on inner side only ..... *Aplectoides*

(12) Mid tibiæ spined 13
Mid tibiæ not spined ..... *Protagrotis*

(13) Head and thorax clothed with hair only ..... *Mythimna*
Head and thorax clothed with hair and scales 14

(14) Abdomen with dorsal crests towards base ..... *Anytus*
Abdomen without dorsal crests towards base 15

(15) Palpi with third joint porrect and hairy below, the second broadly scaled in front 16
Palpi with third joint upturned, nearly naked 18

(16) Thorax with distinct crests on pro- and metathorax 17
Thorax with very slight dorsal crests ..... *Pronoctua*

(17) Head and thorax clothed with rough spatulate hair ..... *Anomogyna*
Head and thorax smoothly clothed with hair and scales ..... *Eurois*

(18) Palpi with second joint broadly fringed with hair in front ..... *Eueretagrotis*
Palpi with second joint slightly fringed with hair in front ..... *Rhynchagrotis*

In 1914, W. T. M. Forbes published a *Table of the Genera of Noctuidae of North Eastern North America* (Jour. N.Y. Ent. Soc. XXII, 1), and the following key is an excerpt from this paper covering the Agrotid genera.

KEY TO AGROTID GENERA ACCORDING TO FORBES

(1) Fore tibiæ with single terminal claw ..... *Adita*
Fore tibiæ with several terminal claws 2
Fore tibiæ unarmed 9

(2) Front rough with a distinct raised ring or truncate elliptical projection ..... *Euxoa*
Front merely rough and prominent or smooth 3

(3) Tongue rudimentary much shorter than thorax; front rough but fairly flat, fore tibiæ about twice as long as wide with one terminal claw about one-half as long as itself ..... *Eucoptocnemis*
Tongue functional or with lightly spined fore tibiæ 4

(4) Front rough and granular, dull, strongly rounded out, fore tibiæ normally with heavy claws or spines ..... *Feltia*
Front shining and rarely projecting more than a third the width of the eyes; fore tibiæ slender and usually with light spines 5

(5) Palpi upturned to vertex, wings large, broad with even outer margin, tongue weak.....*Pteroscia*
Palpi upturned to middle of front or porrect..... 6

(6) Vestiture deeply overlaid with plain or forked hair..... 7
Vestiture flattened or mixed..... 8

(7) Tongue weak, shorter than thorax; wings broad and thin with even outer margin, resembling *Pteroscia;* metatarsi with three rows of spinules.....*Choephora*
Tongue normal, wings smaller and heavy, metatarsi often with four rows of spinules.....*Pachnobia*

(8) Spinulation of fore tibiæ strong, or if weak and concealed in the vestiture (*baja*) with strongly flattened body.....*Noctua*
Spinulation concealed in vestiture, body rather slender and cylindrical, wings broad with arched costa; largely arctic.....*Eurois* (group *Aplectoides*)

(9) Abdomen strongly tufted, eyes more or less lashed..... 10
Abdomen untufted..... 11

(10) Thorax with fine, feathery, spatulate vestiture, wings normal, our species light grey.....*Anytus*
Vestiture of flattened hair, wings more lanceolate, our species black..... *Fishia*

(11) Spines of tarsus regular, eyes not lashed.....*Eurois*
Eyes distinctly lashed..... 12

(12) Vestiture mixed, largely spatulate.....*Apharetra*
Vestiture of rough hairs, spinules of tarsus distinctly in four well-spaced rows, but all four rows are ventral..... *Ufeus*

On pages 24-27 Forbes discusses subordinate groupings for his genera *Euxoa, Feltia, Noctua, Pachnobia,* and *Eurois,* in some instances indicating the subgeneric name to be used. He states, "secondary sexual characters are not really satisfactory for general use and in this, the Agrotid group, their use would separate very closely related species, so I have gone back to Grote's point of view and combined a number of Smith's genera." The whole work shows a very careful study of structural characters (excepting genitalia), but its permanent value is greatly limited, due to the fact that no attempt has been made to definitely fix the genotypes of the various genera employed according to the rules of the International Committee on Zoological Nomenclature. In consequence, Forbes' terms, just as is the case with those of Hampson and of Smith, are frequently misapplied.

Warren in *Seitz, Gross-Schmetterlinge der Erde,* vol. III, largely follows Hampson in his classification of the Palaearctic Agrotids; he, however, employs the subfamily term *Euxoinae* and lumps all the species placed by Hampson in the genera *Agrotis, Epipsilia* and *Lycophotia* in the one genus *Rhyacia* Hbn., forming a very unwieldy mass of species, many of which show no close relationship, as has been admirably pointed out by Corti in his recent papers on Agrotids in various continental European journals; Warren creates the new genera *Amphitrota* (type *unicolor* Wlk.) and *Perissandria* (type *argillacea* Alph.).

Draudt in the Nearctic portion of the same work (vol. VII) follows Hampson and the Barnes and McDunnough 1917 *Check List,* with the exception that *Lampra* Hbn. is used in place of *Rhynchagrotis* Sm., in accordance with Benjamin's revision of this group (1921, Bull. S. Calif. Acad. Sci. XX, 73).

TYPES OF AGROTID GENERA

The above very brief and frequently rather inadequate review will at least serve to emphasize the fact that no stable system of generic nomenclature is possible in the Agrotinae until a definite fixation of generic types,

along the lines laid down by the International Rules above mentioned, has been made. Once the genotypes are fixed, it is possible, by a study of the structure of the species representing these types, to determine the limits and relationships of the various generic terms involved. The writer has attempted, therefore, such a generic sketch, following strictly Article 30 of the above Rules; in the case of subsequent designation of the genotype he has invariably accepted the first valid designation, irrespective of any previous restrictions which may have been made under the so-called "law of the first reviser." In a former paper (1916, Ent. News XXVII, 393) the writer accepted this "law," but has since become convinced that there is no clause in the International Rules which can be cited in justification of this action, even though, to the present day, it is a common procedure among European taxonomists. The writer has also disregarded the so-called "Tentamen" genera of Hübner as of the date 1806, following "Opinion 97" of the "International Committee on Nomenclature." Such of these genera as occur in the Agrotinae are credited to Ochsenheimer (1816) who seems to be the first author to have published these names with more definite data, as required by the last sentence of the summary of the above "Opinion."

In the following sketch the genera have been arranged alphabetically for the sake of convenience; the list is fairly complete, although certain obscure genera of the Palaearctic fauna which have been erected for highly specialized groups or for single species, are not included. It is thought, however, that all genera which could possibly be used in our North American fauna have been considered, but those genera which the writer recently excluded from the *Agrotinae* (1927, Can. Ent. LIX, 64) are omitted, as is also *Ufeus* Grt., which is only doubtfully Agrotid and which in any case is not likely to cause any trouble. The references given under the various generic headings are merely those dealing with type fixations; the terms used to designate genotypes are taken from Van Duzee's "Catalogue of the Hemiptera."

ABAGROTIS — Haplotype *Agrotis erratica* Sm.
1890, Smith, Bull. 38, U. S. N. M. 9.

ACTEBIA — Haplotype *Noctua praecox* Linn.
1829, Stephens, Ill., Brit. Ent. Haust. III, 20.

ADELPHAGROTIS — Orthotype *Agrotis stellaris* Grt.
1890, Smith, Bull. 38, U. S. N. M. 9.

AGRONOMA — Logotype *Noctua vestigialis* Rott.
1822, Hübner, Verz. bek. Schmett. 227. Includes *crassa* Hbn., *cornea* Hbn. (*tritici* Schiff.), *valligera* Schiff. (=*vestigialis* Rott.), *exclamationis* L.
1895, Grote, List N. Am. Eupter., etc., 23. Cites *valligera* (*vestigialis*) as type.
1896, Grote, Jour. N. Y. Ent. Soc. IV, 85. Pseudotype, *crassa* Hbn.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 153. Pseudotype, *crassa* Hbn.

Falls to *Agrotis* Ochs.

AGROTIS — Logotype *Ph. Noctua segetum* Schiff.
1816, Ochsenheimer, Schmett. Eur. IV, 66. Cites many species, including *segetum* Schiff.
1827, Curtis, Brit. Ent. IV, Pl. 165. Cites *segetum* as type. In this he is followed by Westwood, Grote, Butler, et al.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 363. Pseudotype, *rectangula* Schiff.

AMATHES — Logotype *Ph. Noctua baja* Schiff.
1822, Hübner, Verz. bek. Schmett. 222. Includes *litura* L. and *baja* Schiff.
1889, Butler, Trans. Ent. Soc. Lond. 382. Cites *baja* as type.
1895, Grote, Ent. Rec. VI, 30. Confirms Butler's citation.
1906, Hampson, Cat. Lep. Phal. Brit. Mus. VI, 470. Pseudotype, *litura* L.
1916, McDunnough, Ent. News XXVII, 397. Cites Hampson's action as *ultra vires*.

Falls to *Graphiphora* Ochs.

AMMOCONIA — Logotype *Ph. Noctua caecimacula* Schiff.
1857, Lederer, Noct. Europ. 97. Includes *caecimacula* Schiff. and *vetula* Bdv. (=*senex* Cram.).
1874, Grote, Bull. Buff. Soc. N. Sci. II, 12. Cites *caecimacula* as type.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 603. Cites same species.

AMMOGROTIS — Haplotype *Ammogrotis suavis* Staud.
1895, Staudinger, Iris, VIII, 358.

AMPHITROTA — Orthotype *Mamestra unicolor* Wlk.
1909, Warren, in Seitz, Gross-Schmett. d. Erde, Palae. Noct. III, 57.

ANICLA — Haplotype *Agrotis infecta* Ochs.
1874, Grote, Bull. Buff. Soc. N. Sci. II, 159. Erected for *alabamae* Grt. which is a synonym of *infecta* Ochs.

ANOMOGYNA — Haplotype *Hadena laetabilis* Zett.
1871, Staudinger, Cat. Pal. Lep. 110.

APLECTOIDES — Orthotype *Aplecta condita* Gn.
1878, Butler, Ann. Mag. Nat. Hist. (5) I, 193.

AXYLIA — Logotype *Ph. Noctua putris* Linn.
1822, Hübner, Verz. bek. Schmett. 242. Includes *exsoleta* L., *vetusta* Hbn., and *putris* L.
1852, Guenée, Sp. Gen. Lep. V, 134. Cites *putris* as type.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. VI, 280. Pseudotype, *exoleta* L.

The genitalia of *putris* are distinctly non-Agrotine (vide Pierce, Gen. Brit. Noct. Pl. IX) and most British entomologists place *Axylia* near *Hydroecia* in spite of the spined tibiæ.

BROTIS — Logotype *Phalaena Noctua nigricans* Linn.
1822, Hübner, Verz. bek. Schmett. 226. Includes *fumosa* Schiff. and *sordida* Schiff.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 153. Cites as type *nigricans* L., of which *fumosa* Schiff. is a synonym.

Falls to *Euxoa*.

CARADRINA — Logotype *Noctua margaritacea* Vill.
1816, Ochsenheimer, Schmett. Eur. IV, 80. Includes *glareosa* Esp. (*i-intactum* Hbn., *margaritacea* Bork.), *cubicularis* Schiff., *morpheus* Hfn., *alsines* Brahm., *respersa* Schiff., and nine other species.
1829, Duponchel, Hist. Nat. Lep. Fr. VII (2), 72. Cites *i-intactum* as type.
1837, Curtis, Brit. Ent. XIV, 651. Pseudotype, *morpheus* Ochs.
1840, Westwood, Intro. Mod. Class. Ins. Gen. Synop., 94. Pseudotype, *cubicularis* Schiff.
1852, Guenée, Sp. Gen. Lep. V, 244. Pseudotype, *alsines* Bork.
1874, Grote, Bull. Buff. Soc. Nat. Sci. II, 22. Pseudotype, *respersa* Schiff.
1894, Hampson, Moths Brit. Ind. II, 259. Pseudotype, *taraxaci* Hbn.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 360. Pseudotype, *glareosa* Esp.
1916, McDunnough, Ent. News XXVII, 397. Pseudotype, *alsines* Bork.

In view of the fact that both the original reference and the synonymy of later authors show that *glareosa* of Ochsenheimer was the same as *i-intactum* of Hübner, but not the same species as *glareosa* Esp., Duponchel's type designation will hold. The genus is apparently a good one and falls close to *Rhyacia* Hbn.

CARNEADES — Haplotype *Carneades moerens* Grt.
1883, Grote, Can. Ent. XV, 4.

The genus is preoccupied by *Carneades* Bates (1869) in Coleoptera. In any case would fall to *Euxoa* Hbn.

CE ASTIS — Logotype *Ph. Noctua rubricosa* Schiff.
1816, Ochsenheimer, Schmett. Europ. IV, 84. Includes *rubricosa* Schiff., *rubiginea* Schiff., *vaccinii* Linn., and seven other species.
1829, Duponchel, Hist. Nat. Lep. Fr. VII (2), 72. Cites *rubricosa* as type.
1852, Guenée, Sp. Gen. Lep. V, 379. Pseudotype, *vaccinii* Linn.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 602. Cites *rubricosa* as type.
1927, McDunnough, Can. Ent. LIX, 65. Confirms Duponchel's citation.

According to the International Rules the genus is not preoccupied, as some authors have stated, by *Cerastes* Laur. (1768) in Reptilia.

CHOEPHORA — Haplotype *Choephora fungorum* Grt.
1868, Grote, Trans. Am. Ent. Soc. II, 199.

CHERSOTIS — Logotype *Ph. Noctua rectangula* Schiff.
1840, Boisduval, Gen. et Index Meth. 103. Includes *rectangula* Schiff. and nine other species in four sections.
1895, Grote, List N. Am. Eupterot., etc., 21. Sinks to *Amathes* with type designated as *baja*, a non-included species.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 364. Cites *rectangula* as type.

CHORIZAGROTIS — Orthotype *Agrotis auxiliaris* Grt.
1890, Smith, Bull. 38, U. S. N. M. 10.

CRYPTOCALA — Orthotype *Anarta acadiensis* Beth.
1921, Benjamin, Bull. S. Calif. Acad. Sci. XX (3), 74. Type designated as *Agrotis gilvipennis* Grt., a synonym of *acadiensis* Beth.

CYREBIA — Logotype *Cyrebia luperinoides* Gn.
1852, Guenée, Sp. Gen. Lep. VI, 195. Includes *luperinoides* Gn. and *anachoreta* H. S.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 467. Cites *luperinoides* as type.

The genus would appear to be a good one.

DIARSIA — Logotype *Noctua dahlii* Hbn.
1822, Hübner, Verz. bek. Schmett. 222. Includes *dahlii* Hbn., *festiva* Schiff., *carnea* Thun. (*tecta* Hbn.), and three other species.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 363. Cites *dahlii* as type.

DICHAGYRIS — Haplotype *Agrotis melanura* Koll.
1857, Lederer, Noct. Europ. 206.

EPILECTA — Haplotype *Ph. Noctua linogrisea* Schiff.
1822, Hübner, Verz. bek. Schmett. 220.

EPIPSILIA — Logotype *Noctua latens* Hbn.
1822, Hübner, Verz. bek. Schmett. 210. Includes *latens* Hbn., *pyrophila* Schiff., and four others.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 467. Cites *latens* as type.

EUCOPTOCNEMIS — Haplotype *Heliophobus fimbriaris* Gn.
1874, Grote, Bull. Buff. Soc. N. Sci. II, 13.

EUERETAGROTIS — Orthotype *Noctua sigmoides* Gn.
1890, Smith, Bull. 38, U. S. N. M. 9.

EUGRAPHE Logotype *Ph. Noctua sigma* Schiff.

1822, Hübner, Verz. bek. Schmett. 224. Includes *characterea* Schiff. (*signum* Fabr., *sigma* Hbn.), and three others.

1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 364. Cites *signa* as type.

There appears to be a slight mixup in the synynomy of the genotype. Hübner cites the three names *characterea* Schiff., *signum* Fabr., and *sigma* Hbn. under his species 2243, evidently regarding them as synonyms. *Signum* Fabr. is merely a misspelling or correction of *sigma* Schiff. as the text clearly shows, and Hübner's f. 122 of *sigma* is regarded by European workers as representing the *sigma* of the Wiener Verzeichniss. Whether *characterea* is the same species or not the writer has been unable to discover, but in any case *sigma* Schiff. has line priority and it would seem that Hampson's designation can be followed, with the change of *signa* Fabr. to *sigma* Schiff.

EUROIS Logotype *Ph. Noctua occulta* Linn.

1822, Hübner, Verz. bek. Schmett. 217. Includes *herbida* Schiff. (*egregia* Esp.), *tullia* Cram., *speciosa* Hbn., *occulta* L., and three others.

1874, Grote, Bull. Buff. Soc. N. Sci. II, 12. Cites *occulta* as type.

1894, Hampson, Moths Brit. Ind. II, 227. Uses in same sense as Grote.

1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 612. Pseudotype, *prasina* Schiff. (*herbida* Hbn.).

1927, McDunnough, Can. Ent. LIX, 66. Confirms Grote's citation.

EUSCHESIS Logotype *Ph. Noctua janthina* Schiff.

1822, Hübner, Verz. bek. Schmett. 221. Includes *janthina* Schiff., *unxia* Hbn., and *clotilda* Stoll.

1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 622. Cites *janthina* as type.

EUXOA Logotype *Euxoa nivens* Hbn. (‡*decora* Schiff.).

1822, Hübner, Verz. bek. Schmett. 209. Includes *nivens* Hbn. (*decora* Schiff.) and *candelisequa* Schiff.

1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 153. Cites *decora* as type.

Ph. Noctua decora Schiff. is preoccupied by *Ph. Noctua decora* Linn. (1767, Syst. Nat. Ed. XIII, App. No. 14). For this reason Hübner evidently proposed the name *nivens* in the Verzeichniss.

EXARNIS Logotype *Ph. Noctua obelisca* Schiff.

1822, Hübner, Verz. bek. Schmett. 225. Includes *ruris* Hbn., *ypsilon* Schiff., and three others.

1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 153. Cites as type *obelisca* Schiff., of which *ruris* Hbn. is a synonym.

The genus falls to *Euxoa*.

FELTIA Haplotype *Feltia ducens* Wlk.

1856, Walker, Cat. Lep. Het. Brit. Mus. IX, 202.

1890, Smith, Bull. 38, U.S. N. M. 10. Pseudotype, *subgothica* Haw.

GERYX Logotype *Ph. Noctua segetum* Schiff.

1822, Hübner, Verz. bek. Schmett. 227. Includes *segetum* Schiff., *corticea* Schiff., and two others.

1895, Grote, List. N. Am. Eupterot., etc., 16. Sinks to *Agrotis* without citing type.

1903, Hampson, Cat. Lep., Phal. Brit. Mus. IV, 153. Cites *segetis* (*emen.* for *segetum*) as type.

The genus falls to *Agrotis*.

GLAEA Logotype *Ph. Noctua rubricosa* Schiff.

1829, Stephens, Ill. Brit. Ent. Haust. II, 159. Includes *rubricosa* Schiff., *vaccinii* L., and five other species.

1840, Westwood, Intro. Mod. Class. Ins. Gen. Synop. 94. Cites *rubricosa* as type.

1874, Grote, Bull. Buff. Soc. N. Sci. II, 26. Pseudotype, *vaccinii* Linn. following Hübner's Tentamen.

The genus falls to *Cerastis* Ochs.

GRAPHIPHORA — Logotype *Ph. Noctua c-nigrum* Linn.

1816, Ochsenheimer, Schmett. Eur. IV, 68. Includes *ravida* Schiff., *augur* Fabr., *baja* Schiff., *c-nigrum* Linn., and many others.
1840, Westwood, Intro. Mod. Class. Ins. Gen. Synop. 93. Cites *c-nigrum* as type.
1889, Butler, Trans. Ent. Soc. London, 382. Pseudotype, *augur* Fabr.
1895, Grote, Ent. Rec. VI, 29. Pseudotype, *gothica* Linn. following Hübner's Tentamen.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 363. Pseudotype, *ravida* Schiff.
1916, McDunnough, Ent. News XXVII, 396. Confirm's Westwood's citation.

HAPALIA — Logotype *Ph. Noctua praecox* Linn.

1822, Hübner, Verz. bek. Schmett. 220. Includes *praecox* L., *infecta* Ochs., and *mitis* Hbn.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 514. Cites *praecox* as type.

Preoccupied by *Hapalia* Hbn. (1818, Zutraege, No. 95) in the Pyralidae; *Actebia* Steph. may be used in its place.

HIPTELIA — Logotype *Noctua ochreago* Hbn.

1852, Guenée, Sp. Gen. Lep. V, 399. Includes *ochreago* Hbn. and *miniago* Frey.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 593. Cites *ochreago* as type.

Hiptelia will replace *Xestia* as used by Hampson and Warren with type *ochreago* *Xestia* Hbn. is a monotypical genus, erected 1818 (Zutraege, 16, Fig. 73/4) for *chloropha* Hbn. and falls in the Heliothid group, outside the scope of the present sketch.

HIRIA — Haplotype *Ph. Noctua linogrisea* Schiff.

1844, Duponchel, Cat. Meth. Lep. Eur. 145.

Falls to *Epilecta* Hbn.

LAMPRA — Haplotype *Ph. Noctua fimbria* Linn.

1822, Hübner, Verz. bek. Schmett. 221.

LYCOPHOTIA — Logotype *Ph. Noctua porphyria* Schiff.

1822, Hübner, Verz. bek. Schmett. 215. Includes *porphyria* Schiff., *lidia* Cram., *cuprea* Schiff., *graminis* Linn., and *sannio* Cram.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 514. Cites *porphyria* as type.

The genotype, according to Pierce's figure of the genitalia, lacks nearly all the characters of the Agrotid group. The generic concept *Lycophotia*, as used by Hampson, cannot, therefore, be maintained.

LYTAEA — Haplotype *Noctua sexstrigata* Haw.

1829, Stephens, Ill. Brit. Ent. Haust. II, 107. Erected for *umbrosa* Hbn., which is a synonym of *sexstrigata* Haw.

Very close to, if not identical with, *Graphiphora* Ochs.

MATUTA — Haplotype *Hadena tenebrifera* Wlk.

1874, Grote, Can. Ent. VI, 116. Erected for *catherina* Grt., which is a synonym of *tenebrifera* Wlk.
1927, McDunnough, Can. Ent. LIX, 65. Sinks to *Cerastis* Ochs.

MEGASEMA — Logotype *Phalaena triangulum* Hfn.

1822, Hübner, Verz. bek. Schmett. 222. Includes *triangulum* Hfn. (*rhomboidea* Esp.) *ditrapezium* Schiff., *c-nigrum* L., and two others.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 363. Cites *triangulum* as type.

Falls to *Graphiphora* Ochs.

MESOGONA — Logotype *Ph. Noctua acetosellae* Schiff.
1840, Boisduval, Gen. et Ind. Meth. 144. Includes *acetosellae* Schiff. and *oxalina* Hbn.
1852, Guenée, Spec. Gen. Lep. V, 405. Cites *acetosellae* as type.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 602. Cites same species as type, but sinks genus to *Mythimna*.
1916, McDunnough, Ent. News XXVII, 395. Follows Hampson.
1927, McDunnough, Can. Ent. LIX, 65. Confirms citation, and points out Hampson's error.

METALEPSIS — Haplotype *Pachnobia cornuta* Grt.
1875, Grote, Check List Noct. 13, 25.
1927, McDunnough, Can. Ent. LIX, 65. Notes close relationship to *Cerastis* Ochs.

METAXYJA — Logotype *Noctua vitta* Esp.
1822, Hübner, Verz. bek. Schmett. 223. Includes *vitta* Bork., *obelisca* Schiff., and seven others.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 153. Cites *vitta* as type.

Falls to *Euxoa* Hbn.

MIMETES — Logotype *Noctua nivens* Hbn. (‡*decora* Schiff.).
1822, Hübner, Verz. bek. Schmett. 210. Includes *nubilosa* Hbn., *caesia* Schiff., and *xanthocyanea* Hbn.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 153. Cites *decora* Schiff. as type, of which *nubilosa* (spelt *nebulosa* by Hampson, *op. cit.*, 240) is a synonym.

Falls to *Euxoa* Hbn.

NAENIA — Haplotype *Ph. Noctua typica* Linn.
1829, Stephens, Ill. Brit. Ent. Haust. II, 165.

The genus falls to *Phalaena* Linn. and *Noctua* Linn. and according to genitalia is scarcely Agrotid, a view shared by Pierce (Gen. Brit. Noct. 78). For a comprehensive review of the two Linnaean genera, refer to Barnes and Benjamin's article in Contributions Nat. Hist. Lep. N. Am. V (2), 53.

OCHROPLEURA — Logotype *Ph. Noctua plecta* Linn.
1822, Hübner, Verz. bek. Schmett. 223. Includes *musiva* Hbn. and *plecta* Linn.
1895, Grote, Ent. Rec. VI, 30. Cites *plecta* as type.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 363. Pseudotype, *musiva* Hbn.

OGYGIA — Logotype *Ph. Noctua signifera* Schiff.
1822, Hübner, Verz. bek. Schmett. 224. Includes *flammatra* Schiff., *signifera* Schiff., and three others.
1895, Grote, List. N. Am. Eupterot., etc., 22. Cites *signifera* as type.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 364. Pseudotype, *flammatra* Schiff.

ONYCHAGROTIS — Haplotype *Agrotis rileyana* Morr.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 465.

OPIGENA — Haplotype *Ph. Noctua polygona* Schiff.
1840, Boisduval, Gen. et Ind. Meth. 103.

PACHNOBIA — Logotype *Noctua tecta* Hbn. (*carnea* Auct.).
1852, Guenée, Sp. Gen. Lep. V, 342. Includes *carnea* Thun. (*ampla* Hbn., *tecta* Hbn.), *hyperborea* Dalm., *carnica* Herr, and *glacialis* H. S.
1874, Grote, Bull. Buff. Soc. N. Sci. II, 23. Pseudotype, *rubricosa* Schiff., a species not included by Guenée.
1895, Grote, List. N. Am. Eupterot., etc., 19. Cites *carnea* as type, evidently in the Guenée sense, no authorship being given.
1903, Hampson, Cat. Lep. Phal. B. M. IV, 467. Cites *tecta* as type.

Tecta Hbn. was, for a long time, generally considered to be synonymous with *carnea* Thun. and only comparatively recently has this synonymy been changed. Guenée and Grote certainly followed the prevailing idea of the time and their *carnea* would, therefore, be equivalent to Hampson's *tecta*.

PERIDROMA — Logotype *Noctua margaritosa* Haw.
1822, Hübner, Verz. bek. Schmett. 227. Includes *saucia* Hbn., *aequa* Hbn., *idonea* Cram., and *suffusa* Schiff.
1889, Butler, Trans. Ent. Soc. Lond. 380. Cites *saucia* as type and is followed by Smith (1890) and Grote (1895).
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 514. Cites *margaritosa* Haw. as type, of which *saucia* Hbn. is a synonym.

PLATAGROTIS — Orthotype *Noctua speciosa* Hbn.
1890, Smith, Bull. 38, U. S. N. M. 9.

PLEONECTOPODA — Orthotype *Pleonectopoda lewisi* Grt.
1873, Grote, Bull. Buff. Soc. N. Sci. I, 136.

Falls to *Euxoa* Hbn.

POROSAGROTIS — Logotype *Mythimna vetusta* Wlk.
1890, Smith, Bull. 38, U. S. N. M. 11. Cites as type *muraenula* G. and R. which falls to *vetusta* Wlk.

Falls to *Agrotis* Hbn.

PRAINA — Orthotype *Praina radiata* Schaus.
1898, Schaus, Jour. N. Y. Ent. Soc. VI, 114.

Probably a good genus according to male genitalia of *radiata*, which the writer examined, owing to the kindness of Mr. W. Schaus.

PRONOCTUA — Orthotype *Pronoctua typica* Sm.
1894, Smith, Trans. Am. Ent. Soc. XXI, 44.

PSAPHARA — Orthotype *Psaphara interclusa* Wlk.
1857, Walker, Cat. Lep. Het. Brit. Mus. XI, 607.

Probably a good genus and possibly Mexican; through the kindness of Mr. W. T. Tams, the writer saw a figure of the male clasper of *interclusa;* it seems closest to *Diarsia* Hbn., but possesses both pollex and corona.

PSEUDOGLAEA — Orthotype *Glaea olivata* Harv.
1876, Grote, Can. Ent. VIII, 18. Includes *blanda* Grt. and *taedata* Grt., the latter being merely a form of the first species.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 602. Cites *blanda* as type.
1927, McDunnough, Can. Ent. LIX, 65. Cites *olivata* Harv. (*blanda* Grt.) as type.

PSEUDORTHOSIA — Orthotype *Pseudorthosia variabilis* Grt.
1874, Grote, Bull. Buff. Soc. N. Sci. II, 161.

PTEROSCIA — Orthotype *Pteroscia atrata* Morr.
1874, Morrison, Proc. Bost. Soc. N. H. XVII, 155.

Falls to *Anomogyna* Staud.

RADDEA — Orthotype *Raddea digna* Alph.
1892, Alpheraki, Hor. Soc. Ent. Ross. XXVI, 450.

RHYACIA — Logotype *Ph. Noctua lucipeta* Schiff.
1822, Hübner, Verz. bek. Schmett. 209. Includes *lucipeta* Schiff. and *birivia* Schiff.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 153. Cites *lucipeta* as type.

Warren's usage of this genus in Seitz is far too extended and must be greatly curtailed.

RHYNCHAGROTIS — Orthotype *Noctua cupida* Grt.
1890, Smith, Bull. 38, U. S. N. M. 9.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 648. Pseudotype, *gilvipennis* Grt.
1927, McDunnough, Can. Ent. LIX, 65. Doubts correctness of Benjamin's action in sinking to *Lampra* Hbn.

RICHIA — Orthotype *Agrotis chortalis* Harv.
1887, Grote, Can. Ent. XIX, 44.

SCOTIA — Logotype *Ph. Noctua cinerea* Schiff.
1822, Hübner, Verz. bek. Schmett. 226. Includes *obscura* Hbn., *tenebrosa* Hbn., *umbrosa* Hbn., and *cinerea* Schiff.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 153. Cites as type *cinerea* Schiff., of which *obscura* Hbn. is a synonym.

Falls to *Agrotis* judging by Pierce's figure of the male genitalia (Plate XVI).

SCOTOPHILA — Haplotype *Ph. Noctua porphyria* Schiff.
1829, Stephens, Ill. Brit. Ent. Haust. III, 18.

Falls to *Lycophotia* Hbn.

SEGETIA — Logotype *Ph. Noctua xanthographa* Schiff.
1829, Stephens, Ill. Brit. Ent. Haust. II, 153. Includes *xanthographa* Schiff. and *neglecta* Hbn.
1840, Westwood, Intro. Mod. Class. Ins. Gen. Synop. 94. Cites *xanthographa* as type.

Falls to *Graphiphora* Ochs.

SETAGROTIS — Orthotype *Setagrotis planifrons* Sm.
1890, Smith, Bull. 38, U. S. N. M. 9.

SORA — Haplotype *Ph. Noctua leucographa* Schiff.
1859, Heinemann, Schmett. Deutsch. I, xvii, 459.

SPAELOTIS — Logotype *Ph. Noctua ravida* Schiff.
1840, Boisduval, Gen. et Ind. Meth. 106. Includes *augur* Fabr., *ravida* Schiff., and many others, divided into seven sections.
1889, Butler, Trans. Ent. Soc. Lond. 381. Cites *ravida* as type.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 364. Pseudotype, *augur* Fabr.

TELMIA — Logotype *Phalaena cursoria* Hfn.
1822, Hübner, Verz. bek. Schmett. 227. Includes *sagitta* Hbn., *spinula* Hbn., and *exigua* Hbn.
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 153. Cites as type *cursoria* Hfn., of which *sagitta* is a synonym.

Falls to *Euxoa* Hbn.

TRICHOSILIA — Haplotype *Noctua acarnea* Sm.
1928, Hampson, Nov. Zool. XXV, 112.

TRIPHAENA — Logotype *Ph. Noctua pronuba* Linn.
1816, Ochsenheimer, Schmett. Europ. IV, 69. Includes *interjecta* Hbn., *subsequa* Schiff., *pronuba* Linn., and six others.
1829, Duponchel, Hist. Nat. Lep. Fr. IV, 71. Cites *pronuba* as type and is followed by Curtis (1831), Westwood (1840), and Grote (1902).
1903, Hampson, Cat. Lep. Phal. Brit. Mus. IV, 622. Pseudotype, *interjecta* Hbn., which is followed by Warren in Seitz.

From a perusal of the above list of genera it is at once evident that there are a large number of valid generic names available for use, a good proportion of which (notably those created by Hübner) are based on

species belonging to the Palaearctic fauna. With the genitalia of these genotypes the writer is familiar, partly through the drawings of Pierce in his excellent, but restricted work on "The Genitalia of the British Noctuidae," and partly through the writer's dissections of specimens purchased in Europe. In the generic keys to our North American species the writer has endeavoured, therefore, to employ these terms correctly, including under each individual head only those species which show an obvious similarity of genitalia. This procedure has considerably augmented the number of genera employed and in certain cases it has been found necessary to create new generic terms. It is quite possible that many workers will disagree with this procedure and consider that the groups have been split much too finely; as, however, the purpose of the present paper is to emphasize structural differences, rather than similarities, it is hardly felt that an apology for this action is necessary; in any case it will be quite easy, if so desired, to lump the species again under one generic head, using the terms the writer employs in a subgeneric sense.

STRUCTURAL DETAILS OF AGROTIDS

Before proceeding with the main scheme of the "Classification of the North American Agrotids," it may be of value to discuss briefly the various structural details present in the group and the value of each as a means of generic separation.

Palpi. The vestiture of the second and third palpal joints, notably on the under side, shows considerable variability. In a few species, of which *fennica* Tausch. and *malefida* Gn. are excellent examples, the second joint beneath is thickly and evenly scaled; in the majority of species, however, there is a fringe of rough hair of varying length and thickness below this joint which frequently forms at the apex of the joint a triangular or pointed tuft, very characteristic of such genera as *Feltia* Wlk. and *Graphiphora* Ochs.; this condition Smith has termed "clavate." In certain groups, notably *Abagrotis* Sm. and its allies, there is a similar, but much less distinct, tufting below the apex of the third joint; such a feature crops up in a more or less isolated way all through the Agrotids and has been used to a considerable extent by Snellen and Hampson as a means of separation in their keys; although by no means convinced that in every instance such a character is of generic value, the writer has employed it in the present paper to a limited extent.

The length of the third joint, as seen in an undenuded condition, seems at times to afford a useful character; generally the joint is short and bluntly conical, scarcely longer than broad; in some groups, however, of which *Anomogyna* Staud. is a good example, it is noticeably longer and thinner.

The one requisite in studying palpal vestiture is to have fresh, unrubbed specimens before one for examination and as this is by no means always feasible, the general run of specimens being more or less worn, the writer has not paid as much attention to the subject as it possibly deserves. Snellen, in the paper already mentioned, has illustrated a number of palpal types, and a more careful study of our North American species than the writer has been able to give along the lines indicated in this article might be productive of interesting results.

Eyes. Until quite recently the Agrotids were considered to possess non-hairy eyes. A few southwestern species, associated with *Trichorthosia parallela* Grt., show, however, very strongly haired eyes, forming a distinct group which may have Mexican affinities. In the northern Rocky mountains there is a further species, *Trichosilia acarnea* Sm., with weakly haired eyes, which is closely allied to the typical *Agrotis* group in all other characters and is very evidently an offshoot from this genus.

A few genera, notably those with rough, hairy vestiture, show lashed eyes; as such may be cited *Metalepsis* Grt. and *Pachnobia* Gn., in which latter genus the eyes are also smaller and deep-set, a feature often noticed in species occurring in high altitudes or northern latitude.

Antennæ. No use has been made by the writer of the various forms of the male antennæ as a means of generic separation, except in the case of *Feltia* Wlk. and this only with certain misgivings. As a general rule the male antennæ, though forming often a good specific character, show no correlation with other characters which would even warrant their usage for subgeneric divisions.

Front. The roughened or tuberculate condition as compared with the smooth front has been largely used by Smith, Hampson, and others as one of the primary means of subdividing Agrotid genera. As far as the writer is able to judge by his present researches, this has been a great mistake and has been responsible for more misplacements of species than any other character that has been used. The gradual forming of a raised tubercle on the front, as in *Euxoa* Hbn., is apparently a fairly recent acquisition in the Agrotids and should by no means be used as an infallible character for generic separation. Undoubtedly it is very useful in determining *Euxoa* species, but even in this genus, as the writer has shown in previous papers, occasional species occur without the tubercle which on other characters are undoubtedly *Euxoas.*

In a single instance, viz., *longidens* Sm., the writer has erected a new genus on the strength of the frontal structure, but in this case a very high degree of specialization is shown and the type of prominence is quite unique in the Agrotids and reminiscent of *Nocloa* and its allies.

Vestiture. The type of thoracic vestiture appears to be entirely an individual character and possibly considerably influenced by climatic conditions. The writer has noticed that the species indigenous to cold regions exhibit a marked tendency toward a rough hairy clothing, whereas in warmer regions the vestiture is more likely to be composed of mixed hairs and scales or scales alone; occasionally, as in the case of *Pachnobia* Gn., a genus entirely limited to semiarctic species, the hairy vestiture may be used as a final means of separation from allied genera, but in general it is not a safe character to employ.

The writer has emphasized the thoracic tufting as little as possible in his keys, and then generally in conjunction with some other character. It can only be accurately determined in perfect specimens; in a few genera, such as *Graphiphora* Ochs., *Eueretagrotis* Sm., and *Aplectoides* Butl., tufts on both pro- and metathorax are quite evident, but in general the tufting is obscure and at times apparently merely individual; in the hairy species it is not at all evident.

Legs. It is characteristic of Agrotids that the mid and hind tibiæ are spined to a greater or less degree. Hampson places several genera among the Agrotids which show no spining on the mid tibiæ and a greatly reduced spining on the hind tibiæ. The writer has, however, in a previous article pointed out that the only North American genus included, viz., *Protagrotis* Hamp., is essentially non-Agrotid and is much better placed near *Luperina* and *Sidemia.* It is well-known that *Sidemia devastator* Br. frequently shows a single spine on the hind tibia.

The fore tibiæ may be spined or unspined, and this character has been largely used by most recent revisers as one of the primary means of separation. The writer, too, has found it a very useful character, but on the border-line between "spined" and "unspined" it cannot be satisfactorily used without separating species obviously allied on genitalic characters. For this reason the writer has included in such genera as *Anomogyna* and *Anaplectoides,* species which may be entirely without fore-tibial spines along with those in which one or two weak (and generally concealed) spines may be discovered by careful examination.

In the higher, and possibly more recent, genera, such as *Euxoa* and *Agrotis,* the fore tibiæ constantly show complete inner and outer rows of strong spines (at times almost claws), this development going hand in hand with a shortening of the tibia as compared with the first tarsal joint. As we descend the line of genera we note that the spines become weaker, next that the outer row is reduced to spining on the apical half with lateral hair-tufts replacing the spines on the basal portion; following this there is a corresponding reduction of the inner row until we reach forms, as mentioned above, in which only a single weak apical spine on the inner side persists, and other allied forms which appear to be entirely unspined. Farther down the scale again are genera such as *Abagrotis* in which the unspined condition of the fore tibia is a normal and constant feature.

The presence of a fourth outer and sublateral row of spines on the tarsi (best seen on the mid tarsi), noted by Forbes, seems to offer at times a very satisfactory character for separation. It is quite generally present in the higher, strongly spined genera, and for this reason the writer is inclined to consider it a recent acquisition, indicating a more advanced degree of development. The spines in this row are never so numerous as in the three ventral rows and, as usual, species occur in which only traces of these spines are present; in such instances, for example *prasina* Schiff., the character must be used with great caution. On the other hand the writer has noted that in cases where species, heretofore closely associated in our lists, have differed in the presence or absence of this row of spines, the genitalia have also shown marked distinctions, and, therefore, the writer is inclined to lay considerably more stress on the value of the character than did Benjamin in his *Lampra* revision.

Male Genitalia. Since Smith's revision in 1890 no further detailed and comparative study has been made of the male genitalia of our North American species. In this bulletin a single clasper (or as Smith called it, harpe) of numerous species was figured, but Smith's method is open to criticism in that his rather crude figures give no idea of the whole organ and the interrelationships of the various parts; the writer believes it was his custom to break off one clasper in a dried condition and figure as much

or as little of it and its armament as could be seen in this condition. As a character of generic value Smith only employs the genitalia in a single instance, viz., to separate *Carneades* (or as we now call it, *Euxoa*) from his *Feltia* and *Porosagrotis* groups.

As frequently stated in previous papers, the writer is a firm believer in the value of the characters found in the male genitalia when used with discretion, both as a means of specific and of generic separation. The writer is, therefore, inclined, in reviewing a list of such characters as may be so used, to put considerable stress (possibly an undue amount) on genitalic similarity or dissimilarity. It naturally followed then that when the writer first commenced the present study he made balsam mounts of the male genitalia of as many species as possible, and after a long study of these arrived at the conclusion that, out of the multiplicity of details presented by these complicated organs, the *harpe* (clasper of Smith and others) was the portion that offered the best possibilities along the lines of generic separation.

Throughout the whole group it is apparently possible to trace (with one or two minor exceptions where the harpe is entirely absent, as in *Heptagrotis* or greatly altered as in *Hemieuxoa*) two types of harpe with their modifications. The first type, which would seem to be the more primitive, consists of a slightly excurved chitinous rod projecting considerably at right angles over the costal margin of the clasper and attached to a chitinous foot more or less approximate to the ventral margin of the clasper, and the proximal end of which is loosely connected with or contiguous to the apex of the sacculus. Such form of harpe is typical in the genus *Peridroma* and present with slight modifications in *Diarsia*, certain *Graphiphora* species, and *Anomogyna*. In other species (*badinodis* Grt., etc.) which for the present the writer is also including in *Graphiphora*, we find the distal portion of the foot-like base reduced and the attachment to the apex of the sacculus more definite. This form is present not only in *Euxeretagrotis* with unspined fore tibiæ, but also in *Adelphagrotis* where traces of spining are found and *Setagrotis* where weak spining is constant; we also meet with practically the same type in the strongly spined genera *Pseudorthosia*, *Loxagrotis*, and *Euxoa*.

The second form of harpe is the typical Agrotid one, consisting of a more or less recurved hook of variable length attached to the apex of the sacculus and lying parallel to the costal margin of the clasper. It is typical in *Agrotis*, *Feltia*, and their allies, and occurs in a slightly modified form in *Eurois*, *Actebia*, and *Euagrotis;* we also find it with further modifications in such genera as *Aplectoides*, *Anaplectoides*, and *Pseudoglaea* where the fore tibial spining is either greatly reduced or entirely absent.

A few genera, such as *Richia*, in which the harpe is oblique, are difficult to place accurately. It may be that they represent a connecting link between the two types of harpe or they may, on the other hand, be merely further modifications. Most of these odd forms occur in species which are natives of the southern or southwestern states and it will in all probability be necessary to study the Mexican and South American Agrotid fauna before their correct relationships can be established.

Numerous other features of the genitalia, such as the presence or absence of the corona and pollex, the form of the sacculus and uncus, the nature of the anellus, etc., offer good minor points of differentiation and

have been used in the key to genera. The nature of these differences can best be appreciated by a study of the figures given of the genitalia of each genotype in connexion with the comments on the genitalia under each generic heading.

SEQUENCE OF GENERA

In the present sequence of genera the writer has followed to a considerable extent the old order, based on the spined or unspined nature of the fore tibiæ. In a linear system of classification the relationships of genera can never be other than inadequately indicated and there is little to be gained, therefore, by introducing an entirely new sequence. The writer has not attempted to work out any key indicating the phylogeny of the various genera; such keys, at the present time, are largely guess work and of little lasting value, and though the writer certainly cannot subscribe to the one given by Hampson (Cat. Lep. Phal. IV, 6), he does not feel that his views on the subject have sufficiently crystallized to enable him to offer anything better.

The writer has, therefore, placed *Euxoa* at the commencement of his system of classification for no other reason than that it seems to be the present culmination of one line of development and of comparatively recent origin, containing as it does a large number of species with very similar male genitalia and in most cases a very characteristic frontal tubercle, as well as complete and heavy fore-tibial spining and a fourth tarsal row of spines. Following *Euxoa* are the allied genera *Chorizagrotis*, *Protexarnis*, *Loxagrotis*, and *Pseudorthosia*, which all agree as far as spining is concerned.

The next genus, *Pseudoseptis*, has been erected for one of the puzzling southwestern species and seems to have no particular affinities in North America; it owes its present position to its complete fore-tibial spining and the presence of a fourth row of tarsal spines. The same may be said of the genus *Richia* which is next on the list.

The typical Agrotid group then follows, representing the end-point of another line of development and with no particularly close relationship to the preceding groups. This comprises the genera *Trichosilia*, *Onychagrotis*, *Eucoptocnemis*, *Proragrotis*, *Agrotis*, *Feltia*, and *Actebia*, all with complete fore-tibial spining and fourth tarsal row. *Protogygia* is only slightly modified, but lacks the fourth tarsal row of spines. *Spaelotis* and *Choephora* are aberrant as far as genitalia are concerned and the former possibly shows affinities to the *Euxoa* group; in both, however, the tarsal spining is reduced. *Eurois*, *Ochropleura*, *Anicla*, and *Euagrotis* have the typical Agrotid form of harpe but show a reduction of the fore-tibial spining, the outer row being incomplete and the spines limited to the apical portion.

At this point a break in the logical sequence follows and the aberrant southern genus *Hemieuxoa*, with no close relationships, as well as the two closely allied genera *Metalepsis* and *Cerastis* are interpolated.

Taking up the *Euxoa* series again we have *Hemipachnobia*, a highly specialized genus with fourth row of tarsal spines and harpe of the *Graphiphora* type, followed by *Paradiarsia* which would have been placed closer

to *Pseudorthosia* but for the reduced fore-tibial spining; then the aberrant *Pseudospaelotis* with tibial spining as in the preceding genus but with fourth tarsal row absent, and *Peridroma* with similar spining but a type of harpe that leads over to the *Graphiphora-Anomogyna* section.

Again an interpolation follows of the genera *Caradrina* and *Chersotis*, with peculiar free arm at base of sacculus, and *Heptagrotis*, in which the harpe is entirely absent; following this we reach the *Graphiphora* section in which the fore-tibial spining becomes more and more reduced and the fourth tarsal row is always absent; this includes *Diarsia*, *Graphiphora*, *Pachnobia*, *Setagrotis*, and *Anomogyna*.

Then a few hairy-eyed genera of southwestern distribution are introduced; they bear no particular connexion with any group, although the type of harpe is more or less that of *Agrotis;* these are *Trichagrotis*, *Trichofeltia*, *Trichorthosia*, and *Mimobarathra*.

Adelphagrotis again connects up with the *Euxoa* section, the fore-tibial spining being practically absent, whereas *Aplectoides*, *Anaplectoides*, *Protolampra*, and *Pseudoglaea* show a modified *Agrotis* type of harpe with the fore-tibial spining much reduced or lacking, and the last-named genus with the spines of the fore tarsus strengthened to form small claws.

Cryptocala and *Eueretagrotis* once more bring us back to the *Euxoa* group, whereas the final group of genera, *Hemigraphiphora*, *Abagrotis*, *Rhynchagrotis*, and *Pronoctua*, present a modified and mostly much reduced harpe of the *Graphiphora* type, along with entirely unspined fore tibiæ. This last group need not, however, be necessarily considered to represent the most primitive type of Agrotid; to the writer, it is much more likely that, through the reduction or elimination of certain characters, the species have evolved from *Graphiphora*-like ancestors.

In order to facilitate the study of the genitalic structures of the group the writer has given figures in nearly every instance of the male genitalia of the genotypes, or, if not of the genotype, at least of a typical member of the respective genus. In a few cases for the sake of clarity the aedoeagus has been omitted from the drawing, but wherever it presented characteristic features it has been included.

In conclusion the writer wishes to express his cordial appreciation of numerous kindnesses received from Dr. Wm. Barnes, Decatur, Ill., who has unreservedly placed his magnificent collection at the writer's disposal and has greatly facilitated in consequence this present study. Thanks are also due Dr. Wm. Schaus, of the United States National Museum, and Mr. W. H. T. Tams, of the British Museum, for their ready response to all queries addressed to them.

SPECIES NOT EXAMINED OR UNPLACED

Noctua bolteri Sm.—Placed by Hampson in *Agrotis*.

Mythimna subporphyrea Wlk.—Placed by Hampson in *Agrotis*.

Psaphara interclusa Wlk.—Placed by Hampson in *Epipsilia*, but *Psaphara* is probably worthy of generic rank.

Agrotis bollii Grt. (*hilaris* Grt.)—Placed by Hampson in *Epipsilia*. Judging by the figure and by a sketch of the right clasper of the type, received from Mr. W. H. T. Tams, it looks as if it might fall near *badinodis* Grt.

Agrotis haesitans Wlk.—Placed by Hampson in *Epipsilia*. According to a sketch of the right clasper of the type, kindly made by Mr. Tams, the genitalia are typically Agrotid.

Epipsilia pyrsogramma Dyar.—1916, Proc. U. S. N. M., LI, 9; B. and B., 1924, Cont. V, 115.

Lycophotia triphaenoides Dyar. (*Rhynchagrotis orbipuncta* B. and McD.) —Benjamin placed this in *Agrotis* between *larga* Sm. and *subporphyria* Wlk.

Rhizagrotis epipsilioides B. and B.—1926, Pan. Pac. Ent., II, 106.

Agrotis scaramangoides B. and B.—1926, Pan. Pac. Ent., II, 107.

Agrotis tectoides Corti.—1926, Rep. 3rd Int. Ent. Cong. II, 132. Possibly a synonym of *scropulana* Morr., but the species is too insufficiently diagnosed to determine accurately.

KEY TO NORTH AMERICAN AGROTID GENERA

(1) Eyes hairy 2
Eyes smooth 6

(2) Mid tarsi with fourth row of spines; eyes weakly haired ..... *Trichosilia* Hamp.
Mid tarsi without fourth row of spines; eyes strongly haired 3

(3) Fore tibia spined 4
Fore tibia unspined 5

(4) Fore tibia spined on both inner and outer sides in at least the apical half ..... *Trichagrotis* gen. nov.
Fore tibia with only several apical spines on outer side ..... *Trichofeltia* gen. nov.

(5) Fore femur swollen on inner side; fore tibia about three times as long as first tarsal joint ..... *Mimobarathra* B. and McD.
Fore femur normal; fore tibia about twice as long as first tarsal joint ..... *Trichorthosia* Grt.

(6) Sacculus with a strongly curved chitinous arm from costa at base 7
Sacculus normal, without any basal arm 8

(7) Process very broad and boomerang-shaped, spiculate on upper half .... *Chersotis* Bdv.
Process more slender and curved, with several apical spines ..... *Caradrina* Ochs.

(8) Harpe entirely lacking ..... *Heptagrotis* gen. nov.
Harpe present 9

(9) Harpe bifid, one strong arm curved downward and projecting over a hollowed out portion of the ventral margin of clasper, the other arm weak, oblique, and slightly projecting over costa ..... *Hemieuxoa* gen. nov.
Harpe simple 10

(10) Harpe a slightly recurved corneous hook, attached to the apex of the sacculus and lying mostly in a groove of the clasper subparallel to sides of same, rarely oblique or projecting over dorsal edge, but if so never excurved 11
Harpe excurved, attached, more or less at right angles to the plane of the clasper, either directly to the apical portion of sacculus by a curved rod of chitin or to a foot-like base a short distance above same 29

(11) Fore tibia smoothly scaled with a complete row of well-developed spines on both outer and inner sides and no hair-fringe (except *Choephora*)..... 12
Fore tibia with only the row of spines on inner side complete; the outer side showing a few spines distally, fringed with hair proximally..... 22
Fore tibia with only a few spines distally on both sides, largely hidden in hair-fringe..... 25
Fore tibia unspined..... 26

(12) Fore tibia very short and broad, much shorter than first tarsal joint; apical spines heavy and claw-like..... 13
Fore tibia longer, with less heavy spining..... 15

(13) Frons with large prominence with raised edges, containing a central truncate process.....*Proragrotis* gen. nov.
Frons without such prominence, merely at times with simple tubercle..... 14

(14) Fore tibia with long curved apical claw on inner side and shorter one on outer side; frons smooth.....*Eucoptocnemis* Grt.
Fore tibia with all spines on outer side heavy and claw-like and two similar apical ones on inner side; frons tuberculate.....*Onychagrotis* Hamp.

(15) Male clasper with corona..... 16
Male clasper without corona..... 19

(16) Thorax with median crest; harpe more or less oblique with traces of ampulla..... *Richia* Grt.
Thorax without median crest; harpe normal..... 17

(17) Palpi with pointed tuft at extremity of second joint below; male antennæ with two tufts of cilia on each joint (bifasciculate) (except *geniculata*); front generally smooth (except *annexa*).....*Feltia* Wlk.
Palpi either smoothly scaled or with rough hair below, without noticeably pointed tuft; male antennæ not bifasciculate..... 18

(18) Mid tarsi with four well-developed rows of spines; vesica with lunate apical scobinate plate; front tuberculate (except *ypsilon* and *manifesta*)...*Agrotis* Ochs.
Mid tarsi with three rows of spines; vesica with single apical short spine; front smooth or roughened.....*Protogygia* gen. nov.

(19) Anellus strongly developed and with scobinate lateral flaps.....*Metalepsis* Grt.
Anellus without scobinate flaps..... 20

(20) Vestiture of thorax smooth, scaly; fore tibia without hair-fringe; forewings narrow..... 21
Vestiture of thorax rough, hairy; fore tibia with hair-fringe on outer side; forewings broad.....*Choephora* Grt.

(21) Clasper very narrow and pointed apically.....*Spaelotis* Bdv.
Clasper broad and rounded apically.....*Actebia* St.

(22) Palpi with triangularly pointed tuft at apex of second joint; clasper excavated about middle of ventral margin.....*Anicla* Grt.
Palpi without such tuft; clasper of even width throughout..... 23

(23) Vesica armed with a long stout spine; clavus small; hair tuft on outer side of fore tibia reduced.....*Ochropleura* Hbn.
Vesica without such long spine..... 24

(24) Three rows of mid-tarsal spines; aedoeagus with an apical lateral triangular tooth; clavus strongly developed, broad.....*Euagrotis* gen. nov.
Four rows of mid-tarsal spines; aedoeagus finely spiculate; clavus weak or obsolete.....*Eurois* Hbn.

(25) Clasper drawn out to a long pont; harpe apical and oblique.....*Aplectoides* Butl.
Clasper rounded apically; harpe basal and elbowed.....*Anaplectoides* gen. nov.

(26) Anellus with lateral scobinate flaps.....*Cerastis* Ochs.
Anellus without scobinate flaps..... 27

(27) First joint of fore tarsus with curved claw-like spines on outer side; corona present; edges of tegumen curved upward at base of claspers into conical projections.....*Pseudoglaea* Grt.
First joint of fore tarsus normally spined; corona absent; tegumen normal... 28

(28) Third palpal joint smooth-scaled; thoracic tufting evident.....*Anaplectoides* (partim)
Third palpal joint with slight hair-tuft below; thoracic tufting absent.....
Protolampra gen. nov.

(29) Fore tibia smooth-scaled, with a complete row of spines on both outer and inner sides and no hair-fringe..... 30
Fore tibia with a complete inner row of spines; outer side with fringe of hair and only apical spines..... 36
Fore-tibial spining reduced to one or two apical spines, usually concealed in hair-fringe, or tibia entirely unspined..... 45

(30) Corona absent, sacculus not drawn out to a free arm..... 31
Corona present..... 34

(31) Pollex present..... 33
Pollex absent..... 32

(32) Palpi with third joint triangularly tufted with hair below; genitalia asymmetrical, claspers broad, sacculus strong, digitus present....*Protexarnis* gen. nov.
Palpi with third joint smooth; genitalia symmetrical, claspers narrow, sacculus weak, no digitus.....*Pseudorthosia* Grt.

(33) Harpe much reduced, subapical, with foot-like base; ventral margin of tegumen broadly truncate.....*Hemipachnobia* gen. nov.
Harpe strong, subbasal; tegumen pointed ventrally.....*Pseudoseptis* gen. nov.

(34) Corona reduced; sacculus not drawn out to a free arm.....*Loxagrotis* gen. nov.
Corona well developed; sacculus drawn out to a free arm, forming with the harpe a bifid prong..... 35

(35) Apex of free arm of sacculus pointed (except *mimallonis*).....*Euxoa* Hbn.
Apex of free arm of sacculus spoon-shaped.....*Chorizagrotis* Sm.

(36) Harpe often weak, attached at base to a foot-like, chitinous strip which more or less parallels the ventral margin of clasper distad of the sacculus..... 41
Harpe with no definite foot-like base but more or less attached to apex of sacculus by a curved or straight strip of chitin..... 37

(37) Four rows of mid-tarsal spines.....*Paradiarsia* gen. nov.
Three rows of mid-tarsal spines..... 38

(38) Uncus broadening in central portion, roughly diamond-shaped.....*Setagrotis* Sm.
Uncus very thin and of even width throughout..... 39

(39) Third palpal joint with strong pointed hair-tuft below.....*Graphiphora*, Group III
Third palpal joint with no pronounced tuft..... 40

(40) Second palpal joint triangularly tufted apically; third joint short, harpe short, broad at base and pointed apically.....*Graphiphora*, Group IV
Scond palpal joint without triangular apical tuft; third joint long; harpe long, sinuate, strongly hooked apically.....*Pseudospaelotis* gen. nov.

(41) Corona and ampulla present, no pollex 42
Corona and ampulla absent; pollex present 43

(42) Clasper of even width, strong corona; fore wings long and of rather even width ..... *Peridroma* Hbn.
Fore wings short and broadening apically, weak corona; clasper usually strongly bulged centrally ..... *Diarsia* Hbn.

(43) Vestiture of hair and scales with well-developed thoracic tufting 44
Vestiture entirely of rough hair; no thoracic tufting, wings narrow... *Pachnobia* Gn.

(44) Third palpal joint without tuft below ..... *Graphiphora*, Group I
Third palpal joint with pointed tuft below ..... *Graphiphora*, Group II

(45) Third palpal joint with distinct pointed hair-tuft below 51
Third palpal joint without hair-tuft 46

(46) Pollex present 47
Pollex absent 48

(47) Harpe with foot-like base ..... *Anomogyna* Staud.
Harpe without foot-like base, large, and overhung at base by strongly bulging sacculus ..... *Adelphagrotis* Sm.

(48) Palpi with visible portion of third joint rather long and narrow (twice as long as wide) 49
Palpi with visible portion of third joint short and blunt (about as long as wide) 50

(49) Palpi with second joint heavily and smoothly scaled; clasper rounded apically ..... *Cryptocala* Benj.
Palpi with second joint more roughly haired with slight apical pointed tuft; clasper pointed ..... *Eueretagrotis* Sm.

(50) Second palpal joint very closely and evenly scaled with no trace of pointed tuft, clasper drawn out to a long point ..... *Pronoctua* Sm.
Second palpal joint with rough hairs in front and a pointed tuft; clasper narrow and rounded apically ..... *Hemigraphiphora* gen. nov.

(51) Harpe reduced to a mere thinly chitinized tubercle, generally partly hidden by the strongly bulging sacculus ..... *Abagrotis* Sm.
Harpe well developed ..... *Rhynchagrotis* Sm.

SYSTEMATIC DESCRIPTIONS

Euxoa Hbn.

1822, Verz. bek. Schmett. 209 [type, *nivens* Hbn. (*decora* Schiff.)].

Brotis Hbn., 1822, op. cit. 226 (type, *nigricans* L.).
Exarnis Hbn., 1822, op. cit. 225 (type, *obelisca* Schiff.).
Metaxyja Hbn., 1822, op. cit. 223 (type, *vitta* Esp.).
Mimetes Hbn., 1822, op. cit. 210 (type, *decora* Schiff.).
Telmia Hbn., 1822, op. cit. 227 (type, *cursoria* Hfn.).
Pleonectopoda Grt., 1873, Bull. Buff. Soc. N. Sci. I, 136 (type, *lewisi* Grt.).
Carneades Grt., 1883, Can. Ent. XV, 4 (type, *moerens* Grt.).

Eyes naked. Palpi upturned, the third joint slightly porrected; second joint fringed with long hair below which at times tends to form an apical tuft; third joint more or less smooth-scaled. Front normally strongly tuberculate, occasionally with the tubercle reduced or entirely lacking. Male antennæ variable, either ciliate, or serrate and fasciculate, or bipectinate. Tibiæ all strongly spined; fore tibia shorter than or subequal to first tarsal joint, smooth-scaled, with a complete row of spines on each side, the terminal ones being stoutest. Mid tarsi with a fourth row of spines situated on outer side laterally. Thoracic vestiture variable, generally of mixed scales and hair, but at times entirely hairy; tufting improminent, but usually with indications of divided tufts anteriorly and posteriorly.

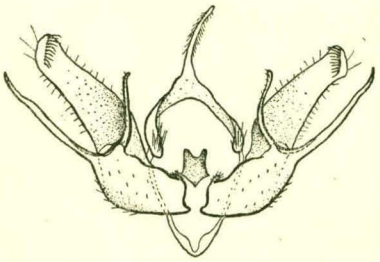

Figure 1. Male genitalia of *Euxoa moerens* Grt.

Male Genitalia. Clasper moderately long, of more or less even width throughout, with well-developed corona; sacculus strong with its lower edge drawn out to a free arm of variable length, usually narrow and pointed, but occasionally broad and truncate; harpe attached more or less at right angles to apex of sacculus, excurved, and generally projecting somewhat over costal margin of clasper, forming with the free arm of sacculus the characteristic prong which is typical of this genus. Uncus narrow, curved. Clavus minute or absent. Juxta a weak chitinous plate of varying shape. Vesica frequently unarmed, but at times with minute apical cornutus.

Besides the long list of species already included in this genus in the 1917 *Check List*, the writer has referred here (1925, Can. Ent. LVII, 242) *perolivalis* Sm. and *flavicollis* Sm. and later (1927, Can. Ent. LIX, 65) added *violaris* G. and R., *aurulenta* Grt., and *scandens* Riley, these three latter species lacking the tuberculate front, but possessing the same characteristic male genitalia.

Chorizagrotis Sm.

1890, Bull. 38, U. S. N. M. 10 (type, *auxiliaris* Grt.).

Scarcely separable from *Euxoa* except on genitalic characters. Front tuberculate. Second palpal joint fringed below with hair. Male antennæ ciliate. Tibial and tarsal spining as in *Euxoa*. Abdomen rather depressed.

Male Genitalia. The free arm of the sacculus is very strong, broad, and somewhat spoon-shaped as compared with the normally pointed one of *Euxoa;* the harpe is reduced. The juxta shows a much heavier plate, which at times is armed centrally with a projecting spine.

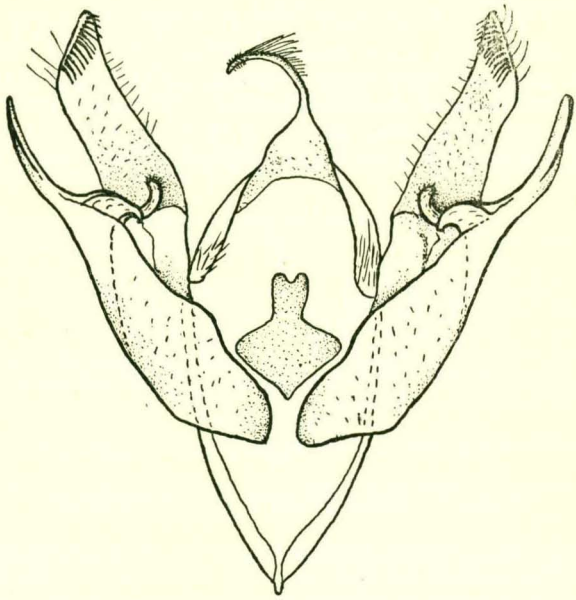

Figure 2. Male genitalia of *Chorizagrotis auxiliaris* Grt.

The genus is not a very well-defined one but the writer leaves it for the present, including in it, however, merely *auxiliaris* Grt., with its forms *introferens, sorror,* and *agrestis; inconcinna* Harv., which is a good species on genitalic characters; *thanatologia* Dyar, with its forms *sordida, boretha,* and *perfida;* and possibly *terrealis* Grt., which is unknown to the writer except by a figure.

Protexarnis gen. nov.

Type, *Agrotis balanitis* Grt.

Eyes naked. Palpi upturned, with third joint somewhat porrected; second joint fringed beneath with long hairs which form a slight apical triangular tuft; third joint with similar tuft beneath. Front bulging and slightly roughened, but without central tubercle. Male antennæ finely ciliate. Tibiæ all spined; fore tibia subequal in length to first tarsal joint, smooth-scaled, with a complete row of strong spines on each side. Mid tarsi with a fourth row of lateral spines outwardly. Thorax smoothly clothed with single and forked hairs without much evidence of tufts. Abdomen somewhat depressed.

Male Genitalia. Clasper rather short and broad, rounded apically, without corona; digitus present, situated subapically near costal margin; sacculus strongly developed, asymmetrical, continued from about the middle of the ventral margin to just before apex of clasper by a broad chitinous band somewhat recurved and free at apex; harpe a strong, obliquely placed chitinous rod, rounded apically and attached at base, not to the sacculus

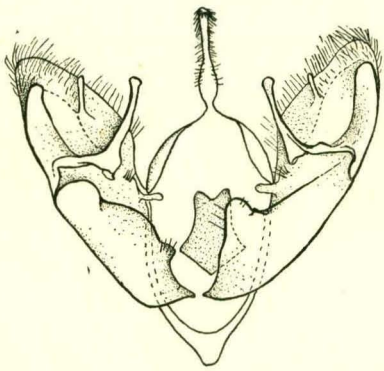

Figure 3. Male genitalia of *Protexarnis balanitis* Grt.

direct, but to the chitinous band forming the extension of same. Uncus rather short, broader than usual, and truncate apically. Clavus absent. Juxta strongly chitinized, rear margin of plate strongly convex, apical margin concave. Aedoeagus with apical edges strengthened by a thickening of the chitin; vesica with minute apical spine.

The great divergence in the genitalia of *balanitis*, the sole included species, from those of either *Chorizagrotis* or *Euxoa*, makes a new generic term advisable. In some ways the species seems to be a connecting link between *Chorizagrotis* and *Graphiphora*, but sufficient characters in the frontal and palpal structure on the one hand and in the spining of the tibiæ and tarsi on the other hand may be found to separate the present genus from both of the others.

Loxagrotis gen. nov.

Type, *Agrotis proclivis* Sm.

Eyes naked. Palpi upturned, the third joint more or less porrect; second joint fringed with hair below, tending to form a triangular tuft apically; third joint smooth-scaled. Front bulging and roughened, but without central tubercle. Male antennæ typically serrate and fasciculate (often merely ciliate). Tibiæ all spined; fore tibia slightly shorter than first tarsal joint, smooth-scaled, with a complete row of spines on each side, these rather weak except the apical ones which are strong and claw-like. Mid tarsi with at least a partial fourth row of spines laterally on the outer side. Vestiture of thorax largely scaly with the tufting generally improminent.

Male Genitalia. Clasper moderate in length, slightly bulging in basal portion of costa, corona reduced and generally confined to costo-apical section which tends to form a slight flap; sacculus moderately strong; harpe variable in shape, typically as in *Euxoa* with a curved basal attachment, below which is frequently a bunch of stiff black hair. Clavus weak to moderately strong. Uncus very narrow and long. Juxta weak. Aedoeagus strengthened apically by a curved chitinous strip which generally is faintly scobinate; vesica armed with a short terminal cornutus.

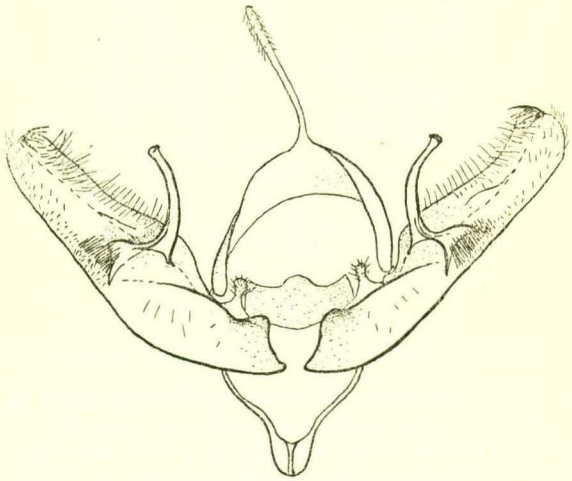

Figure 4. Male genitalia of *Loxagrotis proclivis* Sm.

It has been necessary to erect a new generic name for this group, the species of which have heretofore been included in various genera and probably represent a northern offshoot from the Mexican fauna. Along with *proclivis* Sm. and *neoclivis* B. and B., which are typical, the writer includes *apicalis* Grt. together with *acclivis* Morr. and its southwestern race *opaca* Harv., in which the harpe is broadened apically to a mushroom shape but which otherwise is close to *proclivis*.

Serano Sm. may also be included; it agrees in outward structural details quite closely, showing, however, a better developed metathoracic tuft; the individual characteristics of the genitalia are the presence of an ampulla and the sudden broadening of the basal portion of the harpe.

For the present *salina* Barnes, *capota* Sm., *albicosta* Sm., and *socorro* Barnes are placed here although the latter two are quite atypical, the palpi being heavily but smoothly scaled, not fringed with hair, and the genitalia of each showing a complete corona and considerable individual difference in the position and shape of the harpe. With, however, the writer's limited material and his lack of knowledge of the Mexican forms with which they are probably allied, he does not feel justified in splitting any further than he has already done.

Pseudorthosia Grt.

1874, Bull. Buff. Soc. Nat. Sci. II, 161 (type, *variabilis* Grt.).

Eyes naked. Palpi upturned with slightly porrected third joint; second joint fringed with long hair beneath; third joint smooth-scaled. Front bulging and roughened. Male antennæ bifasciculate. Tibiæ all strongly spined; fore tibia subequal in length to first tarsal joint, smooth-scaled, with a complete row of strong spines on each side; terminal spines stoutest; mid tarsi with a fourth row of spines on outer side laterally. Thoracic vestiture rough, hairy, with no appreciable tufting.

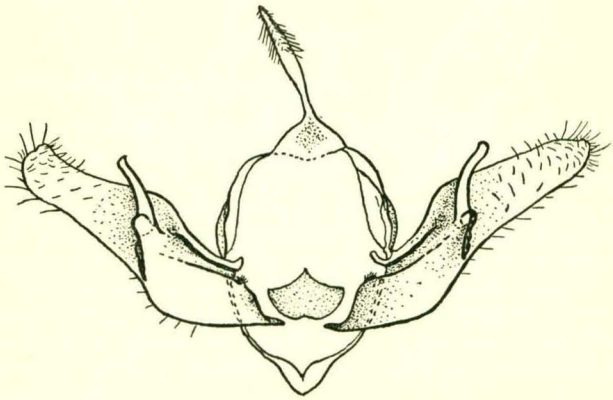

Figure 5. Male genitalia of *Pseudorthosia variabilis* Grt.

Male Genitalia. Clasper rounded apically, without corona; harpe attached at an angle to the apex of the rather weak sacculus; slightly excurved and projecting over costa. Uncus narrow, curved, with pointed apex. Clavus obsolescent. Juxta a broad, weakly chitinized plate with rounded posterior margin. Aedoeagus strengthened at apex by a thickening of the chitin, forming a slightly curved bar; vesica with minute apical cornutus.

The position of this highly specialized genus, containing the single species *variabilis* Grt., is a little doubtful. The tibial and tarsal armature and the roughened front seem, however, to indicate a position near *Euxoa*, and this is more or less borne out by the type of genitalia.

Pseudoseptis gen. nov.

Type, *Agrotis grandipennis* Grt.

Eyes naked. Palpi upturned, with slightly porrect third joint; second joint moderately fringed with hair below, third joint smooth-scaled. Front somewhat bulging but smooth. Male antennæ ciliate. Tibiæ all spined; fore tibia longer than first tarsal joint, with complete row of spines on both inner and outer sides; mid tarsi with partial fourth row of spines on outer side laterally. Thoracic vestiture appressed, consisting of hair and hair-like scales with traces of small pro- and metathoracic tufts.

Male Genitalia. Clasper long, narrow, with truncate apex, at the lower angle of which is a broad, blunt pollex; corona absent; sacculus weak; harpe a well-developed hook, at right angles to plane of clasper near base, with strongly curved attachment. Clavus minute. Juxta a small plate with excavated apical margin and pointed base. Uncus long, narrow, pointed. Aedoeagus strengthened apically with a curved, dark-coloured band of chitin; vesica with minute apical cornutus.

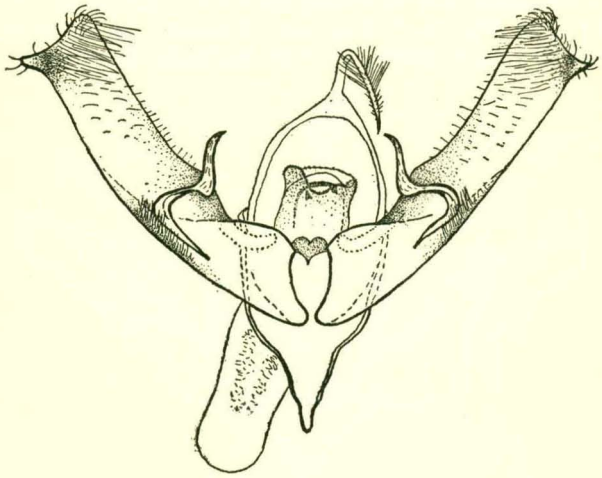

Figure 6. Male genitalia of *Pseudoseptis grandipennis* Grt.

The single included species, *grandipennis* Grt., has more the appearance of a *Septis* than of an Agrotid. *Jalapa* Hamp. from Mexico, judging by the illustration (Cat. Lep. Phal. IV., Pl. LXXII, fig. 7), must be very close, if not identical.

Trichosilia Hamp.

1918, Nov. Zool. XXV, 112 (type, *acarnea* Sm.).

Eyes slightly hairy. Palpi upturned, the third joint porrect and partly concealed in hair; second joint fringed with long hairs below. Front smooth. Male antennæ ciliate. Tibiæ all spined; fore tibia dis-

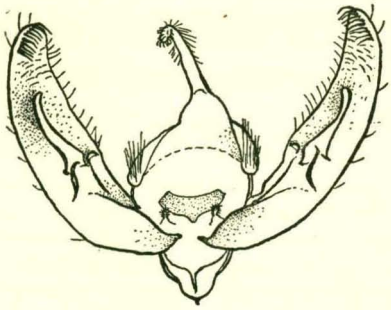

Figure 7. Male genitalia of *Trichosilia acarnea* Sm.

tinctly longer than first tarsal joint, smooth-scaled, with a complete ro w of spines on each side, the outer row somewhat conceale d in vestiture; mid tarsi with fourth row of spines as in *Agrotis*. Vestiture of thorax composed of simple hairs intermingled with a few forked ones.

Male Genitalia. Very similar to that of *Agrotis*, but the armature of the vesica consists of a short bulbed cornutus.

The genus was erected for the single species *acarnea* on the strength of the haired eyes. Were it not for this fact the writer would be much inclined to include *manifesta* Morr. and *geniculata* G. and R. in the same group. *Trichosilia* is undoubtedly a slight offshoot from *Agrotis*.

Richia Grt.

1887, Can. Ent. XIX, 44 (type, *chortalis* Harv.).

Eyes naked. Palpi upturned with rather long, conical third joint, slightly porrected; second joint moderately fringed with long hair below; third joint smooth-scaled. Front bulging, but smooth. Male antennæ fasciculate. Tibiæ all spined, the fore tibia shorter than or subequal to the first tarsal joint, smooth-scaled with complete row of spines on each side; mid tarsus normal except in *chortalis* where it is extraordinarily swollen and lengthened at the expense of the other joints, the under-surface with the median row of spines extended to form three or more rows; a fourth lateral row of spines well indicated. Vestiture of thorax composed of scales and hair with a well-developed median crest and traces of a divided posterior tuft.

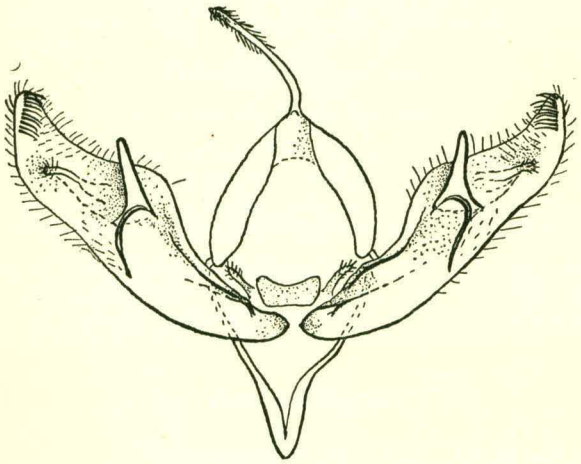

Figure 8. Male genitalia of *Richia chortalis* Harv.

Male Genitalia. Clasper rather short, the costa bulging beyond base; corona present but weak and confined to the costo-apical portion; harpe a stout hook, attached in the genotype obliquely to apex of sacculus by a chitinous rod and projecting slightly over costal edge of clasper, in the

other species more normal; a weak ampulla present. Uncus narrow, curved, pointed apically. Clavus well-developed but thin. Juxta faint. Aedoeagus armed apically with a narrow, curved, chitinous band, finely dentate; vesica with stout cornutus with bulbous base.

The position of this highly specialized genus is puzzling, but on account of the spining of the tibiæ and tarsi the writer is inclined to place it closer to *Agrotis* than is done in the present lists. It includes *parentalis* Grt., *distichoides* Grt., and *chortalis* Harv. with their forms.

The writer also places *lobato* Barnes here for the present on account of the great similarity of genitalia between it and *parentalis* and because, apart from the lack of a thoracic crest and the hairier vestiture, it agrees excellently in external structural characters.

Onychagrotis Hamp.

1903, Cat. Lep. Phal. Brit. Mus. IV, 465 (type, *rileyana* Morr.).

Only to be distinguished from *Agrotis* by the short, broad fore tibiæ with very heavy spines, the apical ones being practically claws.

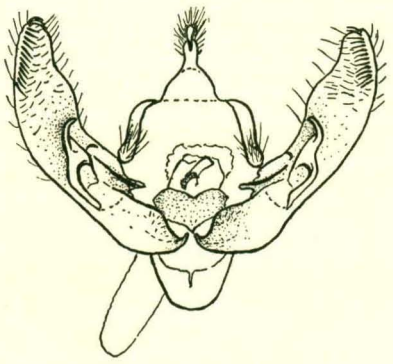

Figure 9. Male genitalia of *Onychagrotis rileyana* Morr.

The genus contains the single species, *rileyana*, and is only doubtfully distinct from *Agrotis;* the genitalia show no differences. *Rileyana* is probably an offshoot from *orthogonia;* the wing pattern in both species is very similar.

Eucoptocnemis Grt.

1874, Bull. Buff. Soc. N. Sci. II, 13 (type, *fimbriaris* Gn.).

Eyes naked. Palpi upturned with rather long narrow third joint; second joint heavily clothed beneath with long hairs and scales; third joint rather roughly scaled. Front smooth. Male antennæ strongly bipectinate. Tibiæ all spined, fore tibia short and broad, considerably shorter than first tarsal joint, smooth-scaled with complete row of spines

on each side, terminating in a strong claw, the inner one especially long. Fourth row of tarsal spines obsolescent, only an occasional spine being present. Vestiture of thorax rather rough, composed of single and forked hairs.

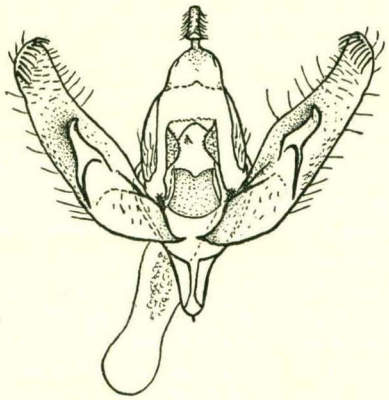

Figure 10. Male genitalia of *Eucoptocnemis fimbriaris* Gn.

Male Genitalia. Corona present, but weak; harpe as in *Agrotis;* no editum. Uncus rather broad with truncate apex. Clavus minute. Juxta weak at base, but with faintly spiculate side-flaps. Vesica armed apically with a small cornutus without bulbed base.

Includes *fimbriaris* Gn., *tripars* Wlk., and *dapsilis* Grt. The genus is obviously an offshoot from *Agrotis* and the type of genitalia is closest to that of *daedalus* Sm.

Proragrotis gen. nov.

Type, *Porosagrotis longidens* Sm.

Eyes naked. Palpi upturned, with third joint slightly porrect; second joint fringed below with long hairs; third joint smooth. Front with large saucer-like prominence with raised edges, containing a central truncate process. Male antennæ lengthily bifasciculate. Tibiæ all spined, fore tibia short and broad, much shorter than first tarsal joint, smooth-scaled, with complete row of spines on each side, terminating in stout claws. Fourth row of mid-tarsal spines present. Vestiture of thorax smooth, scaly, with metathoracic tuft moderately developed.

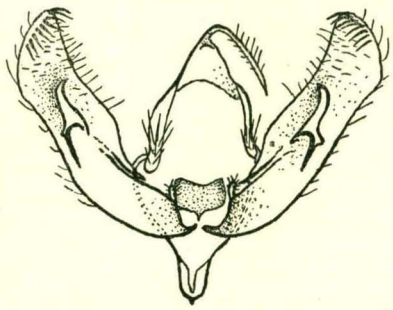

Figure 11. Male genitalia of *Proragrotis longidens* Sm.

Male Genitalia. Clasper of even width throughout, corona present; sacculus weak; harpe much as in *Agrotis*, but placed rather more apically; no editum. Clavus moderate. Juxta pointed at base. Uncus thin, pointed. Vesica armed apically with small spine.

Includes only the single North American species, *longidens* Sm. The nature of the frontal process is reminiscent of that of *Nocloa* and quite unique among our North American species.

Agrotis Ochs.

1816, Schmett. Europ. IV, 66 (type, *segetum* Schiff.).
Scotia Hbn., 1822, Verz. bek. Schmett. 226 (type, *cinerea* Schiff.).
Agronoma Hbn., 1822, Verz. bek. Schmett. 227 (type, *vestigialis* Rott.).
Georyx Hbn., 1822, Verz. bek. Schmett. 227 (type, *segetum* Schiff.).
Porosagrotis Sm. Bull. 38, U. S. N. M. 11 (type, *vetusta* Wlk.).

Eyes naked. Palpi upturned, with the third joint conical, more or less porrect; second joint normally fringed with long hairs below (occasionally heavily but smoothly scaled); third joint smooth-scaled, without tufts. Front normally roughened or with slight prominence (occasionally smooth). Male antennæ bipectinate in the basal half at least (occasionally fasciculate). Tibiæ all spined, fore tibia subequal in length to first tarsal joint, smooth scaled, with a complete row of well-developed spines on each side, the terminal spine of each row being strongest. Mid tarsi with at least a partly developed fourth row of spines situated on outer side laterally. Vestiture of thorax heavily overlaid with forked hairs; thoracic tufting scarcely evident, at times a slight divided posterior tuft; abdomen strongly hairy at base.

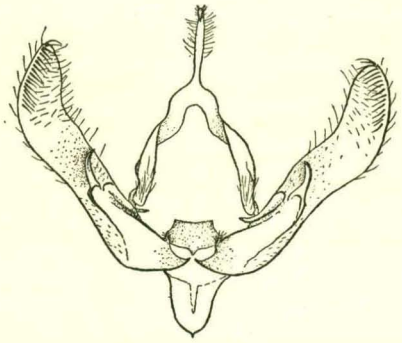

Figure 12. Male genitalia of *Agrotis vetusta* Wlk.

Male Genitalia. Corona present; harpe a somewhat recurved hook, attached to apex of sacculus; costa at base with a slightly raised, oval, chitinous plate, contiguous to the base of harpe (? editum of Pierce). Uncus long, narrow, strap-like. Clavus minute. Juxta pointed at base. Vesica armed apically with a lunate, scobinate plate.

The writer includes under this generic heading the following North American species: *vetusta* Wlk., *daedalus* Sm., *orthogonia* Morr., *patula* Wlk., *gladiaria* Wlk., *robustior* Sm., *venerabilis* Wlk., *vancouverensis* Grt., *gravis* Grt., *musa* Sm. (not examined), *atha* Stkr., *volubilis* Harv., *aeneipennis* Grt., *obliqua* Sm., *malefida* Gn., *ypsilon* Rott., and *manifesta* Morr.

All these species are so closely allied in type of male genitalia to *segetum* (vide Pierce, op. cit., Pl. XVI) and to one another that frequently a specific differentiation, based on this character, is not possible. The last three species are somewhat atypical but, in the opinion of the writer, are sufficiently allied to be included under the one generic head. In *malefida* and *ypsilon* the palpi lack the rough hairs beneath the second joint, being heavily and closely scaled; *ypsilon* further is unique in having a smooth front, and in the genitalia of both we find the costal margin curved upward apically far more than in any of the other species. *Manifesta* would seem at first rather misplaced, due to its distinctly hairier vestiture, but the writer can find no better position for it unless it be transposed to *Feltia*. On genitalic characters it is not misplaced here, although it is still more closely allied to *Trichosilia acarnea* Sm., a hairy-eyed species. It might also be noted that the fore tibia is distinctly longer than the first tarsal joint.

With regard to *Porosagrotis*, the only possible way of retaining this generic name would be on the strength of the fasciculate male antennæ of the genotype, *vetusta*, as differentiated from the normal bipectinate type; this seems scarcely sufficient.

Feltia Wlk.

1856, Cat. Lep. Het. Brit. Mus. IX, 202 (type, *ducens* Wlk.).

Eyes naked. Palpi upturned with third joint conical, more or less porrect; second joint normally with long, heavy scaling beneath, projecting forward apically into a conical tuft; third joint with traces of a similar tuft. Front normally smooth (occasionally slightly tuberculate). Male antennæ serrate and fasciculate, with normally two tufts at the extremity of each lamella. Tibiæ all spined, the fore tibia subequal in length to first tarsal joint, smooth-scaled, with complete row of spines on each side, the terminal spines being strongest. Mid tarsi with fourth row of lateral spines as in *Agrotis*. Vestiture of thorax rather smooth-scaled with improminent tufting.

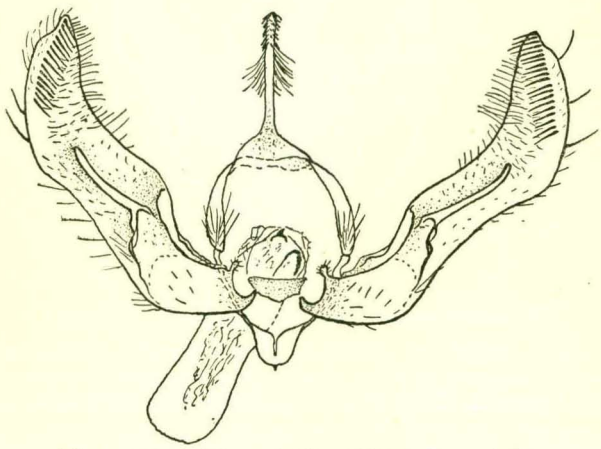

Figure 13. Male genitalia of *Feltia ducens* Wlk.

Male Genitalia. Very similar to those of *Agrotis* but the costa of the clasper is more upcurved apically than in normal *Agrotis*, the harpe is

decidedly longer and narrower, and the armature of the vesica consists of a single short bulbed cornutus. The clavus is small but rather broad.

Under this generic heading are included the species: *ducens* Wlk., *hudsoni* Sm., *evanidalis* Grt., *subgothica* Haw., *herilis* Grt., *pectinicornis* Sm., *edentata* Sm. (not examined), *annexa* Tr., and *geniculata* G. and R. The genus could readily be sunk to *Agrotis;* it is retained, however, for the *ducens* group on the strength of the slight genitalic differences, as well as modifications of the palpi and male antennæ.

The two last species are aberrant. *Annexa* shows a roughened front and the fore tibia has stronger terminal spines; in the genitalia the aedoeagus does not appear to possess any armature. *Geniculata* is only doubtfully placed here, as the antennæ are not bifasciculate; however, taking into consideration the armature of the aedoeagus and the shape of the clavus no better position could be found. The genitalia are very close to those of *manifesta* and *acarnea.*

Actebia Steph.

1829, Ill. Brit. Ent. Haust. II, 20 (type, *praecox* L.).
‡*Hapalia* Hbn., 1822, Verz. bek. Schmett. 220.

Eyes naked. Palpi upturned, with conical third joint slightly porrected; second joint heavily but smoothly clothed with scales beneath; third joint smooth-scaled. Front smooth. Male antennæ ciliate. Tibiæ all spined; fore tibia slightly longer than first tarsal joint, smooth-scaled with a complete row of well-developed spines on each side, terminating in a stronger spine. Mid tarsi with a fourth row of spines as in *Agrotis.* Vestiture of thorax scaly, smooth, with slight median anterior and divided posterior tufts. Abdomen rather flattened.

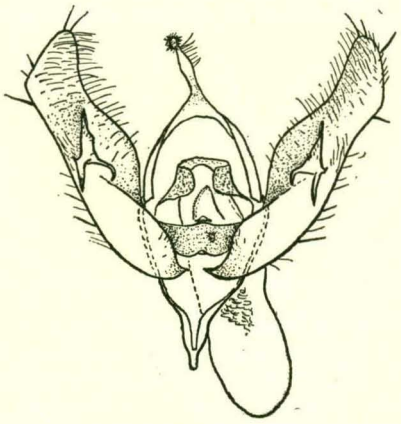

Figure 14. Male genitalia of *Actebia fennica* Tausch.

Male Genitalia. Corona absent. Costal margin of clasper excurved beyond base. Harpe strong, scarcely recurved, attached to apex of sacculus. No editum. Uncus long, narrow, slightly broadened in median section,

and with a bunch of apical bristles. Clavus lacking. Juxta emarginate at base. Aedoeagus with its apical edge serrate (in our North American species) and the vesica armed with a small apical, slightly serrate, chitinous plate.

The only North American species definitely included is *fennica* Tausch. which, though superficially rather dissimilar to *praecox* L., is almost identical in genitalia (vide Pierce, op. cit., Pl. XVI) and other structural details, including the narrow wings.

Rather than create a new genus for *larga* Sm. without a better knowledge of the Mexican fauna it is provisionally placed here, on account of the strong similarity of genitalia. It is to be noted, however, that the vestiture is hairy and that the fourth row of tarsal spines is lacking. In general appearance *larga* and *fennica* are very dissimilar, the former, in this respect being closer to *lobato* Barnes than to anything else.

Protogygia gen. nov.

Type, *Agrotis lagena* Grt.

Eyes naked. Palpi upturned, the third joint conical and slightly porrected; second joint fringed below with long hairs and scales; third joint rather smooth-scaled. Front roundedly protuberant, at times slightly roughened. Male antennæ ciliate. All tibiæ spined, fore tibia either subequal to or shorter than first tarsal joint, smooth-scaled, with complete lateral rows of spines, terminating in a heavier spine. Tarsi lacking the fourth row of spines found in *Agrotis*. Vestiture of thorax rather smooth, scaly, with at times a rather distinct metathoracic scale-tuft.

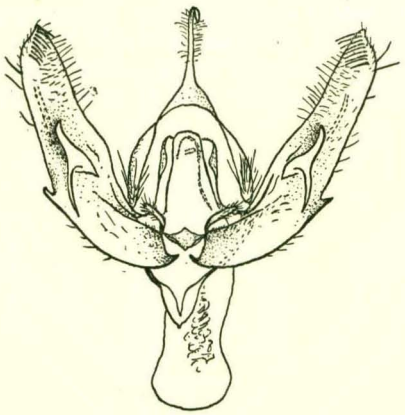

Figure 15. Male genitalia of *Protogygia lagena* Grt.

Male Genitalia. Clasper long, narrow, at times with a spine-like projection on ventral margin near base; corona present; harpe attached to apex of sacculus and much as in *Agrotis;* editum absent. Uncus narrow, curved, with pointed apex. Clavus well developed, rather broad, leaf-like. Juxta rounded at base. Aedoeagus strengthened apically by a narrow, curved, chitinous band, vesica armed with a short cornutus without base.

It has seemed necessary to create a new generic term for certain western and southwestern species, formerly included in *Rhizagrotis*, and which, in form of genitalia, approach closest to the European *signifera* Schiff., type of the genus *Ogygia* Hbn.

Besides the type species, *lagena* Grt., the writer includes *querula* Dod and *polingi* B. and B.; also *milleri* Grt., *biclavis* Grt., and *elevata* Sm. (*terrifica* Sm.). The first two species are distinctly congeneric, both showing the short projection on outer margin of clasper, but specifically distinct in the finer details. *Polingi* lacks this projection, but otherwise fits in well with the other two. The next two are more aberrant, but closely related to each other; they show hairier vestiture, a rougher front, bipectinate or dentate and fasciculate antennæ, a stronger metathoracic tuft and weak spining on the fore tibiæ; on genitalic characters they are quite close to *polingi* with rather weaker corona, and in the case of *milleri* a rather broader and stumpier clasper. *Elevata* also is distinctly related to *milleri;* the fore-tibial spines are better developed and the vestiture is hairier; in the genitalia the harpe is broad and shovel-shaped, but the general similarity is unmistakable. It is quite probable that a study of neotropical material will show the true relationship of this group.

Spaelotis Bdv.

1840, Ind. Meth. 106 (type, *ravida* Schiff.).

Amphitrota Warren, 1909, Seitz, Gross-Schmett. d. Erde, Palae. Noct. III, 57 [type, *clandestina* Harr. (*unicolor* Wlk.)].

Eyes naked. Palpi upturned, third joint somewhat porrected; second joint fringed below with moderately long hairs; third joint with slight pointed apical tuft of hair beneath. Front smooth. Male antennæ ciliate. Tibiæ all spined; fore tibia longer than first tarsal joint, smooth-scaled, with complete row of spines on each side. Fourth row of spines on tarsi lacking or only indicated by an occasional odd spine. Vestiture of thorax rather flat, scaly, with no distinct tufts. Abdomen flattened, the female (in our North American species) with a pair of sublateral foveæ near extremity.

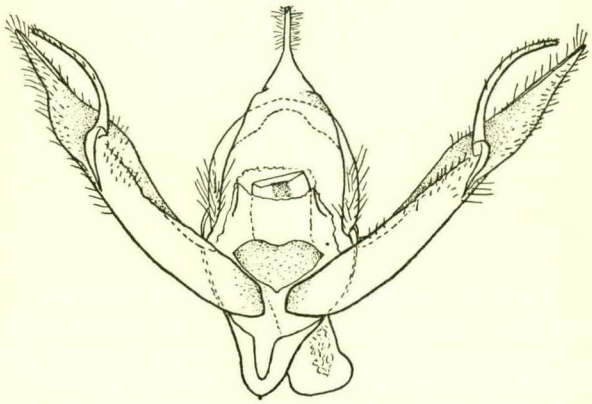

Figure 16. Male genitalia of *Spaelotis clandestina* Harr.

Male Genitalia. Clasper long, narrow, pointed apically, without corona; sacculus strong, with harpe attached to apex but not lying quite

in the same plane, being bent upwards beyond point of origin and then recurved, almost reaching apex of clasper. Uncus short, pointed. Clavus very minute. Juxta a thin plate. Aedoeagus with rectangular apex, the lateral walls slightly thickened with chitinous plates, no armature.

The genus *Amphitrota* was erected for our North American species with abdominal foveæ in the female sex; as, however, the male genitalia of the two included species, *clandestina* Harr. (*unicolor* Wlk.) and *havilae* Grt., are very similar to those of *ravida*, the genotype of *Spaelotis* Bdv., this name is preferred. The genital organs are quite unique and show no close affinities to those of any other species; on general characters, however, the writer inclines to group the genus with the typical Agrotids. It might be pointed out that the name *clandestina* Harr. (1841) has priority over *unicolor* Wlk. (1856) and that the present listing, following Hampson's error, should be altered.

Choephora Grt.

1868, Trans. Am. Ent. Soc. II, 199 (type, *fungorum* Grt.).

Eyes naked. Palpi upturned, with third joint somewhat porrect; both joints heavily fringed below with long hair. Front smooth. Male antennæ strongly bipectinate. Tibiæ all spined; fore tibia longer than first tarsal joint, with a row of moderately stout spines on each side, neither of which extends completely to base; on outer side a fringe of long hair in basal portion. Mid tarsi without fourth row of spines. Thoracic vestiture very rough and hairy. Wings broadly triangular.

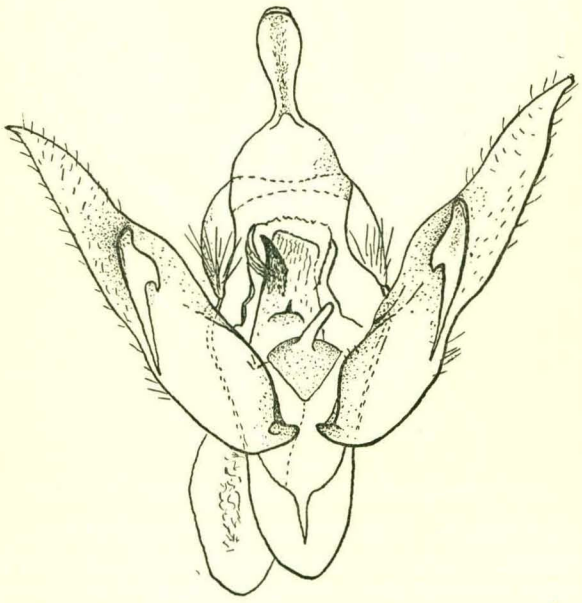

Figure 17. Male genitalia of *Choephora fungorum* Grt.

Male Genitalia. Clasper narrow and pointed, without corona; harpe attached to apex of sacculus, very broad and short, scoop-shaped with

slightly spiculate apex. Clavus absent. Juxta armed with a strong finger-like projection. Uncus broad with truncate apex. Aedoeagus armed with an apical spine and vesica with a bulbed cornutus.

This rather aberrant genus is difficult to place, but the type of genitalia on the whole seems to indicate a position with the typical Agrotid group rather than with the *Pachnobia-Graphiphora* section. *Fungorum* Grt. is the only included species and is distinct enough to warrant the retention of the generic name.

Eurois Hbn.

1822, Verz. bek. Schmett. 217 (type, *occulta* Linn.).

Eyes naked. Palpi upturned, with conical, somewhat porrect, third joint; second joint typically heavily and evenly clothed with scales beneath which tend to form an apical tuft (in other species heavily fringed with hair beneath); third joint smooth-scaled. Front smooth. Male antennæ normally ciliate (occasionally serrate and fasciculate). Tibiæ all spined; fore tibia longer than first tarsal joint, furnished with a complete and visible inner row of weak spines and with outer row reduced to several apical spines, more or less concealed in heavy tufting of hair; fourth row of tarsal spines well developed. Thoracic vestiture scaly with distinct anterior and posterior, divided, median tufts.

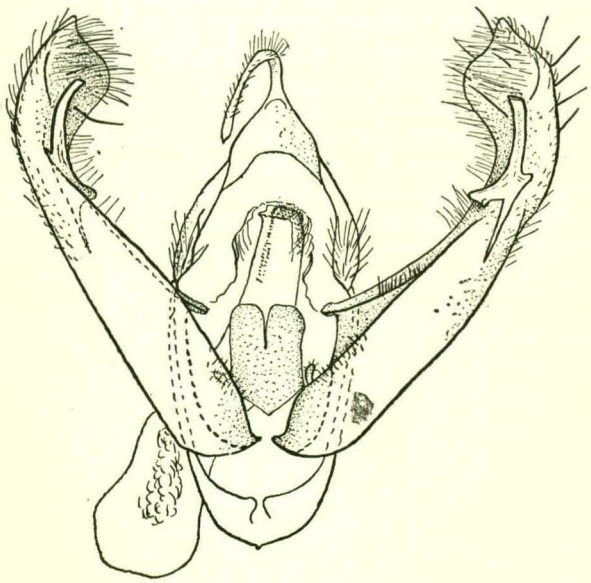

Figure 18. Male genitalia of *Eurois occulta* Linn.

Male Genitalia. Clasper broad apically, terminating in a blunt point; no corona; harpe a strong recurved hook attached to the end of the long heavy sacculus and, therefore, subapical. Uncus narrow, curved, pointed apically. Clavus small, heavily haired. Juxta a thin, rectangular plate. Aedoeagus heavily scobinate apically; vesica at times armed with a small cornutus.

The writer has already pointed out (1927, Can. Ent. LIX, 66) that Hampson's usage of this generic term was incorrect and that *Eurois* should include *occulta* Linn., *astricta* Morr., and *nigra* Sm. The latter two species agree very closely with the genotype in all features except palpal vestiture, having a heavy fringe of hair beneath which is lacking in *occulta*. To these species is added, for the present, *docilis* Grt., which is decidedly atypical in form of genitalia but otherwise agrees pretty closely; the genitalia of this species, in fact, are more like those of *Richia*, but such an association is scarcely advisable and, rather than create a new generic term, it is left in *Eurois*. *Praefixa* Morr., which the writer does not know, may also fall here; Smith suggests that it is identical with *docilis* (Jour. N.Y. Ent. Soc. XV, 148, 1907).

Ochropleura Hbn.

1822, Verz. bek. Schmett. 223 (type, *plecta* Linn.).

Eyes naked. Palpi upturned, with third joint conical, slightly porrected; second joint heavily but smoothly scaled. Front smooth. Male antennæ fasciculate. Tibiæ all spined; fore tibia longer than first tarsal joint, smooth-scaled, with a complete inner row of lateral spines, but with the outer row reduced to two or three apical ones; all these spines rather weak. Fourth row of tarsal spines lacking. Thoracic vestiture smooth, scaly, with no appreciable tufting.

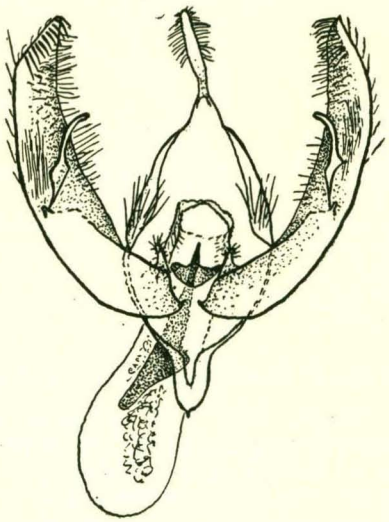

Figure 19. Male genitalia of *Ochropleura plecta* Linn.

Male Genitalia. Clasper long, narrow, with corona; harpe a recurved hook, situated slightly beyond apex of sacculus, but connected with it by an oblique bar of chitin; at the connecting point a small spine near ventral margin of clasper. Uncus rather shorter than in *Agrotis*. Clavus moderately well developed, broad at base, tapering apically. Juxta weak, slightly pointed at base. Vesica armed with a huge cornutus.

The single species, *plecta* Linn., seems sufficiently distinct to warrant the usage of the generic term *Ochropleura*. The nature of the spining of the fore tibia alone will separate it from *Agrotis*, and from the *Graphiphora* group, with which it has been generally associated, it must be separated on genitalic characters.

Anicla Grt.

1874, Bull. Buff. Soc. N. Sci. II, 159 (type, *infecta* Ochs.).

Eyes naked. Palpi upturned, with conical third joint slightly porrected; second joint heavily and smoothly scaled with distinct apical pointed tuft beneath; third joint smooth-scaled. Front smooth. Male antennæ ciliate. Tibiæ all spined; fore tibia longer than first tarsal joint, smooth-scaled, the scales on the outer side forming a broad fringe which obscures the spines; these are rather weak, forming a complete visible row on inner side but reduced to two or three apical spines on outer side, concealed in the vestiture; fourth tarsal row of spines reduced to an occasional spine. Thoracic vestiture smooth, scaly, with no obvious tufting. Abdomen somewhat flattened.

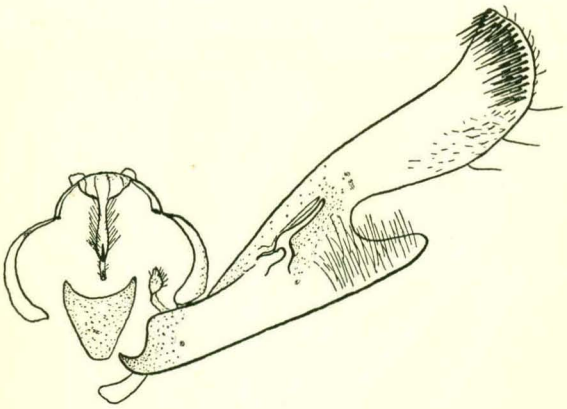

Figure 20. Male genitalia of *Anicla infecta* Ochs.

Male Genitalia. Clasper very long compared with the size of the tegumen, with prominent excavation at middle of ventral margin; corona very heavy, consisting of several rows of stout spines; sacculus reduced; harpe a rather weak hook with bifid attachment at base. Uncus vertically bifid. Clavus well-developed, broad. Juxta a thin, shield-like plate. Aedoeagus with a c-shaped chitinous band apically; vesica armed with two scobinate chitinous bands.

The utterly different type of male genitalia makes it advisable to revive the generic term *Anicla* for the single species *infecta*. The affinities of this species are probably neotropical.

Euagrotis gen. nov.

Type, *Noctua lubricans* Gn.

Eyes naked. Palpi upturned, with short, conical, somewhat porrected third joint; second joint heavily but smoothly scaled beneath with normally no indication of a triangular apical tuft; third joint smooth-scaled. Front smooth. Male antennæ ciliate. Tibiæ all spined; fore tibia subequal in length to first tarsal joint, smooth-scaled, with a weak hair-fringe on outer side; inner row of spines complete, outer row limited to two or three weak apical ones. Mid tarsi without fourth row of spines. Thoracic vestiture smooth, scaly, with practically no indication of tufting.

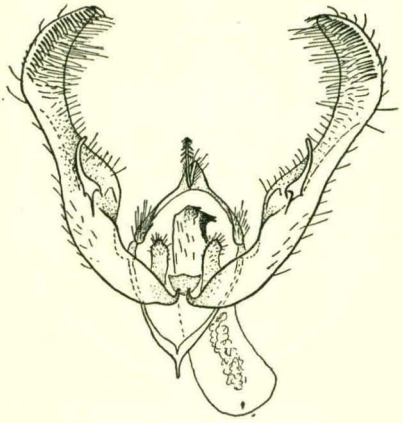

Figure 21. Male genitalia of *Euagrotis lubricans* Gn.

Male Genitalia. Clasper long and narrow, costa somewhat bulging at base and curving upward apically forming a blunt point with the apical margin; corona present and well developed; sacculus rather weak; harpe recurved, with slight bulbous base and with faint editum; occasionally traces of an ampulla. Uncus long and narrow, with recurved apical portion. Clavus strongly developed, broad. Juxta weak. Aedoeagus armed with a stout latero-apical spine, projecting from a chitinous plate of variable shape; vesica frequently armed with a finger-like chitinous rod.

The following species are included in this rather homogeneous group which is probably a forerunner of, or an offshoot from, such species of the *Agrotis* group as *ypsilon* and *malefida: lubricans* Gn., *illapsa* Wlk., *beata* Grt. (both distinct from *lubricans* on genitalic characters), *exuberans* Sm., *bairdi* Sm. (the writer has not examined this but the figure indicates a close relationship to *exuberans*), *simplicia* Morr., *digna* Morr. (and probably *tenuescens* Sm. which has not been seen), and finally *tepperi* Sm. which has very similar genitalia but has a strong fringe of hair on under side of second palpal joint and a better-developed fringe on outer side of fore tibia.

Hemieuxoa gen. nov.

Type, *Agrotis rudens* Harv.

Eyes naked. Palpi upturned, the third joint somewhat porrect; second joint fringed with hair beneath, which forms apically a triangularly pointed tuft; third joint smooth-scaled. Front smooth. Male antennæ ciliate. Tibiæ all spined; fore tibia longer than the first tarsal joint, smooth-scaled, with well-developed fringe of hair on the entire outer side, concealing partly a few apical spines; inner side with complete row of spines. Mid tarsi without fourth row of spines. Vestiture of thorax scaly with fairly well-developed pro- and metathoracic tufts.

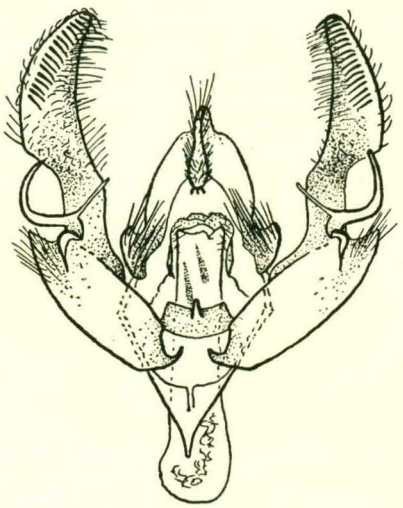

Figure 22. Male genitalia of *Hemieuxoa rudens* Harv.

Male Genitalia. Strikingly aberrant. Clasper with deep rounded excavation in middle of ventral margin; costal margin drawn out apically; corona well developed; sacculus strong, the blunt apex forming the lower margin of the excavation; harpe attached to sacculus by a stout raised rod, bent downwards, curved and partly filling the excavation; from the dorsal side, at the bend, a fine, straight, chitinous finger projects slightly over the costa of clasper. Uncus with bulbous apex, furnished with several short spines. Clavus absent. Juxta with a short median spine. Tegumen strongly upcurved at the junction with the clasper, forming a pad from which the peniculus arises. Vesica armed with two thin cornuti.

Rudens Harv. and *pellucidalis* Grt. are the only included species; the genitalia of the latter show no differences from those of *rudens* and it is quite probable that one is merely a form of the other. The general appearance is rather *Euxoa*-like, but there are numerous characters to separate the genus from *Euxoa*. It is placed along with *Anicla* and *Euagrotis* from which, apart from genitalia, it differs on palpal and thoracic tuftings.

Metalepsis Grt.

1875, Check List Noct. 13, 25 (type, *cornuta* Grt.)

Eyes naked, lashed. Palpi upturned, third joint porrect; both second and third joints heavily fringed below with long hairs. Front smooth. Male antennæ serrate and fasciculate or bipectinate. Tibiæ all spined; fore tibia longer than first tarsal joint, heavily fringed with hair on outer side; inner row of spines complete, distinct; outer row confined to a few apical ones, and more or less hidden in vestiture. Fourth row of tarsal spines lacking. Vestiture of thorax hairy with indications of anterior and posterior tufting.

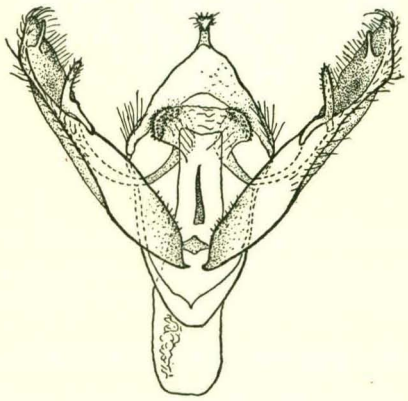

Figure 23. Male genitalia of *Metalepsis cornuta* Grt.

Male Genitalia. Clasper long and narrow, apex rather truncate without corona; sacculus long and heavy with harpe obliquely attached at apex and projecting slightly over costal edge of clasper; digitus present or absent. Uncus somewhat diamond-shaped apically. Clavus absent. Juxta weak; anellus with two lateral scobinate flaps. Vesica armed with a large heavy cornutus.

The writer previously (1927, Can. Ent. LIX, 65) noted the close relationship between this genus and *Cerastis* Ochs. and included in it the three species *cornuta* Grt., *fishi* Grt., and *salicarum* Wlk. The genitalia of these species are very similar, but in *cornuta* we find a digitus which is lacking in the other two. The type of armature of the vesica is reminiscent of *Ochropleura plecta.*

Cerastis Ochs.

1816, Schmett. Europ. IV, 84 (type, *rubricosa* Schiff.).
Glaea Stephens, 1829, Ill. Brit. Ent. Haust. II, 159 (type, *rubricosa* Schiff.).
Matuta Grote, 1874, Can. Ent. VI, 116 (type, *tenebrifera* Wlk.).

Differs chiefly from *Metalepsis* in the entire absence of spining on the fore tibia.

The single North American species, *tenebrifera* Wlk., which is included in this genus, differs from the type in the shorter vestiture of the palpi, the bipectinate antennæ, and the intermingling of numerous forked hairs in the thoracic vestiture. The genitalia, however, are very similar, with the characteristic scobinate flaps to the anellus. The vesica is armed with two long cornuti instead of the single one of *rubricosa*.

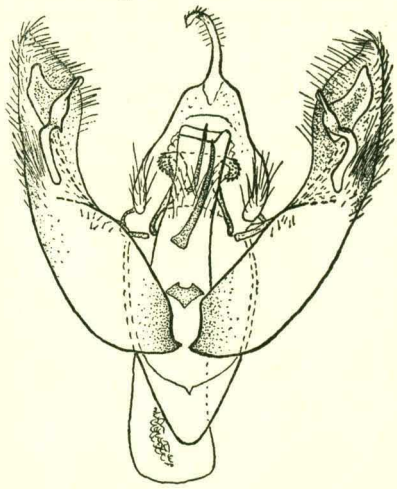

Figure 24. Male genitalia of *Cerastis tenebrifera* Wlk.

These differences are believed to be merely of specific value; in any case, for those who wish, we have the term *Matuta* Grt. available for *tenebrifera*.

Peridroma Hbn.

1822, Verz. bek. Schmett. 227 (type, *margaritosa* Haw.).

Eyes naked. Palpi upturned, the third joint porrect; second joint rather roughly fringed with scales and hair beneath and with distinct triangular apical tuft; third joint with rather rough vestiture. Front smooth. Male antennæ shortly fasciculate. Tibiæ all spined; fore tibia slightly longer than first tarsal joint, smooth-scaled, with a broad curved fringe of scales and hair on outer side partly concealing the few apical spines; inner margin with a complete row of weak spines. Mid tarsi without fourth row of spines. Thoracic vestiture scaly with well-developed, divided, pro- and metathoracic tufts. Abdomen rather flattened.

Male Genitalia. Clasper of average length with strong corona; harpe slightly excurved and projecting over costa, attached at base to a broad foot of chitin, the proximal portion of which is contiguous with the fairly strong sacculus; ampulla present. Clavus a very minute tubercle. Uncus bulbous at base, drawn out to a fine and slightly recurved point apically. Juxta a heavily chitinized plate, the medio-apical portion strongly bulging and armed with a sharp spine. Aedoeagus armed with apical chitinous plate, one edge of which is drawn out to a sharp tooth with dentate edge.

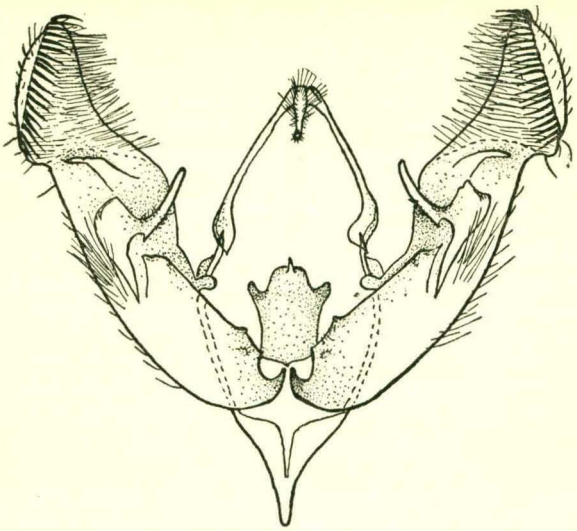

Figure 25. Male genitalia of *Peridroma margaritosa* Haw.

The writer has revived the old name *Peridroma* for the single species *margaritosa* which evidently represents a primitive form.

Hemipachnobia gen. nov.

Type, *Agrotis monochromatea* Morr.

Eyes naked. Palpi upturned, the third joint somewhat porrect; second joint strongly fringed with hair below, third joint smooth-scaled. Front smooth. Male antennæ strongly bipectinate. Tibiæ all spined; fore tibia longer than first tarsal joint, smooth-scaled, with a complete row of spines on both inner and outer sides; mid tarsi with fourth row of spines on outer side laterally. Thoracic vestiture in ♂ roughened, consisting of hair-like scales, in ♀ smoother and with broader scales; tufting obsolescent.

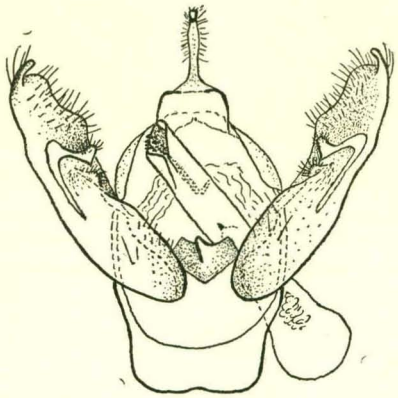

Figure 26. Male genitalia of *Hemipachnobia monochromatea* Morr.

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Male Genitalia. Clasper moderate in width with slight bulge about the middle of costa; apex rounded, without corona, but with a strong pollex projecting forward from lower angle; sacculus strong; harpe weak, much as in *Pachnobia,* with the distal portion of the foot-like attachment obsolescent; editum present. Clavus obsolescent. Juxta armed with a strong apical spine. Uncus narrow. Tegumen with its base (ventral side) broadly truncate. Aedoeagus long, narrow, armed apically with a spined chitinous band; vesica with small bulbed cornutus.

This genus, which is erected for *monochromatea,* is distinctly allied to *Pachnobia* and *Anomogyna* in type of genitalia, the harpe and aedoeagus being notably similar. The complete spining of the fore tibia, however, and the presence of the fourth row of tarsal spines make the separation from both of these genera advisable.

Paradiarsia gen. nov.

Type, *Agrotis littoralis* Pack.

Eyes naked. Palpi upturned, with third joint somewhat porrect; second joint with long rough fringe of hair beneath; third joint smooth-scaled. Front smooth. Male antennæ bipectinate. Tibiæ all spined; fore tibia longer than first tarsal joint and with a complete row of spines on the inner side; several apical spines and a fringe of hair on the outer side. Mid tarsi with a fourth row of spines on outer side laterally. Thoracic vestiture hairy and rough, without distinct tufts.

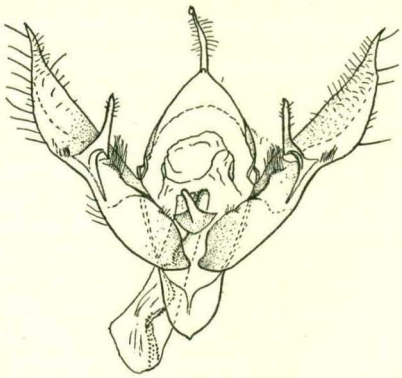

Figure 27. Male genitalia of *Paradiarsia littoralis* Pack.

Male Genitalia. Clasper narrow with very pointed apex and neither corona nor pollex; harpe well developed; connected more or less with apex of sacculus by a curved rod of chitin; a small chitinous mound with patch of hair at inner base of harpe probably represents the editum. Clavus obsolescent. Juxta with strong finger-like projection. Uncus very thin and long. Vesica armed with a long spiculate chitinous band.

The sole species, *littoralis* Pack., seems sufficiently distinct from other members of the *Graphiphora* group to warrant the new generic name. The four rows of tarsal spines, the hairy vestiture, and the bipectinate male

antennæ keep it apart from all other species except certain ones placed in the genus *Pachnobia;* with these there is, however, no affinity on genitalic characters. Grote's association with *Pseudorthosia* was as good as any, but from this genus it may be separated on the armature of the fore tibia.

Pseudospaelotis gen. nov.

Type, *Agrotis haruspica* Grt.

Eyes naked. Palpi upturned, with long third joint; second joint heavily but rather shortly and evenly fringed with hair beneath, without triangular apical tuft; third joint smooth-scaled. Front smooth. Male antennæ ciliate. All tibiæ spined; fore tibia longer than first tarsal joint, with complete row of weak spines on inner side; on outer side with hair-fringe and several apical spines. Mid tarsi without fourth row of spines. Thoracic vestiture smooth, largely composed of hair, without noticeable tufts.

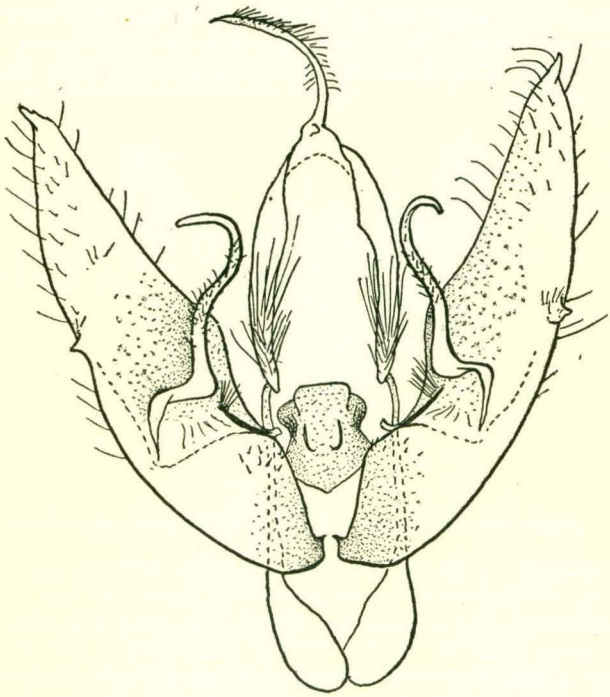

Figure 28. Male genitalia of *Pseudospaelotis haruspica* Grt.

Male Genitalia. Clasper long and narrow, tapering to a point, with a slight tubercle about the middle of the ventral margin; sacculus short and weak; harpe situated basally, long and strongly hooked apically, much the shape of a question mark. Clavus absent. Uncus thin, curbed. Juxta squarely projected apically. Aedoeagus scobinate apically; vesica armed with a short spine on a broadly bulbous base.

Along with the European *augur* Fabr. the writer includes our North American forms *haruspica* Grt. (*unimacula* Morr.), *sierrae* Harv., and *inopinatus* Sm. which, judging by the genitalia, are probably all forms of one species. It is believed that the different type of genitalia, combined with the differences found in the palpal and thoracic vestiture, warrant the separation from the *Graphiphora* group and also from *Spaelotis unicolor* Wlk., with which it has frequently been associated, largely on account of a certain superficial similarity. The writer agrees with Pierce who regards *augur* as leading over to what he calls the Triphaenidae (op. cit., page 47).

Caradrina Ochs.

1816, Schmett. Europ. IV, 80 (type, *margaritacea* Vill.).

Eyes naked. Palpi upturned, the third joint more or less porrect; second and third joints fringed below with rough hair. Front smooth. Male antennæ ciliate. Tibiæ all spined; fore tibia longer than first tarsal joint, smooth-scaled, with fringe of hair on outer side and a couple of apical spines; on inner side a complete row of weak spines. Mid tarsi without fourth row of spines. Thoracic vestiture rough, hairy, without well-defined tufting.

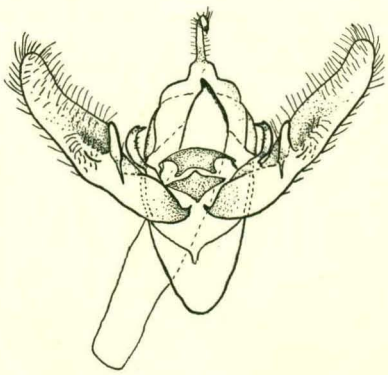

Figure 29. Male genitalia of *Caradrina quadrangula* Zett.

Male Genitalia. Clasper rounded apically, without corona; sacculus with a strongly chitinized free arm projecting from the base over the costal margin of clasper; harpe oblique, finger-like, and attached to apex of sacculus. Clavus absent. Juxta weakly chitinized. Uncus narrow with pointed apex. Aedoeagus very long and armed apically with a short spine.

The writer has placed *quadrangula* Zett. and *clemens* Sm. under this generic heading for the present on account of the peculiar free arm jutting out from the base of the sacculus; this is also present in *margaritacea* Vill., the generic type, but shaped differently, and as superficially there is little resemblance between the two species, it would not be at all surprising if the necessity arises for the creation of a new genus to include *quadrangula;* it is very closely allied to the European *simulans*. *Rhyacia* Hbn., with genotype *lucipeta* Schiff., will also belong in this group, but may be separated by the smoothly scaled palpi.

The above generic definition has been drawn up from *quadrangula* and does not agree in some of the minor details with the characters of *margaritacea*. *Clemens* Sm. shows no difference in genitalia from *quadrangula* and a specimen from the Barnes collection which has been compared with Smith's type agrees in maculation with our Labrador and Alberta series of *quadrangula;* it is imagined that, at the best, *clemens* can only be regarded as a race of this species.

Chersotis Bdv.

1840, Gen. et Ind. Meth. 103 (type, *rectangula* Schiff.).

Male Genitalia. Clasper broadening suddenly in central portion and then narrowing gradually to the rounded apex; no corona; sacculus strong with a heavily chitinized elbowed free arm at base, this arm being spined apically and spiculate over a considerable portion of the dorsal surface; harpe very heavily chitinized, broadly scoop-shaped, projecting over costa. Clavus absent. Juxta weak. Uncus long and thin. Tegumen with ventral margin broadly truncate, not pointed as usual. Aedoeagus strengthened apically with a triangular chitinous plate.

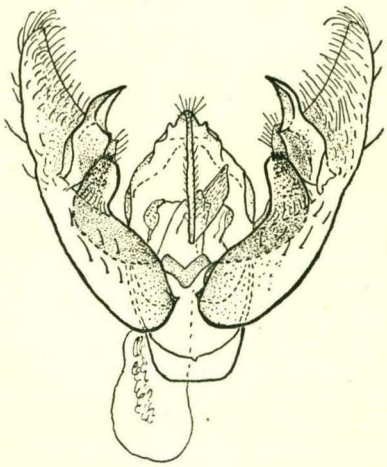

Figure 30. Male genitalia of *Chersotis juncta* Grt.

Very similar to the preceding genus in outer structural characters and differentiated solely on account of the male genitalia and the fact that our North American species, *juncta* Grt., is very closely allied in all respects to the European *rectangula* Schiff., the genotype of *Chersotis*. The availability of this generic term has led the writer to adopt it for the present, but the whole group with this peculiar type of basal arm to the sacculus will have to be studied in connexion with European species before deciding whether one generic term is sufficient; *juncta* is the only North American species with this type of genitalia.

Heptagrotis gen. nov.

Type, *Agrotis phyllophora* Grt.

Eyes naked. Palpi upturned, the third joint somewhat porrect; second joint heavily fringed below with hair; third joint smooth, with traces of an apical tuft below. Front smooth. Male antennæ weakly fasciculate. Tibiæ all spined; fore tibia much longer than first tarsal joint with complete row of spines on inner side and a fringe of hair on outer side, concealing a couple of apical spines. Mid tarsi with fourth row of spines laterally on outer side. Thoracic vestiture largely composed of hair or hair-like scales, rather rough without distinct tufting.

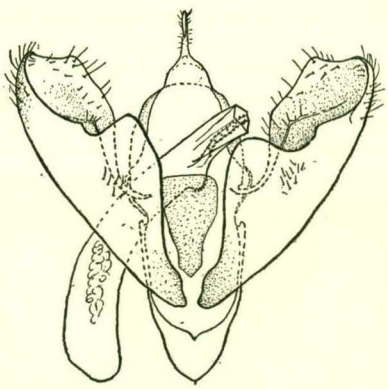

Figure 31. Male genitalia of *Heptagrotis phyllophora* Grt.

Male Genitalia. Strongly aberrant. Clasper short, broad, and irregularly rounded apically with neither corona nor pollex; sacculus very strongly developed, bulging strongly over costa at base and then narrowing and continued along lower margin to apex of clasper; harpe lacking. Clavus lacking. Juxta a long, rather narrow plate. Uncus thin, pointed. Aedoeagus with spiculate apical band of chitin and small lateral protuberance covered with short spines.

On account of the marked divergence of the genitalia it has been necessary to separate *phyllophora* from its usual associations; it would seem to show more relationship with the *Abagrotis* group than with the *Graphiphora* section.

In dealing with the following section, which largely comprises the species formerly placed in the genus *Noctua*, the writer was at once struck by the extraordinary divergence between the species on genitalic characters, whereas in outward structural characters, notably the spining of the fore tibiæ, there was an equally great similarity. Two courses were open—either to split the group into a number of small genera, based largely on genitalic characters, necessitating the creation of a number of new generic terms, or to lump the species under the oldest available generic name, leaving genitalic characters out of consideration.

The writer finally decided on a sort of compromise, using in a generic sense such terms as have already been created and which could be correctly applied to any given group, and lumping several groups under the one genus *Graphiphora* where no term was available.

The species contained in this section appear to be rather primitive and possibly the remnants of an old insect fauna which was more or less common to both the Palaearctic and Nearactic regions, and in which the specific differences of the male genitalia were very marked. It might be deduced from this that the species comprising genera such as *Euxoa* and *Agrotis* which show marked similarity of genitalic structure are more recent and that in such cases the genitalia are of better generic than of specific value. Though inclined to think that such may actually be the case, the writer is not yet prepared to follow the matter to its logical conclusion and raise each group of *Graphiphora* to generic rank.

Diarsia Hbn.

1822, Verz. bek. Schmett. 222 (type, *dahlii* Hbn.).

Eyes naked. Palpi upturned, with slightly porrected third joint; second joint fringed with rather rough hair and scales, terminating apically in a more or less evident triangular tuft; third joint rather long and smooth-scaled. Front smooth. Male antennæ ciliate or weakly fasciculate. Tibiæ all spined; fore tibia somewhat longer than first tarsal joint, smooth-scaled, with outer fringe of hair and only a single apical spine (occasionally a preapical one also) on outer side; a complete row of weak spines on inner side. Mid tarsi without fourth row of spines. Thoracic vestiture slightly roughened, composed of mixed single and bifid or trifid hairs, without noticeable tufting.

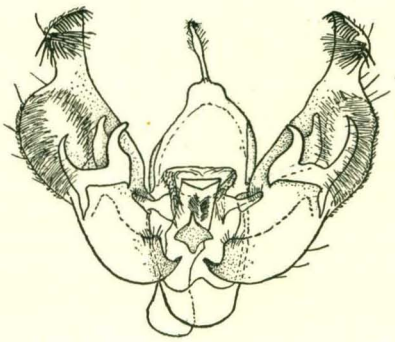

Figure 32. Male genitalia of *Diarsia cynica* Sm.

Male Genitalia. Clasper with the ventral margin strongly bulging centrally; corona present and supplemented by rows or tufts of spine-like hair; harpe of variable shape, at right angles to sacculus on a foot-like base; ampulla present, a narrow ridge of chitin between base of clasper and base of harpe, parallel to costa. Clavus absent. Uncus typically narrow and strap-shaped, at times with very broad truncate apex. Juxta strong with medio-apical margin typically strongly pointed. Vesica variably armed with chitinous plates, single strong cornuti or bundles of small cornuti.

The genus appears best separable from *Graphiphora* on genitalic characters and the lack of any apparent thoracic tufting. Of our North American species, the writer includes here *calgary* Sm., *cynica* Sm., *rubifera* Grt. (which has not been examined, but of which *cynica* may prove a synonym), *dislocata* Sm. (probably a North American form of the European *festiva*), *jucunda* Wlk., *esurialis* Grt., and *hospitalis* Grt. (not examined, but probably a synonym of the European *brunnea* Schiff.). Also, for the present, *rosaria* Grt. may be placed here; this species is decidedly atypical in form of genitalia and is very close to the European *rubi* View. (vide Pierce, op. cit., Pl. 18 for figure of genitalia).

Graphiphora Ochs.

1816, Schmett. Europ. IV, 68 (type, *c-nigrum* Linn.).
Amathes Hbn., 1822, Verz. bek. Schmett. 222 (type, *baja* Schiff.).
Megasema Hbn., 1822, Verz. bek. Schmett. 222 (type, *triangulum* Hfn.).
Lytaea Steph., 1829, Ill. Brit. Ent. Haust. II, 107 (type, *sexstrigata* Haw.).
Segetia Steph., 1829, Ill. Brit. Ent. Haust. II, 153 (type, *xanthographa* Schiff.).

Very similar to *Diarsia* Hbn., but with smoother and sometimes scalier thoracic vestiture and better-developed thoracic tuftings; the foretibial spining is weaker and at times entirely hidden in hair.

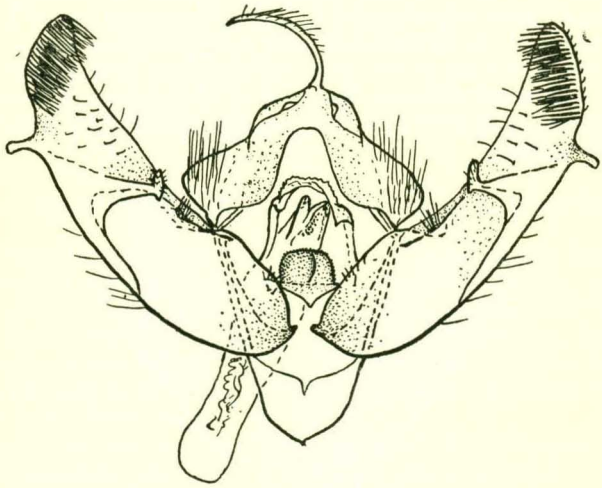

Figure 33. Male genitalia of *Graphiphora c-nigrum* Linn.

Group I

Male Genitalia. Clasper typically of even width throughout, at times somewhat bulging on ventral margin; apex more or less rounded; corona lacking, but frequently replaced by spine-like hairs; pollex present; ampulla absent; harpe rather weak, scarcely exceeding costal margin, but with foot-like base long and attached to ventral margin of clasper. Uncus narrow and pointed. Clavus absent. Juxta strong, variable in shape. Vesica with variable armature as in *Diarsia*.

This is the typical section of *Graphiphora* and besides the genotype, *c-nigrum* Linn., the writer includes *smithi* Snell. (which is distinct genitalically from *baja* Schiff. and in which the fore tibial spining is present but hard to see beneath the vestiture), *normaniana* Grt., *ditrapezium* Schiff., *conchis* Grt., *trumani* Sm. (probably same as the European *xanthographa* Schiff. and atypical as regards thoracic vestiture, which is hairier and untufted), and *oblata* Morr., which has a double pollex and spiculate bands at apex of aedoeagus, also smaller eyes as in *Pachnobia*.

Group II

Male Genitalia. Differs from those of Group I in having a stronger harpe, projecting considerably over costa; the base is also strong, with a tendency for the distal end to be raised free from the clasper.

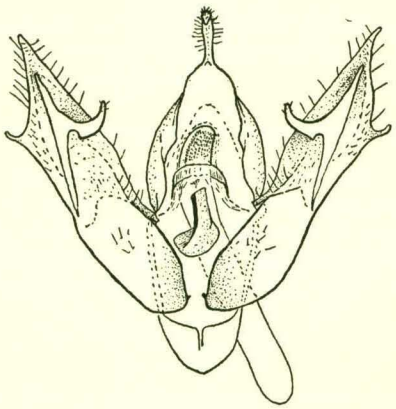

Figure 34. Male genitalia of *Graphiphora substrigata* Sm.

The writer includes the two rather dissimilar species *substrigata* Sm. and *cinerascens* Sm. in this group; in both the third palpal joint is tufted with hair apically, but in the former the spining of the fore tibia is stronger than usual, especially the outer row. As far as can be judged from the limited material of *cinerascens* before the writer, the thoracic tufting is less developed in this species than in *substrigata*, which in this respect resembles the typical section.

The following groups agree among themselves and show a distinct divergence from the two preceding ones in that the foot-like attachment of the harpe is no longer evident; the distal portion has become obsolete, and the proximal section forms a curved chitinous rod more or less attached to the apex of sacculus. The shape of the clasper is variable.

Group III

Third palpal joint with pointed tuft of hair below. Vestiture rather hairy with no prominent tufting on thorax.

In this group are included the two species *badinodis* Grt. and *collaris* G. and R. The genitalia are strongly aberrant and have little in common; in the former the clasper is short, broad, and strongly rounded apically with a short spine (? pollex) at distal end of the inner margin as well as a

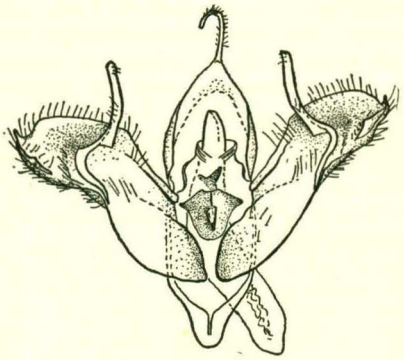

Figure 35. Male genitalia of *Graphiphora badinodis* Grt.

raised chitinous flap; the harpe is strong, excurved, the uncus very long and thin, and the juxta armed with a strong spine. In the latter, the shape of the uncus and harpe is more or less similar but the clasper is narrow, pointed apically, with a reduced pollex at middle of inner margin and a small digitus at apex. The juxta is weak and the aedoeagus is scobinate.

Group IV

Palpal and thoracic vestiture as in Group I, with tufting quite evident.

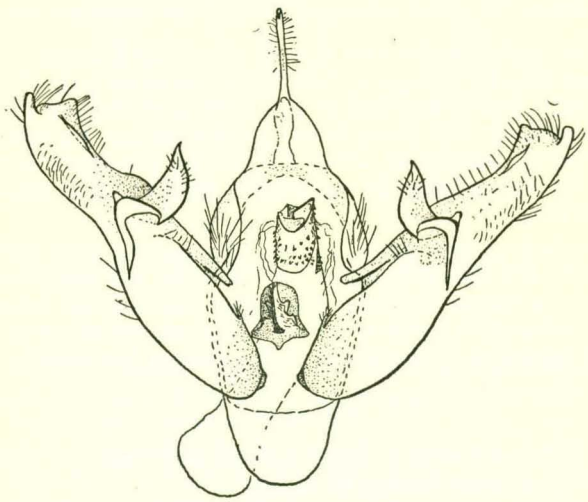

Figure 36. Male genitalia of *Graphiphora bicarnea* Gn.

Male Genitalia. Characterized by the harpe, which is very broad basally, tapering to a fine point rather like a pruning-knife or a Phrygian cap. The apex of the clasper is variable, being either rounded, truncate, or pointed; generally a reduced pollex is present; the uncus is thin and moderately long, the juxta usually strong, and the aedoeagus heavily scobinate apically.

The following species fall here: *bicarnea* Gn., *flavotincta* Sm., *tenuicula* Morr. (*treatii* Grt.) (rather aberrant, the clasper being without pollex), and *opacifrons* Grt. This latter species is only placed here for lack of a better place; it is very closely allied to the European *subrosea* Steph. (vide Pierce, op. cit., Pl. XVIII).

Pachnobia Gn.

1852, Sp. Gen. Lep. V, 342 (type, *tecta* Hbn.).

Differs from *Graphiphora* in the entirely hairy and rough vestiture of palpi, front, and thorax, with no thoracic tufting. The eyes are smaller, partly concealed, and generally lashed.

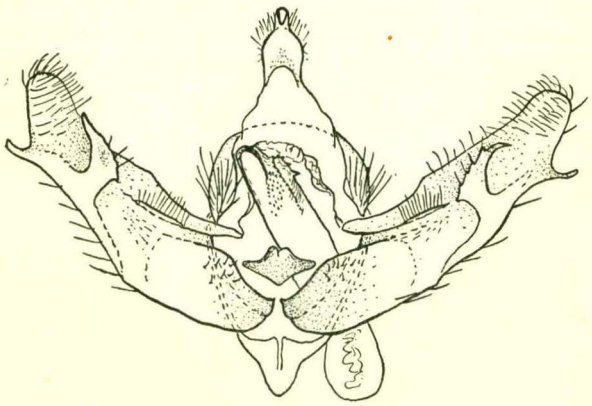

Figure 37. Male genitalia of *Pachnobia tecta* Hbn.

This genus may be very conveniently retained to include a few semi-arctic species. Besides *tecta* Hbn. (*carnea* Auct.) the writer would place here *wockei* Moesch., *scropulana* Morr. (*moeschleri* Bang Haas), and *okakensis* Pack. (*cinerea* Staud.).

The general type of genitalia is very similar to that of *Graphiphora*, but the species vary considerably in the minor details. In the clasper a pollex is present and a corona absent in all the species, but in *okakensis* the apex of clasper is pointed and in the others rounded. In *tecta* the uncus is very broad basally, much less so in *okakensis*, and in the other two narrow and strap-like; the shape of the juxta and the armature of the vesica are also variable, but such characters are probably specific rather than generic.

A further point which might be mentioned is that in certain specimens of *scropulana* and *okakensis* the tibial spining is very heavy and irregular and there appears to be a partial fourth row of spines; this was not present

in all specimens examined and was not noticed in *tecta* or *wockei*, but, as material of these latter two is very limited, it may readily be present when longer series are available.

There is also a marked similarity between the genotypes of *Pachnobia* and *Anomogyna* in genitalia, but the latter genus shows in general weaker fore-tibial spining and a longer third palpal joint.

Setagrotis Sm.

1890, Bull. 38, U. S. N. M. 9 (type, *planifrons* Sm.).

Eyes naked. Palpi upturned, third joint slightly porrect; second joint heavily but rather evenly fringed with hair below and with scarcely an indication of a pointed apical tuft; third joint smoothly clothed. Front smooth. Male antennæ finely fasciculate. All tibiæ spined; fore tibia subequal to or longer than first tarsal joint, with complete inner row of weak spines; on outer side fringed with hair with a couple of apical spines. Thoracic vestiture mixed, rather smooth, with fairly evident pro- and metathoracic tufts.

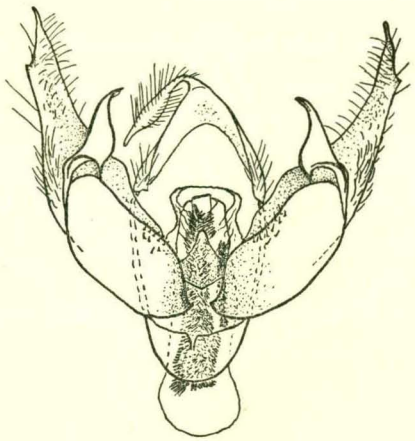

Figure 38. Male genitalia of *Setagrotis planifrons* Sm.

Male Genitalia. Clasper narrow and tapering to a point apically; no corona and only an indication of a pollex; harpe strong, excurved, and attached by a bent rod of chitin to apex of sacculus. Clavus lacking. Uncus diamond-shaped with pointed apex. Juxta strong with produced apex. Vesica armed with bundles of short cornuti.

The typical section includes *planifrons* Sm. and *cinereicollis* Grt., which are distinct species on genitalic characters, the harpe of the former being broadened at the base and reminiscent of that of Group IV of *Graphiphora*. *Radiatus* Sm. very evidently falls here; it shows a better-developed pollex and a reduced uncus, but the vesica armature is the same.

As a second group the writer includes *atrifrons* Grt. and *piscipellis* Grt. (with its races which have not been examined). These show stronger spining on the fore tibiæ with less prominent hair-fringe; the palpi are

rather more smoothly clothed and the thoracic tufting is obsolescent. The genitalia show the diamond-shaped uncus with blunter tip; the harpe is longer and sinuate, a distinct editum is present, the apex of clasper is more or less emarginate, and the armature of the vesica consists of a short bulbed cornutus. The writer is inclined to think that the two groups may not be so closely related as the superficial resemblance of the species would appear to indicate.

Anomogyna Staud.

1871, Cat. Pal. Lep. 110 (type, *laetabilis* Zett.).

Pteroscia Morrison, 1874, Proc. Bost. Soc. Nat. Hist. XVII, 155 (type, *atrata* Morr.).
Platagrotis Smith, 1890, Bull. 38, U. S. N. M. 9 (type, *speciosa* Hbn.).

Eyes naked. Palpi upturned, third joint long and rather pointed; second joint with rough fringe of hair beneath, with tendency to form a slight pointed apical tuft; third joint smooth-scaled. Front smooth. Male antennæ typically ciliate, at times serrate and fasciculate or bipectinate. Mid and hind tibiæ spined; fore tibia longer than first tarsal joint with spining generally consisting of one or two weak apical spines hidden in vestiture, or entirely unspined, occasionally (*Pteroscia*) with almost a comp ete row of weak inner spines; a strong hair fringe on outer side. Thoracic vestiture variable, normally of mixed scales and hair, occasionally entirely hairy; tufting quite evident, except in the hairier species.

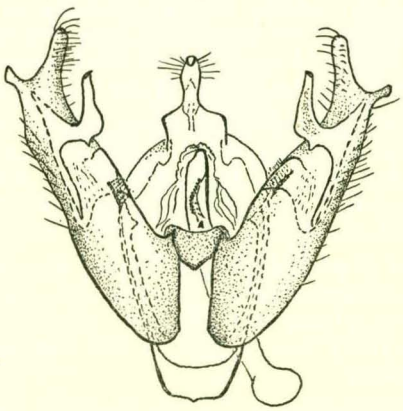

Figure 39. Male genitalia of *Anomogyna laetabilis* Zett.

Male Genitalia. Clasper narrow, with either rounded or emarginate apex and no corona; pollex present, mostly well developed and frequently forming the lower edge of the emargination; harpe recurved, on a distinct foot-like attachment, either short and broad, scarcely projecting over costa, or narrower and projecting. Sacculus usually well developed and projecting over costa at base, partly concealing a weak editum. Clavus absent. Juxta rather weak. Uncus of variable width. Aedoeagus generally scobinate or dentate apically.

The writer has been unable to find any characters which would permit of the retention of the above three generic names. It was hoped that the heavier spining of the fore tibia of *atrata* could be used to save *Pteroscia*,

but in *sincera*, which has almost identical genitalia and thoracic vestiture, there is only a single apical spine present (at the most) just as in *laetabilis*. The genitalia of *atrata* and *speciosa* are also far too much alike to permit of the thoracic vestiture being used as a means of generic separation, and the type of maculation of the latter obviously connects it with *laetabilis*, although in the one case the clasper is rounded apically and in the other emarginate.

Under the generic heading *Anomogyna* the writer, therefore, includes the following species in which at least some trace of spining on the fore tibiæ remains—most frequently a single weak apical spine on inner side concealed in vestiture and easily overlooked: *atrata* Morr. and its race *yukona* McD., *sincera* H. S., *speciosa* Hbn. (all with rounded apex of clasper), *laetabilis* Zett., *beddeki* Hamp. and its western form *partita* McD., *livalis* Sm. (presumably), *homogena* McD., *imperita* Hbn., *arufa* Sm. (which I do not know), and *occidens* Hamp.

On account of genitalic similarity there is also added *youngi* Sm., *elimata* Gn. and its so-called forms *dilucida* Morr., *badicollis* Grt., and *janualis* Grt., *grisatra* Sm., and *atoma* Sm. These possess bipectinate antennæ and apparently lack all trace of fore-tibial spining; they show, however, the same long third palpal joint and the thoracic tufting found in the first group, and the type of wing-maculation is only a slight modification of that found in *sincera*. In the genitalia all these are practically identical and the only marked distinction from the preceding group is the longer and better-developed harpe, but as this is a variable feature even in the first group it is regarded as merely of specific value.

Finally, the writer includes *infimatis* Grt. and *vernilis* Grt., with serrate and fasciculate antennæ, no fore-tibial spining, and narrower wings, with a rather different type of maculation. In the genitalia the most noticeable difference is in the shape of the tegumen, which in both species is very similar to that of *c-nigrum* (vide figure) and quite atypical.

No generic term is available for either of the two last groups and a separation from *Anomogyna* would involve the erection of new genera, which at the moment is scarcely advisable. Smith's usage of *Semiophora* Steph. for the first of the two groups, on the strength of Butler's recommendation, is an error.

Trichagrotis gen. nov.

Type, *Trichorthosia spinosa* B. and McD.

Eyes strongly hairy. Palpi upturned, the third joint slightly porrect; second joint rather closely fringed with scales beneath (as far as can be told from single rather worn specimen), third joint rather long, smooth-scaled. Front smooth. All tibiæ well spined; fore tibia about twice the length of first tarsal joint, with irregularly placed spines on both outer and inner sides in at least the distal half. Tarsi with only three rows of spines but these heavy, the median one being frequently supplemented by additional finer spines, irregularly placed. Thoracic vestiture largely scaly (specimen too crushed to note the tufting, if any).

At the time *spinosa* was described attention was called to the structural differences between this species and *parallela* Grt. In the light of the writer's present studies these seem of generic value and he, therefore, proposes the above generic name. As yet no males of the genotype have been seen and, therefore, no comment can be made on the male genitalia, but the heavy spining, as indicated by the name *spinosa*, is sufficient to distinguish the genus readily from *Trichorthosia*.

Trichofeltia gen. nov.

Type, *Agrotis circumdata* Grt.

Eyes strongly hairy. Palpi upturned, the third joint somewhat porrect; second joint with strong fringe of hair below, third joint rather long and smooth-scaled. Front smooth. Male antennæ strongly lamellate, giving the appearance of being bipectinate. Fore tibia scarcely twice as long as first tarsal joint, unspined on inner side, but with two or three apical spines on the outer side and weak hair-fringe proximally. Mid and hind tibiæ moderately well spined. No fourth row of spines on mid tarsus. Vestiture of thorax rather rough, hairy, without noticeable tufting.

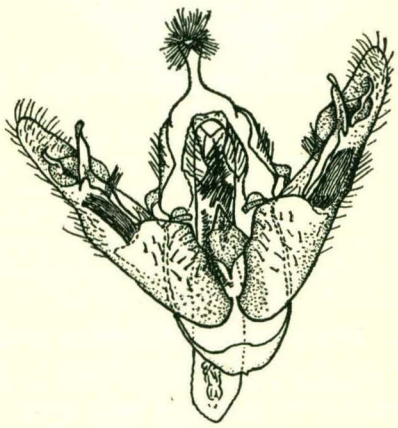

Figure 40. Male genitalia of *Trichofeltia circumdata* Grt.

Male Genitalia. Clasper of moderate width throughout, with a strong sacculus projecting slightly at base over costa; apex of clasper rounded, with hair-fringe but no corona; harpe a very stout, slightly twisted, chitinous bar, situated subapically; ampulla free, strong, forming a recurved hook ventrad of the harpe. Clavus absent. Juxta a diamond-shaped plate with strongly pointed base and apex. Uncus short, broadly spatulate. Vesica armed with bundles of long and short cornuti.

Circumdata is the only species included in this genus which is obviously related to *Trichorthosia* and *Mimobarathra* in the type of genitalia but retains a few spines on the fore tibia; in contradistinction to the usual condition in the Agrotids these spines are on the outer side. Heretofore the hairy eyes in *circumdata* have been overlooked, resulting in its misplacement in *Feltia*.

Trichorthosia Grt.

1883, Papilio, III, 31 (type, *parallela* Grt.).

Eyes strongly hairy. Palpi upturned, the third joint slightly porrect; second joint moderately fringed with hair below, third joint smooth-scaled and rather elongated. Front smooth. Male antennæ fasciculate. Fore tibia unspined, about twice as long as first tarsal joint, with weak hair-fringe on outer side; mid and hind tibiæ weakly spined in apical section. Mid tarsi without fourth row of spines. Vestiture rather smooth, composed of hair and hair-like scales, with no obvious tufting.

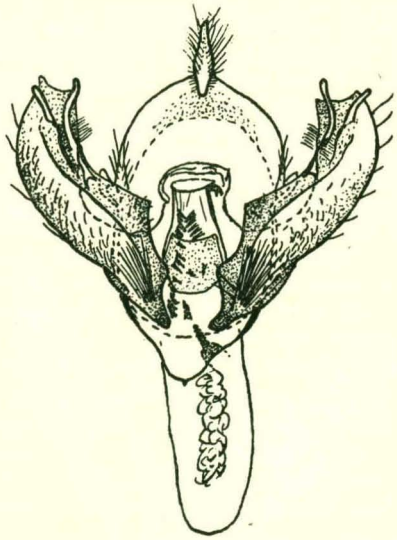

Figure 41. Male genitalia of *Trichorthosia parallela* Grt.

Male Genitalia. Clasper rather short with a strong sacculus, projecting over costal margin at base and with basal hair tufts; apex of clasper truncate with no corona; harpe long, thin, somewhat recurved, and projecting slightly over apical margin of clasper; ampulla strong, free, forming with the harpe a bifid prong. Clavus absent. Juxta weak. Uncus diamond-shaped with blunt tip; tegumen recurved at junction with clasper, forming a conical projection. Aedoeagus armed apically with a small tooth; vesica with numerous short cornuti and a single larger one with bulbous base.

Contains only the species *parallela* Grt.

Mimobarathra B. and McD.

1915, Can. Ent., XLVII, 21 (type, *antonito* Barnes).

Eyes strongly hairy. Palpi rather short, upturned, with somewhat porrect third joint; second joint moderately fringed with hair below, third joint smooth-scaled. Front smooth. Male antennæ strongly and

asymmetrically lamellate. Fore femur with a strong swelling on inner side; fore tibia unspined, narrowed slightly proximally, and about three times the length of the first tarsal joint. Mid and hind tibiæ weakly spined distally. Mid tarsi without fourth row of spines. Thoracic vestiture loose, scaly, with an evident divided tuft on metathorax.

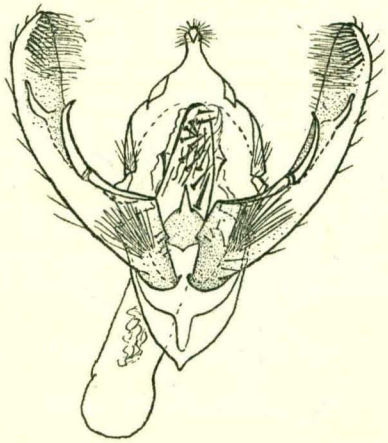

Figure 42. Male genitalia of *Mimobarathra antonito* Barnes.

Male Genitalia. Clasper long, narrow, with well-developed sacculus projecting somewhat over costa at base, and with basal hair-tuft; apex of clasper rounded, with corona; harpe a stout recurved hook; ampulla free, forming a smaller hook, distad of the harpe. Clavus obsolescent. Juxta a triangular plate with apex drawn out to a long spine. Uncus rather short, moderately broad, narrowing apically. Aedoeagus with weak apical curved band of chitin; vesica armed with twelve or more stout tack-like cornuti.

The only included species is *antonito* Barnes.

Adelphagrotis Sm.

1890, Bull. 38, U. S. N. M. 9 (type, *stellaris* Grt.).

Eyes naked. Palpi upturned, with long, somewhat porrect third joint; second joint with rough fringe of hair beneath, tending to form an apical triangular tuft; third joint smooth. Front smooth. Male antennæ finely serrate and fasciculate or ciliate. Mid and hind tibiæ spined; fore tibia unspined or with single weak apical spine on inner side, longer than first tarsal joint, with strong fringe of scales on outer side. Mid tarsi without fourth row of spines. Thoracic vestiture largely scaly with decided pro- and metathoracic tufts.

Male Genitalia. Clasper broad basally, narrowing apically, the apex incurved and pointed, forming with the well-developed pollex a bifid prong; no corona; sacculus strongly developed and extending over basal portion of harpe; harpe strong, excurved, and projecting far beyond costal margin, basal attachment a strongly curved bar of chitin, joining under side

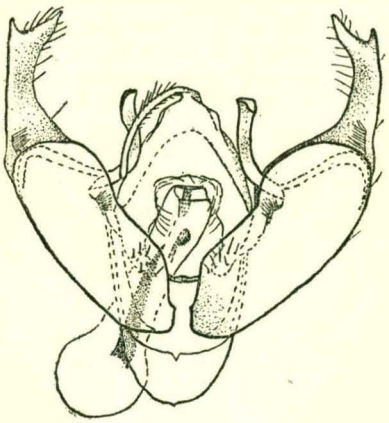

Figure 43. Male genitalia of *Adelphagrotis stellaris* Grt.

of sacculus near middle of inner margin. Clavus absent. Juxta reduced to a narrow chitinous band. Uncus narrow, curved. Armature of vesica consisting of scobinate plates of chitin with the addition in the genotype of a single large cornutus.

The genus must be restricted to the species *stellaris* Grt., *indeterminata* Wlk., and, presumably, *quarta* Grt., of which the writer has not examined a male specimen. The type of genitalia is quite distinct from that of *Anomogyna.*

Aplectoides Butl.

1878, Ann. Mag. Nat. Hist. (5) I, 193 (type, *condita* Gn.).

Eyes naked. Palpi upturned, with long, smooth-scaled third joint; second joint roughly fringed with hair below. Front smooth. Male antennæ ciliate. Tibiæ all spined; fore tibia longer than first tarsal joint,

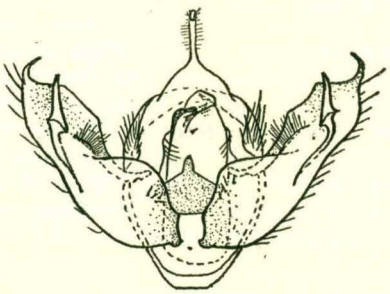

Figure 44. Male genitalia of *Aplectoides condita* Gn.

with only a few weak spines on inner side at apex and strongly fringed with hair on outer side. No fourth row of tarsal spines. Thoracic vestiture largely scaly with well-developed pro- and metathoracic tufts.

Male Genitalia. Clasper rather broad, of even width throughout, but apex drawn out to a long curved point; no corona; sacculus broad and bulging at base, overhanging costa; harpe subapical, oblique, rigid, attached by a long rod to sacculus near inner margin; parallel to costa in basal section is a raised ridge clothed with sparse hair, probably representing the editum. Clavus absent. Juxta peaked apically. Uncus long, thin. Aedoeagus short and chunky with curved strip of chitin at apex and faint spiculation; vesica armed with a minute cornutus.

On account of the radical difference in genitalia the writer has been obliged to restrict the genus to the single species *condita* Gn. which shows no particular affinity to the *Anomogyna* group but seems rather to be a forerunner of the typical Agrotid section. The type of harpe is distinctly reminiscent of that of *Richia*, although the wing-maculation hardly points to this association.

Anaplectoides gen. nov.

Type, *Eurois pressus* Grt.

Similar in outward structural characters to *Aplectoides*, but differing markedly in genitalic characters.

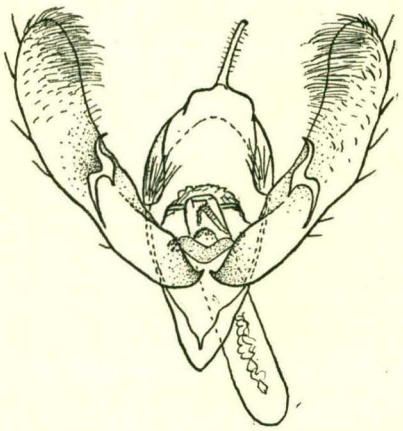

Figure 45. Male genitalia of *Anaplectoides pressus* Grt.

Male Genitalia. Clasper long and of moderate width, broadening slightly apically and with well-rounded apex, covered inwardly with long fine hairs; no corona; sacculus weak; harpe subbasal, slightly recurved, and strongly elbowed at base. Clavus absent. Juxta with emarginate apical margin. Uncus thin. Aedoeagus with a bent scobinate strip of chitin apically; vesica armed with a rounded, scobinate plate.

Includes *pressus* Grt., *fales* Sm., and, presumably, *discolor* Sm. and *abbea* Sm., which are quite possibly all forms or races of a single species.

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Owing to the similarity in both genitalia and maculation of *prasina* Schiff. to the genotype the writer is also including this species under *Anaplectoides*, although there is no spining on the fore tibia. It is another of those cases on the border line between "spined" and "unspined" where spining can scarcely be satisfactorily used as a means of generic differentiation. It might also be noted that *prasina* at times shows odd spines belonging to the fourth tarsal row, notably on the hind tarsus.

Protolampra gen. nov.

Type, *Agrotis rufipectus* Morr.

Eyes naked. Palpi upturned, the third joint rather short and slightly porrect; second joint fringed below with rough hair; third joint similarly fringed, forming a slight pointed apical tuft. Front smooth. Male antennæ ciliate. Mid and hind tibiæ spined; fore tibia unspined, longer than first tarsal joint, and fringed with hair on outer side. Thoracic vestiture of mixed hair and scales, rather smooth and with no obvious tufting.

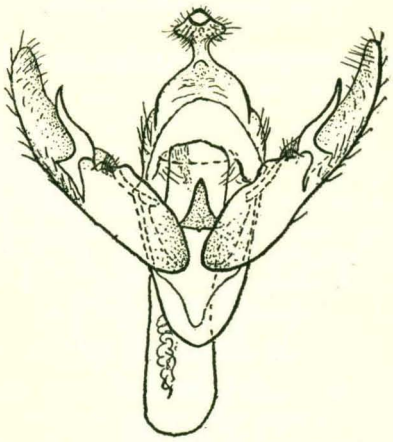

Figure 46. Male genitalia of *Protolampra rufipectus* Morr.

Male Genitalia. Clasper gradually narrowed apically with rounded apex and no corona; sacculus rather strong and projecting slightly over costa at base; harpe strong, elbowed basally as in *Anaplectoides* and reaching nearly to apex of clasper. Clavus absent. Juxta narrow and conical. Uncus strongly broadened by two lateral flaps of chitin. Aedoeagus unarmed.

The writer has removed *rufipectus* from *Abagrotis*, as the genitalia seem to indicate a much closer relationship with *Anaplectoides* (and through it with the typical *Agrotids*) than with the *placida* group. *Brunneicollis* Grt. may be placed here for the present although in several points, notably the shape of the uncus, the genitalia do not show any very close agreement.

Pseudoglaea Grt.

1876, Can. Ent. VIII, 18 (type, *olivata* Harv.).

Eyes naked. Palpi upturned, the third joint long and slightly porrect; second joint with fringe of long hair below; third joint smooth. Front smooth. Male antennæ strongly ciliate. Mid and hind tibiæ spined, the latter only between the spurs. Fore tibia longer than first tarsal joint, unspined and fringed with scales outwardly. Fore tarsi with row of strong spines on outer side of first joint terminating in a strong claw; mid tarsi with only three rows of spines. Thoracic vestiture hairy without obvious tufting.

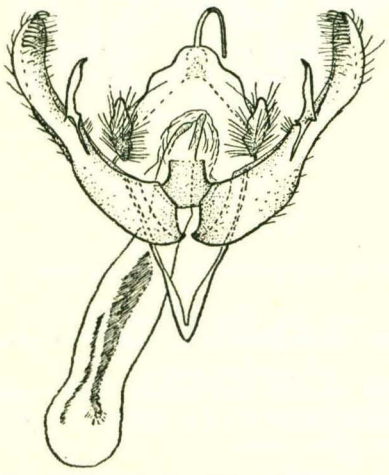

Figure 47. Male genitalia of *Pseudoglaea olivata* Harv.

Male Genitalia. Clasper very long and narrow, somewhat broader at base, rounded apically, with weak corona; harpe strong, situated at the apex of a rather weak but extended sacculus, somewhat bulbed at base. Clavus absent. Juxta hat-shaped. Uncus thin, curved. Tegumen with its lateral edges at the junction with the claspers drawn up into conical protuberances which bear the peniculus. Vesica armed with a large spindle-shaped bundle of small cornuti and a second smaller, band-like one.

As the writer already has noted (1927, Can. Ent. LIX, 65) the genus may be retained for *olivata* Harv. on the strength of the spining of the fore tarsus. It is very close to *Mesogona* Bdv.

Cryptocala Benj.

1921, Bull. S. Calif. Acad. Sci. XX, 133 (type, *acadiensis* Beth.).

Eyes naked. Palpi upturned, the second joint rather closely and evenly scaled and the third joint long and smooth-scaled. Front smooth. Male antennæ ciliate. Mid and hind tibiæ spined; fore tibia unspined, longer than first tarsal joint, and fringed with hair outwardly. Tarsi with three rows of spines. Thoracic vestiture smooth, composed of mixed scales and hair, and without tufts.

Male Genitalia. Clasper broad at base with narrow, rounded apex and no corona or pollex; sacculus strongly developed and bulging over costa at base; harpe strong, excurved, with a very heavily chitinized, curved basal attachment. Clavus absent. Juxta a weak plate. Uncus broadened centrally, somewhat diamond-shaped. Aedoeagus armed apically with a finely dentate band of chitin.

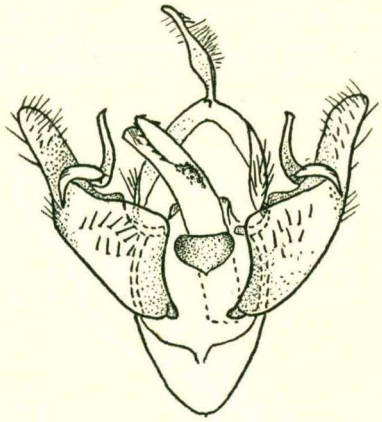

Figure 48. Male genitalia of *Cryptocala acadiensis* Beth.

Includes the sole species *acadiensis* Beth. (*gilvipennis* Grt.). The writer has already commented on the synonymy in Can. Ent. LVII, 308, 1925.

Eueretagrotis Sm.

1890, Bull. 38, U. S. N. M. 9 (type, *sigmoides* Gn.).

Eyes naked. Palpi upturned, the third joint long and somewhat porrect; second joint broadly and evenly fringed below with hair; third joint smooth-scaled. Front smooth. Male antennæ ciliate. Mid and hind tibiæ spined; fore tibia unspined, longer than first tarsal joint, with fringe of hair on outer side. Tarsi with three rows of spines. Thoracic vestiture of mixed scales and hair with well-developed divided tufts on pro- and metathorax.

Male Genitalia. Clasper pointed apically with no corona or pollex; harpe long and narrow, excurved, and projecting far beyond costa; sacculus generally rather weak; a slight trace of the editum. Clavus absent. Juxta with a more or less developed median ridge. Uncus thin. Aedoeagus finely spiculate at apex.

The genus stands as indicated by Smith and includes *sigmoides* Gn., *perattenta* Grt., *attenta* Grt., and *inattenta* Sm.

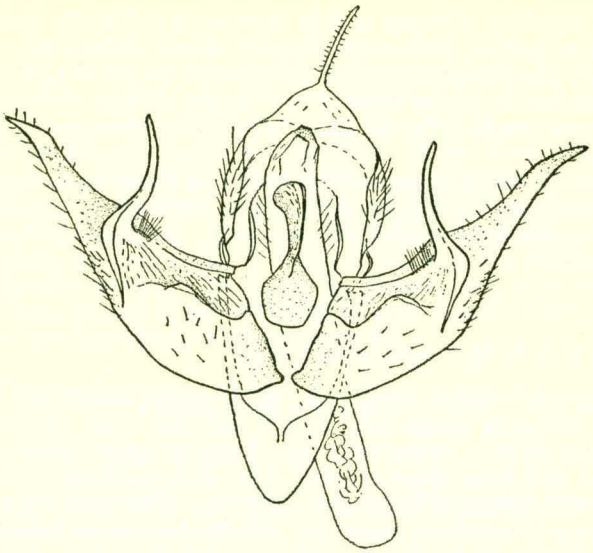

Figure 49. Male genitalia of *Euxoa tagrotis sigmoides* Gn.

Hemigraphiphora gen. nov.

Type, *Noctua plebeia* Sm.

Eyes naked. Palpi upturned, the third joint somewhat porrect; second joint heavily fringed with hair below, with weak triangular apical tuft; third joint smooth-scaled, slightly roughened below. Front smooth. Male antennæ ciliate. Mid and hind tibiæ spined; fore tibia unspined, much longer than first tarsal joint, and heavily fringed with hair on outer side. Mid tarsi with only three rows of spines. Thoracic vestiture largely scaly with well-developed pro- and metathoracic divided tufts.

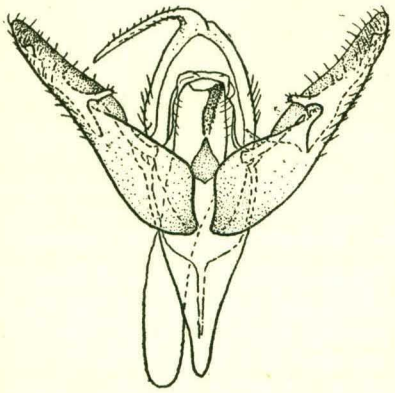

Figure 50. Male genitalia of *Hemigraphiphora plebeia* Sm.

Male Genitalia. Clasper rather narrow and bluntly pointed apically; no corona nor pollex, but with slightly raised chitinous, subapical flap. Sacculus well developed; harpe weak, much as in *Graphiphora*, but the distal portion of foot-like attachment more or less obliterated. Clavus lacking. Juxta weak. Uncus thin, curved. Aedoeagus with a spiculate band at apex.

On account of the unspined fore tibiæ, a feature overlooked by other revisers, *plebeia* Sm. cannot be included in *Graphiphora*, although the type of genitalia shows considerable relationship. It probably leads over to the *Abagrotis* section.

Abagrotis Sm.

1890, Bull. 38, U. S. N. M. 9 (type, *erratica* Sm.).

Eyes naked. Palpi upturned, third joint somewhat porrect, both joints with fringe of rough hair below forming more or less obvious triangular apical tufts. Front smooth. Male antennæ either fasciculate or ciliate. Mid and hind tibiæ spined; fore tibia unspined, longer than first tarsal joint, with fringe of hair on outer side. Mid tarsi with three rows of spines. Thoracic vestiture composed of mixed scales and hair with variable tufting; typically there is an anterior ridge-like crest, but this may be reduced to a small divided crest or tufts may be practically lacking.

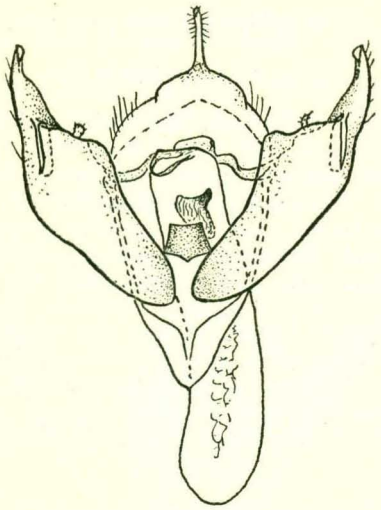

Figure 51. Male genitalia of *Abagrotis erratica* Sm.

Male Genitalia. Clasper rather short and chunky with variably shaped apex, which is most commonly pointed and curved or twisted, but always without corona and pollex; sacculus broad, bulging, mostly covering the costa at base; harpe reduced to a weak tubercle, the base of which is often covered by the sacculus. Clavus lacking. Juxta weak. Uncus thin. Armature of vesica variable but never strong, consisting of either a weak single spine, bulbed or otherwise, or a spiculate plate.

The writer has extended the scope of this generic term to include, in addition to the typical section with fasciculate antennæ and crested thorax, most of the species placed by Benjamin under the genus *Lampra* (1921, Bull. S. Calif. Acad. Sci. XX, pt. 3). The writer excludes, however, the *rufipectus* group, the *exsertistigma* group, and the *cupida* group, for which latter Smith's genus *Rhynchagrotis* is available. With these removed the type of genitalia of the remaining species is essentially the same and the writer is not inclined to separate any further on the strength of antennal characters or thoracic tufting. Reasons have already (1927, Can. Ent. LIX, 65) been given for not using *Lampra* Hbn. and the writer has also noted that the species *nanalis* Grt. must be transferred; *apposita* Grt. is also best placed here as the type of genitalia is distinctly similar and the maculation bears out excellently this association.

Rhynchagrotis Sm.

1890, Bull. 38, U. S. N. M. 8 (type, *cupida* Grt.).

Very similar to *Abagrotis*, but with the harpe better developed, projecting obliquely over costa near apex.

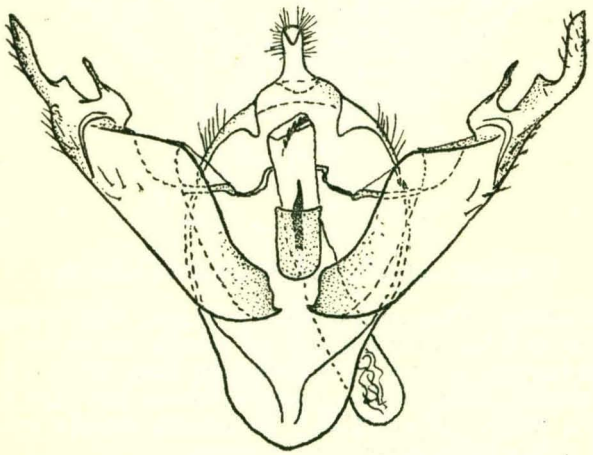

Figure 52. Male genitalia of *Rhynchagrotis cupida* Grt.

Both the *cupida* group (*cupida* Grt., *belfragei* Sm., *anchocelioides* Gn.) and the *exsertistigma* group (*exsertistigma* Morr. with its numerous races, and *insularis* Grt.) are included under this generic heading, although in the latter group a pollex is present and the harpe is practically fused with the clasper (vide Benjamin 1921, Bull. S. Calif. Acad. Sci. XX, Pl. 3); the thoracic tufting is also much better developed. It is quite possible that eventually the two groups must be separated.

Pronoctua Sm.

1894, Trans. Am. Ent. Soc. XXI, 44 (type, *typica* Sm.).

Eyes naked. Palpi upturned, with third joint short and somewhat porrected; second joint heavily but rather evenly clothed with scales below, not noticeably rough-fringed; third joint smooth-scaled. Front smooth. Male antennæ ciliate. Mid and hind tibiæ spined; fore tibia unspined, longer than first tarsal joint, fringed with hair outwardly. Mid tarsi with three rows of spines. Thoracic vestiture largely scaly, but with some hairs intermixed. No distinct tufting, traces of a metathoracic divided tuft.

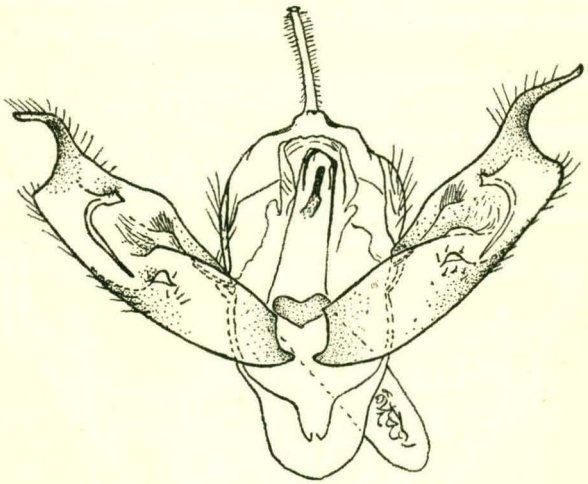

Figure 53. Male genitalia of *Pronoctua typica* Sm.

Male Genitalia. Clasper moderately broad, with costal portion of apex drawn out to a long, curved tip; no corona nor pollex; harpe weak, recumbent, subapical, jointed to sacculus by long, curving rod of chitin; sacculus moderately strong with a raised chitinous flap near apex. Clavus absent. Juxta weak. Uncus thin. Aedoeagus weakly spined apically; vesica armed with a long, finger-like cornutus.

The type of genitalia is not markedly Agrotid, but the present position of the genus is as good as any for the present. Only *typica* Sm. and *pyrophiloides* Harv. are included; it is doubtful if the two are anything more than races of a single species.

LIST OF GENERA AND SPECIES

Euxoa Hbn.

edictalis *Sm.*
obesula *Sm.*
siccata *Sm.*
wilsoni *Grt.*
a specialis *Grt.*
b aequalis *Harv.*
riversi *Dyar.*
olivia *Morr.*
lacunosa Grt.
segregata Sm.
vanidica Sm.
fieldi Dyar.
form. anacosta *Sm.*
form. enteridis *Sm.*
zembla Sm.
brevipennis *Sm.*
ab. angulirena *Sm.*
a brevistriga *Sm.*
cicatricosa *G. and R.*
teplia Sm.
a recula *Harv.*
b neomexicana *Sm.*
cinereopallida *Sm.*
dargo *Stkr.*
rumatana Sm.
niveilinea *Grt.*
a rabiata *Sm.*
quadridentata *G. and R.*
pugionis Sm.
a flutea *Sm.*
flavidens *Sm.*
laetificans *Sm.*
masculinus Sm.
plagigera *Morr.*
olivalis Grt.
oblongistigma *Sm.*
agema Stkr.
ridingsiana *Grt.*
maimes Sm.
perolivalis *Sm.*
a manitobana *McD.*
flavicollis *Sm.*
ducalis *Sm.*
cooki *McD.*
hollemani *Grt.*
andera *Sm.*
atristrigata *Sm.*
a collocata *Sm.*
nevada *Sm.*
floramina Sm.
xasta *B. and McD.*
citricolor *Grt.*
tronellus Sm.
ab. postmedialis *Strand.*
lindseyi *Blkmre.*
catenula *Grt.*
contagionis Sm.
pallipennis *Sm.*
alcesta Sm.
satiens *Sm.*
misturata *Sm.*
a perturbata *Sm.*
candida Sm.
b gian *Stkr.*
vertesta *Sm.*
mitis *Sm.*
a ura *Sm.*
uramina Sm.
b colla *Stkr.*
moerens *Grt.*
luteola Sm.
orbicularis *Sm.*
sotnia *Sm.*
cona *Stkr.*
falerina Sm.
mercedes *B. and McD.*
dodi *McD.*
feniseca *Harv.*
conjuncta *Sm.*
aurulenta *Grt.*
ab. aurulentoides *Strand.*
latro *B. and B.*
detersa *Wlk.*
pitychrous Grt.
a personata *Morr.*
b azif *Stkr.*
intrita *Morr.*
form. strigilis *Grt.*
titubatis Sm.
form. reuda *Stkr.*
a alticola *Sm.*
rufula *Sm.*
a basiflava *Sm.*
infracta *Morr.*
rubefactalis Grt.
infausta *Wlk.*
numa Stkr.
micronyx *Grt.*
satis *Harv.*
sponsa *Sm.*
holoberba *Sm.*
obscura *Hill.*
bicollaris *Grt.*
loya Sm.
monteclara Sm.
perfusca *Grt.*
a compressipennis *Sm.*
b cocklei *Sm.*
excogita *Sm.*
selenis *Sm.*
claromonta Sm.
immixta *Grt.*
punctigera *Wlk.*
pastoralis Grt.
perpolita *Morr.*
exculta *Sm.*
a criddlei *Sm.*
stigmatalis *Sm.*
a atrofusca *Sm.*
stygialis *B. and McD.*
velleripennis *Grt.*
scandens *Riley*
elata Sm.
acornis *Sm.*
♀ *megastigma* Sm.
form. testula *Sm.*
taura *Sm.*
alko *Stkr.*
sessile Sm.
termessa Sm.
naevula Sm.

choris *Harv.*
cogitans Sm.
achor Stkr.
nostra *Sm.*
pluralis *Grt.*
biformata *Sm.*
serricornis *Sm.*
a itodes *Sm.*
epictata Sm.
b tocoyae *Sm.*
tetrica *Sm.*
medialis *Sm.*
kerrvillei Sm.
a truva *Sm.*
b poncha *Sm.*
placida *B and McD.*
mimallonis *Grt.*
rufipennis Grt.
a gagates *Grt.*
form. caenis *Grt.*
muscosa Grt.
lenola Sm.
messoria *Harris.*
spissa Gn.
inextricata Wlk.
indirecta Wlk.
displiciens Wlk.
expulsa Wlk.
ordinata Wlk.
reticens Wlk.
cochrani Riley.
repentis G. and R.
confracta Morr.
ab. friabilis *Grt.*
a territorialis *Sm.*
fulda Sm.
septentrionalis *Wlk.*
incubita Sm.
relaxa Sm.
a inordita *B. and B.*
difformis *Sm.*
fuscigera *Grt.*
terrena *Sm.*
lagganae Sm.
scholastica *McD.*
brunneigera *Grt.*
ab. coloradensis *Strand.*
atropulverea *Sm.*
a ternaria *Sm.*
b masoni *Ckll.*
setonia *McD.*
bifasciata *Sm.*
fumalis *Grt.*
permunda Morr.
a vestitura *Sm.*
ontario *Sm.*
comosa *Morr.*
quinquelinea *Sm.*
a lutulenta *Sm.*
b incallida *Sm.*
lucida *B. and McD.*
vallus *Sm.*
macleani *McD.*
bostoniensis *Grt.*
vulpina *Sm.*
quebecensis *Sm.*
a dolens *Sm.*
b quinta *Sm.*
c moxa *Sm.*
dakota *Sm.*

lineifrons *Sm.*
audentis Sm.
annir *Stkr.*
oncocnemoides *B. and B.*
cincta *B. and B.*
annulipes *Sm.*
pedalis *Sm.*
teleboa *Sm.*
recticincta *Sm.*
murdocki *Sm.*
tessellata *Harris*
insignata Wlk.
illata Wlk.
maisi Fitch.
insulsa Wlk.
subsignata Wlk.
parlentans Wlk.
nigricans Riley.
a atropurpurea *Grt.*
finis Sm.
b nordica *Sm.*
c flaviscapula *Sm.*
d tesselloides *Grt.*
ncotelis Sm.
objurgata Sm.
cariosa Sm.
focina Sm.
laminis Sm.
form. acutifrons *Sm.*
remota *Sm.*
intrusa *Sm.*
esta *Sm.*
atomaris *Sm.*
a detesta *Sm.*
abnormis *Sm.*
noctuiformis *Sm.*
pleuritica *Grt.*
pestula *Sm.*
declarata *Wlk.*
decolor Morr.
campestris *Grt.*
verticalis *Grt.*
a spectanda *Sm.*
albipennis *Grt.*
♀ *nigripennis* Grt.
a malis *Sm.*
form. indensa *Sm.*
b bialba *Sm.*
lillooet *McD.*
colata *Grt.*
lewisi *Grt.*
trifasciata *Sm.*
extranea *Sm.*
mollis *Wlk.*
fernaldi Morr.
drewseni *Staud.*
luteosita *Sm.*
dissona *Moesch.*
form. opipara *Morr.*
labradoriensis Staud.
munis *Grt.*
sublatis Grt.
rena *Sm.*
a cervinea *Sm.*
divergens *Wlk.*
versipellis Grt.
ab. fusimacula *Sm.*
a abar *Stkr.*
factoris Sm.
b caesia *Sm.*

cinnabarina *B. and McD.*
henrietta *Sm.*
form. adusta *B. and McD.*
delicata *B. and McD.*
obeliscoides *Gn.*
sexatilis Grt.
form. infusa *Sm.*
redimicula *Morr.*
ab. servita *Sm.*
costata *Grt.*
a idahoensis *Grt.*
furtiva Sm.
clausa *McD.*
westermanni *Staud.*
a polaris *B. Haas.*
foeminalis *Sm.*
basalis *Grt.*
solitaria *Sm.*
ochrogaster *Gn.*
turris Grt.
form. insignata *Wlk.*
cinereomacula Morr.
form. gularis *Grt.*
excellens *Grt.*
perexcellens Grt.
a infelix *Sm.*
atrifera *Grt.*
pindar Sm.
silens *Grt.*
pimensis *B. and McD.*
tristicula *Morr.*
form. nesilens *Sm.*
brocha *Morr.*
bochus Morr.
sculptilis *Harv.*
xyliniformis Sm.
violaris *G. and R.*
vetusta *Wlk.*
tetra Wlk.
euroides Grt.
perpura Morr.

Chorizagrotis Sm.

auxiliaris *Grt.*
form. introferens *Grt.*
form. sorror *Sm.*
form. agrestis *Grt.*
mecenaria Grt.
form. tegularis *Strand.*
inconcinna *Harv.*
differens Druce.
thanatologia *Dyar.*
form. sordida *Sm.*
form. boretha *Sm.*
form. perfida *Dod.*
terrealis *Grt.*

Protexarnis McD.

balanitis *Grt.*

Loxagrotis McD.

proclivis *Sm.*
oaxacana Schaus.
neoclivis *B. and B.*
apicalis *Grt.*
acclivis *Morr.*
a opaca *Harv.*
serano *Sm.*
salina *Barnes.*
arabella Dyar.
capota *Sm.*
albicosta *Sm.*
socorro *Barnes.*
form. pampolycala *Dyar.*

Pseudoseptis McD

grandipennis *Grt.*
? jalapa Hamp.

Pseudorthosia Grt.

variabilis *Grt.*
a pallidior *Ckll.*

Trichosilia Hamp.

acarnea *Sm.*

Richia Grt.

chortalis *Harv.*
form. aratrix *Harv.*
parentalis *Grt.*
form. decipiens *Grt.*
distichoides *Grt.*
lobato *Barnes.*
hahama Dyar.

Onychagrotis Hamp.

rileyana *Morr.*

Eucoptocnemis Grt.

fimbriaris *Gn.*
obvia Wlk.
form. sordida *Grt.*
tripars *Wlk.*
worthingtoni Grt.
dapsilis *Grt.*

Proragrotis McD.

longidens *Sm.*

Agrotis Ochs.

vetusta *Wlk.*
muraenula G. and R.
a catenuloides *Sm.*
b mutata *B.* and *B.*
daedalus *Sm.*
dolli *Grt.*
orthogonia *Morr.*
a delorata *Sm.*
b duae *B. and B.*
patula *Wlk.*
septentrionalis Moesch.
gladiaria *Wlk.*
morrisoniana Riley.
robustior *Sm.*
venerabilis *Wlk.*
a arida *Ckll.*
vancouverensis *Grt.*
hortulana Morr.
agilis Grt.

a semiclarata *Grt.*
gravis *Grt.*
vapularis Grt.
musa *Sm.*
atha *Stkr.*
aeneipennis *Grt.*
clodiana Grt.
volubilis *Harv.*
stigmosa Morr.
form. dentilinea *Sm.*
obliqua *Sm.*
malefida *Gn.*
inspinosa Gn.
consulta Wlk.
ypsilon *Rott.*
suffusa Schiff.
telifera Harr.
manifesta *Morr.*
impingens Dyar.

Feltia Wlk

ducens *Wlk.*
radiata Harr.
hudsoni *Sm.*
evanidalis *Grt.*
subgothica *Haw.*
aculifera Gn.
tricosa Lint.
herilis *Grt.*
pectinicornis *Sm.*
edentata *Sm.*
annexa *Treit.*
anteposita Gn.
decernens Wlk.
geniculata *G. and R.*

Actebia Steph.

fennica *Tausch.*
intracta Wlk.
larga *Sm.*

Protogygia McD.

lagena *Grt.*
querula *Dod.*
polingi *B. and B.*
milleri *Grt.*
biclavis *Grt.*
demutabilis Sm.
elevata *Sm.*
terrifica Sm.

Spaelotis Bdv.

clandestina *Harr.*
unicolor Wlk.
nigriceps Wlk.
havilae *Grt.*

Choephora Grt.

fungorum *G. and R.*

Eurois Hbn.

occulta *Linn.*
astricta *Morr.*
a subjugata *Dyar.*

b elenae *B. and B.*
nigra *Sm.*
docilis *Grt.*
ingeniculata Sm.
praefixa *Morr.*

Ochropleura Hbn.

plecta *Linn.*
vicaria Wlk.

Anicla Grt.

infecta *Ochs.*
incivis Gn.
alabamae Grt.

Euagrotis McD.

lubricans *Gn.*
spreta Sm.
associans Wlk.
illapsa Wlk.
beata *Grt.*
exuberans *Sm.*
bairdi *Sm.*
simplicia *Morr.*
simplaria Morr.
digna *Morr.*
nigrovittata Grt.
tenuescens *Sm.*
tepperi *Sm.*
atricincta Sm.

Hemieuxoa McD.

rudens *Harv.*
form. pellucidalis *Grt.*

Metalepsis Grt.

cornuta *Grt.*
fishi *Grt.*
salicarum *Wlk.*
claviformis Morr.
orilliana Grt.

Cerastis Ochs.

tenebrifera *Wlk.*
catherina Grt.
manifestolabes Morr.

Peridroma Hbn.

margaritosa *Haw.*
inermis Harr.
form. saucia *Hbn.*

Hemipachnobia McD.

monochromatea *Morr.*

Paradiarsia McD.

littoralis *Pack.*
a pectinata *Sm.*
ferruginoides Sm.

Pseudospaelotis McD.

haruspica *Grt.*
‡ *unimacula* Morr.
grandis Speyer.
a sierrae *Harv.*
b inopinatus *Sm.*

Caradrina Ochs.

quadrangula *Zett.*
rava H. S.
umbratus Pack.
a clemens *Sm.*

Chersotis Bdv.

juncta *Grt.*
a patefacta *Sm.*

Heptagrotis McD.

phyllophora *Grt.*

Diarsia Hbn.

calgary *Sm.*
cynica *Sm.*
a perumbrosa *Dyar.*
‡ *umbrosa* Dyar.
rubifera *Grt.*
ab. perversa *Strand.*
dislocata *Sm.*
jucunda *Wlk.*
perconflua Grt.
eriensis Grt.
esurialis *Grt.*
hospitalis *Grt.*
rosaria *Grt.*

Graphiphora Ochs.

*
c-nigrum *Linn.*
smithi *Snell.*
baja Auct.
normaniana *Grt.*
obtusa Speyer.
ditrapezium *Schiff.*
tristigma Treit.
conchis *Grt.*
trumani *Sm.*
oblata *Morr.*
hilliana Harv.
**
substrigata *Sm.*
cinerascens *Sm.*
***
badinodis *Grt.*
collaris *G. and R.*
****
bicarnea *Gn.*
plagiata Wlk.
flavotincta *Sm.*
a evelynae *B. and B.*
tenuicula *Morr.*
treatii Grt.
opacifrons *Grt.*

Pachnobia Gn.

tecta *Hbn.*
carnea Auct.
a roosta *Sm.*
wockei *Moesch.*
scropulana *Morr.*
moeschleri Bang-Haas.
okakensis *Pack.*
cinerea Staud.

Setagrotis Sm.

planifrons *Sm.*
cinereicollis *Grt.*
pallidicollis Grt.
congrua Sm.
a vocalis *Grt.*
form. invenusta *Grt.*
radiatus *Sm.*
radiola Hamp.
atrifrons *Grt.*
piscipellis *Grt.*
a amia *Dyar.*
b exculpatrix *Dyar.*
c corrodera *Sm.*
d cinibarina *Hill.*
fortiter *B. and McD.*

Anomogyna Staud.

*
atrata *Morr.*
a yukona *McD.*
sincera *H. S.*
speciosa *Hbn.*
perquiritata Morr.
baileyana Grt.
a arctica *Zett.*
b mixta *Wlk.*
laetabilis *Zett.*
livalis *Sm.*
beddeki *Hamp.*
a partita *McD.*
homogena *McD.*
imperita *Hbn.*
arufa *Sm.*
occidens *Hamp.*
**
youngi *Sm.*
elimata *Gn.*
a dilucida *Morr.*
b badicollis *Grt.*
c janualis *Grt.*
grisatra *Sm.*
atoma *Sm.*
***
infimatis *Grt.*
a dernarius *Sm.*
vernilis *Grt.*
filiis Sm.

Trichagrotis McD.

spinosa *B. and McD.*

Trichofeltia McD.

circumdata *Grt.*

Trichorthosia Grt.

parallela *Grt.*
terminatissima Dyar.

Mimobarathra B. and McD.

antonito *Barnes*

Adelphagrotis Sm.

stellaris *Grt.*
quarta *Grt.*
indeterminata *Wlk.*
washingtoniensis Grt.
a innotabilis *Grt.*

Aplectoides Butl.

condita *Gn.*
trabalis Grt.

Anaplectoides McD.

pressus *Grt.*
a fales *Sm.*
b discolor *Sm.*
c abbea *Sm.*
prasina *Schiff.*
herbacea Gn.

Protolampra McD.

rufipectus *Morr.*
brunneicollis *Grt.*
hero *Morr.*

Pseudoglaea Grt.

olivata *Harv.*
blanda Grt.
taedata Grt.
decepta Grt.

Cryptocala Benj.

acadiensis *Beth.*
gilvipennis Grt.

Eueretagrotis Sm.

sigmoides *Gn.*
perattenta *Grt.*
attenta *Grt.*
inattenta *Sm.*

Hemigraphiphora McD.

plebeia *Sm.*

Abagrotis Sm.

erratica *Sm.*
a ornatus *Sm.*
alcandola *Sm.*
tristis B. and McD.
bimarginalis *Grt.*
vittifrons *Grt.*
nanalis *Grt.*
mantalini Sm.
mirabilis *Grt.*
apposita *Grt.*
discoidalis *Grt.*
trigona *Sm.*
sambo *Sm.*
dodi *McD.*
turbulenta *McD.*
placida *Grt.*
form. minimalis *Grt.*
barnesi *Benj.*
form. nevadensis *Benj.*
forbesi *Benj.*
duanca *Sm.*
nefascia *Sm.*
variata *Grt.*
varix Grt.
ab. orbis *Grt.*
ab. orbitis *Strand.*
scopeops *Dyar.*
pulchrata *Blkmre.*
alternata *Grt.*
ab. alternatella *Strand.*
ab. uniformis *Strand.*

Rhynchagrotis Sm.

cupida *Grt.*
velata Wlk.
form. brunneipennis *Grt.*
belfragei *Sm.*
anchocelioides *Gn.*
exsertistigma *Morr.*
form. oberservabilis *Grt.*
form. formalis *Grt.*
form. facula *Grt.*
form. niger *Sm.*
form. meta *Sm.*
form. emarginata *Grt.*
inelegans Sm.
faculana Strand.[1]
form. carissima *Harv.*
form. cupidissima *Grt.*
ab. laetula *Grt.*
distracta Sm.
form. morrisonistigma *Grt.*
binominalis Sm.
crenulata Sm.
insularis *Grt.*
form. confusa *Sm.*

Pronoctua Sm.

typica *Sm.*
pyrophiloides *Harv.*
a peabodyae *Dyar.*

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[1] *faculoides* Strand. and *faculella* Strand., as well as Strand's other aberrations under *Abagrotis*, cannot be placed until British Museum material has been carefully studied.